

Chairman Rand Paul, M.D.

U.S. SENATE COMMITTEE ON HOMELAND SECURITY & GOVERNMENT AFFAIRS

NEWLY RELEASED DOCUMENTS SHOW PROXIMAL ORIGIN AUTHORS PRIVATELY DOUBTED THEIR OWN PAPER AND GRAPPLED WITH DEFUSE PROPOSAL

What is the Proximal Origin Paper?

The paper “The Proximal Origin of SARS-CoV-2” was published in *Nature Medicine* on March 17, 2020, seeking to clarify the origins of the ongoing pandemic. That paper, now one of the most cited academic papers in history, asserted that “any type of lab-based scenario” wasn’t “plausible.”

ACKNOWLEDGED AUTHORS: Kristian Andersen, Andrew Rambaut, Ian Lipkin, Eddie Holmes, Bob Garry

UNACKNOWLEDGED AUTHORS: Anthony Fauci, Francis Collins, Jeremy Farrar

The Proximal Origin authors privately put the odds of a lab origin as high as 30%, months after telling the public it wasn’t plausible.

In June 2020, Andersen and Holmes closed a discussion by exchanging confidence intervals for a bat versus lab origin. **Andersen assessed 70/30 bat/lab. Holmes put it at 80/20, then 90/10.** These were private assessments, exchanged months after the paper told the public a lab origin was not plausible.

Kristian Andersen walked back the paper’s central conclusion and conceded the paper’s arguments were failing.

In June 2020, Andersen wrote: **“Our paper was pretty strong in saying ‘there’s no way’, but I have less confidence in that statement at this stage.”** The paper argued manipulation was implausible, but after German scientists built a reverse-genetics system for SARS-CoV-2 in under two weeks, Andersen wrote **“clearly it’s not that hard.”** He also admitted the paper misstated a fact about the bat-coronavirus culturing at the center of the origins question: **“We describe this in the paper and say that this work is performed ‘all of the world’, but that isn’t true – it has exclusively been going on at WIV.”**

What is the DARPA DEFUSE Proposal?

DEFUSE was a 2018 grant proposal, submitted by Peter Daszak of EcoHealth Alliance with Zhengli Shi of the Wuhan Institute of Virology and Ralph Baric of University of North Carolina, that proposed inserting furin cleavage sites into SARS-related bat coronaviruses. The furin cleavage site is a feature in SARS-CoV-2’s spike protein that enhances how efficiently the virus enters human cells, and its presence became one of the central reasons many scientists suspected the virus had been engineered. In September 2021, the DEFUSE proposal was made public after a whistleblower complaint was leaked.

DEFUSE TEAM: Peter Daszak, Ralph Baric, Zhengli Shi, Linfa Wang, Tonie Rocke, Jerome Unidad

The leaked DARPA DEFUSE proposal triggered alarm among the Proximal Origin authors.

When the proposal surfaced, its overlap with the defining characteristic of SARS-CoV-2 was not lost on the Proximal Origin authors. Andrew Rambaut wrote: **“it really isn’t beyond plausibility that someone went ahead and tried some of this stuff. We just need to re-convince ourselves it is coincidence.”** Andersen replied: **“that’s the problem. There’s a big difference between ‘the lab was working on bat CoVs’ to ‘the lab was modifying bat CoVs using features we see being unique to SC2.’”**

Faced with the DEFUSE problem, the authors quickly took actions to coverup the coverup.

As they reopened their analysis, the authors discussed the discoverability of their own communications. Rambaut: “And stay off email,” then, moments later, **“Or carefully curate some emails for the FOI records.”** Rambaut also proposed a call to discuss “what our strategy should be so we don’t get associated with these fuckers,” referring to what he called **“the Baric/Daszak shitshow.”** Andersen agreed, adding: **“I also need to get something back to Tony’s team at NIH.”**

[Eddie Holmes]

Yes, both are in the wrong. For China, I think it's a large part about saving face and the perceived shame of being the place where the outbreak started. It has seriously weakened their global standing so they are trying to change the narrative to sow uncertainty around this. Plus the CCP are clearly control freaks: they have to control every message. The word 'SARS' is just toxic to them. The China CDC *are* guilty of bungling the early response to this...but that's cock-up, not conspiracy.

[2020-04-30 16:09:46]

[Eddie Holmes]

Really interested to see this Norwegian/St. Georges thing.

[2020-04-30 16:23:34]

[Eddie Holmes]

Coronavirus US live: intelligence report concludes Covid-19 was not 'manmade or genetically modified' https://www.theguardian.com/world/live/2020/apr/30/coronavirus-us-live-federal-guidelines-social-distancing-expire-trump-cuomo-latest-news-updates?CMP=share_btn_tw&page=with:block-5eab41b68f08f76ffc19f175#block-5eab41b68f08f76ffc19f175

[2020-04-30 16:36:52]

[Eddie Holmes]

<https://www.bbc.com/news/world-us-canada-52496098>

[2020-04-30 16:43:14]

[Kristian Andersen]

Yes yes, but our Great Leader sets the record straight with some clear language. [shared file(s): Screen Shot 2020-04-30 at 4.41.45 PM.png]

[2020-04-30 19:59:31]

[Eddie Holmes]

Parsimony? I thought that was extinct.

[2020-04-30 23:23:41]

[Andrew Rambaut]

Shit. This is Sheffield who are part of our sequencing consortium.

[2020-04-30 23:41:53]

[Eddie Holmes]

"S943P is located in the fusion core region, and is of particular interest as it is spreading via recombination".
:thinking_face:

[2020-04-30 23:46:12]

[Andrew Rambaut]

What?!

[2020-04-30 23:46:40]

[Andrew Rambaut]

Brian Foley's hand probably.

[2020-05-01 01:14:53]

[Andrew Rambaut]

That mutation is in the Belgium sequences and they have a number of mutations which are probably spurious and the product of the sequencing (which is being done by someone who is notorious for doing really dumb things with nanopore sequences).

[2020-05-01 02:26:26]

[Eddie Holmes]

I don't follow - "The mutation Spike D614G is of urgent concern". Frankly, my concern over the virus has not really changed one jot over this mutation. D614 was associated with a huge epidemic in China that was only controlled through a severe lockdown and don't see any difference in G614.

[2020-05-01 02:51:12]

[Andrew Rambaut]

Yes. It is bollocks. Looking at the Sheffield clinical data too - very weak. We are preparing a rebuttal based on the UK data. This paper will be going to Science I would imagine. Would be good to rebut it before review.

[2020-05-01 02:58:03]

[Eddie Holmes]

[thread - ID: 2020-05-01 02:58:03]

Cell I believe. Get your retaliation in first. Excellent.

[2020-05-01 03:00:42]

[Eddie Holmes]

This one is a corker. I noticed it because MaRNAV-1 is my Plasmodium narnavirus of which I am very proud. No need to read beyond the 3rd paragraph of the Abstract: [shared file(s): Mehta2020.pdf]

[2020-05-01 04:53:22]

[Robert Garry]

From Korber2020 "Thus, this mutation might be conferring resistance to protective D614-directed antibody responses in infected people, making them more susceptible to reinfection with the newer G614 form of the virus. Alternatively, the advantage might be related to the fact that D614 is embedded in an immunodominant ADE epitope of SARS-CoV (Wang et al., 2016), and perhaps the G614 form can facilitate ADE." This part is "bollocks." Reinfection - not happening. ADE during a primary infection? There are indeed some "funny" things about the antibody responses to NCoV-19, but this is way way out on a very thin limb.

[2020-05-01 07:49:21]

[Andrew Rambaut]

UK clusters by duration: [shared file(s): image.png]

[2020-05-01 07:50:08]

[Andrew Rambaut]

and numbers of sequences: [shared file(s): image.png]

[2020-05-01 07:51:05]

[Andrew Rambaut]

[thread - ID: 2020-05-01 02:58:03]

@Eddie Holmes Yes. Funny that - just got it to review. Will turn it down (on the basis I am already writing a rebuttal to their preprint).

[2020-05-01 08:23:13]

[Kristian Andersen]

Clearly no difference...

[2020-05-01 08:26:59]

[Andrew Rambaut]

``Ref.: Ms. No. THEIJID-D-20-01291

The 5' UTR of SARS-CoV-2 seems to be genetically unique; implications for improved molecular diagnostics and treatment strategies
International Journal of Infectious Diseases

Dear Professor Rambaut,

You may remember that on 22 Apr 2020 I asked if you would be able to review the above manuscript for us. I have

not yet heard from you and would ask you to let us know as soon as possible whether or not you will be able to do this for us.

The manuscript abstract appears below.

In our paper we describe some unusual characteristics of the regulatory 5' UTR sequences of SARS-CoV-2 that might imply its non-natural origin. Moreover, we have developed and internally validated a robust, sensitive and specific quantitative Real-Time PCR assay targeting this very unique part of the SARS-CoV-2 genome, which we have been using for routine diagnostics instead of the original, N gene targeting protocol; our 5' UTR-targeting protocol can be found in the Supplementary material of this paper. We are also discussing possible therapeutic implications of this finding – especially RNA interference and direct knock-out of the unique 5' UTR regulatory sequences of the SARS-CoV-2 virus, which, due to the high replication (and error) rate of SARS-CoV-2 might be superior to the development of conventional immunogenic vaccines and might be an interesting idea to pursue.`` 5' UTR apparently has a non-natural origin.

[2020-05-01 09:23:06]

[Kristian Andersen]

Oh, okay - I guess we were totally wrong all the time then. Should we just go ahead and retract our paper?

[2020-05-01 09:27:55]

[Andrew Rambaut]

Should just reply to the editor - 'Did you read our paper at all'.

[2020-05-01 13:08:11]

[Kristian Andersen]

Does anybody have access? <https://www.google.com/url?rct=j&sa=t&url=https://www.washingtonpost.com/politics/2020/05/01/was-new-coronavirus-accidentally-released-wuhan-lab-its-doubtful/&ct=ga&cd=CAEYACoTMzI1ODA3ODQwNTYyMjEyNzQxOTIaYzJjMjMyMDI0NjFjMjMyODpjb206ZW46VVM&usg=AFQjCNHzDagpeqeWk3d4vP-rR127unjoYQ>

[2020-05-01 13:13:24]

[Andrew Rambaut]

shared file(s): Was_the_new_coronavirus_accidentally_released_from_a_Wuhan_lab__It__s_doubtful_

[2020-05-01 13:19:29]

[Andrew Rambaut]

<https://www.cell.com/pb-assets/products/coronavirus/immuni4362.pdf>

[2020-05-01 13:45:22]

[Robert Garry]

Maybe I'm a bit harsh but reads kinda like a high school "book report." Maybe a C+ grade.

[2020-05-01 14:03:32]

[Kristian Andersen]

What is this? A paper or some sort of commentary?

[2020-05-01 14:05:30]

[Andrew Rambaut]

It is weird. It is kind of saying 'we knew all this and could have said it but couldn't be bothered'.

[2020-05-01 14:06:29]

[Kristian Andersen]

That would be something Ralph would do

[2020-05-01 14:23:37]

[Robert Garry]

AS for the Wash Post - Good job Eddie and Kristian - watched the video - will likely keep the lab escape hypothesis alive for longer - 50K

[2020-05-01 14:31:08]

[Kristian Andersen]

There's a video?

[2020-05-01 14:38:36]

[Robert Garry]

<https://www.washingtonpost.com/politics/2020/05/01/was-new-coronavirus-accidentally-released-wuhan-lab-its-doubtful/>

[2020-05-01 14:39:54]

[Robert Garry]

Yes

[2020-05-01 14:40:38]

[Robert Garry]

Rasmussen, Daszak several others I don't recognize.

[2020-05-01 15:58:27]

[Eddie Holmes]

I've never emailed the Washington Post. That must come from an email that I sent to my press officer who then forwarded to them. I need to correct the [REDACTED] story. Nonsense.

[2020-05-01 16:05:21]

[Kristian Andersen]

I don't remember talking to these journalists either...

[2020-05-01 16:08:48]

[Kristian Andersen]

The video is pretty fucking terrible. Ending on "how unusual/remarkable is it that there's a lab working on bat coronaviruses exactly where an outbreak of a coronavirus started"? How dumb are people exactly? Good old correlation, not causation. May I suggest an alternative explanation - they're studying bat coronaviruses BECAUSE THERE ARE A LOT OF BAT CORONAVIRUSES AROUND THERE. Which, I don't know, in combination with wet markets and the like might increase the risk of an outbreak from a bat coronaviruses.

We need an actual razor in Occam's razor.

[2020-05-01 16:12:08]

[Eddie Holmes]

Yes, it's shite. That Baric paper is also really weird. Reads to me that they are pissed off that they were not involved in our paper and so want to get in on the act.

[2020-05-01 16:16:53]

[Kristian Andersen]

Now I need to ready Ralph's paper too...

[2020-05-01 16:20:33]

[Eddie Holmes]

What proportion of your day is spent dealing with bollocks? Scientific bollocks I should add.

[2020-05-01 16:23:25]

[Kristian Andersen]

Time spent on bollocks = 80%, of which scientific bollocks = 40%, bollock bollocks = 20%, and bollocks scientists = 20%

[2020-05-01 16:25:57]

[Eddie Holmes]

Mine is very similar, although I probably have 30% bollocks bollocks and 10% bollocks scientists.

[2020-05-01 16:27:33]

[Kristian Andersen]

I have another 50% bollocks bollocks coming in, but I ignore all of those, so don't need to spend too much time on it. Plus bollocks bollocks my assistant responds to while journalistic bollocks our comms department takes care of. Leaving only 80% of bollocks to deal with.

[2020-05-01 16:28:56]

[Eddie Holmes]

Oh, I'm impressed/jealous - seems you have decent bollocks wall in place. I have to deal with all bollocks myself.

[2020-05-01 16:30:08]

[Kristian Andersen]

Yeah, firewalls and bollockswalls were needed pretty quickly. Still need the wall though. Or not.

[2020-05-01 16:30:47]

[Kristian Andersen]

Baric's paper IS really strange - I think he's just miffed because a bunch of amateurs came walking all over his turf.

[2020-05-01 16:31:13]

[Eddie Holmes]

Exactly how I read it.

[2020-05-01 16:32:01]

[Kristian Andersen]

I also had a pretty heated discussion with him on one of the WH committee calls where I mentioned that the RBD would probably lead to high affinity binding and the furin site being active. He essentially said that was all bullshit and I couldn't possibly know... Well.

[2020-05-01 16:32:54]

[Kristian Andersen]

[this was early January]

[2020-05-01 16:33:34]

[Eddie Holmes]

We actually did him a MASSIVE favour in writing that article. He would be really in the cross-hairs without it.

[2020-05-01 16:34:20]

[Kristian Andersen]

No shit. In fact, one of his co-authors on the 2015 paper emailed me yesterday thanking us for the paper. He's just a grump - you know the type.

[2020-05-01 16:34:49]

[Eddie Holmes]

Yes, I know the type.

[2020-05-02 05:41:41]

[Robert Garry]

oppps...."One *Nature Medicine paper* further indicated that the pandemic virus shows no signs of having been engineered by scientists, another contention of conspiracy theorists. For one thing, although the researchers note that though the virus binds to a human cellular receptor to initiate an infection, that interaction is not optimal, "strong evidence that SARS-CoV-2 is not the product of purposeful manipulation," they write."

[2020-05-02 05:41:46]

[Robert Garry]

<https://www.sciencemag.org/news/2020/04/nih-s-axing-bat-coronavirus-grant-horrible-precedent-and-might-break-rules-critics-say?fbclid=IwAR3PTMVfjRLD4JmgU77URppHGHPb92o3zYT9nIspa5GwQNjq60TAIrPHrLI>

[2020-05-02 06:50:45]

[Robert Garry]

They grabbed the preprint version.

[2020-05-02 12:37:27]

[Robert Garry]

<https://www.sciencedirect.com/science/article/pii/S1097276520302641#bib10>

[2020-05-02 12:49:16]

[Kristian Andersen]

Let's get some of those furin inhibitors online

[2020-05-02 12:50:01]

[Kristian Andersen]

Speaking of furin - Bob, your old buddy is on the Virological again and it's a pretty nice theory for how the furin site was acquired in bats - just need to add a little extra divergence and there you have it:

<http://virological.org/t/tackling-rumors-of-a-suspicious-origin-of-ncov2019/384/3>

[2020-05-02 13:32:38]

[Robert Garry]

> Yeah - something along those lines may well have happened. More bat viruses with "insertions/deletions" in the S1/S2 junction have to be out there. MERS-CoV actually pretty close. Furthermore, I have a link to some CoV PCR-positive bat samples from the Amazon (the rainforest, not the on-line megastore) - assume you're interested? Yes passaging in Vero's with and without trypsin important - trying to get hands on the Vero-TMPRSS cell line <https://www.pnas.org/content/pnas/117/13/7001.full.pdf> The S2" site of importance as well.

[2020-05-03 08:00:02]

[Kristian Andersen]

This cracked me up - from CBS 60 minutes:

"We have been working with Peter Daszak, president of EcoHealth Alliance, and looking at his effort to identify viral threats in the wild. Given the recent announcement of their cut in funding, we're looking to speak with someone in the scientific community *who has used EcoHealth Alliance's data and sequences from samples in their own work* and can speak to the importance of this type of field research""

Hah - what data exactly? There is no data...

[2020-05-03 08:17:14]

[Robert Garry]

Yes - but 60 minutes - - big rating - mention Nature Medicine - 50K

[2020-05-03 08:22:35]

[Kristian Andersen]

I have talked to them previously - was disappointed by their lack of knowledge...

[2020-05-03 16:21:02]

[Eddie Holmes]

Mike Pompeo. What the fuck is he on?

[2020-05-03 16:21:35]

[Eddie Holmes]

If this continues to escalate might need to go into witness protection.

[2020-05-03 17:07:44]

[Kristian Andersen]

So much bullshit!

[2020-05-03 20:55:34]

[Eddie Holmes]

Forster is now involved. So complex....https://www.theguardian.com/world/2020/may/01/could-covid-19-be-manmade-what-we-know-about-origins-trump-chinese-lab-coronavirus?CMP=share_btn_tw

[2020-05-04 04:21:47]

[Robert Garry]

<https://www.dailytelegraph.com.au/coronavirus/bombshell-dossier-lays-out-case-against-chinese-bat-virus-program/news-story/55add857058731c9c71c0e96ad17da60>

[2020-05-04 04:32:33]

[Robert Garry]

<https://www.nytimes.com/2020/05/03/us/politics/coronavirus-pompeo-wuhan-china-lab.html>

[2020-05-04 04:38:23]

[Robert Garry]

This is what pissed them off:

[2020-05-04 04:38:28]

[Robert Garry]

<https://twitter.com/XHNews/status/1255734356728922113>

[2020-05-04 04:56:26]

[Robert Garry]

"What the fuck is he on?"

[2020-05-04 04:57:11]

[Robert Garry]

Trust me on this one -it's cheeseburgers.

[2020-05-04 06:45:44]

[Robert Garry]

<https://www.nytimes.com/2020/05/02/opinion/sunday/coronavirus-prediction-laurie-garrett.html> I perceive a little pushback in the science writers' community on this one...

[2020-05-04 13:42:21]

[Kristian Andersen]

A good thread on D614G: <https://twitter.com/HaraldRingbauer/status/1256984938919997441?s=20>

[2020-05-04 16:01:46]

[Eddie Holmes]

Let's hope the reviewers see this. That's the great thing about bioRxiv - if you're a reviewer you can get most of it done just by following a few threads on Twitter.

[2020-05-04 16:07:09]

[Robert Garry]

Eddie - I've been asked to do an interview with one of your local TV stations. I'm guessing Kristian turned them down. Too bad I think with Kristian as our "face" we could get to 50K pretty fast.

[2020-05-04 16:11:56]

[Kristian Andersen]

It seems our score might have hit a plateau - similar to the US COVID-19 curve... Talking to the House tomorrow - that might ultimately lead to a boost.

[2020-05-04 16:12:46]

[Eddie Holmes]

Which TV station is that? I turn down everything.

[2020-05-04 16:14:51]

[Robert Garry]

that what i figured - i look it up...

[2020-05-04 16:15:15]

[Kristian Andersen]

ABC... TV AND radio - on a Sunday! I don't work on shabbat!!!

[2020-05-04 16:15:51]

[Eddie Holmes]

Oh the ABC are ok. The BBC equivalent.

[2020-05-04 16:20:56]

[Kristian Andersen]

From this otherwise excellent overview - wtf?? [shared file(s): Screen Shot 2020-05-04 at 4.19.57 PM.png]

[2020-05-04 16:20:59]

[Kristian Andersen]

<https://media.nature.com/original/magazine-assets/d41586-020-01315-7/d41586-020-01315-7.pdf>

[2020-05-04 16:21:39]

[Kristian Andersen]

Do people honestly think magic will save us?

Several good quotes by Bob and Andrew though :wink:

[2020-05-04 16:30:49]

[Eddie Holmes]

I'm 100% certain he said a lot more than that - and was very reasonable - but the journo has just picked specific quotes and chosen the context. That particularly Nature reporter has form and I refuse to talk to him.

[2020-05-04 16:54:36]

[Robert Garry]

Yes - but the article also says that OC43 caused the 1898 Russian flu. I thought it was H3N8. Is this true about OC43 or don't we know. OC43 has a furin site and O-glycans.

[2020-05-04 16:56:01]

[Eddie Holmes]

There can't be any evidence it is OC43, surely?

[2020-05-04 17:03:56]

[Robert Garry]

circumstantial and speculation is all it seems.

[2020-05-04 17:11:57]

[Robert Garry]

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7112090/>

[2020-05-04 17:13:25]

[Robert Garry]

Drosten sorta comes out and says it too. "The emergence of HCoV-OC43 in humans was proposed to be linked to a host-switching event around the year 1890, a time that coincides with a pandemic of respiratory disease recorded in humans (Vijgen et al., 2005, 2006)."

[2020-05-04 17:13:43]

[Robert Garry]

OC43 is interesting...

[2020-05-04 18:23:48]

[Eddie Holmes]

This is great: <https://www.abc.net.au/mediawatch/episodes/batman/12213178>

[2020-05-04 19:04:26]

[Robert Garry]

excellent work Eddie

[2020-05-04 19:10:52]

[Eddie Holmes]

I had no idea that was coming and I did not talk to them: they just cobbled it together from other stuff I had said.

[2020-05-04 21:15:15]

[Kristian Andersen]

Nice. [shared file(s): Screen Shot 2020-05-04 at 9.14.47 PM.png]

[2020-05-04 21:16:57]

[Kristian Andersen]

And isn't it extremely telling that this exclusive interview with the top doctor in America is about SARS-CoV-2 not coming from the lab? As opposed to, hmmm, "Here's the plan for how to get America out of this mess"? I find this extremely ironic.

[2020-05-04 21:28:01]

[Eddie Holmes]

Very telling. What a pathetic blame game it all is right now.

[2020-05-04 21:30:19]

[Kristian Andersen]

Idiotic.

[2020-05-05 06:46:03]

[Andrew Rambaut]

Paul Sharp just pointed this out to me: <http://www.aidsorigins.com/static/>

(a blast from the past, @Eddie Holmes).

[2020-05-05 06:48:50]

[Andrew Rambaut]

`There will be more, either out there already or in the making`, I am not sure I said it quite so succinctly but I like it! Will quote myself on that.

[2020-05-05 07:16:45]

[Robert Garry]

A blast from the past indeed.

[2020-05-05 07:28:11]

[Robert Garry]

"Garry turned out to be an unexpectedly colourful character. We arranged to meet on a street corner in New Orleans, which was unusual, and he left me standing there in near-40 ° heat for more than half-an-hour. Finally I returned to my hotel room to take a shower, only for him to knock on my door 5 minutes later, to say that he had been watching me from his car, and that this had been a necessary security measure. Days after my return to the UK, I phoned Garry to ask some follow-up questions, and he now claimed that some of the Western blots from Robert R. had been stolen from his lab, that this had happened around the time of my visit to New Orleans, and that he suspected me of involvement. I was flabbergasted, and quickly disavowed him of that notion." Two true statements in this revision of history. I admit to being rather colorful, and yes "someone" did break into my office and stole several old notebooks at just the time that Hooper was visiting NOLA. I never met him at his hotel room - he did show up at my office a few days before the "break-in" smelling like he had spent the day and night laying in a Bourbon street gutter. Maybe that's where the 40 degree heat came in. Very strange man - I think he's confusing me with someone else - I never wrote a Science about Chimp kidneys (that article is by Andrew Hillis). He's also somewhat right about the Robert R sequences - I never published a paper on the sequences (but stand behind the western blots and the antigen capture) because 1. the sequences from the old 3 foot Sanger gels just not that good and 2. I suspected the short runs we got they might have been contaminants too.

[2020-05-05 07:30:28]

[Robert Garry]

But - running afoul of Hooper - another great reason why I'm a big fan of Andrew and Eddie - good company to find myself in.

[2020-05-05 07:34:28]

[Robert Garry]

And Kristian welcome to this rather exclusive "club." Hooper write; "But for Kristian Andersen to claim that the work by his colleagues and himself "rules out" the lab origin theory, and for Josie Golding to claim that it "end[s] any speculation" along such lines, is clearly premature and inaccurate. There are no such disproofs. I believe that as it stands at present, the lab origin hypothesis is at least as plausible a hypothesis as that of origin from Wuhan bushmeat."

[2020-05-05 07:38:25]

[Robert Garry]

I am just left wondering why W. Ian Lipkin was spared in Hooper's a_d hominem_ rant. Surely he could have found something - somewhere - on Ian, if he just looked in the right place.

[2020-05-05 07:51:08]

[Kristian Andersen]

I'm really looking forward to reading this. And Bob - I gotta say, you _are_ an unexpectedly colourful character...

[2020-05-05 08:07:27]

[Andrew Rambaut]

Have you guys heard about this PCR positive case from December in France?

[2020-05-05 08:09:53]

[Kristian Andersen]

Yeah, I saw the article - seems unlikely. False positive?

[2020-05-05 08:15:27]

[Andrew Rambaut]

They have a +ve and -ve control. Label mix up?

[2020-05-05 08:15:42]

[Andrew Rambaut]

Need a sequence or it didn't happen

[2020-05-05 08:16:48]

[Robert Garry]

Sheri Fink wrote about a case in Cali n early Feb

[2020-05-05 08:17:04]

[Robert Garry]

<https://www.nytimes.com/2020/04/22/us/santa-clara-county-coronavirus-death.html>

[2020-05-05 08:29:03]

[Robert Garry]

Agree - need sequence - but High Ct value with the qPCR they show - may not be sequencable - yes could well be false positive or another CoV. They don't show the Gene finder® COVID19 Plus RealAmp kit result.

[2020-05-05 08:39:20]

[Andrew Rambaut]

Very high prior probability of being false +ve.

[2020-05-05 08:40:29]

[Andrew Rambaut]

Also if there was one, there were more. There would have been a big outbreak in France it would have seeded the rest of the world.

[2020-05-05 13:10:30]

[Andrew Rambaut]

@Eddie Holmes

<https://www.telegraph.co.uk/news/2020/05/05/exclusive-government-scientist-neil-ferguson-resigns-breaking/>

[2020-05-05 13:40:49]

[Robert Garry]

He seems like an expectedly colourful character.

[2020-05-05 14:07:50]

[Eddie Holmes]

I like the fact that he was called a tool by Elon Musk on Twitter.

[2020-05-05 14:09:19]

[Eddie Holmes]

The rabid right are loving this. I bet they'll be a story about him infecting Boris.

[2020-05-05 14:09:53]

[Eddie Holmes]

Oh, that French story is surely a false positive.

[2020-05-05 14:27:04]

[Eddie Holmes]

<https://twitter.com/LeaveEUOfficial/status/1257765160325963776?s=20>

[2020-05-05 15:50:19]

[Kristian Andersen]

Naughty Neil - love it. I guess Sage is now only down to Angry Andy?

[2020-05-05 16:15:01]

[Eddie Holmes]

I see the Korber paper is causing the stir as predicted...

[2020-05-05 16:22:09]

[Kristian Andersen]

Yup. As predictable as the number of cases in the US.

[2020-05-05 19:18:33]

[Robert Garry]

D614G is a rare CFTR mutation that give an atypical cystic fibrosis phenotype. How soon does this become an Internet conspiracy theory?

[2020-05-05 21:36:15]

[Eddie Holmes]

I see that Frankie Bollocks is now in on the act....top story on CNN (based on a paper in Infection, Genetics & Evolution).

[2020-05-05 21:40:16]

[Kristian Andersen]

Frankie Bollocks :rolling_on_the_floor_laughing:

[2020-05-05 21:46:14]

[Kristian Andersen]

Frankie Bollocks - I'm literally dying over here. It's so funny because it's so fitting. In any case - congratulations to him for a job 'well' done.

[2020-05-05 21:47:33]

[Eddie Holmes]

I know, it's so perfect. I have to admit that I got it from Bill Hanage though.

[2020-05-05 22:00:25]

[Kristian Andersen]

It is - he's very fond of himself. We need to come up with one for Bill himself though :wink:

[2020-05-06 02:00:09]

[Robert Garry]

""Our results are in line with previous estimates and point to all sequences sharing a common ancestor towards the end of 2019, supporting this as the period when SARS-CoV-2 jumped into its human host," the team wrote.

"It's very recent," Balloux said. "We are really, really, really confident that the host jump happened late last year."

[2020-05-06 02:37:21]

[Eddie Holmes]

I'm really, really, really sure that we knew that already.

[2020-05-06 07:34:26]

[Kristian Andersen]

Neil's getting quite the slamming in the news / on the Twitters. Yeah, he cocked up, but I'm not sure the UK is better off not having him be part of Sage...

[2020-05-06 09:18:43]

[Andrew Rambaut]

I agree. But I suspect it will just be in name only - he was always doing the modelling and reports as an academic group. I suspect that Azra Ghani or Crystl Donnelly will step into his place at the meetings.

[2020-05-06 09:42:14]

[Andrew Rambaut]

Boris Boffin

[2020-05-06 09:44:45]

[Kristian Andersen]

OMG

[2020-05-06 09:49:11]

[Robert Garry]

Sorry Kristian had to take a call from HuffPost (certainly another rebound).

[2020-05-06 09:50:34]

[Robert Garry]

Somehow following Andrew's post I find myself wishing that we had the same "quality" of tabloids here in the States as in the UK.

[2020-05-06 13:02:59]

[Andrew Rambaut]

I think Trevor had an analysis of D614G on the go <https://github.com/blab/ncov-D614G> and got scooped by Bette.

[2020-05-06 13:03:18]

[Andrew Rambaut]

By the way, my group has named D614G 'DouG' - D614 is 'Dougless')

[2020-05-06 13:23:07]

[Robert Garry]

Seems right. From the Urban dictionary: *doug*

1. *Noun*: The *external* male *genitalia*.

2. Noun: The penis.

The doctor said no more skinny jeans and *speedos* for me. If I want to be a father *some day*, I gotta let my doug fly free.

This new bicycle seat is *jamming* my doug!

#doug bunch#penis#male#genitalia

[2020-05-06 13:24:35]

[Andrew Rambaut]

This opens a whole new can of worms that I don't want to get into.

[2020-05-06 14:29:01]

[Kristian Andersen]

I like DouG - very good.

Also, if you want to waste some time and dive into the great world stupidity - some discussion about our paper starting ~21 mins here: <https://www.youtube.com/watch?v=uZUJhKUbd0k>

[2020-05-06 14:31:06]

[Kristian Andersen]

He's pretty darn good with a highlighter though. [shared file(s): Screen Shot 2020-05-06 at 2.30.17 PM.png]

[2020-05-06 15:26:47]

[Eddie Holmes]

I got lost after 'Honey badger virus' in the first 10 secs.

[2020-05-06 15:40:24]

[Eddie Holmes]

Here's another one for the collection: <https://www.youtube.com/watch?v=5wHzrYtV5lw&feature=youtu.be>

[2020-05-06 15:41:29]

[Eddie Holmes]

Some excellent youthful shots of Tony Fauci though.

[2020-05-06 16:13:51]

[Robert Garry]

<https://www.discovermagazine.com/health/chasing-the-shadow-virus-chronic-fatigue-syndrome-and-xmrp> I'm sure you all know this but Mikovits is the one who brought the world XMRV as the cause of chronic fatigue syndrome. Ian Lipkin (I've heard that name before) and also Charles Chiu to their credit are the one who did the debunking. Somewhere along the way Mikovits never learned that PCRs are prone to contamination (see my post above re Hooper). She do have the big hate for our boy Tony - wow - he be living her head rent-free.

[2020-05-06 17:14:21]

[Eddie Holmes]

Ah...I didn't make the connection. What a mess. There is a lot of shit about.

[2020-05-06 17:47:21]

[Kristian Andersen]

Such an obnoxious tweet from the editor - I am absolutely inundated with review requests (probably ~5 a day), so I totally agree with you Eddie. I can't even...

<https://twitter.com/edwardcholmes/status/1258192892734005248?s=20>

[2020-05-06 20:03:46]

[Eddie Holmes]

I think the local right-wing paper here (The Telegraph) are going to a run a story saying that I am in the pay of China which is why I am against the lab escape theory. Will get my lawyers ready...

[2020-05-06 20:13:00]

[Kristian Andersen]

Oh, how fun - "Eager Eddie" on the front page with tons of monies floating around.
:heavy_dollar_sign::heavy_dollar_sign::heavy_dollar_sign::heavy_dollar_sign::heavy_dollar_sign:

[2020-05-06 20:13:31]

[Kristian Andersen]

... that is to say - that's really messed up. Let's hope it doesn't come to that

[2020-05-06 20:17:02]

[Eddie Holmes]

shared file(s): Daily Telegraph media inquiry.pdf

[2020-05-06 20:18:59]

[Eddie Holmes]

Obviously, I've not received a cent and no money goes between the two countries. Worse, the irony is that we were some of the very first people to actually raise the lab escape issue, although I obviously can't say that.

[2020-05-06 20:21:51]

[Kristian Andersen]

Reading that email, are they daft? That's really dumb

[2020-05-06 20:22:25]

[Eddie Holmes]

Yes, really, really dumb.

[2020-05-06 20:23:02]

[Kristian Andersen]

"we were some of the very first people to actually raise the lab escape issue" - we were the first to take this seriously - and so we did. And our conclusions are solid and, importantly, stick 100% to the science.

[2020-05-06 20:23:40]

[Eddie Holmes]

Exactly!

[2020-05-06 20:24:45]

[Kristian Andersen]

And I'm pretty glad we did - because at least we then have some actual ammo to fight these plonkers. I really don't understand what the journalist is trying to do - it's so dumb I wouldn't even respond.

[2020-05-06 20:25:15]

[Eddie Holmes]

I'm not responding. The University are going to issue a statement.

[2020-05-06 20:25:41]

[Kristian Andersen]

Even better. They have nothing.

[2020-05-06 20:26:28]

[Kristian Andersen]

.. the kind of shit we have to deal with though... Geez. :face_with_rolling_eyes:

[2020-05-06 20:33:51]

[Eddie Holmes]

I know...for trying to do the right thing. Fuck me.

[2020-05-06 23:59:15]

[Andrew Rambaut]

And you have a married blond woman in your house during lockdown.

[2020-05-07 05:06:29]

[Robert Garry]

"There is a lot of shit about." We've all seen it, but this is unwelcome and taking it to another level. Sorry Eddie - don't need this. If you are committed to good science and do it you'll piss off a vocal minority. COVID-19 has stirred up a lot of turds (Hooper, Mikovits, Fair) that are floating to the top of the cesspool. "it's so dumb I wouldn't even respond" yes getting your University to respond is a good start. [REDACTED], an ex-"student" of mine who is very good at media manipulation, once had the WashPost ready to write a defamatory "expose" on our Ebola sequencing paper in Science (if it had existed at the time - think high Altmetric). Harvard's approach was a well-considered point by point rebuttal - I admittedly was more "colourful." WasPost never ran the story. Lesson learned - need to do both.

[2020-05-07 05:19:28]

[Andrew Rambaut]

Bob is right though. You can basically get your University to just write those facts back at them they are all true and they are all irrelevant. The point is that there is already transparency on grants.

[2020-05-07 15:43:52]

[Eddie Holmes]

There's been a lot of pushback against the Daily Telegraph and their story is on 'hold'. The Australian Academy of Science are furious and the Prime Minister's office are now involved. A pathetic version of the story was published in the Melbourne version of the paper this morning. I am tagged on that the end and I suspect they are trying to imply that I work with Dr. Shi and the Wuhan Institute of Virology (which I don't). Total nothing story. [shared file(s): 1272319357.pdf]

[2020-05-07 15:48:08]

[Kristian Andersen]

Total nothingburger on your part - and a great statement from your university. What's that about the database though? I have not heard of that previously.

[2020-05-07 16:25:15]

[Eddie Holmes]

I've no idea. The Telegraph claim that the WIV deleted files etc. No idea how they got this info. The story is here (scroll down a bit) but it's paywalled I'm not paying a cent to this Murdoch-based bunch of shits:

<https://www.dailytelegraph.com.au/>

[2020-05-08 05:11:39]

[Robert Garry]

Hopefully the end - well done Eddie!

[2020-05-08 16:41:39]

[Eddie Holmes]

This article sums it all up: https://www.theguardian.com/media/2020/may/08/murdoch-media-china-coronavirus-conspiracy-trump-kevin-rudd?CMP=Share_iOSApp_Other

[2020-05-08 16:43:44]

[Eddie Holmes]

The Telegraph are now going to write a story about one my papers rather than me (as they've decided I'm clean). Sending me the questions tomorrow. It will doubtless attempt to say there is a cover-up. I might just ignore them.

[2020-05-09 02:40:15]

[Robert Garry]

I think Judy Mikovits just declared victory - she got a new profile article in Science - oh yeah they put a lot of so-called facts in there but nevertheless Science!

[2020-05-09 02:40:17]

[Robert Garry]

<https://www.sciencemag.org/news/2020/05/fact-checking-judy-mikovits-controversial-virologist-attacking-anthony-fauci-viral>

[2020-05-09 17:18:33]

[Eddie Holmes]

That was some take-down. Fab.

[2020-05-10 05:44:35]

[Robert Garry]

The Mikovits saga is actually relevant today in another way. Here is another long-read version describing the controversy before I got involved: <https://science.sciencemag.org/content/sci/333/6050/1694.full.pdf> I remember because - This "seems very unlikely and may indicate contamination, despite the evidence presented to the contrary," the referee warned. That referee was me - based on my "PCR might get contaminated" experience with the Robt R (see Hooper above). I was the only ref of the three to vote reject. Eventually _Science_ published the paper anyway (later retracted) and one of the refs wrote a commentary that - in retrospect - was not helpful. Where the heck is he going with this rambling trip down memory lane you may ask. It's the French "NCoV-19" from December - not so much a contamination issue _per se_, but another shortcoming of PCR. Where's the cutoff? Rarely asked. What does a Ct above 30 really mean? Is there anything real there? Probably yes sometimes and probably no sometimes. Kristian said it - got to have a sequence - they have sequencers in France right?

[2020-05-10 08:46:02]

[Robert Garry]

Apparently they can't keep the book in stock...Jeez [shared file(s): image.png]

[2020-05-10 08:46:50]

[Robert Garry]

Speaking of totally lost it. [shared file(s): image.png]

[2020-05-10 08:53:28]

[Robert Garry]

https://elpais.com/elpais/2020/05/09/ciencia/1589059080_203445.html

[2020-05-10 08:54:20]

[Robert Garry]

Not bad except for the gender-bending.

[2020-05-10 08:57:48]

[Kristian Andersen]

That's crazy - I didn't know she wrote a book too. Robert Kennedy is such a disgrace to the name.

[2020-05-10 09:21:39]

[Robert Garry]

Agree - Bobby is spinning in his grave. Mikovits has learned lucrative lessons about her audience - the crazy ass 5% (higher in certain states/countries). What seems bat-shit crazy to you and me is a sweet melody to the tinfoil hat crowd. An expanded version of the crazy ass 5% is why trump will win between 40 and 45% of the vote in November. Scary part is if it's 44-45% he likely threads the needle as in 2016 and wins the Electoral College.

[2020-05-10 14:08:03]

[Eddie Holmes]

Here's the story - front page. It's about the pangolin paper! Apparently one of the authors has a link to the Chinese Academy of Military Sciences so they get to invoke the Red Army! Where the Chinese military training stealth pangolins? We need to know.

'Explosive revelation' = reading the paper.

'Fine print' = the acknowledgments [shared file(s): 1273399985.pdf]

[2020-05-10 14:08:35]

[Eddie Holmes]

I'm going to enjoy Yi Guan's response.

[2020-05-10 14:45:13]

[Robert Garry]

Thanks for sharing Eddie - so much nonsense. Main problem is it will be like crack cocaine on steroids to the conspiracy theorists lurking in the underbelly of the Internets- the same 5% that caused Mikovits' book to sellout on Amazon.

[2020-05-10 15:00:50]

[Robert Garry]

OTOH If you ignore it - it may well go away - they literally had ABSOLUTELY nothing to pin on you other than you have done some important scientific work with Chinese scientists.

[2020-05-10 15:27:05]

[Kristian Andersen]

OMG this is so hilariously dumb.

[2020-05-10 15:32:04]

[Eddie Holmes]

Spectacular. Badge of honour to be attacked by the Murdoch press. I'm just going to ignore it.

[2020-05-10 15:35:23]

[Kristian Andersen]

They have absolutely nothing. It's really, really, dumb - as in something seen in the Fox News comments.

[2020-05-10 15:39:49]

[Eddie Holmes]

They read the Acknowledgements. There are strong links between The Tele and Fox News. The lead journo - Sharri Markson - was on the Tucker Carlson thing

[2020-05-10 15:41:20]

[Kristian Andersen]

Yeah - they keep talking about the Acknowledgements - I mean, do they actually understand what they are? How garbage like this can actually end up in a 'newspaper' these days is beyond me. Concentrated stupidity.

[2020-05-10 16:09:30]

[Robert Garry]

I like the idea of stealth pangolins. Maybe add in a little genetic engineering to turn them into a more effective weapon? Relatively simple to do if you have the scientific resources of the whole Red Army at your disposal. Substitute the keratin in the scales with spider dragline silk, which is more durable than Kevlar - then load them up with exotic coronaviruses. We all should just surrender now.

[2020-05-10 16:12:15]

[Eddie Holmes]

I agree Bob. Did you see that Singapore robodog? I think they missed a brilliant opportunity to use pangolins instead. Not even Black Mirror have thought of that. <https://www.smh.com.au/world/asia/roaming-robodog-tells-singapore-park-goers-to-keep-their-distance-20200509-p54rcs.html>

[2020-05-10 16:16:42]

[Robert Garry]

Does it have offensive capabilities? Jeez - are we only a few years from sentinels?
https://en.wikipedia.org/wiki/Sentinel_%28comics%29

[2020-05-10 16:18:50]

[Eddie Holmes]

It is genuinely spooky.

[2020-05-10 16:22:31]

[Eddie Holmes]

Did you see this paper? <https://pubmed.ncbi.nlm.nih.gov/32373995/?dopt=Abstract>

[2020-05-10 16:23:51]

[Kristian Andersen]

After reading the abstract, I don't think I really need to?

[2020-05-10 16:27:31]

[Eddie Holmes]

That's as far as I got as well.

[2020-05-10 16:49:39]

[Kristian Andersen]

<https://www.cbsnews.com/news/coronavirus-researcher-peter-daszak-funding-politicization-of-science-warning-2020-05-08/>

[2020-05-10 17:11:14]

[Eddie Holmes]

:face_vomiting:

[2020-05-10 17:33:04]

[Robert Garry]

ditto

[2020-05-11 03:08:11]

[Eddie Holmes]

Watched on you the ABC 7:30 show here a few minutes ago Bob - brilliant job.

[2020-05-11 03:08:41]

[Eddie Holmes]

On the debit side I was just sent another (long) piece of conspiracy theory BS: <https://medium.com/@yurideigin/lab-made-cov2-genealogy-through-the-lens-of-gain-of-function-research-f96dd7413748>

[2020-05-11 05:01:01]

[Robert Garry]

Yes filled with BS but credit for a bad pun

[2020-05-11 05:01:26]

[Robert Garry]

very bad [shared file(s): image.png]

[2020-05-11 05:37:07]

[Robert Garry]

"ABC 7:30 show here a few minutes ago Bob - brilliant job." Thanks, another Kristian rebound I think. Altmetric, however, still mired in the mid-30's.

[2020-05-11 09:52:57]

[Kristian Andersen]

Eddie's 'early furin site' paper officially out: [https://www.cell.com/current-biology/fulltext/S0960-9822\(20\)30662-X](https://www.cell.com/current-biology/fulltext/S0960-9822(20)30662-X)

[2020-05-11 09:56:10]

[Andrew Rambaut]

Need to feed the 'Eddie is a paid shrill of the Chinese Government' angle to Fox News for a presidential tweet.

[2020-05-11 09:57:40]

[Kristian Andersen]

Yeah - because surely with this paper it proves that Eddie himself inserted that furin site, right? Makes sense.

[2020-05-11 10:45:27]

[Robert Garry]

It's possible [cue Dumb and Dumber music] that this is the "final dot" in the Fox News scenario - Eddie and his "comrades" in Red Army did the ultimate GOF. Please tweet Mr Trump!

[2020-05-11 14:27:45]

[Eddie Holmes]

Yes, expecting some more 'traitor' emails today.

[2020-05-11 14:32:32]

[Eddie Holmes]

Looks like the Telegraph have now replaced my story with 'Six secrets behind the perfect pavlova' so all is well in the world.

[2020-05-12 13:50:44]

[Robert Garry]

Long read - skip to the bold if you want to save a few moments of your life. Dr. Garry:

I saw you on TV 2 Sundays ago on a show with this Tanya Rivero who has no idea about science or anything as a matter of fact but just to make President Trump looks bad, but *both of you have failed*. She was asking you questions and you were answering her while it is more than obvious that your answers and her questions were staged. I know for sure that this was the case.

The question here is why do we need to study bat corona viruses if we never had problems until the Chinese took charge of this project and destroyed the whole world? You know why you came on TV just to say something bad about President Trump with this woman that she was dictating on you what to say because she wants to say something bad about President Trump. That is the purpose only. You are a scientist and not a politician but you

looked like a very dull politician who has no idea what he was talking about. You have failed as a politician and you have tried to politicize this important and vital issue but you have failed successfully as a scientist as well. *Blame China for not telling the world everything, ganging with the WHO, and hoarding PPEs instead of blaming the President.*

If bat corona research is so important, which I totally disagree with you, why then at least say that it is important but China should NOT be the one to conduct such a dangerous research because obviously they have no idea about what they are doing and the results are so obvious. Do you honestly believe this is not a man-made virus; this is just comical period. At least you have to come and be honest with yourself that China cannot be trusted to conduct such dangerous research, but you did not.

You came along and you were criticizing president Trump and indirectly you were standing with the China against your president just to be on TV.

These days we should all get together and support our president and our country instead listening to you and to this woman who has no idea about anything but to degrade the president.

All of what you said amounts to nothing and everything you have stated lacks evidence and scientific proofs, except the fact that you and Mrs. Rivero were trying to degrade the president, but sadly both of you looked like each one of you were staging the other. Sorry to say it but both of you looked so dull and out of it.

President Trump did not do anything except listening to Fauci whom I think is the worst doctor and scientist I have ever encountered. He was the one behind all of these problems and not President Trump.

Go back to January and see what Fauci said on TV regarding COVID-19; why can't you blame him, blame Cuomo, De Blasio and all governers who said we should not worry and it is all going to go away and not the president at least the president is not a scientist or a doctor but Fauci is. Fauci is a hero now because he tries to erroneously challenge President Trump. The science of Fauci has expired long time ago, but sadly he is still there where he does not belong.

The Chinese virus came from Wuhan China since Wuhan is located in China and not the USA. Bat corona viruses need not to be researched since we never had a problem before and why not study also all the viruses in the world because if China did its job we will not be here in the first place! If we need to do research on bats which I think is unnecessary, why keep it with China but you did not say that!

Lastly, if we will ever have another corona pandemic again as you have assured Mrs. Rivero, which is untrue (you have no scientific evidence to support your claim), we will definitely have it if we keep China doing the research on it or any other viruses. If the Chinese keep eating this food, yes we will have many pandemic coming from China.

One last thing if you call yourself a good scientist as you claim, you should have read the paper in 2007, which warned China and the world about Chinese eating horseshoe bats.

Below is the reference go and read it-may be it will enlighten you. I bet you never ever saw it before; why you did not discuss it with Mrs. Rivero-of course not, why should you it does not criticize President Trump.

Cheng V., et al., Severe Acute Respiratory Syndrome Coronavirus as an Agent of Emerging and Reemerging Infection Vincent. Clin. Micro. Rev., 20, pp 660-694 (2007); the authors noted that the "presence of a large reservoir of SARS-CoV-like viruses in horseshoe bats, together with the culture of eating exotic mammals in southern China, is a time bomb".

By the way the authors were Chinese for your information.

To be fair it is Okay to criticize the president, for example, regarding reopening the economy because that is wrong to do that at this time but just come on TV and blast the president was uncalled for.

My Advice to you is to be honest with yourself. It was not fair period.

The president is 75 years old and he is trying his best-how many presidents out there who are 75 years old and come on TV every day diligently talking about COVID-19 and he is exposing himself to the virus, but he is still doing his job? NONE.

Come on give him some credit.

Sincerely,

Kareem I Batarseh, MD/PhD

[2020-05-12 13:55:31]

[Kristian Andersen]

Kareem MD/PhD, you, Sir, are an idiot. Bob, give the president some credit - he's 75 and just trying to do his best!!! Seriously.

[2020-05-12 14:06:02]

[Robert Garry]

Yes - probably a lot of time on his hands since Mikovits' Fauci bashing book is sold out on Amazon.

[2020-05-12 14:35:12]

[Eddie Holmes]

This pandemic is really effective fuck-wit detector.

[2020-05-12 18:01:43]

[Robert Garry]

Precisely... Pardis wrote a whole book about it titled *Outbreak Culture*. Eddie said it in 7 words. I suggested the title Outbreak Dogs - a play on War Dogs, but Pardis went more "academic." *OC* is mostly about bad personal/institutional behavior during the chaos of a pandemic from career-making to pushing agendas. It includes diverting funds for the pandemic response, which is def something we are seeing in the US. Pardis should write a sequel. I'm predicting that Kristian's fuck-wit detector radar will be screaming tomorrow. Hint: she'll mention one of your former schools.

[2020-05-12 20:57:06]

[Eddie Holmes]

shared file(s): Screen Shot 2020-05-13 at 1.47.32 pm.png

[2020-05-12 20:57:16]

[Eddie Holmes]

shared file(s): Screen Shot 2020-05-13 at 1.44.49 pm.png

[2020-05-12 20:57:38]

[Eddie Holmes]

People are SO nice.

[2020-05-12 21:01:23]

[Kristian Andersen]

I hope those fuckers slip in the shower.

[2020-05-12 21:08:55]

[Eddie Holmes]

Just got sent this as well.

[2020-05-12 21:08:57]

[Eddie Holmes]

<https://www.youtube.com/watch?v=eD3ztjqYGbg>

[2020-05-12 21:12:24]

[Kristian Andersen]

Yeah, I think that's the one I shared too? The amount of stupidity makes my head hurt.

[2020-05-12 21:12:48]

[Eddie Holmes]

There's so many I've lost track!

[2020-05-12 21:13:30]

[Eddie Holmes]

Bob/Kristian - can you give me your latest thinking about whether any lab manipulation would involve cell culture or live animal passage? Can we exclude the former?

[2020-05-12 21:15:13]

[Kristian Andersen]

Yeah, either cell culture or animal passage. I find animal passage to be unlikely, since those are complicated experiments. I'm starting to worry about cell culture again because of some of the things we're noticing in the cell culture sequencing experiments (plus all their historical work of exactly that type of work - but we have already discussed that).

[2020-05-12 21:20:07]

[Eddie Holmes]

What do we now think about the o-linked glycans and the low dn/ds values? Can they be used to rule anything in/out?

[2020-05-12 21:22:00]

[Kristian Andersen]

Initially we thought the O-linked glycans could somewhat rule out lab culture (or wouldn't be consistent with), but I'm much less sure now - I'm not convinced they actually form a glycan shield and instead may help regulate the site itself. The low dN/dS value - primarily in the spike - has always been peculiar to me and a tiny bit suggestive of culturing.

[2020-05-12 21:24:31]

[Eddie Holmes]

Thanks. Very important.

[2020-05-12 21:25:59]

[Eddie Holmes]

My first look at the virus suggested that the pattern of distribution of sequence variation across the genome looked natural, but that may too broad brush.

[2020-05-12 21:28:09]

[Kristian Andersen]

The three main new things that bothers me - the first two shown in this post

<http://virological.org/t/identification-of-a-common-deletion-in-the-spike-protein-of-sars-cov-2/451>:

1. The furin site is clearly active in tissue culture. We see the virus lose it under some culturing conditions, but this effect could be very cell-type specific. What bothers me here is that the virus is clearly fiddling with this site in culture. If it can lose it, likely it can gain it? Typically SARS-like CoVs are cultured in the presence of trypsin (to allow for cleavage of S1/S2), but if trypsin isn't added, there's a *huge* selection pressure for gaining a furin site. SARS-CoV-2 can grow without trypsin - other SARS-like CoVs can't.

2. The example from bovine CoVs (post #6 on the thread on virological) is exactly a 12bp insertion seen in tissue culture creating a furin cleavage site.

3. We have now seen multiple examples of SARS-CoV-2 de novo obtaining exactly 12bp insertions in different parts of the spike, but only in tissue culture. They're not furin sites, but there seems to be some affinity specifically for 12bp insertions (in T/C) - and of course, the furin cleavage site is exactly 12bp. There could be some specific mechanism behind this. We're looking into this a little closer at the moment.

[2020-05-12 21:28:47]

[Kristian Andersen]

> My first look at the virus suggested that the pattern of distribution of sequence variation across the genome looked natural, but that may too broad brush

Any new evidence on this? I haven't looked at e.g., dN/dS for a while.

[2020-05-12 21:29:50]

[Eddie Holmes]

Got it. No new evidence.

[2020-05-12 23:01:09]

[Eddie Holmes]

[thread - ID: 2020-05-12 23:01:09]

Just to confirm: there's no evidence of the S1/S2 insertion site being deleted in any natural SARS-CoV-2 genome? Are there any synonymous/nonsynonymous mutations at this site in nature? If there's strong purifying selection indicative of functional constraint would this argue against it being acquired in cell culture?

[2020-05-13 04:36:23]

[Robert Garry]

Couple of points. First, in the human sequencing most if not all of the seq are from nasal swabs taken at diagnosis, ie. near peak virus load. It might be interesting to look later in disease when Ct values have increased - that's where the variants if they exist will be found in vivo. Monkey studies can get to these late variants too if they exist and our primate center is sending samples to KGA. Def a bottleneck in human transmission of virus variants - there is a whole literature on this in HIV. Persistent HIV infection accumulates variants - usually only one or a few variants transmitted - macrophage tropic vs T-cell tropic viruses are selected for. Second, there are a lot of ways to do passage in cell culture. Here's an 40 year old paper I did in graduate school with CC King who - lets say had some challenges in gs but went on to be Taiwan's "greatest" virologist <https://www.sciencedirect.com/science/article/abs/pii/S0042682279901867?via%3Dihub> Undiluted, diluted passage - different cells - incubation time generate different levels of DI particles (big deletions) substitutions etc. Would have been great to have a sequencer then - excuse me while I get in my time machine and go back to retrieve a few samples.

[2020-05-13 04:47:04]

[Robert Garry]

"My first look at the virus suggested that the pattern of distribution of sequence variation across the genome looked natural, but that may too broad brush." ProfBill has a new long read on Virological on this topic - synonymous mutations look very normal from bat to pangolin.

[2020-05-13 13:57:22]

[Kristian Andersen]

[thread - ID: 2020-05-12 23:01:09]

@Eddie Holmes There's a little bit of activity in a few samples. A see a couple of samples where the P becomes L, 'turning off' the O-linked glycans. There's also a single example from a human patient where the site is deleted - the full 12bp.

Other than that, not much going on - I'll take a look at the synonymous changes.

[2020-05-13 14:34:02]

[Kristian Andersen]

[thread - ID: 2020-05-12 23:01:09]

@Eddie Holmes @Eddie Holmes - based on a brief glance, not much on the Syn level either - maybe a little less, meaning this is probably evolving neutrally(ish). Formal analyses would be interesting.

[2020-05-13 14:36:25]

[Eddie Holmes]

Thanks Bob. I'll take another look at Bill's post. I've met Prof King a number of times - she's certainly a 'character'. She has a plastic cover over her laptop keyboard that must have been there for 30 years...in shreds.

[2020-05-13 14:57:31]

[Robert Garry]

Nice person - pretty sure that did not change - but not sure she ever got over the cultural shock that Austin in the 70's was not the "Magic Kingdom." Somewhat obsessive about Mickey, Minnie and Donald.

[2020-05-13 15:19:38]

[Eddie Holmes]

[thread - ID: 2020-05-12 23:01:09]

Thanks. Would be interesting to do a more formal analysis to see if this insertion site is evolving in any way unusually. Sounds like it is under fairly strong selective constraints.

[2020-05-13 15:22:38]

[Eddie Holmes]

Yes, she's very nice and entertaining. Haven't seen her for a few years.

[2020-05-13 15:37:48]

[Eddie Holmes]

Is Bill Gallaher going to formally publish any of this stuff?

[2020-05-13 16:45:33]

[Robert Garry]

Doubtful - he took early retirement about 10 years ago because of heart failure - serious. I think it's reasonably controlled with better drugs and a new/better pacemaker. Last time I saw him about 6 months ago he looked better than he had in years. I think he'd be amenable to having "someone" incorporate it into a larger piece, but I don't think he wants to publish himself.

[2020-05-13 16:47:16]

[Robert Garry]

"strong selective constraints" yes indeed - not at all inconsistent with prior work on CoVs over decades - still - a formal deep dive would be of considerable value.

[2020-05-13 17:13:56]

[Eddie Holmes]

[thread - ID: 2020-05-13 17:13:56]

Poor guy. He did a great job with this. Would be good to publish it some how.

[2020-05-13 23:20:55]

[Eddie Holmes]

The attached just came out on <https://arxiv.org/ftp/arxiv/papers/2005/2005.06199.pdf> [shared file(s): 2005.06199.pdf]

[2020-05-13 23:21:59]

[Eddie Holmes]

:man-facepalming:

[2020-05-13 23:47:38]

[Andrew Rambaut]

They rule out snakes at least.

[2020-05-13 23:51:29]

[Andrew Rambaut]

[thread - ID: 2020-05-13 17:13:56]

@Eddie Holmes It's quite endearing how he still calls 3rd positions 'wobble sites'.

[2020-05-14 00:20:05]

[Eddie Holmes]

That's a relief

[2020-05-14 01:26:58]

[Eddie Holmes]

I had this awesome and very long email today that started thus about our new bat virus paper: [shared file(s): image001.png]

[2020-05-14 01:27:43]

[Eddie Holmes]

The email claimed to be from an interesting, although dubious source: [shared file(s): image002.png]

[2020-05-14 01:28:00]

[Eddie Holmes]

It then went on to describe the Russian secret service had developed a COVID-19 cure: [shared file(s): image003.png]

[2020-05-14 01:28:15]

[Eddie Holmes]

But his final comment sort of gave it away: [shared file(s): image004.png]

[2020-05-14 01:28:40]

[Eddie Holmes]

Peter Dutton is very hated Home Affairs minister here

[2020-05-14 01:34:17]

[Andrew Rambaut]

Brilliant. Better forward that to the Security Services.

[2020-05-14 02:44:27]

[Eddie Holmes]

I did. I think they had a laugh.

[2020-05-14 07:18:15]

[Kristian Andersen]

PPPPS? So there were PS, PPS, PPPS, and this only made it fourth on the list? Sad!

[2020-05-14 07:46:39]

[Andrew Rambaut]

Without comment: <https://twitter.com/TODAYshow/status/1260896846538514433?s=20>

[2020-05-14 07:55:54]

[Kristian Andersen]

..... and you read the article in it mentions four negative tests for COVID and bacterial pneumonia... I'm not suggesting he's faking having COVID. Not at all.

[2020-05-14 08:16:48]

[Andrew Rambaut]

He is jealous of Peter Piot.

[2020-05-14 08:18:17]

[Kristian Andersen]

That guy got it for real, for real - nice enough essay he had in Science about it.

[2020-05-14 09:02:59]

[Robert Garry]

Fair is definitely faking it. NCoV-19 RNA stays in the nasal secretions for literally weeks. He did not have any other tests than the Abbott test in the Emergency Department. So, is it 4 or 5 tests he has had? He told Hoda Kotb this

morning that he had the Abbott test (twice), the two tests mentioned by POTUS and the BioFire. Sorry Tulane does not have the BioFire test.

[2020-05-14 09:23:43]

[Kristian Andersen]

You should see if you can get a sample to test in your lab - "We tested it with our most sensitive assays three times and didn't find COVID-19. We did, however, get a clear signal for bullshit".

I should say though - SARS-CoV-2 RNA does not always remain in nasal secretions - especially in severe cases. We have multiple examples of patients hospitalized with (confirmed) COVID where the tests are repeatedly negative - so I'm not 100% sure he's actually faking it, but knowing it's Fair, well...

[2020-05-14 09:28:56]

[Andrew Rambaut]

If he goes on a ventilator then he is not faking it.

[2020-05-14 09:30:12]

[Andrew Rambaut]

"OK Dr Fair, we are going to put you on this ventilator", "Actually doctor I am feeling a lot better now"

[2020-05-14 09:42:25]

[Robert Garry]

No test is perfect. Curious though as to what's going on with those negative hospitalized patients. Can't say we've seen this here.]

[2020-05-14 11:06:25]

[Robert Garry]

The man, the myth - now according to a most trust-worthy source Fair is an Ebola survivor. Maybe he really does need to retire from this "line-of-work?" [shared file(s): image.png]

[2020-05-14 11:35:00]

[Andrew Rambaut]

Contracted Ebola? Did he claim that?

[2020-05-14 11:44:35]

[Robert Garry]

He and Laurie Garrett are like BFFs and have been hanging out for days and nights in green rooms at 30Rock. I infer he left her with this impression. Totally and completely false.

[2020-05-14 14:28:27]

[Eddie Holmes]

I need to put him in touch with Colonel Alexsey so he can get hold of those COVID cures made by the Russian secret service. They must have an Ebola one as well...hopefully direct injection to the johnson.

[2020-05-14 14:37:49]

[Eddie Holmes]

Did you see Laurie's R0 = 533 tweet? Mentalist.

[2020-05-14 14:39:28]

[Eddie Holmes]

I've got a diagnosis for Fair - Munchausen syndrome by ego

[2020-05-14 15:54:18]

[Robert Garry]

Time passes [shared file(s): image.png, Screen Shot 2020-05-14 at 3.54.00 PM.png]

[2020-05-14 16:11:49]

[Robert Garry]

But things stay the same - one of the additional treatments that resulted in the miracle cure was azithromycin. [shared file(s): image.png]

[2020-05-14 16:14:53]

[Eddie Holmes]

[thread - ID: 2020-05-14 16:14:53]

He's turning BS into an art form

[2020-05-14 16:15:09]

[Robert Garry]

with echoes from the past of an miracle spontaneous cure of a "viral" disease with antibiotics. [shared file(s): image.png]

[2020-05-14 16:20:20]

[Eddie Holmes]

There needs to be an expose at some point

[2020-05-14 16:22:10]

[Robert Garry]

Actually Eddie this is art - the pill bottles represent Malerone and Cipro - a simple reminder to bring the proper prophylaxis to West Africa. [shared file(s): image.png]

[2020-05-14 16:23:35]

[Robert Garry]

Agree about the expose.

[2020-05-14 16:29:59]

[Robert Garry]

[thread - ID: 2020-05-14 16:14:53]

@Eddie Holmes The remarkable thing about this little rant is that he seems to be implying that he was running the two PCR tests POTUS mentions as well as the BioFire HIMSELF. Pretty good considering he was in intensive case on oxygen and that there are no BioFire COVID tests at Tulane.

[2020-05-14 16:34:59]

[Robert Garry]

And with that - Kristian will very much appreciate the fact for my own mental health - I'm getting back to work on other things.

[2020-05-14 17:21:41]

[Eddie Holmes]

I hope that's not in your bedroom Bob. I'd not be sleeping for weeks.

[2020-05-14 17:57:50]

[Kristian Andersen]

Bob that's. Impressive. And kinda scary - but happy that Jolina is now complete.

[2020-05-14 19:12:18]

[Robert Garry]

Eddie - Jolina is in my office - as I said - a reminder and conversation piece. Kristian - glad you like - uh - "herm."

[2020-05-15 13:58:02]

[Eddie Holmes]

This guy keeps emailing me. Are you getting them as well? Hopefully he will fuck-off soon.

<https://medium.com/@jonseymour/an-open-letter-to-the-authors-of-the-proximal-origin-of-sars-cov-2-12f53c1cea38>

[2020-05-15 20:58:56]

[Kristian Andersen]

Nope - haven't heard a peep from this tit

[2020-05-16 04:49:29]

[Robert Garry]

Me neither, but I could have missed it somewhere in the barrage of "do you believe Fair?" emails. Answer no BTW. “_However, since we observed all notable SARS-CoV-2 features, including the optimized RBD and polybasic cleavage site, in related coronaviruses in nature, we do not believe that *any* type of laboratory-based scenario is plausible.”_

[2020-05-16 04:54:56]

[Robert Garry]

This sentence in question is just about as careful and nuanced as it could be. "we do not believe" ergo this is our opinion. "plausible" means: sure we can't rule out that the Red Army created this in a lab with help from 9 foot tall green spacemen, but sticking to reality it's very unlikely.

[2020-05-18 16:51:25]

[Kristian Andersen]

@Eddie Holmes - your questions earlier last week, were they referring to this paper?

<https://www.biorxiv.org/content/10.1101/2020.05.01.073262v1>

I find it to be quite interesting and they pick up on some of the exact features of (lack of) selection that I reported back in February. Certainly peculiar - and I think lends _some_ evidence to the pre-circulation theory.

[2020-05-18 16:53:01]

[Kristian Andersen]

Back in February I compared S and ORF1 - so just here for reference (very similar to what they observe) [shared file(s): Screen Shot 2020-05-18 at 4.52.06 PM.png]

[2020-05-18 17:40:45]

[Eddie Holmes]

No, they weren't. I asked some questions by my friends who drive cars with blacked out windows if you know what I mean. I saw that paper and of course reminded me of your earlier analysis. Not quite sure what to think: that paper is deliberately trying to be controversial by not excluding lab escape. But would lab culturing have produced a 'perfectly' adapted human virus? I don't see way. Did the 2013-2016 EBOV require any human adaptation?

[2020-05-18 17:42:54]

[Kristian Andersen]

“lab culturing have produced a ‘perfectly’ adapted human virus” - I’m not quite sure. I would think not (outside the spike), but it depends on what drives the selection and that is unclear to me.

We both have papers on Ebola human adaptation, so I’d say yes :wink:

[2020-05-18 17:46:25]

[Kristian Andersen]

When it comes to the selection argument, what is still most telling to be is the RBD. SARS changed the contact residues a lot getting into humans, so a lot of the signal might have been driven by that. SARS-CoV-2 is already ‘perfect’ for binding, so it doesn’t need to - BUT that ‘perfect’ RBD is found in a pangolin CoV, so clearly it already exists in nature - no further adaptation needed it seems.

[2020-05-18 17:48:47]

[Kristian Andersen]

Re. Ebola - also in the Park et al., paper: <https://www.cell.com/action/showPdf?pii=S0092-8674%2815%2900690-X>
[shared file(s): Screen Shot 2020-05-18 at 5.48.09 PM.png, Screen Shot 2020-05-18 at 5.47.34 PM.png]

[2020-05-18 18:16:18]

[Eddie Holmes]

But A82V occurred after the virus had been spreading for a while in humans during that outbreak. The key point was virus was ready to go as it emerged in humans. Completely agree about the pangolin RBD.

[2020-05-19 07:30:05]

[Robert Garry]

That early lineage from Guinea has always puzzled me as well - yes the virus had been spreading - it seems like in Kailahun District for at least several months Must have picked up A82V during that time - is this a founder effect?

[2020-05-19 17:10:47]

[Kristian Andersen]

<https://www.nature.com/articles/d41586-020-01449-8>

[2020-05-19 17:11:22]

[Kristian Andersen]

I'm sure this must be the work of Frankie Bollocks? Machine learning... :face_with_rolling_eyes: [shared file(s): Screen Shot 2020-05-19 at 5.08.49 PM.png]

[2020-05-19 22:41:07]

[Eddie Holmes]

More prize bollocks from the man himself. Yes, machine learning is definitely going to work. No doubt.

[2020-05-20 20:24:05]

[Kristian Andersen]

Okay, he lost the plot now: <https://twitter.com/PeterDaszak/status/1263086542861598720?s=20>

[2020-05-20 20:30:41]

[Kristian Andersen]

Btw - Bette Korber is giving a talk tomorrow on her SARS-CoV-2 stuff.... 10am Eastern. You can sign up here: https://us02web.zoom.us/webinar/register/WN_FyWoFyxFSg6Z8RxMI4RdHQ

[2020-05-21 02:26:10]

[Eddie Holmes]

Crazy day...Trump bashing the WHO has side-effects everywhere. Anyway; (i) I'm no fan of the Templeton award either, but he'll live to regret that Tweet. Never bite the hand that feeds you; (ii) fuck! I think I'm washing my hair (each one individually at 10 am Eastern).

[2020-05-21 05:08:13]

[Robert Garry]

For me the sobering news was hitting new peak cases (but yes Daszak is an idiot). Given that case numbers are highly inaccurate at best, any predictions as to what this curve looks like in July, September, November? Me: July (150K per day) September (75K per day) November (100K per day and rising again). Lots of "untapped" populations in SA and Africa. [shared file(s): image.png]

[2020-05-21 05:12:31]

[Robert Garry]

Of course my predictions are predicated on the LANL krewe being a little off - that is SARS-CoV-2 is not the real life "Captian Tripps."

[2020-05-21 09:04:20]

[Kristian Andersen]

<https://www.natureindex.com/news-blog/the-top-coronavirus-research-articles-by-metrics>

[2020-05-21 09:10:00]

[Robert Garry]

What about the retracted snake preprint?

[2020-05-21 09:56:31]

[Andrew Rambaut]

Still says #2 on Altmetric. Need to get on to that Kristian:

[2020-05-21 09:57:21]

[Kristian Andersen]

It's killing me!

[2020-05-21 09:57:44]

[Andrew Rambaut]

Just a mistake I think. Give them a ring.

[2020-05-21 09:58:29]

[Andrew Rambaut]

It is good that apart from the seroprevalence shit show paper, none of these are crazy.

[2020-05-21 17:32:29]

[Kristian Andersen]

I guess I should try to get these guys to write Francis a letter on my behalf too so I can get my god damn West Nile R01 funded. <https://twitter.com/StevenSalzberg1/status/1263568031848042496?s=20>

[2020-05-22 04:43:40]

[Robert Garry]

Kristian - your best hope for that West Nile grant is to go on 60 minutes like Daszak. You know they want you. Another strategy might be to have a panic attack, claim you can't catch your breath and force your way onto a COVID ward. The sympathy you'll gather as a leading virologist [you turns out actually are] should push you over the top with NIH. Try to get as many negative COVID tests as you can and failing that just make up that you had a bunch of negative tests thereby further undermining public confidence in the tests but increasing the sympathy factor (poor guy can't even get a positive test). Also let it slip to Laurie Garrett that you are also an Ebola and Lassa (maybe Sabia too for good measure) survivor. I'm pretty sure this will work.

[2020-05-22 04:48:05]

[Robert Garry]

Oh yeah and if you follow either of these strategies - esp the Fair one - I think the West Nile grant AND **50K** will pretty much be a lock!

[2020-05-22 06:37:05]

[Robert Garry]

So damn many invites to review papers. This might be one I take a few minutes on in "honor" of Mikovits. Here's part of the title: "a new case of XMLV (Bxv1) contamination." And speaking of cats - a brief excerpt of the abstract states that the XMLV is "located in the second intron of the pseudouridylylate synthase 1 (PUS1) gene." Quite a coincidence and who even knew such a gene existed?

[2020-05-22 07:26:02]

[Andrew Rambaut]

Should I reply? I am so tired of this shit.

```John Sudworth [REDACTED] &gt;

Re: hello from the BBC

I received your automated reply... and of course totally understand how busy you are. But I wonder if you'd have time at least to cast your eye over this very brief set of notes (responding to a number of points in the Nature Medicine paper) that I have received from a molecular biologist contact of mine, who has long experience in vaccine development and gain of function research (his comments are in blue):



(NATURE MEDICINE ARTICLE IN BLACK TYPE)

In theory, it is possible that SARS-CoV-2 acquired RBD mutations (Fig. 1a) during adaptation to passage in cell culture, as has been observed in studies of SARS-CoV11. The finding of SARS-CoV-like coronaviruses from pangolins with nearly identical RBDs, however, provides a much stronger and more parsimonious explanation of how SARS-CoV-2 acquired these via recombination or mutation<sup>19</sup>.

(COMMENTS FROM MOLECULAR BIOLOGIST IN BLUE TYPE)

This has two problems in respect of the second half assumption 1. doesn't prove it didn't happen in a petri dish – the mixing could have happened naturally in a co-infected pangolin that had two related coronavirus infections at the same time, or in a petri dish where two viruses were infecting the same human cells. Both equally possible, latter probably more plausible – how many co-infected pangolins are out there? But third scenario they don't touch on might be the most plausible of all – rather than postulating random recombination between the two viruses – the third possibility is that a researcher deliberately inserted the pangolin spike mutation into bat virus to see what this did. This can be done in a matter of weeks and does not rely on chance.

The acquisition of both the polybasic cleavage site and predicted O-linked glycans also argues against culture-based scenarios. New polybasic cleavage sites have been observed only after prolonged passage of low-pathogenicity avian influenza virus in vitro or in vivo<sup>17</sup>.

Yes if you postulated the virus found these 4 amino substitutions one by one – I agree this is highly implausible. Plausible scenario is that it got all 4 substitutions all at the same time – ie by recombination event between two co-cultured viruses which can happen in days OR by researcher deliberately introducing these 4 substitutions all at the same time which is a very simple process. It is the acquisition en masse of these 4 key new residues and nothing in flanking sequences that raises the distinct impression that someone deliberately inserted these 4 residues in one step – with recombination would expect some variability on either side of these 4 substitutions between bat and pangolin spike sequences – there is absolutely none – all the residues on each side are identical – this is what is so concerning.

Furthermore, a hypothetical generation of SARS-CoV-2 by cell culture or animal passage would have required prior isolation of a progenitor virus with very high genetic similarity, which has not been described. Subsequent generation of a polybasic cleavage site would have then required repeated passage in cell culture or animals with ACE2 receptors similar to those of humans, but such work has also not previously been described.

The Wuhan institute is the only place in the world that has the most highly similar virus to SARS-CoV-2 which is the bat virus – so this or a related virus from bats could have been the starting point, although I agree the similarity at 96% is still lower than what you might expect – something closer to 99% would be more like the smoking gun but of course we don't know what other bat viruses they have in the institute that they have not have sequenced or may have chosen not to reveal (I am not suggesting this is the case). If they did indeed find a bat virus in their stocks with 99% identity apart from the polybasic cleavage site then would they be comfortable to disclose this as then the only conclusion was that COVID19 was artificially created in their lab.

The institute has published widely that they were doing GOF research on coronaviruses and were supported by NIH to do so. As to this specific work, if it was being done (we don't know that either way) presumably it was too preliminary to publish. Also the virus could still have been created inadvertently without their knowing in scenario 1 above.

Finally, the generation of the predicted O-linked glycans is also unlikely to have occurred due to cell-culture passage, as such features suggest the involvement of an immune system<sup>18</sup>

This is just pure speculation as we don't yet know what the immune system recognises in COVID-19 spike and what role if any the glycans play in this and how this might be different to precursor viruses (for which we have no information!). So where this is coming from I just don't know.

My questions are these:

Are any of the points he raises valid?

If so, should the claims that a lab leak can be categorically ruled out be re-examined?

And further, given that no lab is 100% safe, given that the Wuhan Institute has carried out GOF research on bat coronaviruses, given that it stores many others, and given that it is situated very close to the first known outbreak, ought there at least to be a proper, independent investigation of its records and procedures? If finding out where it came from is of vital global importance, shouldn't all possibilities be considered?

I should add that I have no hidden agenda. I am in Wuhan at the moment and have been covering the outbreak here in China from the beginning. My intention is simply to examine the evidence and to try to help our audiences understand the scientific debate. I would welcome any thoughts and views you can provide me over email... and, if time ever becomes available, the chance to talk on the phone would be brilliant.

I appreciate your time considering this request as well as all the work you and your team are doing on this public health emergency.``

[2020-05-22 07:28:23]

**[Andrew Rambaut]**

Should let it happen to get our Altmetric scores up.

[2020-05-22 07:28:42]

**[Kristian Andersen]**

So annoying. Got the same.... haven't read the actual questions. Got similar shit from a Nature reporter

[2020-05-22 07:29:00]

**[Andrew Rambaut]**

I assume this is what's his name 'molecular biologist'

[2020-05-22 07:49:49]

**[Kristian Andersen]**

"Molecular biologist" - my arse. I think we know who this is... It seems like this shit isn't worth responding to - if he can't understand how a virus might be able to pick up 12 bases (and finds that hugely unlikely), then I can't help him. I wonder how the virus got its genome in the first place....?

[2020-05-22 07:53:27]

**[Kristian Andersen]**

I might respond with a single sentence along the lines of all of this is pure speculation - there is no data to suggest any of the stuff the 'molecular biologist' is proposing actually happened. Where's the data?

[2020-05-22 08:23:48]

**[Robert Garry]**

I went back to look at my log BBC guy contacted me to - not with the long list of questions. I think I saw it and "forgot" to respond. Points for being concerned about my health. Not sure who the "molecular biologist is." Dear Robert,

I hope you're well. I'm the BBC Correspondent based in Beijing... and have, of course, been covering the outbreak of sars-covid-2 here in China since early this year.

I'm now looking at the question of the origin of the virus... which includes a trip to Wuhan to gather material later this week.

I understand how busy you must be at the moment, but would you have a few moments to speak on the phone? I have a few questions on which I would value your input related to the recent paper that you co-authored in Nature Medicine.

In the first instance I was hoping for a brief background chat over the phone, but alternatively, if easier we could converse over email. If you were interested we could then perhaps discuss, at a later date, the possibility of a more formal interview for TV via skype.

Best wishes,

John

[2020-05-22 09:26:59]

**[Andrew Rambaut]**

Bill's posting on virological shows you where the 12 base pairs probably comes from. Not sure it helps with these people who spin these 'just-so' stories though.

[2020-05-22 09:37:10]

**[Kristian Andersen]**

I'm so sick and tired of these "but how do you \_really\_ know it's not X? What about Y? Oh, but what about Z?". Either show me the fucking data or fuck off - two fucks to chose from.

[2020-05-22 14:13:57]

**[Eddie Holmes]**

I got the same email as well. I never respond to these.

[2020-05-22 14:16:49]

**[Kristian Andersen]**

Our communications department declined this one on my behalf and he wrote back saying "Oh, I know you're busy, but I only have a few short questions [paste everything in from Andrew's email]". Fuck off.

[2020-05-22 14:20:01]

**[Eddie Holmes]**

Did you see Jon Cohen's piece in Science: <https://www.sciencemag.org/news/2020/05/house-was-fire-top-chinese-virologist-how-china-and-us-have-met-pandemic>

[2020-05-22 14:22:15]

**[Eddie Holmes]**

Some complete BS answers (they had the sequence by Dec 26/27) but interesting that he says there is a task force investigating the animal origins.

[2020-05-22 14:31:23]

**[Eddie Holmes]**

I fully expect George Gao's team to come up with a paper describing a very closely related virus in species X in fairly near future. Let's just hope it's close enough to end debate and that they made all the raw read data available.

[2020-05-22 14:34:54]

**[Kristian Andersen]**

Interesting... No, I did not read that - but will do.

I really do hope a source will come up - would be so much easier and just end this shit show.

[2020-05-22 14:37:14]

**[Eddie Holmes]**

Completely agree. I so want that to happen.

[2020-05-22 15:02:54]

**[Robert Garry]**

It's obvious, but the only bits I'm really interested in are the RBD and the cleavage site of the progenitor of SARS-CoV-2. Yeah would be great. Hopefully not another - we have the 99+% virus cycle of build-up, promise, anticipation and - then most sadly deflation. WHO is supposedly putting a panel together to "investigate" the origins as well but I'd hope that the Chinese might have figured out a way to actually find something. I guess if I had to guess on species X I'd go with bat - pretty good bet.

[2020-05-22 15:06:35]

**[Eddie Holmes]**

Bob, I'll take your bat and raise you a raccoon dog. Only because they are so weird. I still think there was an intermediate. I can't see how WHO will be able to do what China can't. It's also the obvious way for China to end all the conspiracy shit - find a believable natural origin and it's over. Let's watch this space.

[2020-05-22 16:47:45]

**[Robert Garry]**

I like weird = just ask @Kristian Andersen I'm a big ferret fan to, if we're considering non-bats.

[2020-05-22 16:59:31]

**[Eddie Holmes]**

Ferret-badger would be great.

[2020-05-22 17:30:25]

**[Eddie Holmes]**

According to this, one of those Imperial College reports has an Altmetric of >65,000. I find this very hard to believe, and it's not a paper. Perhaps it solves the mystery though? [https://www.scienceopen.com/search#\('order'~0\\_'context'~\('collection'~\('id'~'d6ba10ea-809d-4f28-96b9-d2ed475ec319'\\_'kind'~0\)\\_'kind'~11\)\\_'v'~3\\_'kind'~77\)](https://www.scienceopen.com/search#('order'~0_'context'~('collection'~('id'~'d6ba10ea-809d-4f28-96b9-d2ed475ec319'_'kind'~0)_'kind'~11)_'v'~3_'kind'~77))

[2020-05-22 17:43:48]

**[Robert Garry]**

Guess I missed the hoopla. I think this is an error as well - if you look at the distribution of twitterers is all in the US. If not, apparently, one of us needs to find a married blond socialist "side-piece."

[2020-05-22 17:44:31]

**[Robert Garry]**

There is an obvious candidate BTW.

[2020-05-22 18:18:41]

**[Robert Garry]**

It's time for Ian to step up.

[2020-05-22 18:23:17]

**[Eddie Holmes]**

Yes, I think it's an error. Butt lesion has been very quiet lately.

[2020-05-23 14:24:13]

**[Eddie Holmes]**

Just a had a thought: for the GVP to work they would have to sequence gazillions of viruses. Then, to work out which of these might infect humans, they would then have to test them all in a range of human cells. We previously pointed out the crazy enormity of this task. But, it's not just size: what they are effectively proposed are 100,000s of GoF experiments for viruses that could potentially infect humans. Even if we don't think the virus came out of a lab, surely this is now an unacceptable risk?

[2020-05-23 14:31:01]

**[Robert Garry]**

That's a very good point Eddie - needs to see the light of day.

[2020-05-23 14:31:48]

**[Eddie Holmes]**

Not quite sure how to say it without encouraging the lab escape crowd for the current outbreak?

[2020-05-23 14:32:39]

**[Kristian Andersen]**

Exactly - that's why I haven't said anything :wink:

[2020-05-23 14:34:19]

**[Eddie Holmes]**

Your ahead of me Kristian. I think more about how this can be done.

[2020-05-23 14:37:02]

**[Kristian Andersen]**

Just tweet "I think Pete's R01 led to this pandemic and funding GVP would lead to more. Thanks @RealDonaldTrump for defunding. #Chinesevirus #MAGA [link to our paper]".

[2020-05-23 14:37:20]

**[Kristian Andersen]**

(since 65k is apparently our goal now...)

[2020-05-23 14:38:03]

**[Eddie Holmes]**

Great idea! Just going to login as one of my postdocs.

[2020-05-24 01:02:42]

**[Eddie Holmes]**

This is worth watching: <https://www.youtube.com/watch?v=7ilQJnEiBXY>

[2020-05-24 07:21:27]

**[Robert Garry]**

Thanks Eddie - Obviously a very smart scientist - the politically motivated attacks need to stop. Makes me want to organize an expedition to trap some raccoon dogs and ferret badgers.

[2020-05-24 08:44:27]

**[Kristian Andersen]**

Agreed, definitely worth watching. Although, I was disappointed to learn that the Mandarin spelling of Edward Holmes is Edward Holmes.

[2020-05-24 11:57:06]

**[Robert Garry]**

Much better than Donald Trump's Mandarin name, which I think can be variously translated as loud and crude.

[2020-05-24 12:55:51]

**[Kristian Andersen]**

Oh, I thought our Great Leaders name was ■■ in Mandarin.

[2020-05-24 13:59:02]

**[Robert Garry]**

Curefinder? Maybe my translator is a little off or it choose a synonym.

[2020-05-24 15:18:44]

**[Eddie Holmes]**

Curefinder? I tried it and got arsefinger.

[2020-05-24 15:22:50]

**[Kristian Andersen]**

Use a proper translator... This one should be easy :wink:

[2020-05-24 15:26:00]

**[Eddie Holmes]**

Although CGTN is a propaganda organ for the Chinese government, what she said rang true to me.

[2020-05-24 15:30:23]

**[Kristian Andersen]**

Yes, although I don't buy her "we were only interested in SARS-like CoVs, and something like SARS-CoV-2 is too far away from that, so we'd never have it here". That's just not true and not a good argument. I liked her comments on RaTG13 though, because it displays something important which she didn't say - yes, they have a lot of samples from bats and other animals - as well as a lot of sequences - but taking a sample and growing an actual virus out of it is really, really difficult. So with tens of thousands of samples (most of them with no SARS-like viruses in them),

one could only hope to maybe grow out a handful of viruses - what's the chance of out of that handful, one of them would be a super-charged pandemic virus?

[2020-05-24 15:36:07]

**[Eddie Holmes]**

Yes, I agree. And surely you'd only grow a virus that you sequenced and likely published?

[2020-05-24 15:37:39]

**[Kristian Andersen]**

Yes to the former, but not the latter - no, I don't think they would have published their sequences before also having grown it (however, somebody should have known about such a sequence if it existed and I'm pretty sure something would have been leaked by now)

[2020-05-24 15:47:18]

**[Eddie Holmes]**

One that latter point, I am struck by the complete lack of intelligence on this: surely, if they were growing a virus in the lab, incident or not, there would be standard chatter about it on email, text, wechat, whatever, but there's nothing. There's a mountain of chatter about the pneumonia cases in Wuhan back in December before the disease was officially reported, but there is nothing about the lab.

[2020-05-24 16:01:50]

**[Robert Garry]**

The virology is old-school - still grinding tissue and culturing I guess. Yeah - put that sample in a minus 80 for 6 or 7 years and growing something out would be hit or miss at best. Which organ are you going to grind up? SARS viruses not so viremic (resisting temptation to evoke the idiot) so blood not a good bet. I remain curious about the 99% virus which I guess either never existed or was not - well - quite 99%. They clearly did culture something out of where-ever they got that one if the EMs are vaguely reflective of the quasi-reality.

[2020-05-24 16:03:31]

**[Robert Garry]**

Different group I realize did the "99% virus" but they did culture something it appears.

[2020-05-24 16:07:41]

**[Robert Garry]**

"CGTN is a propaganda organ for the Chinese government" Lot of that going around these days - I wonder if the 9 foot green spacemen would be able to discern the difference with Fox Spews or any other Murdoch related garbage.

[2020-05-25 10:10:53]

**[Kristian Andersen]**

*[thread - ID: 2020-05-25 10:10:53]*

Sharing this in case there are any comments. His #1 caught my eye a little while back too, but I haven't looked into it further.

```Dr. Andersen-

I read with interest your paper titled, The proximal origin of SARS-CoV-2, in which you conclude this is a natural, zoonotic-sourced infection. Three different approaches of analysis that I have done do not support this conclusion. Can you comment please:

1. The furin cleavage site insert has the unusual codon usage for the RR dimer of CGG-CGG. As you probably know, the frequency of this codon usage in the SARS-CoV-2 genome is 0.09. So having two next to each other is not likely as a random event. As support for the unlikeliness of these codons, using GISAID data, by March there is evidence of the third G being mutated out for either A or T at three-times the rate of the background mutation rate, 26/year from Nextstrain.org. Since codon usage in coronaviruses are not greatly influenced by the host it resides in, this means a jump to humans must have been in a host which did not have even a few months history with the virus, otherwise the terminal G would have been purified out. On the other hand, most laboratory use optimized codon primers and kits use CGG routinely; including in primers in published papers from the Wuhan Institute of Virology.

So a laboratory source for a gain-of-function furin cleavage site would probably use these codons.

2. In the over 16,000 genomes in GISAID there is not one example of posterior diversity. With MERS, 93% of sequenced genomes did not pass through the index case but represented separate reservoir host to human jumps and this was apparent within 60 days of the index case. They collectively showed the most recent common ancestors among themselves was over 12 months before the index case. With SARS-CoV-2 it is acting like a 'pure culture' growth from the index case outward with no evidence of a reservoir host in the background. This would be the case for a laboratory acquired infection.

3. If you use a map of Wuhan and overlay the first four hospitals that saw cases with a map of the Metro system, you see that the hospitals straddle Line 2, which runs approximately east to west, carries 1,000,000 people a day, and is the Metro line with stops closest to both the Wuhan Institute of Virology and the original wet market that was considered an early source for the infection. There are 11 Metro lines in Wuhan, hundreds of stops on those lines, and over a dozen hospitals spread out over the city. I am working with a UCLA statistician to perform tests about the probability of this being simply an accident of statistics but the gestalt is, it does not look like a chance occurrence. But it is consistent with someone getting infected in the lab, riding Line 2 for a few days, and off you go.

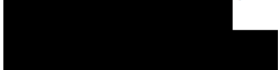
It might be a truism to say that the six proven cases of laboratory derived SARS escapes occurred in big cities, Beijing, Singapore, or Taipei where the labs are located. But if you follow it with the fact that MERS and SARS, both proven as true zoonotic sources, on other hand began in rural settings in China and the Middle East, respectively. I am not sure why this obvious correlation was not at least pointed out in your paper and then addressed with a cogent argument.

I look forward to hearing your thoughts.

Regards, Steve

--

Steven Quay, MD, PhD



[2020-05-25 10:39:23]

[Andrew Rambaut]

[thread - ID: 2020-05-25 10:10:53]

@Kristian Andersen Doesn't Bill's observation of the acquisition of the insertion from another bat coronavirus explain the exact sequence of this and what codons it uses.

[2020-05-25 10:52:16]

[Kristian Andersen]

[thread - ID: 2020-05-25 10:10:53]

@Kristian Andersen Not quite sure if it does - CGG is part of the sequence Bill mentions, but not quite sure if CGG has to be conserved there. Need to check what those FIPs have at that site

[2020-05-25 10:52:51]

[Kristian Andersen]

[thread - ID: 2020-05-25 10:10:53]

@Kristian Andersen Curiously, they have exactly the same polybasic site, which I previously missed - also on Virological :wink:

[2020-05-25 11:06:19]

[Kristian Andersen]

[thread - ID: 2020-05-25 10:10:53]

@Kristian Andersen Here's what it looks like on the cat side - one CGG and one CGA. So no mystery really. [shared file(s): Screen Shot 2020-05-25 at 11.00.58 AM.png]

[2020-05-25 11:34:10]

[Robert Garry]

[thread - ID: 2020-05-25 10:10:53]

@Kristian Andersen I'd just take this as more evidence for the short insertion hypothesis. A random event. The 12 base pair insertion is - as ProfBill pointed out - out of frame. So if the insertion of the RR was purposeful why also create a proline insertion and put the 12 bases in out-of-frame? Not sure I buy that the "terminal G would have been purified out." Even with a 3X higher substitution rate don't most of the isolates still have CGGCGG after passage in humans for at least 6 months?

[2020-05-25 11:39:50]

[Kristian Andersen]

[thread - ID: 2020-05-25 10:10:53]

@Kristian Andersen Yeah, agreed - and yes, that last part of this would have been 'purified out' is pure bs.

[2020-05-25 11:49:14]

[Robert Garry]

[thread - ID: 2020-05-25 10:10:53]

@Kristian Andersen <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3713968/> The FIP story would be interesting - even if it turns out wasn't what did in my daughter's cat.

[2020-05-25 12:09:42]

[Robert Garry]

[thread - ID: 2020-05-25 10:10:53]

@Kristian Andersen For what it's worth those cat CoV spikes with the PRRAR also have predicted O-glycans.

[2020-05-25 12:27:33]

[Kristian Andersen]

[thread - ID: 2020-05-25 10:10:53]

@Kristian Andersen Yeah, I noticed that - very interesting. Might come back to that BMP paper with these glycans actually regulating the site - so cool biology in there to be found I think...

[2020-05-25 14:00:02]

[Robert Garry]

Well - I guess this was good while it lasted at least according to Mr Arumugham and Ms Markson.

[2020-05-25 15:22:17]

[Eddie Holmes]

"Since codon usage in coronaviruses are not greatly influenced by the host it resides in, this means a jump to humans must have been in a host which did not have even a few months history with the virus, otherwise the terminal G would have been purified out". There are a number leaps in logic and evidence at this point.

[2020-05-25 15:37:44]

[Eddie Holmes]

HKU9 has CGG CGG - send him Bill Gallaher's link.

[2020-05-25 16:08:39]

[Kristian Andersen]

<https://www.abc.net.au/news/2020-05-26/china-coronavirus-dossier-came-out-of-us-state-department/12282994>

[2020-05-25 17:05:41]

[Kristian Andersen]

It's now two for two - phylogenetics can be hard... @Andrew Rambaut, I assume your preprint must have prompted this...? (separately, I blame you for convincing me that the hypothesis was right!! :wink:).

<https://twitter.com/trvr/status/1265063921880150016?s=20>

[2020-05-25 18:12:22]

[Eddie Holmes]

I did enjoy that ABC article...

[2020-05-25 18:54:11]

[Eddie Holmes]

Did you see this shite? [shared file(s): spike-ACE2speciesspecificitypreprint.pdf]

[2020-05-25 18:54:29]

[Eddie Holmes]

Causing some local problems today...

[2020-05-25 19:08:32]

[Eddie Holmes]

Got rejected at bioRxiv but posted at arXiv: <https://arxiv.org/abs/2005.06199>

[2020-05-25 19:10:56]

[Kristian Andersen]

Can't fix stupid. Apparently....

[2020-05-25 19:19:37]

[Eddie Holmes]

Did you see this by-the-way? <https://www.viralemergence.org/about> Much ado about absolutely fuck-all

[2020-05-25 23:36:11]

[Andrew Rambaut]

Is that one bigger than the Big Data Institute?

[2020-05-25 23:50:02]

[Eddie Holmes]

Why don't we establish 'The Big-Assed Motherfucking Data Institute'?

[2020-05-25 23:54:52]

[Eddie Holmes]

A tribute to Leon from Curb who has a johnson of said characteristics:
<https://www.facebook.com/curbyourenthusiasm/videos/10159335402655532/>

[2020-05-26 07:21:47]

[Kristian Andersen]

Hahahahahaaa, MDI - I missed that! Brilliant!

[2020-05-26 12:27:06]

[Kristian Andersen]

:thinking_face: [shared file(s): Screen Shot 2020-05-26 at 12.26.26.png]

[2020-05-26 12:27:24]

[Kristian Andersen]

:man-facepalming:

[2020-05-26 12:59:29]

[Robert Garry]

The dots just keep coming. I mean what are the odds that the Batwoman [of course, not the "actual" Batwoman - the one in a long-term relationship with the woman who becomes the Question] is the same age as the first known case?

[2020-05-26 13:01:27]

[Robert Garry]

"Although PREDICT almost certainly discovered hundreds of potential zoonoses, their true zoonotic potential is almost impossible to assess, leading to the surprising statistic that the programme only led to one conclusive discovery of a zoonosis, the Bas-Congo virus.⁷"

[2020-05-26 13:01:32]

[Robert Garry]

• 7.Branco LM Garry RF

Bas-Congo virus - not an established pathogen.

Science. 2018; (published online Dec 3.)

[2020-05-26 13:03:54]

[Robert Garry]

From PREDICT to prevention, one pandemic later

[2020-05-26 13:03:56]

[Robert Garry]

[https://www.thelancet.com/journals/lanmic/article/PIIS2666-5247\(20\)30002-1/fulltext#back-bib7](https://www.thelancet.com/journals/lanmic/article/PIIS2666-5247(20)30002-1/fulltext#back-bib7)

[2020-05-26 14:40:52]

[Eddie Holmes]

Spooky - I'm 55, and I'm in conspiracy with the Chinese red army and the WIV. They've nailed it.

[2020-05-26 15:10:28]

[Robert Garry]

Yes Eddie and I understand that you have had 6 negative COVID tests but in fact that you are sure that you had it. Trump was right about the azithromycin!

[2020-05-26 18:08:32]

[Eddie Holmes]

Just sent you all an email. Apologies in advance.

[2020-05-26 18:28:30]

[Kristian Andersen]

Thanks man... You owe us a solid.

[2020-05-26 18:37:35]

[Eddie Holmes]

I bloody do!

[2020-05-26 19:28:49]

[Eddie Holmes]

Actually, I've already done Andrew a solid: Carl Zimmer sent me the paper (which I had not seen) and then Trevor's tweetfest. I obviously said very nice things about the paper...

[2020-05-26 19:51:41]

[Kristian Andersen]

Yeah, I talked to Carl too - was really difficult to balance being diplomatic and then telling him that one has to be careful making conclusions... I thought my quote in Stat was nice and to the point though :wink: [shared file(s): Screen Shot 2020-05-26 at 7.51.11 PM.png]

[2020-05-26 19:52:25]

[Eddie Holmes]

Fuck, that was my line!

[2020-05-26 19:54:21]

[Kristian Andersen]

Sorry buddy, I got there first. (actually my real quote was "Yes" - so that would have been shorter... She asked me if I thought the Worobey study was convincing and well-supported - I felt a simply 'yes' was sufficient...)

[2020-05-26 19:55:38]

[Kristian Andersen]

[thread - ID: 2020-05-26 19:55:38]

I'm pretty sure Oli is one smug bastard right now :wink:

[2020-05-26 21:19:47]

[Eddie Holmes]

Yes, looking forward to some choice emails on the subject.

[2020-05-26 23:45:58]

[Andrew Rambaut]

[thread - ID: 2020-05-26 19:55:38]

Actually Oli is fuming because of all the Trevster adoration about how noble it is to admit you are wrong.

[2020-05-27 02:47:18]

[Eddie Holmes]

The Twitteratti might think that, but the academics won't when they read the paper. It's some take down.

[2020-05-27 02:48:11]

[Eddie Holmes]

Otherwise, we'll need a picture of Trevor playing golf with Trump.

[2020-05-27 07:14:43]

[Kristian Andersen]

I gotta admit, that is really bugging me as well. There are different kinds of mistakes, including honest ones and those you make because unexpected new data is brought to light. Then there are those that are very consequential and made on so little data that the chance of them being wrong is very high. I'm not sure we should applaud those mistakes as they undermine what we're trying to do in the first place (in this case, exactly two high-profile hypotheses were put forward, both of them wrong (one of which was immediately obvious to anyone with basic knowledge in the field)). That's not "science in action", because science is not about making a bunch of random predictions others later have to walk back - science is about trying to get it right in the first shot, and then refine as new data is brought to light.

Great preprint btw - I wonder if Trevor would have admitted the mistake if it hadn't come out...

[2020-05-27 07:59:44]

[Robert Garry]

Yes - all true. Hands clapping for the preprint! As for being bugged - I feel the pain. Calling out the bullshit is an unforgiving task. Can even make you a little bit crazy. I should know. Necessary to prevent long-term damage to the field. Still it is possible if you try really hard and are adept at bringing the BS to the public through the press to do more damage than publishing a crap paper in a medical journal - that can be corrected to a certain extent. What's harder to take - because people actually die - is the kind of misinformation we saw in the WA Ebola outbreak where the experts said early on that eating bushmeat was sustaining the Ebola outbreak or this is a normal outbreak and it will be over in 2 weeks. More recently some of the same "experts" said that protecting yourself against C19 was as simple as using a Kleenex to hold onto the rail in the crowded subway car or that this is NOT an airborne virus. That made people selling hand sanitizer very wealthy, but delayed talk of social distancing by about a month in the US.

[2020-05-27 15:56:49]

[Eddie Holmes]

I agree. The other issue here is ego. Cleverly, Trevster does what he does because he is in love with this image in this pandemic: he feels he is saving humanity and has to fuel an adoring public. His threads have been increasing dogmatic and errors will creep in. Ego also explains some of those early events in China: obviously, all those involved are desperately trying to be the first to publish on the virus and prevent others from beating them. This is human nature. In most cases we can handle it. Occasionally, ego and narcissism gets so strong that it is impossible

to handle and is damaging. Alas, the US President is a prime example.

[2020-05-27 15:59:38]

[Andrew Rambaut]

The most annoying thing is Trevor is very clever and very talented and could be doing great science. I think he is wasted doing NextStrain but he has been sucked in by it.

[2020-05-27 16:01:09]

[Eddie Holmes]

Very true. Believing your own hype never ends well.

[2020-05-28 06:19:49]

[Andrew Rambaut]

Nice to get a wacky paper to review that isn't about SARS-CoV-2: "Influenza virus-flow from insects to humans as causative for influenza seasonality"

[2020-05-28 07:05:17]

[Kristian Andersen]

Ooookay. Jens Kuhn strikes again? :zany_face:

[2020-05-28 07:05:42]

[Robert Garry]

THat was exactly my thought - spooky!

[2020-05-28 07:06:52]

[Andrew Rambaut]

`Corresponding Author: Albrecht Pfäfflin`

[2020-05-28 07:06:59]

[Andrew Rambaut]

```Virus biomass outweighs human biomass, and insects biomass outweighs human biomass. Insects are regularly habited by viruses as well as humans, humans are further inhabited via insects. A model of viral flow is described and specified to explain influenza virus seasonality, which, in temperate climate, usually evolves when insects have mostly disappeared. With this hypothesis a coherent description of regular seasonal influenza and other seasonal respiratory virus infections in temperate climates is possible. The incidence of influenza under different circumstances e.g. temperature, humidity, or tropical conditions and different aspects like synchronicity of infections or in respect to evolutionary conditions do sustain this hypothesis if the behaviour of insects is considered.```

[2020-05-28 07:19:22]

**[Kristian Andersen]**

:joy:. That's amazing - awesome lead!

[2020-05-28 08:02:52]

**[Robert Garry]**

Pertinent to the thread though - this kind of nonsense is actually less hazardous than some of the bad science promulgated by "credentialed" "scientists." How much damage was done by "experts" simply refusing to acknowledge that this respiratory virus might actually be airborne? I know - rhetorical, but the answer [bat mites aside <https://en.wikipedia.org/wiki/Bat-Mite>] is probably a \*lot more\* than ~Jens~ some random German dude spewing nonsense about insects spreading ~Ebola~ flu. Then there are the Mikovitses of the world who occupy their own special place.

[2020-05-28 09:12:42]

**[Andrew Rambaut]**

Bit of a theme today:

```International Journal of Clinical Virology has received a manuscript entitled: "CAN HOUSE FLIES MECHANICALLY CARRY AND /OR TRANSPORT SARS-COV-2?"```

[2020-05-28 09:28:15]

[Kristian Andersen]

Can they?

[2020-05-28 10:55:18]

[Robert Garry]

Shame Kristian - Curefinder already laid this one to rest. [shared file(s): image.png]

[2020-05-28 10:57:45]

[Robert Garry]

Of course, with enough mutations like "Doug" maybe yes - borne in the air by a fly.

[2020-05-28 11:43:15]

[Kristian Andersen]

It's definitely airborne (as in, some of the spread is airborne - but probably not most) - although that was less clear in the beginning of April.

[2020-05-28 12:17:43]

[Robert Garry]

Maybe just anecdotal evidence, but I sense a slight decline in the quality of submitted papers.*“Viruses: Genetically Encoded Alarm Messages For Communication Between Individuals”.*

I am writing this email in hope that you may be able to review the above referenced manuscript.

Please find the abstract below.

Abstract:

According to the present alert information theory, viruses are not microorganisms external to our body, but their genetic material is already contained in the DNA/RNA of our cells, in what we know as endogenous retroviruses (ERVs). A virus would actually be an Exogenous Cellular Gene Secretion (ECGS) carrying alert information that would be produced by cells under stress. They are made up of DNA or RNA genes wrapped in a protein capsule and, in some cases, a protective membrane. Such coatings would allow them to withstand the conditions of displacement within the organism, or between different individuals, and possess a form of binding to transmit their information to a specific recipient cell.

Finally, the extracellular vesicles (EVs) secreted after the entry of these ECGS in the target cells, would perform, among other functions, that of second messengers of the viral message from abroad, defining the immune response of the receptor.

[2020-05-28 12:38:06]

[Robert Garry]

I suspect some kind of sting operation afoot with this one - you might need to know something about viruses to come up with such gibberish.

[2020-05-28 12:53:51]

[Kristian Andersen]

On to better papers, this is pretty interesting - especially cats:
<https://science.sciencemag.org/content/sci/368/6494/1016.full.pdf>

Cat-like intermediate host? Probably not cats...

[2020-05-28 13:24:07]

[Robert Garry]

*Again - please do not inform my daughters of this paper. Cat-like host - definitely a possibility.

Feliformia* (also *Feloidea*) is a suborder within the order Carnivora consisting of "cat-like" carnivorans*, including cats (large and small), hyenas, mongooses, civets, and related taxa. Feliformia stands in contrast to the other suborder of Carnivora, Caniformia (also Canoidea, "dog-like" carnivorans).[1]

The separation of the Carnivora into the broad groups of feliforms and caniforms is widely accepted, as is the definition of Feliformia and Caniformia as suborders (sometimes superfamilies). The classification of feliforms as

part of the Feliformia suborder or under separate groupings continues to evolve.

[2020-05-28 17:25:00]

[Eddie Holmes]

What do you make of this - George Gao now saying they tested animals at the market:
<https://www.globaltimes.cn/content/1189506.shtml>

[2020-05-28 17:29:40]

[Kristian Andersen]

Interesting. I'm not sure where he has this from "The novel coronavirus had existed long before", but other than that, seems plausible - I don't really think we have any good reason to believe that all of this started in the seafood market (it could very likely just have been a super spreading event). WSJ also had an article yesterday about it, but I can't read it since I don't have access: <https://www.wsj.com/articles/china-rules-out-animal-market-and-lab-as-coronaviruss-origin-11590517508?redirect=amp#click=https://t.co/yqDYsxoQ0>

[2020-05-28 17:39:57]

[Eddie Holmes]

I dunno...it is still a huge coincidence that it happened in the place with all the animals....I've just emailed George to ask for more details about the animal sampling. Doubt he'll reply.

[2020-05-28 17:47:06]

[Kristian Andersen]

That's true - but presumably a lot of wildlife traders must also have been there who could have brought the virus to the market? As far as I'm concerned, the whole thing could have started with a single individual there and then it just amplifies over time as more and more traders get infected.

[2020-05-28 17:56:39]

[Eddie Holmes]

I agree.

[2020-05-29 01:22:21]

[Andrew Rambaut]

There is probably ascertainment bias here. It could just be a workplace cluster but animal markets were a flag that got it noticed. On the other hand it could be a live animal source (i.e. a farm or breeder) had an outbreak and was continually feeding animals in over the course of weeks possibly to multiple city locations. Lots of possibilities that could explain the observations without having to posit a hidden older epidemic or a nefarious source. Certainly the supposed oldest cases being not linked to the market doesn't mean much.

[2020-05-29 02:53:31]

[Eddie Holmes]

True. Will be interesting to see what George and his team come up with.

[2020-05-29 06:59:33]

[Robert Garry]

Heres the WSJ article [shared file(s): China Rules Out Animal Market and Lab as Coronavirus Origin - WSJ.pdf]

[2020-05-29 09:46:47]

[Robert Garry]

I agree with all of this discussion - the market is either a critical clue or a red herring. Agree with KGA that "could very likely just have been a super spreading event." Very good to at least have the fact from GG that animals were tested and were negative.

[2020-05-29 13:02:45]

[Kristian Andersen]

Haven't had time to read this yet, but not quite understanding why I'm not seeing Eddie's name on this...
<https://advances.sciencemag.org/content/early/2020/05/28/sciadv.abb9153>

[2020-05-29 14:04:47]

[Andrew Rambaut]

```We also demonstrate that SARS-CoV-2's entire RBM was introduced through recombination with coronaviruses from pangolins```

Nope. Entire RBM was lost from RaTG13 through recombination with another bat virus.

[2020-05-29 14:06:43]

**[Kristian Andersen]**

Yeah, I thought that was the case

[2020-05-29 14:29:48]

**[Robert Garry]**

Does this mean that the reporters are going to start calling again? I'd just as soon be left alone.

[2020-05-29 14:33:55]

**[Robert Garry]**

"RBM was lost from RaTG13 through recombination with another bat virus." I'm a believer - definitely the most likely scenario.

[2020-05-29 15:31:46]

**[Eddie Holmes]**

By definition, I don't see how you can emerge through 'purifying selection'.

[2020-05-29 15:33:40]

**[Eddie Holmes]**

First I've seen of this: Bette Korber strikes again.

[2020-05-29 15:39:23]

**[Kristian Andersen]**

I think she should go back to annotating HIV alignments.

[2020-05-29 15:41:57]

**[Eddie Holmes]**

:bomb:

[2020-05-31 04:41:12]

**[Andrew Rambaut]**

This is all Brian Foley I would think. He originally posted this on virological (I even replied to say he got the direction of recombination wrong).

[2020-05-31 04:42:03]

**[Andrew Rambaut]**

Wonder what happened to Korber's D614G paper with its entirely fictional Belgium recombination event?

[2020-05-31 16:39:21]

**[Eddie Holmes]**

I heard it went to Cell but I've heard nothing. Surely it will get binned and end-up in IGE next to more awesome output from Frankie Bollocks.

[2020-06-01 10:01:58]

**[Kristian Andersen]**

Why does this kind of crap get published? <https://onlinelibrary.wiley.com/doi/abs/10.1002/jmv.26067>. Isn't this the journal with the snake flu paper too?

[2020-06-01 10:47:00]

[Robert Garry]

\*New coronavirus losing potency, top Italian doctor says\*

[2020-06-01 10:47:01]

[Robert Garry]

<https://www.reuters.com/article/us-health-coronavirus-italy-virus/new-coronavirus-losing-potency-top-italian-doctor-says-idUSKBN2370OQ>

[2020-06-01 11:10:16]

[Kristian Andersen]

So many requests about this today - such a waste of time...

[2020-06-01 11:15:28]

[Robert Garry]

Don't know if you'll agree but I answered something like this: That's a set of very alarming statements in the Reuter's article. There is no evidence that SARS-CoV-2 is "losing its potency" in Italy or anywhere else. This is not what happens over a short period of time in virus evolution.

What has happened is that case numbers have dropped in Italy, no doubt because of "some of the most rigid lockdown restrictions introduced anywhere on the continent."

"The swabs that were performed over the last 10 days showed a viral load in quantitative terms that was absolutely infinitesimal compared to the ones carried out a month or two months ago."

This is almost certainly due to the fact that in the early days of the outbreak in Italy a larger percentage of very sick individuals we tested by the qPCR. As the mitigation kicked in a higher percentage of milder cases would be tested.

Virus load correlates with severity. Here's one example:

[https://www.thelancet.com/journals/laninf/article/PIIS1473-3099\(20\)30232-2/fulltext](https://www.thelancet.com/journals/laninf/article/PIIS1473-3099(20)30232-2/fulltext)

"The mean viral load of severe cases was around 60 times higher than that of mild cases, suggesting that higher viral loads might be associated with severe clinical outcomes."

Anecdotes are not science and shouldn't drive public health policy – particularly during a pandemic.

[2020-06-01 11:39:25]

[Kristian Andersen]

Yeah, basically my thinking - although I have decided not to comment... :wink:

[2020-06-01 12:07:45]

[Robert Garry]

<https://www.nbcnews.com/health/health-news/ebola-congo-2nd-outbreak-ebola-reported-congo-who-says-n1221226> Be prepared for ultimate SARS-Cov-2/Ebola virus/measles virus mash-up hysteria.

[2020-06-01 19:35:40]

[Eddie Holmes]

<https://www.sciencemag.org/news/2020/06/nih-halted-study-unveils-its-massive-analysis-bat-coronaviruses> "We were going to do full genomes but our funding was cut" :hankey:

[2020-06-01 19:36:55]

[Kristian Andersen]

"He acknowledged that such an effort would be very costly, but said that compared to the cost of a pandemic, "You're definitely getting a good return on investment.""

<https://www.nytimes.com/2020/06/01/science/coronavirus-bats-wuhan.html>

[2020-06-01 19:37:07]

**[Kristian Andersen]**

So much bullshit from this guy

[2020-06-01 19:40:05]

**[Eddie Holmes]**

Unbelievable BS

[2020-06-01 19:41:35]

**[Eddie Holmes]**

At some point this will need to be called out.

[2020-06-01 19:42:33]

**[Kristian Andersen]**

Yup.

[2020-06-01 20:13:15]

**[Eddie Holmes]**

Shameless. He also posted that paper on bioRxiv AFTER it was accepted at Nat.Comm.

[2020-06-01 20:18:42]

**[Kristian Andersen]**

Of course he did - and also only after baiting journalists with his drivel

[2020-06-01 20:21:07]

**[Eddie Holmes]**

Here are the talking points they sent to the journos. The last 2 in the natural origins bit have got nothing to do with his paper at all. [shared file(s): Talking points Latinne et al. Bat Coronaviruses, China.docx]

[2020-06-01 20:23:28]

**[Kristian Andersen]**

Fuck me.

[2020-06-01 20:25:35]

**[Eddie Holmes]**

I know. What a bollock merchant.

[2020-06-01 20:26:21]

**[Kristian Andersen]**

He's gone off the rails - but of course, there seems to be an epidemic of exactly that in this country at the moment. Starting from the very top.

[2020-06-02 06:49:29]

**[Robert Garry]**

<https://www.independentsciencenews.org/health/the-case-is-building-that-covid-19-had-a-lab-origin/>

[2020-06-02 07:32:03]

**[Robert Garry]**

<https://americanloons.blogspot.com/2014/01/864-jonathan-latham-allison-wilson.html>

[2020-06-02 07:32:28]

**[Robert Garry]**

A little more about the authors - American Loons - luv it!

[2020-06-02 14:21:14]

**[Eddie Holmes]**

Yes, I got this was and subscribed to the loon group without my knowledge.

[2020-06-02 14:24:01]

**[Eddie Holmes]**

That's a great blog though

[2020-06-02 15:03:49]

**[Andrew Rambaut]**

<https://apnews.com/3c061794970661042b18d5aeaaed9fae>

[2020-06-02 16:05:25]

**[Eddie Holmes]**

Yes, I read it first thing. I think they have pretty much nailed it. They asked me a comment a few times but I just ignored. Won't do Zhang any favours in China though.

[2020-06-02 20:08:07]

**[Kristian Andersen]**

Yeah, great reporting from the AP on this, however, I vehemently disagree that faster information (we're talking ~ a week here) would have had \*any\* measurable difference - Europe and the US would still have been sleeping on their watch and \*nothing\* would have changed. The article make it sound as if China's delays made this a worse situation - sure, maybe a little bit, but compared to the delays (past and present...) on the US side, that's peanuts. That needs to be really friggin' clear.

[2020-06-03 00:15:40]

**[Eddie Holmes]**

Completely agree. NO country would have imposed a lockdown faster than China. No way. The mistake - which was understandable - is that they (China) assumed that was SARS and hence would be relatively easy to contain as they just had to quarantine the symptomatic cases.

[2020-06-03 07:02:39]

**[Kristian Andersen]**

Agreed. What's really frustrating is that people writing about China's 'slow response' have no clue about outbreak response or what is involved. Plus, in hindsight it's easy to see that it transmits really easily, but we/they didn't know that in the beginning and it was a reasonable assumption that it didn't.

China definitely isn't innocent, but no matter how you look at it, they reacted exceptionally fast - all the delays that totally changed the course of this pandemic happened outside of China.

[2020-06-03 07:08:37]

**[Andrew Rambaut]**

There was definitely the rush to publish in Nature that probably resulted in some hiding of data. The posting to virological put a stop to that I think. But I seem to remember that Zhang had a Nature paper ready by the time the sequence was uploaded to Genbank (and before the Virological post) - Eddie persuaded him to release the data first which probably saved China generally from much greater embarrassment.

[2020-06-03 07:24:26]

**[Kristian Andersen]**

Yup, that last bit is definitely true. And yes, there were (short) delays no doubt - but they were inconsequential in the grand scheme of things (my main issue here is that especially in the US is that people can't uncouple the two - i.e. (1) the delay and (2) the consequences from that delay. People immediately jump to the conclusion that this could all have been stopped if there hadn't been a week delay, which is obviously rubbish)

[2020-06-03 11:52:58]

**[Robert Garry]**

Actions and statements that lead to actual delays that were more consequential:

1. It's China's problem – we don't have any cases here

2. It's a hoax
3. It's no worse than the flu
4. Getting a qPCR test that actually works
5. Just washing your hands is best defense against COVID-19
6. Masks don't do any good
7. It's not airborne
8. Just treat with hydroxychloroquine
9. Just wait til the summer it'll stop
10. Contact tracing - let the states do it
11. Supplies - let the states get them
12. Vaccine - who cares?

[2020-06-03 11:57:39]

**[Robert Garry]**

13. It's just killing old people – they were going to die anyway
14. It's a blue state problem
15. It will mutate and get harmless
16. Just use a Kleenex and hand sanitizer – lot's of hand sanitizer

[2020-06-03 11:57:53]

**[Robert Garry]**

- 17 It will mutate and get more deadly

[2020-06-03 11:58:21]

**[Robert Garry]**

18. I got it through my eyes (my EYES)!

[2020-06-03 12:00:01]

**[Robert Garry]**

19. We'll be back open by Easter

[2020-06-03 12:02:55]

**[Robert Garry]**

20. Tests are no good

[2020-06-03 12:12:18]

**[Robert Garry]**

Ok - maybe not all led to delays, but a lot of stuff has just not been all that helpful...

[2020-06-03 12:13:06]

**[Robert Garry]**

And then we have \*PRIMARY SEWAGE SLUDGE\* - that may actually be helpful:  
<https://www.medrxiv.org/content/10.1101/2020.05.19.20105999v1.full.pdf>

[2020-06-03 12:52:13]

**[Robert Garry]**

Not mentioned in my list above are the we're all going to die predictions (65K) that also might fall into the "not been all that helpful" category.

[2020-06-03 12:53:54]

**[Kristian Andersen]**

Haha, Bob, this is a freakishly accurate description of what went wrong in the US.... And it continues, of course - never learn from mistakes.

[2020-06-03 15:46:10]

**[Eddie Holmes]**

I might make a t-shirt of Bob's list of 20. Of perhaps just 17 in bright red.

[2020-06-03 15:50:28]

**[Andrew Rambaut]**

<https://www.telegraph.co.uk/news/2020/06/03/exclusive-coronavirus-began-accident-disease-escaped-chinese/>

[2020-06-03 15:53:14]

**[Eddie Holmes]**

Ugh.

[2020-06-03 15:54:04]

**[Robert Garry]**

Yeah - forgot about all the unhelpful stuff re the origins - probably a good 5 or 6 more points for the list.

[2020-06-03 15:56:45]

**[Eddie Holmes]**

Did you read the paper in question. I don't really see how it supports a lab escape?

[2020-06-03 15:58:04]

**[Andrew Rambaut]**

It doesn't - but the article explains that it has been watered down apparently.

[2020-06-03 15:58:35]

**[Andrew Rambaut]**

And a new paper is coming out as soon as they find someone to publish it.

[2020-06-03 16:04:57]

**[Eddie Holmes]**

Got it. I went straight to the paper. Have you seen the original? I'd love to see what this compelling evidence is.

[2020-06-03 16:05:08]

**[Eddie Holmes]**

"Henceforth, those who would maintain that the Covid-19 pandemic arose from zoonotic transfer need to explain precisely why this more parsimonious account is wrong before asserting that their evidence is persuasive, most especially when, as we also show, there are puzzling errors in their use of evidence." Is this us?

[2020-06-03 16:11:01]

**[Andrew Rambaut]**

Presumably. I see a 40K Altmetric.

[2020-06-03 16:13:21]

**[Eddie Holmes]**

"To remedy the problem, the researchers are developing their own vaccine, produced by Immunor AS, a Norwegian pharmaceutical company led by Mr Sorensen".

[2020-06-03 16:14:05]

**[Andrew Rambaut]**

Of course they are.

[2020-06-03 16:30:39]

**[Kristian Andersen]**

Is it this mystery paper? [shared file(s): Screen Shot 2020-06-03 at 4.30.01 PM.png]

[2020-06-03 16:35:27]

**[Andrew Rambaut]**

That sounds likely. Did they send you a copy?

[2020-06-03 16:37:09]

**[Eddie Holmes]**

I got that as well. No paper.

[2020-06-03 16:38:10]

**[Kristian Andersen]**

Yeah, no paper - so I had no idea what it was about

[2020-06-03 16:39:13]

**[Eddie Holmes]**

Apparently, as UKIP health spokesman he literally argued for policy of re-allowing smoking inside pubs.

[2020-06-03 16:40:07]

**[Eddie Holmes]**

"Dagleish stood in 2015 for Parliament as a UKIP candidate".

[2020-06-03 16:43:47]

**[Kristian Andersen]**

Sounds like he's a real expert then. Good.

[2020-06-03 16:50:03]

**[Kristian Andersen]**

Ehm, can somebody please point me to the part of the paper where they prove this virus is not natural? I have a hard time finding it...

[2020-06-03 17:47:21]

**[Eddie Holmes]**

We need to see the 'original' paper. That one says nothing at all.

[2020-06-03 17:48:11]

**[Kristian Andersen]**

I suspect we'll be disappointed...

[2020-06-03 18:06:38]

**[Eddie Holmes]**

It will be mental though, and hence enjoyable. You need to watch Dagleish in this video - such a nutter:  
<https://www.bbc.com/news/av/election-2015-32522124/election-2015-health-debate-ukip-on-park-smoking-ban>

[2020-06-04 00:25:57]

**[Eddie Holmes]**

Perhaps more credible than this paper I was just asked to review?

\*Influenza virus-flow from insects to humans as causative for influenza seasonality\*

Virus biomass outweighs human biomass, and insects biomass outweighs human biomass. Insects are regularly habited by viruses as well as humans, humans are further inhabited via insects. A model of viral flow is described and specified to explain influenza virus seasonality, which, in temperate climate, usually evolves when insects have mostly disappeared. With this hypothesis a coherent description of regular seasonal influenza and other seasonal respiratory virus infections in temperate climates is possible. The incidence of influenza under different circumstances e.g. temperature, humidity, or tropical conditions and different aspects like synchronicity of infections or in respect to evolutionary conditions do sustain this hypothesis if the behaviour of insects is considered.

[2020-06-04 01:20:31]

**[Andrew Rambaut]**

I had that one!



[2020-06-04 02:34:00]

**[Eddie Holmes]**

So tempting to delve into the madness but I declined.

[2020-06-04 05:31:11]

**[Robert Garry]**

Jens should test the duck-mites...

[2020-06-04 07:55:46]

**[Robert Garry]**

<https://www.theguardian.com/world/2020/jun/03/covid-19-surgisphere-who-world-health-organization-hydroxychloroquine-more-unhelpful-stuff>

[2020-06-04 08:29:00]

**[Kristian Andersen]**

Aaaaaahahahahahaha aaaaaaaahahahahahahaha, I said we were going to be disappointed when we finally got a chance to see the actual paper, right? It's complete nonsense - I'll tell Tom.

[2020-06-04 10:10:28]

**[Robert Garry]**

Oh my---"The logic of Occam's Razor leads us to the most elegant and robust explanation, which is that of retro-engineering of RaTG13 after the outbreak, ie during January-February 2020." \*Ah ha - RaTG13 was retro-engineered to cover of the cloning by the Red Army - that's brilliant!\* "Like Pradhan \_et al\_, we note an uncanny similarity between unique inserts (circumscribed in red framed boxes above) in the 2019-nCoV spike protein to HIV-1, the gp120 part of gp160 [3]." \*CITING a withdrawn article may not be such a great idea.\* "This implies that by employing insights gained after 2015, as just summarised, a further optimization of the 2015 chimeric virus for additional binding to bitter/sweet specific upper airway epithelia receptors is indicated. That would help to explain the otherwise puzzling extreme infectivity of Covid-19 and hence also help to explain the social epidemiology of its spread." \*Love, art thou sweet? then bitter death must be: Love, thou art bitter; sweet is death to me. O Love, if death be sweeter, let me die. Tennyson And, so it ends:\* "We do not ever want to read such sentences about any Covid-19 candidate vaccine."

[2020-06-04 10:12:13]

**[Andrew Rambaut]**

They did a pretty shit job at retroengineering a supposed progenitor virus but I guess they were rushed.

[2020-06-04 14:51:29]

**[Eddie Holmes]**

I think they have started retro-engineering RmYN02 as well but got bored half-way through and check in a recombination event to save time.

[2020-06-04 14:58:06]

**[Eddie Holmes]**

It's the Plan 9 from Outer Space of virology papers

[2020-06-04 15:49:28]

**[Kristian Andersen]**

This one was \*significantly\* worse than I had expected... It's been percolating with major news outlets for a fucking month - and it's complete junk!!

[2020-06-04 15:59:51]

**[Eddie Holmes]**

I'm REALLY looking forward to it coming out though...will be so much fun to lampoon. So idiotic.

[2020-06-04 17:17:06]

**[Andrew Rambaut]**

Stoking it up on twitter for that 50K.

[2020-06-04 17:18:24]

**[Kristian Andersen]**

Good. Although to reach that, I think you might have to say we were wrong...

[2020-06-04 17:18:37]

**[Andrew Rambaut]**

Go full Trevor?

[2020-06-04 17:18:56]

**[Kristian Andersen]**

Indeed (actually, he's chatting me right now about that new 'paper')

[2020-06-04 17:19:15]

**[Andrew Rambaut]**

It is my retirement project - become a creationist.

[2020-06-04 17:20:57]

**[Kristian Andersen]**

Get the Templeton Prize &gt; that's your ticket

[2020-06-04 17:21:06]

**[Andrew Rambaut]**

It is really annoying - those BC sequences that sit between WA1 and WA2 cluster are almost certainly artefacts (the second defining mutation is in a primer site and they are calling it for the primer). Happens with some of the other BC ones in the WA2 cluster too.

[2020-06-04 17:21:43]

**[Andrew Rambaut]**

But the folk in the BCCDC won't do anything about it until they have checked it with sanger sequencing

[2020-06-04 17:21:47]

**[Kristian Andersen]**

Eh? Don't they trim primers? iVar does that...

[2020-06-04 17:23:02]

**[Andrew Rambaut]**

I don't know the details. It was Nick that was discussing it with them.

[2020-06-04 17:23:38]

**[Kristian Andersen]**

Hmmm. They certainly should. Does this affect the conclusions from your recent preprint?

[2020-06-04 17:25:02]

**[Andrew Rambaut]**

We excluded them because we thought they were flawed. Some of the arguments are based on the fact there are no intermediates with only one of the two SNPs. But they are still there and of course the reviewers have pointed it out.

[2020-06-04 17:25:22]

**[Andrew Rambaut]**

Anyway - not my problem (Mike's problem).

[2020-06-04 17:26:01]

**[Kristian Andersen]**

It's amazing what a couple of SNPs can do :wink:

[2020-06-04 17:26:41]

**[Andrew Rambaut]**

So what does Trevor think about the new proof of lab origins paper? He going to come out supporting it? Sure way to hit the 1m followers.

[2020-06-04 17:26:51]

**[Kristian Andersen]**

One has to wonder how much noise there is in the dataset by now - between sequencing (including amplicon and RT) errors and contaminants. Probably ~10% of genomes are wrong.

[2020-06-04 17:27:24]

**[Kristian Andersen]**

Haha, Trevor was pretty shocked by how terrible the paper was - but yeah, he should come out and rebuff us to get to a cool million.

[2020-06-05 11:42:49]

**[Kristian Andersen]**

*[thread - ID: 2020-06-05 11:42:49]*

Different virus, but this new RTT plot for Ebola is super interesting. @Andrew Rambaut have you been looking into this? Different reservoir host? [shared file(s): root-to-tip-with-labels.jpg]

[2020-06-05 11:44:19]

**[Andrew Rambaut]**

*[thread - ID: 2020-06-05 11:42:49]*

@Kristian Andersen Fits perfectly with the idea of two episodes of latency:  
[https://beast.community/ebov\\_local\\_clocks.html](https://beast.community/ebov_local_clocks.html)

[2020-06-05 11:45:11]

**[Andrew Rambaut]**

*[thread - ID: 2020-06-05 11:42:49]*

@Kristian Andersen We have a paper in prep. Will need to add this new one in.

[2020-06-05 11:50:46]

**[Kristian Andersen]**

*[thread - ID: 2020-06-05 11:42:49]*

@Kristian Andersen Yup. Super interesting - I had never really thought of this as a lineage thing, more as independent events. Strongly suggesting there might be different strains of Ebola virus living in different reservoirs - either due to geographical differences, or differences in the virus host range. This screams for a formal analysis :wink:

[2020-06-05 12:23:59]

**[Robert Garry]**

&lt;file:///Users/robertgarry/Downloads/elif-58603-v1%20(1).pdf&gt;

[2020-06-05 12:25:26]

**[Robert Garry]**

This is kinda interesting as well.

[2020-06-05 12:35:54]

**[Robert Garry]**

*[thread - ID: 2020-06-05 12:35:54]*

```

```1 megnkleeqd ssppqstpgl mkgnkreeqg lgpepaapqq ptaeeaealie fhrsylfe
61 ffcnttihg airlvcsqhn rmktafwavl wlctfgmmyw qfgllfgeyf sypvslninl
121 nsdklvfpav tictlnpyry peikeeeleel driteqtlfd lykyssfttl vagrSrrdl
181 rgTlphplqr lrvpppphga rrarSvasSI rdnpqvdwk dwkigfqlcn qnksdcfyqt
241 yssgvdavre wyrfhynil srlpetlpsl eedtlnfif acrfnqvscn qanyshfhhp
301 mygncytfnd knnsnlwmss mpginnglsl mlraeqndfi pllsvtgar vmvhggqdepa
361 fmddggfnlr pgvetsismr ketldrlggd ygdctkngsd vpvenlypsk ytqqvcihsc
421 fquesmikecg cayifyprpq nveycdyrkh sswgycyykl qvdfssdhlg cftkcrkpcs
481 vtsyqlsagy srwpsvtsqe wvfqmlsrqn nytvnnkrng vakvniffke lnyktnsesp
541 svtmvtllsn lgsqswlwfg ssvlsvvema elvfdllvim flmlrrfrS rywSpgrggr
601 gaqevaSTla SSppShfcph pmSISISqpg papSpalTap ppayaTlgpr pSpggSagaS
661 sstcplggp```

```

So, no fun with BLAST which should raise an eyebrow BUT - Also PREDICTED *O-glycans* (I CAPPED them) *around the furin site* RRARSVAS (yes it's identical to SARS-CoV-2) - *hmmm* and a big predicted mucin-like domain at the C -terminus. Just a reminder that HKU1 and OC43 spikes also have big predicted mucin-like domains in "place" of the ACE-2 RBD.

[2020-06-05 12:42:18]

[Kristian Andersen]

Bob - PDF is in your personal drive :wink:

[2020-06-05 12:48:54]

[Robert Garry]

<https://elifesciences.org/articles/58603>

[2020-06-05 12:48:58]

[Robert Garry]

sorry

[2020-06-05 12:51:26]

[Robert Garry]

At least the CCP had access

[2020-06-05 12:51:38]

[Robert Garry]

probably the Russians too

[2020-06-05 12:52:05]

[Robert Garry]

definitely M5 and the CIA

[2020-06-05 15:12:27]

[Kristian Andersen]

Need to read it - looks interesting...

This, really not very good - this particular Nature reporter is super annoying:

<https://www.nature.com/articles/d41586-020-01541-z>

[2020-06-05 15:39:38]

[Eddie Holmes]

Sorry Bob, what's that sequence you analysed? Completely agree about that Nature reporter - he's an arse. He effectively wants people to review papers as they come out on bioRxiv and then give him their views so he can publish something.

[2020-06-06 02:28:19]

[Robert Garry]

<https://elifesciences.org/articles/58603>

[2020-06-06 02:29:09]

[Robert Garry]

SARS-CoV-2 strategically mimics proteolytic activation of human ENaC

[2020-06-06 02:29:12]

[Robert Garry]

human epithelial sodium channel α -subunit (ENaC- α)

[2020-06-06 02:38:33]

[Robert Garry]

Sorry - messed up the links above - the elife paper does a considerable amt of arm waving over an 8 amino acid homology -the furin site - but "interesting" that the furin site in both SARS-CoV-2 and ENaC- α has predicted O-linked glycans PLUS ENaC- α has another proline, serine, threonine rich stretch - a likely mucin domain - OC43 and HKU1 Spike also have this.

[2020-06-06 02:51:28]

[Robert Garry]

"RTT plot for Ebola is super interesting" Agree - how do the RBDs align on the different branches?

[2020-06-06 03:10:21]

[Eddie Holmes]

Got it. I don't suppose we know much about how ENaC- α how looks in other species? Would be interesting to know what species OC43 and HKU1 originated in.

[2020-06-06 03:20:32]

[Eddie Holmes]

Going through our scenarios, if true would the ENaC- α + furin link argue for undetected circulation in humans? Possibly to get in animal passage? Could it explain why the furin site is sometimes lost in cell culture? It is clearly doing something. Bill's theory explains how it was created, but it would also be nice to understand how it is maintained.

[2020-06-06 03:28:10]

[Andrew Rambaut]

Sorry - I am being dumb here. Can you layout exact what the proposed connection with ENaC- α is?

[2020-06-06 03:29:05]

[Eddie Holmes]

shared file(s): elife-58603-v1.pdf

[2020-06-06 03:29:13]

[Eddie Holmes]

Figure 1

[2020-06-06 03:30:21]

[Andrew Rambaut]

But not suggesting this was the source of the insertion recombination?

[2020-06-06 03:30:59]

[Andrew Rambaut]

Just why it might be doing in humans.

[2020-06-06 03:31:33]

[Eddie Holmes]

No. But it explains why it is beneficial. A bit of undetected circulation in humans would solve a lot of problems.

[2020-06-06 03:37:32]

[Andrew Rambaut]

I see it now. Interesting.

[2020-06-06 03:38:30]

[Andrew Rambaut]

But then we have the source of the nucleotides to think about?

[2020-06-06 03:42:19]

[Andrew Rambaut]

Just when I think I have this thing straight in my mind.

[2020-06-06 03:53:17]

[Andrew Rambaut]

[thread - ID: 2020-06-05 12:35:54]

@Robert Garry Do you have the nucleotide sequence for this? Could it be the actual source of the insertion?

[2020-06-06 04:21:16]

[Andrew Rambaut]

This is interesting:

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5312086/>

[2020-06-06 04:21:45]

[Andrew Rambaut]

shared file(s): image.png

[2020-06-06 04:24:09]

[Andrew Rambaut]

Suggests a progressive accumulation of the polybasic site in passaging.

[2020-06-06 05:28:49]

[Robert Garry]

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7106199/>

[2020-06-06 05:29:11]

[Robert Garry]

"BCoV is closely related to the Human coronavirus OC43 (HCoV-OC43), that was first isolated in 1967 (McIntosh et al., 1967). More precisely, BCoV and HCoV-OC43 share a global nucleotide identity of 96%. The genetic comparison of BCoV and HCoV-OC43 reveals that HCoV-OC43 results from a zoonotic transmission from bovine to human."

[2020-06-06 07:28:13]

[Robert Garry]

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7112090/>

[2020-06-06 07:38:51]

[Robert Garry]

Very strong review on the topic from Drosten. Doesn't mean there isn't room for a much deeper dive using current genomics tools.

[2020-06-06 09:21:58]

[Kristian Andersen]

The eLife and flu 'polymerase slippage' papers are very interesting indeed. As to how beneficial the furin site is in humans, I thought this one was reasonably interesting (although I don't believe we have seen this in our sequences - we'll dig deeper):

<https://www.biorxiv.org/content/10.1101/2020.06.03.129585v1>

Between the flu and eLife papers, how about a hypothesis where the virus might have been introduced into (densely packed) farmed animals and then maybe bouncing back and forth between the animals and humans for a (little) while. That'd explain the lack of positive selection in the spike (which really is *highly* unusual IMO) and also the acquisition of the furin site - it clearly seems like some sort of heavy passaging must have been required to gain that site.

Checking ENaC and SARS-2, while the AAs are indeed conserved, the nucleotides are not - specifically ENaC is using human high-frequency codons, whereas SARS-2 is not.

Need to check out loop structures around the furin site in SARS-1, as well as in a putative SARS-2 without the furin site. How close are we to the scenario described in the flu paper?

[2020-06-06 09:22:30]

[Kristian Andersen]

Here's the alignment of furin site ENaC and SARS-2 [shared file(s): Screen Shot 2020-06-06 at 8.58.49 AM.png]

[2020-06-06 09:49:27]

[Andrew Rambaut]

So only one codon the same. I got to say - Bill's HKU9 source still seems good to me. But perhaps it did happen in a mink/ferret/pangolin/civet/cat/etc.

[2020-06-06 10:14:28]

[Kristian Andersen]

Yeah, I think Bill's explanation is basically the "hairpin followed by polymerase slippage in flu" CoV equivalent. Issue is - it could have happened anywhere....

I'm thinking a theory involving a farm isn't completely crazy - I believe Drosten is leaning that way too (and thought maybe even SARS1 could have started that way)

[2020-06-06 10:20:34]

[Andrew Rambaut]

Farm sounds good to me.

[2020-06-06 10:35:17]

[Kristian Andersen]

Actually, this just occurred to me and I'm wondering if the UK dataset could help investigate. Is it possible that the furin site is advantageous during high passage scenarios (transmission) but maybe not so much within host? In that scenario, maybe the furin cleavage site is maintained during exponentially increasing outbreaks (like we have observed up until about a month ago), but might be lost during more low-transmission periods? (as is the case in some places currently).

In the bioRxiv paper above, they observe loss of the site in a subset of patients, but only intra-host, so based on that, it might be possible that the site can be lost in human infections too, and not just in tissue culture. To see if there's a link to transmissions, if we look at viruses sequenced in low-transmission places (or during low-transmission times) vs viruses sequenced in high-transmission places (or times), is there an association with the former showing more evidence of furin site loss than the latter? Would be pretty cool if that was the case...

[2020-06-06 13:42:06]

[Robert Garry]

The early samples in NOLA were definitely during a high-transmission period - super-spreading perhaps. Transmission has cooled down a lot - maybe a "steady-state" even - so samples from May/June may answer your question.

[2020-06-06 13:49:26]

[Robert Garry]

"Farm sounds good to me."

[2020-06-06 13:49:29]

[Robert Garry]

<https://www.independent.co.uk/news/world/asia/coronavirus-fur-farm-china-mink-raccoon-fox-wild-animal-a9506976.html>

[2020-06-06 15:08:48]

[Eddie Holmes]

Completely agree about fur farming - makes a lot of sense. Raccoon dogs are used for fur farming. I'll just thought I'd throw that in there.

[2020-06-06 15:09:59]

[Eddie Holmes]

One thing though: if we dismiss RaTG13 to SARS-CoV-2 on the basis of 96% similarity, then so we must also dismiss BCoV to HCoV-OC43. Could easily something closer.

[2020-06-06 15:25:35]

[Robert Garry]

"also dismiss BCoV to HCoV-OC43" Agree - it's all an open case. All those relatives of OC43 infecting so many species is quite remarkable - no reason to pick on cows.

[2020-06-07 12:55:10]

[Kristian Andersen]

WTF? My mild annoyance has now turned to being truly pissed off.
<https://twitter.com/trvrbr/status/1269395226541518849?s=20>

[2020-06-07 13:03:52]

[Andrew Rambaut]

Unbelievable. 250K follows goes to your head obviously

[2020-06-07 13:04:37]

[Andrew Rambaut]

Your man Nate gave him a good kicking.

[2020-06-07 13:06:30]

[Kristian Andersen]

Yeah, just saw that - I'm replying to say I agree with Nate. This is completely off base!

[2020-06-07 13:07:52]

[Kristian Andersen]

We KNOW we can't predict these kind of outcomes with any certainty so we shouldn't even try - especially not when it comes to something this important. And on Twitter? Really?

[2020-06-07 13:09:56]

[Andrew Rambaut]

```Trevor Bedford

Replying to

@trvrbr

(Keep in mind that my numbers above represent a best guess in the absence of real data. They could be easily be off.)```

[2020-06-07 13:11:11]

**[Kristian Andersen]**

Oh, really, Trevor? Off by one or two orders of magnitude in either direction kinda off? I'm truly baffled.

[2020-06-07 15:31:08]

**[Eddie Holmes]**

I saw it last night and I couldn't believe he was doing it

[2020-06-08 04:06:17]

**[Robert Garry]**

"Keep in mind that my numbers above represent a best guess in the absence of real data." Making shit up is not science. Seems like a plea to have reporters call him - get his name in the paper. If true, not good motivation. I don't know Trevor. I heard he had some skill, so this is really sad.

[2020-06-08 06:52:23]

**[Kristian Andersen]**

Indeed Bob, indeed... Sadly though, the twitterati is once again praising this as "science in progress" - it is not, this has nothing to do with science. Extremely frustrating - plus my inbox is lit with questions about this, as well as some paper by some Norwegian dudes saying our conclusions are wrong... :zany\_face:

[2020-06-08 08:03:12]

**[Robert Garry]**

Gonna really have to take a look at this whole science by twitter thing. As for the NatMed paper attacks - you'll know you've actually made it when a bunch of "dudes" think they can make their careers by trashing you.

[2020-06-08 08:20:53]

**[Andrew Rambaut]**

*[thread - ID: 2020-06-08 08:20:53]*

For those who actually use their photos there is a definite 'look' for these people.

[2020-06-08 08:31:43]

**[Robert Garry]**

Seems the Forbes article has been yanked... [shared file(s): image.png]

[2020-06-08 08:36:07]

**[Andrew Rambaut]**

It got yanked almost immediately after Eddie posted his tweet last night.

[2020-06-08 08:36:16]

**[Andrew Rambaut]**

Such power

[2020-06-08 08:36:50]

**[Robert Garry]**

Omega level mutant.

[2020-06-08 08:46:11]

**[Robert Garry]**

The fact that Trevor's tweet storm and Nate's countertweet both landed immediately in the NYTimes is rather concerning at least to me.

[2020-06-08 08:47:30]

**[Kristian Andersen]**

Link to NYT article? That is SUPER concerning.

[2020-06-08 08:47:50]

**[Andrew Rambaut]**

*[thread - ID: 2020-06-08 08:20:53]*

@Andrew Rambaut I.e., <https://twitter.com/ChuziChips>

[2020-06-08 08:48:42]

**[Andrew Rambaut]**

[thread - ID: 2020-06-08 08:20:53]

@Andrew Rambaut "no you smell"

[2020-06-08 08:48:57]

**[Robert Garry]**

<https://www.nytimes.com/2020/06/07/us/Protest-coronavirus-george-floyd.html>

[2020-06-08 08:49:58]

**[Robert Garry]**

Amy Harmon is a national correspondent, covering the intersection of science and society. She has won two Pulitzer Prizes, for her series "The DNA Age", and as part of a team for the series "How Race Is Lived in America." @amy\_harmon • Facebook

[2020-06-08 08:52:31]

**[Kristian Andersen]**

Amy Harmon - yes, she should know better. It's worth pointing out the Trevor isn't an epidemiologist - same for Nate, myself, and many others - the only one who's an epidemiologist in that article is Marc. One thing is to report based on tweets (which is wrong), another is doing it when the person isn't a subject-matter expert - I find that really problematic, especially for something this important. Science by Twitter is not the way to deal with these types of questions...

[2020-06-08 08:53:39]

**[Kristian Andersen]**

I still see the Forbes article - <https://www.forbes.com/sites/davidnikel/2020/06/07/norway-scientist-claims-report-proves-coronavirus-was-lab-made/#46c2c45b121d>

[2020-06-08 08:54:03]

**[Kristian Andersen]**

Apparently written by their top science journalist... [shared file(s): Screen Shot 2020-06-08 at 8.53.24 AM.png]

[2020-06-08 15:26:44]

**[Eddie Holmes]**

The corrected article has also just disappeared.

[2020-06-08 15:31:12]

**[Eddie Holmes]**

It is indeed a major concern that scientific debates on Twitter make it into the NYT. Maybe we should debate, on Twitter, if scientific debates on Twitter should make it into the NYT and see if that gets into the NYT?

[2020-06-08 15:34:43]

**[Kristian Andersen]**

Yes

[2020-06-08 15:34:45]

**[Andrew Rambaut]**

I can see the Forbes article. Starts with:

\_\_June 8: This article has been substantially updated to reflect criticism of the published study, along with the general scientific consensus on Covid-19. It also clarifies Sørensen's financial interest in the development of the \_\_ Biovacc-19 \_\_ coronavirus vaccine\_\_. \_\_This context did not appear in original post\_\_  
New claims that the novel coronavirus SARS-CoV-2 was engineered have been dismissed by scientific and intelligence experts.

[2020-06-08 17:58:20]

**[Robert Garry]**

WELLLLLLLL .... Laurie Garrett was just on the teevee and said that if social distancing etc had not been implemented a half a billion people would be dead now or dead shortly from now. Less than 8 billion people on the planet (not counting aliens and zombies). Chris Hayes was incredulous but moved on... does anyone believe the IFR is >5%? This is neil ferguson on steroids. Seriously WTF.

[2020-06-08 18:02:53]

**[Kristian Andersen]**

Well, she did conclude SARS-CoV-2 has an R0 of 500 - so fair enough.

[2020-06-08 18:54:24]

**[Eddie Holmes]**

Andrew, my link to that page opens then disappears...says 'This page is no longer active'.

[2020-06-08 18:56:19]

**[Kristian Andersen]**

Same here - isn't it awesome? We wrote some crap, but we're hiding it for now because it's too bumb.

[2020-06-08 18:56:21]

**[Eddie Holmes]**

Laurie, Laurie, Laurie what a fuckwit

[2020-06-08 18:56:32]

**[Kristian Andersen]**

bumb - gotta be a new word...

[2020-06-08 19:08:23]

**[Eddie Holmes]**

Totally bumb

[2020-06-08 20:15:00]

**[Eddie Holmes]**

<https://abcnews.go.com/International/satellite-data-suggests-coronavirus-hit-china-earlier-researchers/story?id=71123270>

[2020-06-08 20:16:57]

**[Eddie Holmes]**

Bull-sheet

[2020-06-08 20:23:29]

**[Kristian Andersen]**

\_"On Oct. 10, 2018, there were 171 cars in the parking lot of Wuhan's Tianyou Hospital, one of the city's largest. A year later, satellites recorded 285 cars -- a 67% increase"\_ I'm convinced...

\_"Something was happening in October"\_ Like flu or something?

[2020-06-08 20:23:51]

**[Kristian Andersen]**

\_"Using techniques similar to those employed by intelligence agencies"\_ Like satellite data and shit?

[2020-06-08 20:24:40]

**[Kristian Andersen]**

\_"Clearly, there was some level of social disruption taking place well before what was previously identified as the start of the novel coronavirus pandemic."\_ Whatever that was, it wasn't COVID - we know this very specifically from the genetic data.

[2020-06-08 20:25:12]

**[Eddie Holmes]**

It's compelling. Apparently, there was also a 14% increase in the sale of wet wipes and toilet duck.

[2020-06-08 20:25:49]

**[Kristian Andersen]**

Holy shit.

[2020-06-08 20:26:21]

**[Eddie Holmes]**

:rolling\_on\_the\_floor\_laughing:

[2020-06-08 20:27:45]

**[Kristian Andersen]**

I can't \*\_possibly\*\_ think of anything else that could explain an increase in wet wipes and toilet ducks - \_obviously\_ this must have been COVID. THERE JUST AREN'T ANY OTHER EXPLANATIONS WHATSOEVER. NONE! COVID! THEY LIED!

John Brownstein - I just lost some respect for the guy.

[2020-06-08 20:42:01]

**[Eddie Holmes]**

I was joking about the wet wipes and toilet duck. Still BS though.

[2020-06-08 20:45:31]

**[Eddie Holmes]**

If it had been there in August - causing lots of people to drive to hospitals - the docs would have been on it way before December.

[2020-06-08 20:48:48]

**[Kristian Andersen]**

Yup - it's absurd. Plus, our TMRCAs probably wouldn't have been mid-November to early-December.

[2020-06-08 22:36:20]

**[Eddie Holmes]**

Plenty of reasons why traffic could have increased: perhaps they had a special offer at the wet market?

[2020-06-09 05:01:24]

**[Robert Garry]**

"Disease ecologist Peter Daszak, president of the nonprofit EcoHealth Alliance in Manhattan, said the Harvard study "is absolutely fascinating."

[2020-06-09 07:57:11]

**[Robert Garry]**

Poor Laurie - flustered by camera problems. Will there be an on-air correction? [shared file(s): image.png]

[2020-06-09 07:58:21]

**[Kristian Andersen]**

I hate when that happens.

[2020-06-09 07:59:52]

**[Andrew Rambaut]**

Why are journalists being interviewed by journalists?

[2020-06-09 08:00:06]

**[Andrew Rambaut]**

I guess they can't get any of us on these days

[2020-06-09 08:08:44]

**[Kristian Andersen]**

Because she's an expert or something

[2020-06-09 08:11:47]

**[Robert Garry]**

You're right - she's something. It's MSNBC -Garrett is ~bumbbing~ subbing for Curefinder, who is recovering from ~a panic attack~ "presumptive" COVID-19 [but can't manage to get a positive qPCR or antibody test]. Note: he is not one of us either [a scientist], although he pretends to be one on teevee.

[2020-06-09 08:13:01]

**[Andrew Rambaut]**

I have always thought that 'curefinder' is a really lame handle. But I guess Nathan has trademarked all the cool ones.

[2020-06-09 08:17:33]

**[Robert Garry]**

Yes - he went by realvirushunter for a brief time in 2014 after Wolfe fired him in the midst of the Ebola outbreak. He reverted to curefinder after Wolfe pointed out that they had a legal agreement not to troll each other after the "break-up" of Metabiota. Yes, curefinder is especially lame when you haven't - you know - like actually found any cures.

[2020-06-09 14:41:56]

**[Eddie Holmes]**

@virushunter and metabiota have been quiet through all of this. Is he just counting his cash at home?

[2020-06-09 14:43:19]

**[Andrew Rambaut]**

Didn't Metabiota transition into a risk consultant for insurance companies?

[2020-06-09 14:54:47]

**[Kristian Andersen]**

"Metabiota's models incorporate the latest biological, socioeconomic, political and environmental data. We have built the largest infectious disease catalog in the industry, including a 1 million-year stochastic event catalog informed by over 20 million simulations. Validated by experts in the fields of epidemiology and data science, it is the only model of its kind to capture both high-probability and low-probability events"

God, sometimes I love America.

[2020-06-09 14:59:13]

**[Andrew Rambaut]**

Bet he makes shedloads of cash and doesn't have to go out and pretend he is saving the world any more.

[2020-06-09 15:01:46]

**[Kristian Andersen]**

Made it. [shared file(s): Power Couple.png]

[2020-06-09 15:02:31]

**[Andrew Rambaut]**

Can you imagine how smug he must look now?

[2020-06-09 15:04:09]

**[Kristian Andersen]**

I can...

[2020-06-09 15:37:08]

**[Robert Garry]**

"Is he just counting his cash at home?" Yes \$30M IPO several years back, plus all the "PREDICT" money - subtract some minor fraction of that to buy off whatever shares Fair "owned." Wolfe has been paying himself an executive salary north of \$1M per year since at least 2006 plus lucrative bonuses. Little known fact - Fair and Wolfe tried to recruit me back in 2008 - one of the selling points - win a grant get a 20% bonus off of the gross. So \$3M dollar grant a kool \$600K bonus :parrot:. I still remember a comment Eric Lander made about this several years back. Legal maybe - ethical&gt; you decide. IMO Meta's models are pure bunk - about like the whole Global Virome Project sham [BTW I think that pic is pretty much as sham too - just my opinion]. But, you know that the only way that a thug makes money is through "insurance." Ask most of the store owners in any ethnic section of any big city. It was inevitable that Wolfe would find this path.

[2020-06-09 15:38:55]

**[Kristian Andersen]**

"... win a grant get a 20% bonus off of the gross". Holy shit, Bob - we could have retired by now! And live in luxury that is.

[2020-06-09 15:42:38]

**[Robert Garry]**

Too boring - yes Nathan does have a yacht- he and his friends sail around - sounds dreadful to me.

[2020-06-09 15:59:59]

**[Kristian Andersen]**

I don't need a yacht - a little house, a yard, and my Jeep and I'm a happy man. Maybe throw in a lake and a mountain too and I'm a very happy man.

[2020-06-09 16:05:04]

**[Robert Garry]**

Good man - you get to keep doing real science - more rewarding. Just consider that COVID-19 is going to trigger huge payouts to whomever was "smart" enough to insure with Wolfe's backers in the reinsurance "business." I guessing a pretty stiff test of the Meta business model - stayed tuned.

[2020-06-09 16:17:22]

**[Eddie Holmes]**

Amazing stuff that Bob. BS wins. Again. I don't need a yacht either. Happy at home with the family and the pet pangolins.

[2020-06-09 19:32:05]

**[Kristian Andersen]**

I'm thinking mink. <https://www.sciencemag.org/news/2020/06/coronavirus-rips-through-dutch-mink-farms-triggering-culls-prevent-human-infections>

[2020-06-09 19:55:38]

**[Eddie Holmes]**

I am thinking that as well...

[2020-06-09 20:28:31]

**[Eddie Holmes]**

BBC on the traffic data theory: "One expert at the Scripps Research Translational Institute said the research method used in the study was "very indirect and imprecise"."

[2020-06-09 20:29:30]

**[Eddie Holmes]**

Was that you Kristian?

[2020-06-09 20:39:55]



**[Kristian Andersen]**

That is so weird - no, not me... But we're only four faculty at SRTI!!!

[2020-06-09 20:40:11]

**[Kristian Andersen]**

What's the link?

[2020-06-09 21:14:44]

**[Eddie Holmes]**

It's on the BBC rolling news thing (13:15 time spot). They spelt Scripps wrong:  
<https://www.bbc.com/news/live/world-52988840>

[2020-06-09 21:30:54]

**[Eddie Holmes]**

Yet more to enjoy [shared file(s): Sharri Wuhan Lab 6 June 2020.pdf]

[2020-06-09 21:41:57]

**[Kristian Andersen]**

So idiotic.... there is NOTHING in that origin 'study' - nothing.

Topol must be the quoted scientist on the BBC. Have you seen the actual study? Link doesn't work (really disappointed by Brownstein here - seriously, do you think they could cover this up if all of this massively ramped up in August? What about the genetic data? So dumb)

[2020-06-10 09:42:39]

**[Robert Garry]**

[https://www.theguardian.com/commentisfree/2020/jun/09/conspiracies-covid-19-lab-false-pandemic?CMP=share\\_btn\\_tw](https://www.theguardian.com/commentisfree/2020/jun/09/conspiracies-covid-19-lab-false-pandemic?CMP=share_btn_tw) "Writing in the peer-reviewed journal Nature Medicine, researchers strongly refuted the idea that the code had been purposefully manipulated. Whereas the article in Nature Medicine\_\_ was written by senior virologists, one author, John Fredrik Moxnes, the chief scientific adviser to the Norwegian military, has already withdrawn his name from the paper cited by Dearlove – while scientists from the Francis Crick institute and Imperial College London also dismissed its conclusions." I think he's calling us old, but whatever....

[2020-06-10 14:22:06]

**[Eddie Holmes]**

Good, but shame it is Daszak as he is hardly impartial. Even curefinder would have been preferable.

[2020-06-10 14:47:14]

**[Kristian Andersen]**

He manages to turn even this one into advertising for EgoHealth. The man's got no shame.

[2020-06-10 16:03:39]

**[Eddie Holmes]**

I know, it's putrid.

[2020-06-10 17:36:17]

**[Kristian Andersen]**

*[thread - ID: 2020-06-10 17:36:17]*

Sharing this confidentially - from a colleague here at Scripps. Using a pseudotyped assay, G614 infects cells much more efficiently than D614. @Andrew Rambaut - any further insights on the epi from the UK data? (I got a paper from Nature for review on this mutation too - but it was too light). [shared file(s): Manuscript Figures\_20200602\_Final.pdf]

[2020-06-10 19:02:19]

**[Eddie Holmes]**

We're on the same mailing list Kristian: got that paper as well as the Nature one (which was shite). The Scripps paper looked pretty convincing to me: best evidence I've seen. It was also pretty measured.

[2020-06-10 19:09:16]

**[Kristian Andersen]**

Yeah, Mike's the boss (he discovered the SARS receptor ACE2, so he knows his shit)

[2020-06-10 19:27:31]

**[Eddie Holmes]**

Agreed. I was at a meeting with him a few years ago - very, very impressive.

[2020-06-10 20:42:25]

**[Kristian Andersen]**

I assume this is mostly bullshit - haven't read it yet..

<https://www.pnas.org/content/pnas/early/2020/06/09/2008176117.full.pdf>

[2020-06-10 21:04:04]

**[Eddie Holmes]**

Ha! I just downloaded it myself. Conclusions section is interesting....have not read the paper yet.

[2020-06-11 04:42:40]

**[Andrew Rambaut]**

*[thread - ID: 2020-06-10 17:36:17]*

@Kristian Andersen Jeremy is just about to submit something on this too (he has some cryo-EM stuff too). Perhaps you could mention this to him? Maybe they can coordinate.

[2020-06-11 04:44:38]

**[Andrew Rambaut]**

So find the closest sequence then.

[2020-06-11 06:48:14]

**[Kristian Andersen]**

"Machine learning" you know. Fancy stuff.

[2020-06-11 06:49:58]

**[Andrew Rambaut]**

@Robert Garry @Kristian Andersen Can you tell me anything about the RmYN02 cleavage site insertion? Is it predicted to be furin?

[2020-06-11 06:50:03]

**[Kristian Andersen]**

*[thread - ID: 2020-06-10 17:36:17]*

@Kristian Andersen Jeremy Luban? I think Mike's study has already been accepted - I got it from NYT.

Any insights from the UK data? Or is that part of the paper too?

[2020-06-11 06:51:03]

**[Kristian Andersen]**

Nope, not a cleavage site - just an insertion (and you'll see a deletion upstream, so it's more of a shift).

[2020-06-11 06:59:38]

**[Andrew Rambaut]**

Thanks.

[2020-06-11 13:31:12]

**[Kristian Andersen]**

While I knew about the furin site insertion experiments, I did know realize this (that the insertion in SARS2 is exactly where they inserted it experimentally in SARS):

<https://twitter.com/Ayjchan/status/1266805310313967617?s=20>

[2020-06-11 13:35:58]

**[Kristian Andersen]**

Gotta say - some smoking(ish) guns starting to appear that I'm not comfortable with and Alina here is touching on a lot of points we have discussed previously that were concerning (e.g., lack of selection - I should have looked into that a little closer earlier :wink: ). The furin site in SARS2 is exactly the same as it is in some of the HKU1 sequences.

When I talked to Farzan way back in the day he mentioned that the one thing he'd be looking for was whether SARS2 would lose the furin site under different conditions - we now know this to be true (primarily in T/C, but there are examples in people too - intrahost).

[2020-06-11 13:58:46]

**[Robert Garry]**

"exactly where they inserted it experimentally in SARS" Sure - but that site with the single R is a required cleavage site - if you're going to convert to a furin site then adding RRA at that exact position is the only thing that makes sense - or even RRAR to make it a super-optimal site like Nunberg did - what would not make sense is to stick a proline in and then to do the whole insertion out-of-frame.

[2020-06-11 14:08:35]

**[Kristian Andersen]**

Yeah, agreed - however, this exact site already exist in other CoVs (just not in exactly this site) - not in HKU1 as I said, but in that Feline CoV.

The part I'm really struggling with is that at the end of the day, we really don't have any hard evidence one way or the other - and especially given some of the recent evidence, we also can't rule out that somebody actually put it in there. That's obviously not to say that somebody did, but we can't rule it out. Our paper was pretty strong in saying "there's no way", but I have less confidence in that statement at this stage.

[2020-06-11 14:33:23]

**[Eddie Holmes]**

What smoking guns Kristian? I don't quite see it. What recent evidence are you talking about? That Follis paper was literally the first one I looked at. Doesn't it's presence in HKU1 suggest that these events in nature a lot? Do we know what animal HKU1 comes from? I was reading Mike's paper to suggest that D614G was under selection to increase the infectivity of SARS-CoV-2, because it was directly related to the furin cleavage insertion, such that it not perfectly adapted to humans on emergence.

[2020-06-11 14:33:34]

**[Eddie Holmes]**

What about Bill Gallaher's evidence?

[2020-06-11 14:34:14]

**[Robert Garry]**

HKU1 actually does have an optimal furin site - some strains have a insert or deletion of SSS - yes some of these S have predicted O-glycans [shared file(s): HKU-1 Spike.pdf]

[2020-06-11 14:38:27]

**[Robert Garry]**

"animal HKU1 comes from" Rodents maybe - probably

[2020-06-11 14:44:30]

**[Eddie Holmes]**

May be. Perhaps rodents are involved in SARS-CoV-2? I'm really struggling to understand why someone would "put" a furin site into a random bat virus they had not previously sequenced and published. Has the Baric group ever done such an experiment? Accidental lab escape is one thing, but why would deliberately do this to a bat virus? Then why would publish the sequence of a related bat virus that puts you in frame? There was no need to that if you were guilty.

[2020-06-11 15:02:34]

**[Robert Garry]**

"Then why would publish the sequence of a related bat virus that puts you in frame?" To throw off M15 and Pompeo?

[2020-06-11 15:13:08]

**[Kristian Andersen]**

People have put furin sites into CoVs previously - here's one example from SARS:  
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7111780/>

[2020-06-11 15:13:50]

**[Kristian Andersen]**

There's a paper where they put it into a bat virus and shows it has much broader host range - I believe from Baric's group. I'll find it.

[2020-06-11 15:15:01]

**[Eddie Holmes]**

At S1/S2?

[2020-06-11 15:15:46]

**[Kristian Andersen]**

Yup - the paper above is exactly where it was inserted in SARS2 - that's the part I missed previously (I have been aware of these papers all the time).

[2020-06-11 15:16:22]

**[Kristian Andersen]**

(BUT, the inserted site is not the same as in the paper - that would have been a dead giveaway)

[2020-06-11 15:16:32]

**[Eddie Holmes]**

We're going round in circles...that's the Follis paper...the first paper we discussed and I sent you in early Feb.

[2020-06-11 15:18:29]

**[Eddie Holmes]**

My take is that furin cleavage sites are *\*everywhere\** in natural viruses e.g. MERS. I'm revising a paper on avian avulaviruses and they have one. To me, there is a strong natural prior.

[2020-06-11 15:18:52]

**[Kristian Andersen]**

Yes - I have been aware of the Follis paper all along - I was not aware that their insertion was exactly where it is in SARS2

[2020-06-11 15:20:07]

**[Eddie Holmes]**

Also, the Zhou et al. paper never call it a furin cleavage site insertion and I think the alignment in that paper is the optimal one. If so, it is not a simple 'shift' but rather a complex set of indel events.

[2020-06-11 15:20:46]

**[Kristian Andersen]**

Here's the paper from Baric - not the insertion, but showing that cleavage broadens host range (<https://pubmed.ncbi.nlm.nih.gov/31801868/>) - which is what furin does. This is also not a new paper - I have been aware of this all along as well, so not a smoking gun, but there are several concerns here related to tissue culture

[2020-06-11 15:21:34]

**[Kristian Andersen]**

I don't think the Zhou et al. paper shows that this is multiple indels - to me it just looks like a region not aligning very well?

[2020-06-11 15:22:17]

**[Kristian Andersen]**

Let me spend some time on a table with things that bothers me - because there are several.

[2020-06-11 15:23:20]

**[Eddie Holmes]**

That would be useful. Thanks.

[2020-06-11 15:26:20]

**[Kristian Andersen]**

Yeah, let me get it all down - including the silly stuff :wink:

[2020-06-11 15:42:57]

**[Eddie Holmes]**

Make sure there is a column in your table that can be used for 'possible natural explanation'. For example, I don't see why adaptation in animals/culture would then produce a virus that would need not to adapt in humans themselves.

[2020-06-11 16:18:10]

**[Eddie Holmes]**

I also think that focusing on these genetic details - which are not conclusive - is in danger of missing the bigger picture: that bats (and like other wildlife) carry a huge diversity of coronaviruses some of which are closely related to SARS-CoV-2; that coronaviruses link species boundaries all the time; that 4 other CoVs have emerged in humans in the last 20 years; that furin cleavage sites are common in viruses and come and go all the time; that people have been warning about emerging CoVs for years. This is not a blue sky event. It just seems to me that we are going over the same arguments we went through in Feb.

[2020-06-11 16:42:42]

**[Kristian Andersen]**

I of course agree with all of this (and still believe this is a natural virus), but the issue is that some of the new evidence certainly is peculiar - plus some additional details that have come to light, e.g., acquisition of furin site in tissue culture in bovine CoV.

Nothing has changed in terms of prior risk of lab accident, but the issue is that we're dealing with the fact that WIV has been doing culturing of bat CoVs for over a decade exactly to understand what it takes for these viruses to emerge in humans (in BSL-2). We describe this in the paper and say that this work is performed "all of the world", but that isn't true - it has exclusively been going on at WIV. The EgoHealth grant was also specifically funded for this type of work (and described the kind of experiments to be done in tissue culture). This research primarily involves collecting and culturing viruses from bats in Yunnan - which is where RaTG13 is from and it seems plausible that SARS2 is also from there (no roosting bats in Wuhan in winter). A lot of the GOF work on SARS-like CoVs is also from WIV, although there are also other labs that have been doing that (e.g., Baric).

None of this tells us anything new - but it means that given no data, I find both scenarios to be equally probable. Given the data we had seen at the time of our writing, I was highly skewed towards 'natural'. But with some of this new data (plus stuff I didn't know previously), I'm moving much more towards the middle (again).

Suffice to say, since writing the paper I have explained to a ton of scientists (and policy makers) over and over again why this is a natural virus, and I have been pretty surprised to learn that most scientists I talk to believe there is a likely connection to the lab - people that are themselves doing GOF and culture-type of experiments, they know the

risks and don't seem to think that a natural explanation is more likely than lab culture.

[2020-06-11 17:01:47]

**[Eddie Holmes]**

Fair points. But that work isn't exclusively done at the WIV because as you say yourself the Baric lab are doing it. I still don't quite see what the new data is. The bovine stuff? What else is there? To me, there is more evidence against lab escape than when we wrote the paper. I think the bats not roosting in winter argument is nothing because I reckon it went through an intermediate host anyway. Do you have a copy of the EgoHealth grant?

[2020-06-11 17:07:00]

**[Kristian Andersen]**

Aim3: [https://projectreporter.nih.gov/project\\_info\\_description.cfm?aid=9819304&icde=50404048&ddparam=&ddvalue=&ddsub=&cr=1&csb=FY&cs=DESC&pball=](https://projectreporter.nih.gov/project_info_description.cfm?aid=9819304&icde=50404048&ddparam=&ddvalue=&ddsub=&cr=1&csb=FY&cs=DESC&pball=)

[2020-06-11 17:11:58]

**[Kristian Andersen]**

> But that work isn't exclusively done at the WIV because as you say yourself the Baric lab are doing it. No, that work is exclusively at WIV AFAIK. Baric's lab is doing (did) gain of function research where they created reverse genetics systems to study the viruses. All of this is done in BSL-3, so much (much!) less risk of exposure. The work in Shi's lab is different - here they are taking bat CoVs and culturing them under BSL-2 in cell lines from different animals - to e.g., understand which ones can infect human cells and what type of mutations that occur in T/C may make them permissive. They probably have more than 10 papers where they describe that type of work on all kinds of SARS-like CoVs.

[2020-06-11 17:14:11]

**[Eddie Holmes]**

Got it, thanks. That helps.

[2020-06-11 17:16:59]

**[Eddie Holmes]**

Have the Shi lab published all the viruses they use in these culture experiments? Do they find the same mutations that appear in SARS-CoV-2?

[2020-06-11 17:21:19]

**[Kristian Andersen]**

In our paper we argue against (a) manipulation and (b) tissue culture. Our main arguments were that manipulation is hard, but the German's came out and created a reverse genetics system of SARS2 in less than two weeks, so clearly it's not that hard. Our arguments against tissue culture mostly came down to the O-linked glycans and a 'mucin-like' domain. But by now it seems clear that these don't actually form a mucin-like domain, but rather those glycans modulate the function of the furin site. All our arguments about natural viruses emerging, the RBD identical in pangolin CoVs, etc., all still stand.

The main new things that bothers me the most:

1. Lack of selection (a lot of the selection is for replication in a particular host species, so yes, I would assume culture would lower selection during subsequent transmission in humans - however, immune selection will still occur).
2. Gain of furin cleavage of bovine CoV in tissue culture.
3. Loss of furin site in tissue culture meaning it's active.
4. The little details about the furin site - e.g., that it's exactly in the spot where experiments had previously inserted it, the fact that the exact sequence exist in a cat CoV, Shi herself being sketchy with details and considering lab accident, etc. But all of this can go both ways

[2020-06-11 17:21:58]

**[Kristian Andersen]**

Unclear to me if they published sequences of all these viruses - it's a lot and names are changing over time (e.g., RaTG13 had a different name previously).

[2020-06-11 17:23:02]

**[Kristian Andersen]**

And yes - of the six key mutations in the RBD, one of them occur in tissue culture for SARS (\*but\* it's also present in the pangolin RBD).

[2020-06-11 17:27:24]

**[Eddie Holmes]**

Are you saying they deliberately inserted the furin cleavage site? I see no evidence of them ever doing that before. (I don't think RaTG13 had a different name...I think there a partial sequence from another virus that is identical. Can we do a quick zoom?

[2020-06-11 17:38:22]

**[Eddie Holmes]**

To me, "Loss of furin site in tissue culture meaning it's active" strongly argues AGAINST culturing as being the cause of the cleavage site insertion.

[2020-06-11 17:44:39]

**[Kristian Andersen]**

Just making some dinner - let's Zoom in ~30mins?

[2020-06-11 17:47:04]

**[Eddie Holmes]**

Let's say 6:30 pm time. OK?

[2020-06-11 18:29:24]

**[Eddie Holmes]**

<https://uni-sydney.zoom.us/j/98148315438>

[2020-06-11 18:30:12]

**[Kristian Andersen]**

I'm on!

[2020-06-11 20:14:23]

**[Kristian Andersen]**

:bat:■

Eddie: 80/20

Kristian: 70/30

[2020-06-11 20:34:35]

**[Eddie Holmes]**

90/10. I think.

[2020-06-11 20:37:51]

**[Eddie Holmes]**

Strictly confidentially, I literally (2 mins ago) just got an email that says: "Recently, we isolated a pangolin-Cov that is highly related with SARS-CoV-2 (<https://www.nature.com/articles/s41586-020-2313-x>). We further found that the infected pangolins showed similar CT scans with COVID-19 patients (please see the attachment, a and b are virus-positive pangolins, while c is virus-negative). Thus, we further did the transcriptome of their multiple tissue, and found they showed similar immune response as that of COVID-19 patients, that is, an inadequate interferon response, but excessive inflammatory response and an over-exuberant cytokine response. In addition, we found other interesting results". I don't the viruses are any closer to the ones we have but the clinical/transcriptome results are interesting...if true (you can never tell) would you expect a clinically similar infection in an animal in nature if this had come out of a lab?

[2020-06-11 20:38:25]

**[Eddie Holmes]**

I will of course agree to help to see what more I can discover.



[2020-06-11 21:26:05]

**[Kristian Andersen]**

> would you expect a clinically similar infection in an animal in nature if this had come out of a lab? Don't think one would have an expectation one way or the other - but interesting nonetheless. I find it peculiar that all these pangolins are showing up sick with all sorts of SARS-like CoVs though - I mean, these guys have been traded \_forever\_ and only now do we realize they have CoVs? Potentially a huge reservoir out there... which is scary.

[2020-06-11 21:40:02]

**[Eddie Holmes]**

Agreed. No one gives a shit and now we are seeing loads of pangolins with frothy lungs. You couldn't make this up.

[2020-06-11 21:47:42]

**[Eddie Holmes]**

Notable that HKU1 does have a furin cleavage site but NL63 doesn't. To me, this trait moves around so much in nature that we can't really say anything: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1866027/>

[2020-06-11 21:49:37]

**[Eddie Holmes]**

And they weren't able to culture HKU1.

[2020-06-11 22:48:46]

**[Eddie Holmes]**

Sorry to keep going, but HKU1 is really interesting in this context: (i) has an furin cleavage site (RRKRR) in the right spot; (ii) causes human and has spread (it turned up in Australia; (iii) betacoronavirus; (iv) closest relative is MHV but that is way distant. Could easily be out a bat or another mammal. No one suggested lab escape when this first appeared. [shared file(s): 1828-04.pdf]

[2020-06-11 23:41:09]

**[Andrew Rambaut]**

This is interesting (can't find original research)

<https://www.fli.de/en/press/press-releases/press-singleview/novel-coronavirus-sars-cov-2-fruit-bats-and-ferrets-are-susceptible-pigs-and-chickens-are-not/>

Shows infection in Rousettus fruit bats (i.e., where HKU9 was found).

[2020-06-12 00:49:06]

**[Eddie Holmes]**

Yes, good spot about Rousettus.

[2020-06-12 02:04:30]

**[Andrew Rambaut]**

Someone posted it I think trying to make the point that SARS-CoV-2 doesn't transmit in fruit bats thus Bill must be wrong.

[2020-06-12 05:22:17]

**[Robert Garry]**

The CoVs from the frothy pangolins are pretty diverse - multiple introductions, long time evolving or both? Or can't say? IOWS what is the Proximal Origin of Pangolin-SARS?

[2020-06-12 05:22:40]

**[Robert Garry]**

Vey interesting about the fruit bats...

[2020-06-12 12:38:49]

**[Kristian Andersen]**

Gotta say - NYT did a good job on this story about D614G:

<https://www.nytimes.com/2020/06/12/science/coronavirus-mutation-genetics-spike.html>

[2020-06-12 15:05:16]

**[Eddie Holmes]**

Yes, looks good. Doubtless the Korber paper will be in Cell soon. I hear there may be more pangolin viruses. We'll see. I really want to what George Gao has up his sleeve.

[2020-06-12 15:08:28]

**[Kristian Andersen]**

Would be so friggin' awesome if George could pull this one off... Would make my life a lot easier :wink:. The US is getting spanked by China so badly these days, so this would be the ultimate slap!

This is a pretty big slap too... [https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(20\)31278-2/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(20)31278-2/fulltext) (the US abstract version would be "it'll be fine, let's just wait and see").

[2020-06-12 15:14:23]

**[Eddie Holmes]**

And the NAS continues to tarnish itself by allowing shitty papers to get published...

[2020-06-12 15:15:21]

**[Kristian Andersen]**

Oh no, what now?

[2020-06-12 15:17:25]

**[Eddie Holmes]**

<https://www.pnas.org/content/early/2020/06/10/2009637117>

[2020-06-12 15:20:44]

**[Kristian Andersen]**

I think they must mean 'droplet'...

[2020-06-12 15:21:16]

**[Kristian Andersen]**

It should be clear though - airborne transmission is definitely a risk with SC2, but I highly doubt it's dominant.

[2020-06-12 15:42:08]

**[Eddie Holmes]**

I was worried about conclusion being made on whether people use/don't use face masks. Australia and NZ have had 2 of the most successful control policies globally. Hardly anyone where's a mask here.

[2020-06-12 15:46:21]

**[Kristian Andersen]**

I think the data is shifting pretty strongly towards mask wearing being (potentially highly) beneficial. But it's definitely not the only way - Denmark is the same. One concern I have about the success Down Under - what's the effect of weather? I hope NZ and Australia won't sleep on their laurels as winter approaches.

[2020-06-12 15:52:14]

**[Eddie Holmes]**

Oh, I don't disagree with the conclusion at all (I completely agree that face masks are hugely important), but the analysis is dire. There's no weather effect in any of this: climatic conditions play a secondary role when the population is completely susceptible - that's the key factor. Look at Brazil and Chile is kicking off. Seasonality may well evolve as immunity kicks in, but it's not there yet.

[2020-06-12 15:53:02]

**[Eddie Holmes]**

Africa is also kicking off.

[2020-06-12 15:59:24]

**[Kristian Andersen]**

&gt; climatic conditions play a secondary role when the population is completely susceptible Maybe. This has been my thinking as well, but I'm not convinced. \*Clearly\* seasonality is incapable of halting transmission, but that's not the same as having no effect. What my concern for e.g., the US is that the question isn't whether "summer will slow down (or stop) transmission", but rather whether "we should expect the fall to be even worse". It's subtle - but I think it's critical that we don't assume that weather has no effect because it didn't stop (or even slow down - although I'm not convinced it hasn't) the virus.

Since Australia and NZ will head into winter with extremely limited transmission and seemingly good programs in place, I'm less concerned. However, in a place like the US, the situation could turn from severe to catastrophic.

[2020-06-12 16:03:01]

**[Eddie Holmes]**

It would be much better if the virus were seasonal...that would make planning much easier. I think that it will likely become a seasonal endemic virus but they may take a little time. Obviously, the public health authorities need to be vigilant throughout.

[2020-06-12 16:04:14]

**[Eddie Holmes]**

P.S. I didn't say it has no effect, but rather the huge number of susceptible hosts is more important at the moment.

[2020-06-12 16:05:21]

**[Kristian Andersen]**

Yup, agreed - 1% immunity and there's a pretty long way to go...

[2020-06-12 16:05:45]

**[Kristian Andersen]**

(to herd immunity - but also to when we might actually see seasonal forcing)

[2020-06-12 16:05:45]

**[Eddie Holmes]**

And globally the pandemic is getting worse.

[2020-06-12 16:06:00]

**[Kristian Andersen]**

Absolutely.

[2020-06-13 02:43:37]

**[Eddie Holmes]**

I honestly can't take much more of this. It will be the death of me. A pangolin is the obvious animal you'd have in the lab.

[2020-06-13 02:47:43]

**[Eddie Holmes]**

By the way, I think it might be Pain-Hobson, although it sounds like it he has other people as well.

[2020-06-13 03:26:26]

**[Eddie Holmes]**

We have two choices: just ignore it or make a group response. I vote for the former, because I am so tired of all this, although it is deeply irritating that we raised all these concerns ourselves months ago and the tone of the email is that we are guilty of something, or trying to cover up. Also, many of the points are stupid/wrong: (i) why anyone would have a pangolin virus in the lab is beyond me and obviously idiotic. That Viruses paper on the pangolin virus, which does not even describe the sequence, was published online in Oct. 24th 2019. It's obviously not credible to have read this, got the pangolins and the viruses and done the leaky experiments in this timeline; (ii) the WIV is not

the only lab with closely related bat viruses - obviously RmYN02 comes from a different lab; (iii) I don't see that 4 amino acid insertion and no flanking changes is at all problematic, particularly as these insertions are so common e.g. in H7N7 AIV the sequence went from PEIPKGR (low path) to PEIP\*KRRR\*R (high path). And Bill Gallaher's theory explains it. But most of all I am completely tired all this. Nor do I want to die on the hill - it's up to the WIV to deal with this, not us.

[2020-06-13 04:05:06]

**[Eddie Holmes]**

Just sent an email as well (which I now think is probably unnecessary).

[2020-06-13 04:05:15]

**[Andrew Rambaut]**

Totally agreed. I have talked to a few journalists about the origins recently but only if they seem genuinely interested in the natural origins. My approach has been to keep pushing how plausible it is and ignore anything that is trying to set up lab origins without actual evidence.

[2020-06-13 06:34:53]

**[Robert Garry]**

"We have two choices: just ignore it or make a group response...it's up to the WIV to deal with this, not us." I agree we should ignore this BBC effort and whomever they've co-opted for their show. Totally agree that a group response would be counter-productive - we put our thoughts out, raised the issue ourselves and came to conclusions. I'm starting to see so many similarities to the "HIV doesn't cause AIDS" decades-long shit show. Raising it ourselves BTW when many other "advisors" on the initial email chain got pissed off and said not too is starting to look correct. There is a third way - a commission - WHO or other - to look into the proximal origins - would give WIV a chance to clear themselves. Otherwise, scientists (Pain-Hobson LOL) who want to challenge our conclusions should write their own papers in science journals not say contrarian nonsense just so they can get on the tvee or the tabloids.

[2020-06-13 07:28:19]

**[Kristian Andersen]**

It's absolutely ridiculous - the questions raised about our study are dumb (idiotic even) and show a complete lack of understanding.

I might chose to respond vigorously - we gain nothing responding to individual questions, but I wonder if we might gain something by extremely strongly pushing back at him and his shitty journalism. I will think on it for a couple of hours.

[2020-06-13 07:36:44]

**[Andrew Rambaut]**

I think a good strategy is not to directly engage with the nutters (or even acknowledge they exist) but address their attack points indirectly by reiterating the plausibility of the reality. Bring in new evidence and studies and admit the unknowns and sell them as exciting things to find out. Good science journalists like this stuff, find it fascinating and don't give space to the nutters. The bad journalists just want to report on the conflict.

Perhaps it will soon be time for an update review - there is lots of new stuff to think about.

[2020-06-13 07:44:28]

**[Kristian Andersen]**

Agreed!

[2020-06-13 08:48:25]

**[Robert Garry]**

"time for an update review - there is lots of new stuff to think about." :beer:

[2020-06-13 09:35:25]

**[Andrew Rambaut]**

Jotting down some of the new stuff:

Bill's potential source of the furin site - perhaps could dig into that more.

Looks like SARS-CoV-2 can infect and readily transmit in mink (in the Netherlands).

[https://www.eurosurveillance.org/content/10.2807/1560-7917.ES.2020.25.23.2001005#html\\_fulltext](https://www.eurosurveillance.org/content/10.2807/1560-7917.ES.2020.25.23.2001005#html_fulltext) - some severe disease too.

Infects cats. So broad host range.

Look into that press-release about infecting fruit bats (and cats).

Recombination of RBD variable loop out of RaTG13 rather than in to SARS-CoV-2 from pangolins.

Large variety of pangolin viruses (these are illegally imported from SE Asia - so where are they getting them from).

Seems to readily lose furin site in cell culture.

Really odd mutation patterns with lots of C->T and A->T, much higher NSyn/Syn ratio than you would expect?

RmYN02 being closer in ORF1ab but recombines out in the rest - tell us something but not sure what just yet.

Deletions in the accessory genes - suggests ORF7 & 8 maybe don't have much function in humans - some batty thing?

[2020-06-13 10:08:29]

**[Robert Garry]**

Well done Kristian [to BBC] and Andrew [above]! Andrew's list is great - I don't see anything that points to active [cloning] or passive [cell or animal passage] lab manipulation however for balance we could put in some of Kristian's points above. [shared file(s): 220px-Leafy\_Seadragon\_on\_Kangaroo\_Island.jpg]

[2020-06-13 10:24:24]

**[Andrew Rambaut]**

We just resubmitted our revised MS on the 'distal' origin. I added a new figure to supplementary on the variable loop recombination: [shared file(s): image.png]

[2020-06-13 10:31:18]

**[Andrew Rambaut]**

Shows better how the pangolin distance is exactly the same in the variable as the rest of the CTD whereas RaTG13 jumps out.

[2020-06-13 13:25:20]

**[Robert Garry]**

Nice work Andrew - hope that paper appears shortly - also Kristian very constructive engagement with BBC - well done - it's not clear where BBC is going with their story. May not be good...

[2020-06-13 13:28:35]

**[Kristian Andersen]**

Yeah, it's unclear where they want to go with this - hence my refusal to address specific (and exceptionally stupid) questions. We shall see - he has been warned.

[2020-06-13 13:32:30]

**[Kristian Andersen]**

[and yes - I realize my replies were exceptionally arrogant. That was the intent in this case...]

[2020-06-13 13:39:15]

**[Robert Garry]**

exceptionally arrogant - not really

[2020-06-13 14:58:35]

**[Eddie Holmes]**

Mornin'. Anything interesting happen overnight?

[2020-06-13 15:13:00]

**[Eddie Holmes]**

A few thoughts: (i) John clearly likes the lab escape angle and I guess will compile a list of compelling factoids; (ii) good idea from Bob to try and get an external body involved. Sir Jeremy's original idea was to get WHO involved and I'm not sure what happened there. I'll ask him again. Alas, the involvement of WHO will upset some people but I

don't know what else is feasible; (iii) to me, the pangolin story is crucial: the RBD looked 'anomalous' but then a little of sampling of an animal what we would never have expected found it was there in nature; (iv) yes, there are some new data points but it is also very clear that we really need better sample of nature to sort this out. Doubtless there will be more bat viruses out there that fill in key positions, but if random animals like pangolins are in the mix (and these were smuggled into China from elsewhere) only god or George Gao knows what else is out there. Without more sampling we are still speculating to a large extent.

[2020-06-13 16:30:15]

**[Eddie Holmes]**

Your emails were very good Kristian.

[2020-06-13 19:06:19]

**[Eddie Holmes]**

My wikipedia page has been hacked with some nasty edits claiming, for example, that I have received research grants from China. Untrue. The intent here is obvious. It also twists what we say in the proximal origins paper to thing like "...pangolins...provide a much stronger and more parsimonious explanation" of how the virus originated through natural selection". I've tried to correct it a few times but it is instantly put back.

[2020-06-14 01:20:15]

**[Andrew Rambaut]**

You can get the page locked by the wikipedia people.

[2020-06-14 02:28:02]

**[Eddie Holmes]**

Thanks. I'll contact them.

[2020-06-15 08:20:39]

**[Robert Garry]**

Based on what John BBC said to Kristian I think he's gong for something "balanced." Probably will ignite a whole new round of conspiracy chatter. Yes - Sir Jeremy might be able to pull something off with WHO, but then of course Trump so maybe more inflammatory than helpful - we could also await Nov [which can't come soon enough] but no guarantees there.

[2020-06-15 08:24:46]

**[Andrew Rambaut]**

BBC are the worst at false equivalency in these things because they have 'balance' built into their charter. So (particularly the news desks) thinks that means you just need to get someone in who disagrees with any position and you are covered.

[2020-06-15 08:26:31]

**[Andrew Rambaut]**

Just talked to David Quammen who is writing a piece for the New Yorker about pangolin conservation (with some CoV angles). He is also starting a book on SARS-CoV-2. Suggested he chats about spike proteins with you Bob.

[2020-06-15 14:11:22]

**[Eddie Holmes]**

I've spoken with David as well.

[2020-06-15 14:12:46]

**[Eddie Holmes]**

Just found out that CGTN (state propaganda TV) took the little video I made for the Australian Academy of Science and pretended they interviewed me for their TV clip. Not acceptable.

[2020-06-16 07:17:21]

**[Robert Garry]**

Yes - CGTN has twisted several comments we've made. Awaiting BBC's exercise in false equivalency aka "fair and balanced."

[2020-06-16 13:36:20]

**[Eddie Holmes]**

I was expecting the online abuse but not being used as propaganda. It is amazing how quickly you develop a thick skin.

[2020-06-17 09:08:30]

**[Robert Garry]**

Would this make me a de facto employee of the CCP? Dear Professor Garry,

I am a producer with China Central Television. Given your background in infectious diseases, we would like to request an interview via Zoom to discuss various responses to the COVID-19 outbreak.

To show our appreciation for your time and contribution, we would like to offer an honorarium of \$150.

Sample questions would cover:

1. Several countries have reopened their economies. How do you view this process from a public health perspective?
- 2.
3. How would you evaluate the various efforts to fight COVID-19?
- 4.
5. How can different nations cooperate to solve the pandemic?
- 6.

The interview would be conducted at your most convenient time. If you have any questions, feel free to contact me.

Thank you,  
Daniel Dao

[2020-06-17 09:11:41]

**[Kristian Andersen]**

Haha, nice. Reply back and ask for (a) \$15k and you'll say the virus is all natural, or (b) \$150k and you'll say it's from America, or (c) \$15m and you'll say Donald Trump made it.

[2020-06-17 09:13:59]

**[Robert Garry]**

Good idea - \$15M is about what I'd have made had I taken Wolfe and Fair up on their offer years back, so I could "retire."

[2020-06-17 09:20:56]

**[Andrew Rambaut]**

Go for it. We won't think less of you.

[2020-06-17 23:51:14]

**[Andrew Rambaut]**

Jesse Bloom's lab: <https://www.biorxiv.org/content/10.1101/2020.06.17.157982v1>

[2020-06-18 00:00:59]

**[Eddie Holmes]**

Saw. Do you interpret this to mean that it's not as exquisitely adapted to humans as some have claimed?

[2020-06-18 00:30:18]

**[Andrew Rambaut]**

I haven't had time to delve in to it yet. Looks amazing though.

[2020-06-18 00:31:12]

**[Andrew Rambaut]**

Jesse is the real wizz-kid of the Hutch!



[2020-06-18 06:57:57]

**[Kristian Andersen]**

Jesse's work is incredible. I had a quick look last night and it shows that there's still room for improvement in terms of better binding. Binding isn't everything though, so I wouldn't conclude it's "not as evolved" as previously thought - the binding is still very very strong (but.... so is the pangolin CoV, of course!).

[2020-06-18 07:20:06]

**[Kristian Andersen]**

@Andrew Rambaut have you had a look at the Beijing genomes? I haven't had a chance yet, but that looks like more diversity than expected? I have a hard time believing it has been circulating undetected for quite a while in Beijing, so could it be a virus that went human & animal & human? Clearly not a separate introduction, but it's again linked to a wet market so I'm wondering if it can bounce back and forth (surely this is possible based on e.g. the Dutch mink farms).

[2020-06-18 07:29:44]

**[Andrew Rambaut]**

Just building a tree now. Initial tree of one sequence shows it is from Denmark: [shared file(s): image.png]

[2020-06-18 07:51:53]

**[Kristian Andersen]**

Clearly this is from the UK! Denmark is innocent.

[2020-06-18 07:52:23]

**[Andrew Rambaut]**

It was in a hotdog

[2020-06-18 07:52:39]

**[Kristian Andersen]**

I'll take a sandwich over a fish

[2020-06-18 07:53:05]

**[Andrew Rambaut]**

I actually think that list is quite amusing. I wonder which of those Beijing is going to blame?

[2020-06-18 07:54:22]

**[Kristian Andersen]**

Well, salmon exports from Faroe Islands to China went from 100% to 0% over the weekend. Faroe Islands = Denmark + your proof. There you go. Faroe Islands.

[2020-06-18 07:55:01]

**[Kristian Andersen]**

(I'd personally blame Texas though - clearly ancestral on the tree).

[2020-06-18 08:59:03]

**[Andrew Rambaut]**

Curiously all of the others in the Beijing group are from late March or early April.

[2020-06-18 09:04:22]

**[Kristian Andersen]**

Oh. So only one sequence from this current outbreak?

[2020-06-18 09:13:36]

**[Andrew Rambaut]**

Very rough BEAST tree - the actual clustering is arbitrary and largely dictated by dates.] [shared file(s): image.png]

[2020-06-18 09:14:16]

**[Andrew Rambaut]**

3 Beijing ones (one environmental). Two have 1 unique mutation each and one has 2.

[2020-06-18 09:26:02]

**[Robert Garry]**

Definitely explains the salmon connection - Pompeo is all over this - M15 too :laughing: [shared file(s): 659bbfd59640355daafa23a259532eab.png]

[2020-06-18 10:37:18]

**[Kristian Andersen]**

*[thread - ID: 2020-06-18 10:37:18]*

Hmmm - those TMRCAs are a lot older than I expected. Since that's driven by so few mutations, do we believe all SNPs are real?

[2020-06-18 10:37:47]

**[Kristian Andersen]**

And yeah - clearly Denmark :wink:

[2020-06-18 15:15:34]

**[Eddie Holmes]**

In basements all over the world people will be looking at Google Maps and drawing straight lines between the fish market and the China CDC head office in Beijing.

[2020-06-18 15:22:38]

**[Kristian Andersen]**

Haha

[2020-06-18 15:38:24]

**[Andrew Rambaut]**

*[thread - ID: 2020-06-18 10:37:18]*

I don't really know. I think they all come from the market (1 environmental and 2 people) on the same day so it seems unlikely. Unless this is much bigger than they think.

[2020-06-18 15:39:51]

**[Andrew Rambaut]**

You probably saw it but here is the ML tree (with an outgroup root): [shared file(s): beijing\_11.ml.tree.png]

[2020-06-18 15:40:32]

**[Andrew Rambaut]**

Weird that the one of them is at the base of that polytomy.

[2020-06-18 15:42:55]

**[Kristian Andersen]**

Yeah, it's very interesting. Is it really possibly Beijing has had an outbreak for quite some time? As in at least a few weeks?

I have been trying to create an alignment to look at the individual mutation for the last few hours - I can't deal with how big the data is these days... :wink:

[2020-06-18 15:46:21]

**[Andrew Rambaut]**

Plausible: <https://www.theguardian.com/world/2020/jun/18/global-report-beijing-covid-19-cluster-may-have-begun-a-month-earlier-china-health-chief>

[2020-06-18 15:47:57]

**[Kristian Andersen]**

Yup. Bloody exponential growth!

[2020-06-18 15:48:18]

**[Kristian Andersen]**

Could have been a single hit and then slow fuse, boom.

[2020-06-18 15:48:46]

**[Andrew Rambaut]**

This whole group has that triple mutation in N. I was trying to work out where that arose (first seen in a German sequence but there might be an earlier one now).

[2020-06-18 15:54:43]

**[Eddie Holmes]**

The other day the narrative was that the Wuhan market was a hot spot because it was 'hot and sweaty' now these markets are hot spots because they are 'cold and wet'. Obviously dry and temperate is the best place to live. Does sound like this cluster has been around for a while though.

[2020-06-18 15:55:57]

**[Kristian Andersen]**

I think the markets are probably just super spreading events + increased surveillance.

[2020-06-18 15:56:00]

**[Andrew Rambaut]**

I bet they have a flashing red light on the hospital computer which goes on whenever there is a pneumonia case associated with a live animal market.

[2020-06-18 15:56:08]

**[Kristian Andersen]**

Hah.

[2020-06-18 15:56:43]

**[Andrew Rambaut]**

Still curious about the diversity in the 3 genomes.

[2020-06-18 15:56:44]

**[Kristian Andersen]**

One main question I have here - were they wearing masks? There's this (likely wrong) belief now that if we all just put on masks, we'll be fine.

[2020-06-18 15:57:20]

**[Kristian Andersen]**

> Still curious about the diversity in the 3 genomes  
Between them, or compared to others?

[2020-06-18 15:57:44]

**[Andrew Rambaut]**

But there was no coronavirus in Beijing so why would you need to wear masks?

[2020-06-18 15:57:51]

**[Andrew Rambaut]**

Between them.

[2020-06-18 15:58:57]

**[Kristian Andersen]**

&gt; But there was no coronavirus in Beijing so why would you need to wear masks?  
Yup - but question is - did they do anyway? I'm not sure what the current regulations are.

[2020-06-18 16:00:11]

**[Andrew Rambaut]**

But we are surely not going to be expecting people to wear masks when there are apparently no cases just in case.

[2020-06-18 16:00:41]

**[Andrew Rambaut]**

If the whole of China was wearing masks all the time?

[2020-06-18 16:00:52]

**[Andrew Rambaut]**

That is a lot of masks.

[2020-06-18 16:01:21]

**[Eddie Holmes]**

I guess is that masks will still be effectively compulsory in China. In a similar bipolar world, I've screened lots of papers on bioRxiv that basically fall into two camps: (i) SARS-CoV-2 is able to bind to ACE2 from a broad range of species; (ii) SARS-CoV-2 is able to bind to ACE2 from a narrow range of species.

[2020-06-18 16:02:51]

**[Andrew Rambaut]**

Just saw a paper that showed it infects guinea pigs (and transmits). So we have primates, rodents, carnivores and pholidotes so far.

[2020-06-18 16:03:07]

**[Andrew Rambaut]**

Forgot bats.

[2020-06-18 16:03:36]

**[Andrew Rambaut]**

I am not sure there is any evidence for bats.

[2020-06-18 16:07:31]

**[Kristian Andersen]**

Mink.

[2020-06-18 16:07:55]

**[Kristian Andersen]**

Human - mink - human - mink - human - human - human - human.

[2020-06-18 16:08:17]

**[Kristian Andersen]**

Somewhere there's a bat.

[2020-06-18 16:18:26]

**[Kristian Andersen]**

Speaking of animals and such - I don't know if some of you might want to chime in on this...

<https://twitter.com/Ayjchan/status/1273632816983683079?s=20>

[2020-06-18 16:30:28]

**[Eddie Holmes]**

Not doing Twitter at the moment

[2020-06-18 16:36:46]

**[Eddie Holmes]**

Had a quick look...if Alina is suggesting that the pangolin RBD came from humans she's totally mad (look at the synonymous diversity). 100% clear that that RBD is out there in nature. Not sure what hosts, but definitely in nature.

[2020-06-18 16:42:14]

**[Kristian Andersen]**

Yeah, I'm not sure what she's suggesting... Either from human or somebody invented the sequence. Hasn't that sequence been seen from multiple animals by multiple labs?

[2020-06-18 16:48:58]

**[Eddie Holmes]**

Yes, it has. The two pangolin papers in Nature (different groups) both show the same RBD in the animals from Guangdong.

[2020-06-18 16:58:19]

**[Kristian Andersen]**

Thought so...

[2020-06-18 17:27:54]

**[Kristian Andersen]**

This is pretty interesting... [shared file(s): Screen Shot 2020-06-18 at 5.27.34 PM.png]

[2020-06-18 17:32:09]

**[Eddie Holmes]**

But the pangolin sequence is only 'highly identical' at the amino acid level. Not synonymous sites...falls in the expected place at those sites.

[2020-06-18 17:34:36]

**[Kristian Andersen]**

Yeah, agreed - but if what she's saying is actually true, then that's definitely strange - that is \*not\* how the authors describe their data and samples

[2020-06-18 17:34:56]

**[Kristian Andersen]**

I'll get the manuscript from her

[2020-06-18 17:37:10]

**[Eddie Holmes]**

Let me see what I can do on this. I'm working with both groups.

[2020-06-18 17:41:09]

**[Eddie Holmes]**

Still makes no sense because the Liu et al. paper come out before the pandemic.

[2020-06-18 17:41:32]

**[Kristian Andersen]**

"Liu et al. paper come out before the pandemic" &gt; Yup.

[2020-06-18 17:42:11]

**[Eddie Holmes]**

Published online October 24th 2019 if I remember.

[2020-06-18 17:43:29]

**[Kristian Andersen]**

Yup - definitely well before the outbreak began (ohhhh, but what about all those parked cars, huh...?)

[2020-06-18 17:51:49]

**[Eddie Holmes]**

I can easily imagine that the Liu et al. data has influenced the assembly in the later papers but (i) why would this only impact nonsynonymous sites and (ii) how could it possibly have produced the human sequence when no one knew what that was? Liu et al. is clearly a 'blind' study. I've just emailed Tommy if he can assemble the same RBD without the Liu et al. data and/or if it has been Sanger sequenced. The other group have a second paper on the clinical manifestations that I am helping them with. They've sequenced the virus again. I've also asked if they can assemble the same RBD without the Liu et al. data and/or if it has been Sanger sequenced.

[2020-06-18 17:58:51]

**[Eddie Holmes]**

The similarity between the RBD and the Guangdong pangolins from the Liu et al. study alone was noted on Virological in late January. How can Liu et al. have possibly known what the human RBD would have looked like? <https://virological.org/t/ncov-2019-spike-protein-receptor-binding-domain-shares-high-amino-acid-identity-with-a-coronavirus-recovered-from-a-pangolin-viral-metagenomic-dataset/362>

[2020-06-18 18:26:41]

**[Kristian Andersen]**

Here's the manuscript from her - please keep confidential. I haven't read it yet. [shared file(s): Matters Arising Chan Zhan 2020.pdf]

[2020-06-18 18:28:37]

**[Kristian Andersen]**

I think the main problem here is not really how that pangolin sequence ended up having that RBD, but rather whether there's anything sketchy here from a scientific standpoint. These studies are presented each as independent evidence of the pangolin virus RBD, but if all those papers are relying on a third data set - and don't actually have \_any\_ data from this very critical CoV RBD, then that's an issue.

[2020-06-18 18:30:48]

**[Kristian Andersen]**

I don't really see how this changes anything from the evolutionary perspective - because seeing it even once is very strong evidence. But there's no denying that if these studies have to be modified (or possibly even retracted), then that is going to send a nuke into the whole evolution conversation - whether justified or not.

[2020-06-18 18:36:25]

**[Eddie Holmes]**

Can we do a quick Zoom now.

[2020-06-18 18:39:58]

**[Eddie Holmes]**

Tommy's paper very clearly stated the provenance. Can't speak for the others.

[2020-06-18 18:40:09]

**[Kristian Andersen]**

<https://us02web.zoom.us/j/9673242666>

[2020-06-18 19:14:39]

**[Eddie Holmes]**

*[thread - ID: 2020-06-18 19:14:39]*

Hi Eddie,

Although the pangolins used in Liu's study overlap with ours, we did not use Liu's data in this new paper, and assemble four new virus genomes. In addition, we amplified and sequenced (Sanger sequencing) the complete S genes from lung tissues and virus isolate independently, and confirm the high-throughput sequencing. As showed in Figure S2, the new genomes almost the same as our previous genome and Lam's. Therefore, i am sure that the previous data is correct.

I have discussed with Liu several days ago, he also used Sanger sequencing to attain a nearly complete genome, and confirm his high-throughput result.  
The latest data in this new article will reassure everyone.

Sincerely,  
Yongyi Shen [shared file(s): image.png]

[2020-06-18 19:24:26]

**[Eddie Holmes]**

Just to spice things up, Australia is currently experiencing a state-sponsored cyber-attack that is widely believed to be from China.

[2020-06-18 19:26:19]

**[Kristian Andersen]**

.... this won't end well.

[2020-06-18 19:27:15]

**[Eddie Holmes]**

Oh no.

[2020-06-18 19:28:11]

**[Kristian Andersen]**

For the last month, I have been feeling like I'm one of these guys:  
[https://en.wikipedia.org/wiki/Musicians\\_of\\_the\\_RMS\\_Titanic](https://en.wikipedia.org/wiki/Musicians_of_the_RMS_Titanic)

[2020-06-18 19:33:30]

**[Eddie Holmes]**

I had better buy a top-hat.

[2020-06-18 19:34:02]

**[Eddie Holmes]**

I keep thinking of Hugh Trevor-Roper and the Hitler Diaries (you may need to look that one up).

[2020-06-18 19:35:05]

**[Kristian Andersen]**

Haha, good one.

[2020-06-18 23:25:42]

**[Andrew Rambaut]**

*[thread - ID: 2020-06-18 19:14:39]*

You should suggest they should get a preemptive post up on virological. Much better than doing a response to a published insinuation. Could be innocently presented.

[2020-06-18 23:41:44]

**[Eddie Holmes]**

Yes, not a bad idea. Their new paper is about clinical manifestation in pangos which they claim is the same as human COVID-19. They just sequenced the virus in passing. However, I guess they could stick the tree (above) up on Virological as that does contain new S gene data and has been Sanger sequenced. I don't think Tommy has to do anything as the provenance of the sequences is clearly stated in the paper. I do think this all a bit of a nothing issue. 100% certain that pangos had that sequence (and it ain't from a human). Here's a pango CT scan if you want one: [shared file(s): image.png]

[2020-06-18 23:43:10]

**[Eddie Holmes]**



P.S. Tommy also told me that some other (EgoHealth Alliance I think) pangos were CoV positive. Not quite sure what CoV though.

[2020-06-19 00:42:39]

**[Eddie Holmes]**

From Tommy: For the accuracy of the RBD, the GD sequences available now:

1. GD/P1L (ours), which is a 'reassembly' of the SRA dataset from Liu et al Viruses paper - this is clearly stated in the methods section of our paper.
2. GD/P2S (ours), which is the assembly from the NGS SRA data by Guangdong custom.
3. GD/1/2019 (Xiao), which is assembly from NGS SRA data of their pangolin samples, plus confirmation with PCR amplicon sequencing (Sanger/NGS unknown).
4. GD/MP789 (Liu), which is so called re-sequencing of the Viruses sample by NGS and re-assembly if I remember correctly.

Their RDBs are all highly similar (almost identical), and so I think this somehow proves that this RBD sequence is real.

Yes, as you said, some other papers are very nasty, they just down the pangolin sequences from GISAID and do some analysis and published, and without mentioning the source or citing the original papers. Readers are highly misled and confused where these sequences come from...

[2020-06-23 11:38:43]

**[Kristian Andersen]**

Bill's good... <https://virological.org/t/identification-of-a-common-deletion-in-the-spike-protein-of-sars-cov-2/451/15>

[2020-06-23 12:26:20]

**[Robert Garry]**

Definitely he's on to something! The palindrome at some basal level drives the hypervariability in the region. Probably not restricted to SARS-Cov-2. I also encouraged him to post the "lima bean" post on Virological - a little more thinking behind it than just "fun with Blast[TM]" and I thought his cautious tone was good.

[2020-06-23 15:17:49]

**[Eddie Holmes]**

Bill's a star. He has a paper going through Archives of Virology. Hope it get published soon.

[2020-06-23 16:19:41]

**[Kristian Andersen]**

In other news - Joe invented a cool new tool called genomic epidemiology (caution, reading may induce gagging).

<https://www.bloomberg.com/graphics/2020-opinion-chan-zuckerberg-biohub-covid-tracing/>

[2020-06-23 16:23:47]

**[Eddie Holmes]**

The only good thing about Joe is that he winds-up Lipkin so profoundly. Always a pleasure to watch.

[2020-06-23 16:44:31]

**[Kristian Andersen]**

I used to respect both of those men a great deal. I must have been either dumb or naive. Or both.

[2020-06-23 17:37:01]

**[Eddie Holmes]**

Ego &&& ability

[2020-06-24 06:46:55]

**[Robert Garry]**

that the truth

[2020-06-25 09:27:45]

**[Robert Garry]**

Peak COVID-19 case numbers in the US and worldwide today.

[2020-06-25 09:27:50]

**[Robert Garry]**

[https://science.sciencemag.org/content/368/6493/832?ijkey=e55a58bb80b74541eda2f9e3dabc4635a2aa188f&keytype=tf\\_ipsecsha](https://science.sciencemag.org/content/368/6493/832?ijkey=e55a58bb80b74541eda2f9e3dabc4635a2aa188f&keytype=tf_ipsecsha)

[2020-06-25 09:28:06]

**[Robert Garry]**

Pushback on Controlled human trials

[2020-06-25 09:29:19]

**[Robert Garry]**

<https://science.sciencemag.org/content/368/6494/948>The possibility of performing controlled human challenge trials, in which a small number of volunteers are vaccinated and subsequently challenged with SARS-CoV-2, has been suggested. Such experiments, if designed to define potential immune correlates or winnow out less effective vaccine approaches, may have utility. However, this approach has shortcomings with respect to pathophysiology and safety (\*12\*). Although the risk of severe disease or death in young healthy individuals from COVID-19 is quite low, it is not zero, and we do not yet have proven effective therapies for COVID-19 to rescue volunteers with complications from such a challenge. It is likely that a SARS-CoV-2 challenge strain will, by design, cause mild illness in most volunteers and thus may not recapitulate the pulmonary pathophysiology seen in some patients. Moreover, partial efficacy in young healthy adults does not predict similar effectiveness among older adults with major cofactors associated with COVID-19 disease, nor would it prove reduction of transmissibility to major susceptibility groups. Whether such experiments may be worthy of pursuit or would have a beneficial impact on timelines for vaccine development needs careful evaluation by an independent panel of ethicists, clinical trialists, and experts on vaccine development.

[2020-06-25 09:31:29]

**[Robert Garry]**

I think the above paragraph from NIH leaders suggest that Fauci et al. are open to controlled human trials - "may have utility." I think the time has come.

[2020-06-27 07:31:00]

**[Kristian Andersen]**

Sounds like 'fun'. <https://www.nytimes.com/2020/06/26/world/europe/sage-britain-coronavirus-ferguson.html>

[2020-06-27 17:05:28]

**[Eddie Holmes]**

The blood-letting has only just begun....I have to say that my faith in humanity has greatly diminished in recent months.

[2020-06-27 17:15:48]

**[Kristian Andersen]**

Same. Especially English-speaking 'humanity' in the Northern hemisphere.

[2020-06-27 17:35:21]

**[Eddie Holmes]**

Very true.

[2020-06-29 15:34:32]

**[Kristian Andersen]**

I guess Bette's paper is landing tomorrow in Cell...? @Andrew Rambaut - any new insights on Doug vs Dougless from the UK cohort?

[2020-06-29 15:36:51]

**[Andrew Rambaut]**

Yeah. We are just writing it up. We get a marginal signal for higher growth rate in Doug lineages over Dougless but it is a struggle. It is really not clear there is much in it (in terms of transmissibility).

[2020-06-29 15:42:10]

**[Kristian Andersen]**

Okay, thanks. So it might be true that G \_may\_ be marginally more transmissible than D but that there is not a major effect? Would make sense given some of the hypotheses about how this mutation increases infectivity.

[2020-06-29 15:48:10]

**[Andrew Rambaut]**

How do you know Bette's paper is coming out?

[2020-06-29 15:48:52]

**[Kristian Andersen]**

Jim + Ben from NYT asked me over the weekend - I think Marc may be commenting on it (I didn't have time to read it...).

[2020-06-29 17:22:22]

**[Eddie Holmes]**

I reviewed the revision of Bette's paper for Cell: Cell were clearly desperate for it. The phylogenetics/population analysis was still shit and I told them to redo all that, but I bet they didn't.

[2020-06-30 05:06:51]

**[Robert Garry]**

Has anyone looked at pH? The D in that location between the monomers of the trimer likely involves entry. Ironically chloroquine - to the extent it does have antiviral activity - raises endosomal/lysosomal pH. Lots of hydroxychloroquine was poured into COVID patients. Just throwing this out - if anything HCQ made things worse in some patients.

[2020-06-30 06:17:51]

**[Andrew Rambaut]**

The paper that suggested HCQ was killing people turned out to be a complete fraud and was retracted. WHO have resumed HCQ trials but I assume there is no great effect.

[2020-06-30 07:13:13]

**[Robert Garry]**

<https://www.reuters.com/article/us-health-coronavirus-hydroxychloroquine/global-covid-19-prevention-trial-of-hydroxychloroquine-to-resume-idUSKBN2410SW> Agreed, but HCQ still being tested for "prevention."

[2020-06-30 07:14:09]

**[Robert Garry]**

And WHO is going to China to investigate the origins

[2020-06-30 07:14:12]

**[Robert Garry]**

<https://www.reuters.com/article/us-health-coronavirus-who-origins/who-sending-team-to-china-to-investigate-origins-of-coronavirus-idUSKBN2402BH>

[2020-06-30 07:16:57]

**[Andrew Rambaut]**

Ha. 'Look, here is our lab. As you can see - no bat viruses'.

[2020-06-30 08:01:43]

**[Andrew Rambaut]**

@Kristian Andersen So is the Scripps paper coming out this week as well?

[2020-06-30 08:02:10]

**[Andrew Rambaut]**

Have you seen the updated Korber one?

[2020-06-30 08:05:53]

**[Kristian Andersen]**

Here's the final Cell one (confidential). I believe the Scripps one is under review, but not sure what stage it's at. [shared file(s): Cell June25 Final Bette Korber paper.pdf]

[2020-06-30 08:07:39]

**[Kristian Andersen]**

[I have not had time to read the Korber one]

[2020-06-30 15:19:03]

**[Eddie Holmes]**

Absolutely clear that if WHO find nothing nefarious then the US and all the conspiracy theorists will be happy.

[2020-07-01 13:57:29]

**[Kristian Andersen]**

From Bette's paper "A two-sided Fisher's exact test compares the counts in the pre-onset period to the counts after the two-week delay period and provides a p- value against the null hypothesis that the fraction of D614 vs G614 sequences did not change". Really? This got through peer review? @Eddie Holmes, I'm pretty darn sure you must have flagged this - that's not how that test works. Or is she just using this as an inclusion criteria?

[2020-07-01 14:01:27]

**[Andrew Rambaut]**

And counts are just numbers of sequences in gisaid?

[2020-07-01 14:01:58]

**[Kristian Andersen]**

Yes. Solid stuff.

[2020-07-01 14:12:03]

**[Eddie Holmes]**

I said the whole analysis was crap and needed to be redone. I never saw any response to this.

[2020-07-01 14:17:18]

**[Eddie Holmes]**

I submitted my review on June 12th (I only reviewed the revision). Given the speed of all this - and they wanted to take a look in 48 hours - it was clear that Cell were going to take it whatever I said. I've not looked at the paper - I can't stand to - but I assume they've not made any of the revisions I suggested.

[2020-07-01 14:17:43]

**[Kristian Andersen]**

Okay, finally managed to read the full (updated) paper. The analyses are fucking crap and the statistics a complete joke. I'm really surprised this is going through - no way it passed the Eddie smell test

[2020-07-01 14:18:56]

**[Kristian Andersen]**

The only good thing is that they're not pushing the "it's transmitting better" narrative. I'm not saying that couldn't be true, all I'm saying is that the data and analyses do not allow for that conclusion. I think Marc might be commenting on the paper for NYT... That could be fun.. :wink:

[2020-07-01 14:24:32]

**[Eddie Holmes]**

If the Editor is completely on the side of the authors what can you do? Their's peer reviewer and then ignoring peer review. Clearly Cell wanted it accepted ASAP because they were worried about being scooped and wanted the citations. Here's the 1st major comment from my review "The statistical analysis of the D614G variant is flawed. I'm not saying that the conclusion is wrong, but the analysis is."

[2020-07-01 14:30:58]

**[Eddie Holmes]**

I'll use those grader quotes in my next review.

[2020-07-01 15:00:26]

**[Andrew Rambaut]**

Our analysis of the UK data seems to suggest a higher rate of G growth but it is really hard. We consistently get a higher rate but the significance depends on the details of the analyses. The effect size is small but not insignificant (if true). On the other hand there is not much you can do with the knowledge.

[2020-07-01 15:02:07]

**[Kristian Andersen]**

Do you have a visual of any of this? I'm kinda struggling with how a difference like this might even look like. The previous R0 estimates I saw for the two clades from Trevor's group essentially looked identical

[2020-07-01 15:02:40]

**[Andrew Rambaut]**

Please don't show this to anyone just yet but here is an analysis by Erik Volz and we are backing this up on the same data with different models. [shared file(s): image.png]

[2020-07-01 15:03:22]

**[Andrew Rambaut]**

Each dot is in an independent introduction into the UK.

[2020-07-01 15:03:47]

**[Kristian Andersen]**

And how's growth rate calculated?

[2020-07-01 15:03:48]

**[Andrew Rambaut]**

But basically this is not significant under most conservative conditions.

[2020-07-01 15:05:30]

**[Andrew Rambaut]**

This is using Erik's skygrowth model.

[2020-07-01 15:06:00]

**[Andrew Rambaut]**

But we are now doing a full BEAST run with a hierarchical model on the growth rates which may give us more power.

[2020-07-01 15:09:11]

**[Kristian Andersen]**

This is well above my understanding, but isn't it possible to estimate R0 (or Re) pretty reliably given the amount of data you have from the UK? In Erik's model is it possible to adjust for introduction time differences? I assume lockdown measures would affect these differently.

[2020-07-01 15:13:17]

**[Andrew Rambaut]**

Yes they have individual trajectories up and down but are not conditioned on a particular lockdown date. Our BEAST estimates have two exponential phases with different growth rates (which can be negative) before and after a transition time. They all share the same transition time which is after lockdown (but allows for some lag). For the initial growth all the Ds have a rate and all the Gs have a rate and we estimate them jointly to give us power.

[2020-07-01 15:14:44]

**[Kristian Andersen]**

Ah, nice - I like that model. Will be interesting to see the results from that - I really can't make up my mind of what I find is more likely here

[2020-07-01 22:38:17]

**[Eddie Holmes]**

Can't believe how Daszak is laying into Francis Collins. I really hope this comes back to bite him on the arse.

[2020-07-01 23:10:42]

**[Kristian Andersen]**

Scorched earth

[2020-07-02 09:04:04]

**[Robert Garry]**

actually just really dumb - he better make sure his grants all score in the top 5% or I'm pretty sure he's seen the last grant from NIH - kiss off any supplements as well.

[2020-07-02 17:06:02]

**[Eddie Holmes]**

My thoughts exactly.

[2020-07-04 03:02:25]

**[Andrew Rambaut]**

Here we go again... <https://twitter.com/mlipsitch/status/1279226903803629569>

[2020-07-04 07:02:39]

**[Kristian Andersen]**

Such idiots. On so many levels.

[2020-07-04 07:38:55]

**[Robert Garry]**

I watched it live - so disturbing - insult to injury - "curefinder" C19 "survivor" who has found no cures and no positive SARS-CoV-2 PCRs or antibody tests was Velchi's guest just before.

[2020-07-04 07:58:40]

**[Robert Garry]**

Navarro was spewing the latest right wing conspiracy meme that the CCP sent hundreds of thousands of C19 carriers to points around the globe while they shut down Wuhan with the red glove. I know it's a meme - I heard it Tuesday night during a Zoom Q&A I did for the Cosmos Club - mixed group of mostly retired members of the Washington elite but one conservative was all about the "fact" that CCP spread C19 worldwide purposefully.

[2020-07-04 08:00:18]

**[Kristian Andersen]**

Nice distraction from doing what is actually necessary - these guys have clearly surrendered to the virus, so we'll just let it burn through America. No big deal.

[2020-07-04 09:12:32]

**[Kristian Andersen]**

@Andrew Rambaut, great analysis in the COG report: <https://www.cogconsortium.uk/wp-content/uploads/2020/07/25th-June-2020-Report-COVID-19-Genomics-UK-COG-UK-Consortium.pdf>

Question about this part: "As reported in a preliminary analysis of D614G (See COG-UK report #6), a significant association was observed between the age of patients and the probability of the virus carrying D614G, with decreasing odds of carrying the G variant as age increases. However, the basis for this association remains unclear and may also result from sampling bias."

Are you guys able to isolate the effect of time here? There has been a general trend towards more recent infections being (heavily) biased towards younger people and since Doug is younger than Dougless I'd kinda expect this to happen.

[2020-07-04 09:31:26]

**[Andrew Rambaut]**

There are lots of confounding things going on here - the later weeks have lots more Gs (although there are some persistent D lineages) but there was a switch to hospital based testing and a lot of hospital workers were sequenced - tending to be younger.

[2020-07-04 09:33:29]

**[Kristian Andersen]**

Yeah, that's what I thought - likely explains the shift towards younger people in G. (hence the need to try and control for that confounder, but likely not really possible).

[2020-07-04 16:18:05]

**[Eddie Holmes]**

What is happening to the US? Extraordinary.

[2020-07-04 16:33:16]

**[Eddie Holmes]**

<http://archive.is/7TCsc>

[2020-07-04 16:51:24]

**[Eddie Holmes]**

You need to read this. I knew about the mine story (it's in a PhD thesis). The key mistake is that they imply that RaTG13/4991 is the direct ancestor of SARS-CoV-2 which it clearly isn't. And if we except that it suggests that the WIV do not have other bat viruses that could have led to SARS-CoV-2 through experimental manipulation.

[2020-07-04 17:07:39]

**[Eddie Holmes]**

Ebright talking his usual nonsense. People always forget about RmYN02 and why would you passage a virus that you already think might cause human pneumonia?

[2020-07-04 21:17:45]

**[Kristian Andersen]**

Okay, so four miners got infected with a SARS-like virus in 2012. Maybe. Nothing new there...  
:face\_with\_rolling\_eyes:

[2020-07-04 21:17:59]

**[Kristian Andersen]**

Not sure where they have this from [shared file(s): Screen Shot 2020-07-04 at 9.13.08 PM.png]

[2020-07-04 21:18:20]

**[Kristian Andersen]**

And obviously this is complete bs... [shared file(s): Screen Shot 2020-07-04 at 9.16.32 PM.png]

[2020-07-05 01:03:06]

**[Eddie Holmes]**



Yes, completely BS. They original thought the cause of the disease was an henipavirus but didn't seem hugely convinced even then: <https://www.sciencemag.org/news/2014/03/new-killer-virus-china>

[2020-07-05 01:03:34]

**[Eddie Holmes]**

It was written up in EID. [shared file(s): 13-1022.pdf]

[2020-07-05 01:06:19]

**[Eddie Holmes]**

There are just too many uncertainties to say that much. Clearly, the journos are trying to suggest that the 2012 disease was caused by RaTG13 and that is really the ancestor of SARS-CoV-2. Clearly not true. RmYN02 was sampled from a different county in Yunnan province and who knows that diversity of bat viruses there are in other localities.

[2020-07-05 06:47:12]

**[Robert Garry]**

Wow - important read for sure - obviously a LOT of BS, but new and important information nonetheless. The penultimate paragraph sums up the BS. "Ebright alleges, however, that the type of work required to create Covid-19 from RaTG13 was "identical" to work the laboratory had done in the past. "The very same techniques, the very same experimental strategies using RaTG13 as the starting point, would yield a virus essentially identical to Sars-Cov-2." Seems extremely unlikely that RaTG13 sickened 6 and killed 3 copper miners. Passing RaTG13 in human cells would not have generated the pangoCoV RBD.

Last paragraph also interesting. There actually really are some "dots" - sick/dead miners connected to RaTG13. Coincidence? Probably a lot of unsampled CoVs in that mine. My guess one that one that didn't get sampled was the killer [50% CFR so makes SARS1 and 2 look tame]. Or maybe an unsampled paramyxovirus - respiratory version. "The Sunday Times put a series of questions to the WIV. They included why it had failed for months to acknowledge the closest match to the Covid-19 virus was found in a mine where people had died from a coronavirus-like illness. The questions were met with silence." Daszak clearly knew the whole story too - thou as Eddie indicates it's in plain sight - the whole series of dots are out there in print. Furthermore, WIV hasn't exactly been hiding RaTG13, but they may be itching to get back there as well. Gao too...

[2020-07-05 06:59:06]

**[Robert Garry]**

The EID article was published June 2014 - lot's of Ebola happening then...

[2020-07-05 07:21:56]

**[Andrew Rambaut]**

I blocked Ebright on Twitter so I haven't been following what he has been saying but suggesting that RaTG13 is the actual source material for lab production of SARS-CoV-2 is really dumb.

[2020-07-05 07:54:46]

**[Robert Garry]**

Could be the straw that pushes us to Proximal Origin 2 perhaps...

[2020-07-05 15:30:43]

**[Eddie Holmes]**

Yes, concluding that RaRTG13 is the source is really dumb. As I said above, all this suggests to me is that the only interesting virus they have at the WIV is RaTG13 and not another that they were secretly working on that gave rise to SARS-CoV-2.

[2020-07-05 16:53:11]

**[Eddie Holmes]**

Funny that the author is at a centre for evidence-based medicine and then presents no evidence whatsoever: <https://www.smh.com.au/world/europe/coronavirus-pandemic-may-not-have-started-in-china-experts-say-20200706-p5599t.html>

[2020-07-05 18:35:20]

[Robert Garry]

That article is disturbing - more disturbing is the barnyard \*ménage à trois on the side of the meat truck.\*

[2020-07-05 18:58:06]

[Kristian Andersen]

It's really amazing - building up all this mystery and nonsense and really it just comes down to "shit happens". Reminds me of this absolutely evergreen about how SARS2 is spread via farts (up to 200m!!!): <https://pubsonline.informs.org/doi/10.1287/orms.2020.02.01/full/>.

I'm honestly surprised we aren't all dead by now - but between COVID and climate change, that might still happen soon enough... :wink:.

[2020-07-05 19:40:36]

[Eddie Holmes]

Hadn't see the fart story. Thanks for sharing.

[2020-07-05 20:01:50]

[Eddie Holmes]

200 m physical distancing would have been a challenge.

[2020-07-05 21:13:06]

[Kristian Andersen]

... not for a Dane. 200m is still not enough.

[2020-07-05 23:11:45]

[Eddie Holmes]

Particularly to the nearest Swede.

[2020-07-05 23:45:32]

[Andrew Rambaut]

That article is brilliant. The guy must be just sitting on his couch with a massive spliff just trying to figure shit out: &gt; &gt;Dr Jefferson believes that many viruses lie dormant throughout the globe and emerge when conditions are favourable. It also means they can vanish as quickly as they arrive. &gt; &gt;"Where did SARS-1 go? It's just disappeared," he said. "So we have to think about these things. We need to start researching the ecology of the virus, understanding how it originates and mutates.

[2020-07-05 23:57:17]

[Eddie Holmes]

Senior associate tutor = spliff smoker and shit figure outter.

[2020-07-06 06:51:20]

[Robert Garry]

"I'm honestly surprised we aren't all dead by now - but between COVID and climate change, that might still happen soon enough... :wink:." Don't forget about the nonRatG13 CoV or paramxyovirus that killed 3/6 miners in a Yunnan cave in 2012. But like Dr Jeff said "it's just disappeared," kinda like SARS1 and Bas-Congo virus for that matter...

[2020-07-06 15:21:04]

[Andrew Rambaut]

From Jefferson's wikipedia page [https://en.wikipedia.org/wiki/Tom\\_Jefferson\\_\(epidemiologist\)](https://en.wikipedia.org/wiki/Tom_Jefferson_(epidemiologist)) :

"His views about the effectiveness of influenza vaccines and his outspokenness about them are also controversial; at a 2007 meeting on pandemic preparedness he was shunned by other vaccine researchers and ate alone."

He is getting his revenge for being shunned.

[2020-07-06 15:21:52]

**[Andrew Rambaut]**

Also:

&gt; On 5 July, 2020 it was widely reported Jefferson claimed the coronavirus may not have originated in China. His theory was that a virus may simply lie dormant for years before suddenly emerging. Jefferson pointed to the isolation of Western Samoa which lost 22% of its population to Spanish Flu in 1918, Jefferson reportedly claiming that the islands had no contact with the outside world. His claim was in direct conflict with the generally accepted and well documented notion that Spanish Flu arrived on board the SS Talune on 7 November, 1918, when six infected passengers arriving from New Zealand were allowed ashore.

Wikipedia has basically done a 'Let me google that for you' on him.

[2020-07-06 17:09:31]

**[Eddie Holmes]**

They've done that to me as well. Bloody Cochrane are a pain in the arse.

[2020-07-06 17:10:30]

**[Eddie Holmes]**

Great backstory though.

[2020-07-06 18:20:09]

**[Kristian Andersen]**

Have any of you received the WHO SARS2 sequencing handbook for review? (from Sarah Hill). Holy smokes it's good - just saying. This is really going to help with getting sequencing up and running with local counties, states, etc. (yes, yes, UK, we know you have this sorted, but whatever...)

[2020-07-06 20:32:42]

**[Kristian Andersen]**

Remember that journalist from the BBC? Well.

<https://www.bbc.co.uk/news/extra/ewsu2giezk/city-of-silence-china-wuhan>

[2020-07-06 21:27:48]

**[Eddie Holmes]**

Yes, I helped write that WHO report. Glad you liked it! Sarah Hill did a really amazing job. Very impressive. That BBC thing is the same old...still playing that daft RaTG13 card.

[2020-07-06 21:28:40]

**[Kristian Andersen]**

Yeah, I was really impressed by that WHO report - so much good stuff in there! :beer:

[2020-07-06 21:29:35]

**[Eddie Holmes]**

:+1: Took a while.

[2020-07-07 01:21:35]

**[Eddie Holmes]**

<https://hal.archives-ouvertes.fr/hal-02891455/document>

[2020-07-07 01:21:47]

**[Eddie Holmes]**

Better read this.

[2020-07-07 01:31:34]

**[Andrew Rambaut]**

Figure 6. :man-facepalming:

[2020-07-07 01:48:08]

**[Eddie Holmes]**

Oh good god.

[2020-07-07 01:52:35]

**[Eddie Holmes]**

Actually says that there is no similarity but that they put a figure in is concerning.

[2020-07-07 01:57:35]

**[Eddie Holmes]**

RmYN02 was not compiled from 227 samples from 40 bat species! It was from 11 fecal samples from *Rhinolophus malayanus* and the S gene was confirmed by Sanger sequencing.

[2020-07-07 12:11:41]

**[Robert Garry]**

You all might want to break out the popcorn for the this coming COVID shit storm.

[2020-07-07 12:12:20]

**[Robert Garry]**

Curefinder admits he is antibody negative. [shared file(s): image.png]

[2020-07-07 12:32:01]

**[Kristian Andersen]**

Heh, I guess you and Pardis called it!

[2020-07-07 12:44:24]

**[Robert Garry]**

Actually it was Eddie "I've got a diagnosis for Fair - Munchausen syndrome by ego." You read it here first on March 14 . :beer:

[2020-07-07 13:22:19]

**[Andrew Rambaut]**

On the plus side...

<https://www.theguardian.com/world/2020/jul/07/jair-bolsonaro-coronavirus-positive-test-brazil-president>

[2020-07-07 14:47:22]

**[Andrew Rambaut]**

Get out the bleach injections.

[2020-07-07 15:03:04]

**[Eddie Holmes]**

I'm still quite proud of "Munchausen syndrome by ego". I did a little cheer when I heard the Bolsonaro news.

[2020-07-08 13:38:47]

**[Kristian Andersen]**

Ohhhh boy - this is pretty bad... [shared file(s): Screen Shot 2020-07-08 at 1.37.01 PM.png]

[2020-07-08 13:39:34]

**[Kristian Andersen]**

I ghosted them forever answering this question - I guess I should have taken the time... Oh well.

<https://www.globalhealthnow.org/2020-02/coronavirus-expert-reality-check#pekosz>

[2020-07-08 15:47:14]

**[Eddie Holmes]**

There are so many of these things now I wouldn't worry about it.

[2020-07-10 08:00:52]

**[Robert Garry]**

> @SteveKrak - got to admit this guy is good - curefinder, Laurie Garrett and bonus Richard Preston..NBC tracked their medical expert's "coronavirus battle" - but he never had it

> "Joining me now [is] virologist Joseph Fair, who recently recovered from COVID-19 himself," said Chuck Todd on Meet The Press on June 14. "Dr. Fair, let me start with you because I would like you to share a little bit about your recovery from COVID-19. What should Americans take away from your experience?"

> "I don't have any of those underlying conditions, I'm 42 years old. So you wouldn't think, clinically, that I would be one of those people that would get so very ill. I can say that that seven to eight days prior to me hospitalizing myself when I was doing the self-treatment, that was the worst I've ever felt. I probably spent 23 out of 24 hours in bed," said Dr. Fair, who joined NBC as a science contributor in March as the coronavirus pandemic hit. "Those people that are young and think they're invincible or people that just don't think it's going to affect them that greatly even if they do get it, I can say that my own experience was the complete opposite."

> What Todd didn't tell the audience that day, and Dr. Joseph Fair didn't offer up either, was that Fair had already had at least five negative coronavirus tests. Two days ago on Twitter, Dr. Fair revealed the results of his antibody test - negative again. He never had COVID-19. And that's just the beginning of the troubling story. In this newsletter on June 17, I detailed the full backstory of this strange media situation - from the changing symptoms as his TV appearances went on, to NBC and MSNBC initially telling viewers the caveat about the negative tests, to ultimately abandoning that key part of the story.

> The circumstances were odd to begin with - Dr. Fair appeared on the Today show, and told his story. As a virologist and coronavirus expert, he took every precaution he could. But he said he likely contracted coronavirus through his eyes on an airplane. "If it can take me down, it can take down anybody," he said in that May 14 appearance.

> Dr. Fair has a long history as a "virus hunter" and virologist - and seems to have as long a history of getting publicity. On Meet The Press, he described the first week of supposedly having COVID-19 as "the worst I've ever felt." In replying to a Twitter follower this week, he said "It was only the second time I have been hospitalized in my life and I am someone who rarely gets ill."

> But a colleague and fellow TV coronavirus expert, Laurie Garrett, who frequently appears on CNN, tweeted in May that Dr. Fair, "has been in many epidemics, contracted #Ebola in West Africa." He contracted Ebola?

> While I couldn't find any reference to Fair surviving Ebola, I did find Fair featured in a book about Ebola, "Crisis in the Red Zone," published just last year. The book describes Fair in 2006 when he was a graduate student, and it describes a time he "got sick" - very sick. "A devout Catholic, Fair asked a priest at the center to give him his final confession and the last rites," writes author Richard Preston. "'I think I'm passing,' Fair whispered." In the end, Fair took some antibiotics and made a miraculous recovery. But COVID-19 was worse than this experience?

> In 2014, Fair was profiled in the Washington Post, under the headline "A virus hunter faces the big one: Ebola." It began: "Joseph Fair hunts viruses. That's his thing. The 37-year-old American loves chasing dangerous pathogens, studying them in secure labs or searching for them in jungles where the microbes lurk." The whole story details Dr. Fair's work with Ebola - no mention of the supposed near-death experience from 2006, however.

> And now we know Dr. Fair never had coronavirus, despite nearly a dozen appearances on NBC and MSNBC where he talked about having it or recovering from it. In the end, NBC's viewers were left with two very alarming - and false - impressions. First, that an expert virologist can take every precaution but can still catch COVID-19 through his eyes. False. Second, that tests can be so untrustworthy that you can have multiple negative tests and still have coronavirus. Craig Melvin described them as "false negative tests" in that initial report on May 14. Hoda Kotb said, "every time it came back negative, but clearly you have it." False. Anti-science. And truly damaging.

> In articles and TV segments, millions of NBC readers and viewers are today left with the impression that Dr. Joseph Fair, a 42-year-old "virus hunter" (with the handle @CureFinder on Twitter) came down with a case of COVID-19 through his eyes that was so severe he was hospitalized in ICU for several days and that at least five "false negative" tests couldn't trace it. This pandemic is scary enough without this false storyline introduced into the news picture.

> So what really happened? We don't know. I asked several medical experts, and it's unclear what the story really is. In one later MSNBC appearance, Fair discussed having a "panic attack" right before going to the hospital. But we

don't know. Fair did not respond to repeated requests for comment. NBC has declined to comment on the record throughout the past month.

&gt;

&gt; Fair has been regularly appearing on NBC and MSNBC, but has not been on the air since his tweet revealing the antibody test results on Tuesday. Shortly after I began making inquiries related to this story, Fair appeared on the Today show June 17 and was described as having recovered from a "possible covid-19 related illness." In that appearance, he said he would "absolutely" keep viewers posted on the results of the antibody test.

&gt;

&gt; So far, there have been no on-air corrections. Or online -this NBC News story is still uncorrected, for example. The Today show website wrote a brief story, where they now describe what he had as a "severe illness."

&gt;

&gt; For his Twitter followers, and likely NBC's viewers, many still believe Fair had coronavirus, despite the fact that he clearly didn't. Said one: "Your experience only makes me more determined to stay quarantined. We still don't have a clear path on testing, accuracy, treatments and most of all any understanding on why some are so impacted and others are not!"

[2020-07-10 08:00:52]

**[Robert Garry]**

[2020-07-10 15:31:03]

**[Eddie Holmes]**

Love it!!

[2020-07-11 05:38:43]

**[Robert Garry]**

The story was on the front page of Drudge Report briefly and various other conservative news sites. Today it hit the Daily Mail. Is DM mainstream media yet? Twitter is ugly. I do believe that Dr Fair has the makings of yet another very ugly chapter in his career. Just not certain yet how the chapter ends.

[2020-07-11 17:05:55]

**[Eddie Holmes]**

Unfortunate that the right are using a story that we should all enjoy. Daily Mail are very big in the UK. I've always despised them myself.

[2020-07-12 11:00:49]

**[Robert Garry]**

Agree Eddie - But, this is just the first news cycle. Amazing stuff on Twitter. I have a strong feeling Fair's sad story is going to hit a lot more left, middle and still more right-wing media, before the storm dies down. I know this clown like Batman knows the Joker. Watch - with popcorn and a few beers - having lost the game he'll flail around and make it all the more worse.

[2020-07-15 11:21:43]

**[Kristian Andersen]**

:face\_with\_rolling\_eyes:

<https://twitter.com/Ayjchan/status/1283442997896650753?s=20>

[2020-07-15 15:35:23]

**[Eddie Holmes]**

Ignore her. Her tweets will not age well. Completely stupid comments about the Guangdong pangolin CoV...that it may have come from humans. So, if true, that means that there must have been a human virus circulating in Guangdong or outside of China months before it was detected in Wuhan. There is of course no evidence for and it contradicts her previous point about there being no human virus before Dec. Idiotic statement. Also, there is not one Guangdong pangolin CoV. Just wrong. She also completely forgets that the Guangxi pangolin CoV is also closely related to SARS-CoV-2.

[2020-07-15 15:42:31]

**[Andrew Rambaut]**



Also the pangolin RBD is only similar in amino acids - has loads of synonymous differences.

[2020-07-15 15:43:19]

**[Eddie Holmes]**

Totally. She's just not thought that through.

[2020-07-15 16:17:58]

**[Kristian Andersen]**

I kinda liked her paper and I thought she was doing some good stuff - but now she really \_has\_ lost the plot. Too bad - I appreciate some of her earlier stuff.

[2020-07-15 16:23:43]

**[Eddie Holmes]**

Her paper makes a number of mistakes. Tommy constructed two Guangdong pangolin CoVs: one that utilised the earlier sequence and one that didn't. This is all clearly stated. Plus, no one ever claimed these samples were taken from separate animal populations (although I agree it is important to point this out). Again, this just another person that is trying to explain away facts in an increasingly outlandish manner to fit their own theory. She'll live to regret her tweets.

[2020-07-15 16:26:26]

**[Kristian Andersen]**

... she should be proud of this particular Tweet though... (Bob, I'm :eyes: at you...) [shared file(s): Screen Shot 2020-07-15 at 4.24.43 PM.png]

[2020-07-15 16:44:06]

**[Eddie Holmes]**

Another possibility is that a lot of the people push lab escape know shit about virus evolution and emergence.

[2020-07-15 16:44:30]

**[Kristian Andersen]**

There is that...

[2020-07-15 16:44:49]

**[Kristian Andersen]**

I'm currently reading this: <https://www.independentsciencenews.org/commentaries/a-proposed-origin-for-sars-cov-2-and-the-covid-19-pandemic/>

[2020-07-15 16:49:24]

**[Eddie Holmes]**

*[thread - ID: 2020-07-15 16:49:24]*

Such utter shite. I didn't realise until the other day that the 1977 H1N1 outbreak was \*not\* a lab escape but a shonky vaccine trial. Very interesting.

[2020-07-15 16:51:34]

**[Kristian Andersen]**

I thought their first one was pretty good - but this one is wacky so far. And yeah - looks like 1977 was a vaccine trial, which is pretty crazy.

[2020-07-15 16:54:31]

**[Eddie Holmes]**

Let them pursue the 'RaTG13 is the origin' line if they want. Daft. What a waste of pixels. And saying that the 2009 H1N1 outbreak is a lab escape is just mental.

[2020-07-15 18:00:32]

**[Kristian Andersen]**

This cracked me up #Alfail. [shared file(s): Screen Shot 2020-07-15 at 6.00.05 PM.png]



[2020-07-15 18:32:43]

**[Eddie Holmes]**

Shocker. Close call between them on the nauseating asshole index though.

[2020-07-15 23:48:10]

**[Andrew Rambaut]**

*[thread - ID: 2020-07-15 16:49:24]*

@Eddie Holmes Ooh. I hadn't heard that - where's that nugget to be found?

[2020-07-16 04:56:32]

**[Andrew Rambaut]**

That picture of Ebright always reminds me of the Gestapo baddie in Indiana Jones when his face begins to melt.

[2020-07-16 17:40:31]

**[Kristian Andersen]**

Oh, I just came across this delightful piece of junk: <https://news.sky.com/story/former-head-of-mi6-says-theory-coronavirus-was-made-in-wuhan-lab-must-not-be-dismissed-as-conspiracy-12021693>

(love their balance of people speaking to lab vs nature...)

[2020-07-16 17:41:23]

**[Kristian Andersen]**

I especially enjoyed this part where I'm sparring with Mr. Sorensen. [shared file(s): Screen Shot 2020-07-16 at 5.38.48 PM.png]

[2020-07-16 18:47:03]

**[Eddie Holmes]**

Kristian "he is nonsense" Andersen has a nice ring to it. Should be your new motto. In marked contrast, the words "Dearlove" and "intelligence" should not be used in the same sentence.

[2020-07-16 18:49:36]

**[Kristian Andersen]**

"What nonsense? \*HE\* is nonsense!". Love it :wink:

[2020-07-16 18:54:04]

**[Eddie Holmes]**

Me too. Legendary stuff. Very Alan Partridge @Andrew Rambaut will get the reference.

[2020-07-18 16:11:06]

**[Eddie Holmes]**

:face\_vomiting: [shared file(s): IMG\_2992.PNG]

[2020-07-18 16:21:54]

**[Kristian Andersen]**

OMFG!!!

[2020-07-18 16:24:31]

**[Eddie Holmes]**

I should have listened to him. I feel really bad now.

[2020-07-18 16:25:58]

**[Kristian Andersen]**

I know. If we had listened = no COVID. But we didn't. Oh dear.

High resolution version, because we need that. [shared file(s): 2.jpg]

[2020-07-18 16:26:17]

**[Kristian Andersen]**

That's fucking disgusting.

[2020-07-18 17:45:21]

**[Eddie Holmes]**

I like the bit about mutations hitch-hiking on the virus :zany\_face: <https://www.bbc.com/news/health-53325771>

[2020-07-18 17:50:14]

**[Kristian Andersen]**

Hah, yeah that full sentence is good "They "hitch-hike" on the virus without changing its behaviour".

They just, like totally, latch on to the virus and makes it all loopy :zany\_face:.

[2020-07-18 17:53:52]

**[Eddie Holmes]**

Phew, that's all right then.

[2020-07-20 05:02:33]

**[Robert Garry]**

Wolfe - thuggery at it's finest.

[2020-07-20 05:14:22]

**[Robert Garry]**

Kudos to @Kristian Andersen for calling the charlatan a charlatan on his twitter. What a hotbed of charlatanism Metabiota was before Wolfe fired Fair at the beginning of the 2013-16 Ebola outbreak [OK - Meta is still a hotbed of charlatans minus one]. Best thing Wolfe ever did was leave Fair "stranded" in Liberia - return flight/corporate cards cancelled. Now just counting down until Fair's new bosses at NBC/MSNBC cut their losses as well on their serial liar and fraudster.

[2020-07-23 07:35:36]

**[Kristian Andersen]**

Might be worth tuning in for: <https://twitter.com/CellPressNews/status/1286096187754459142?s=20>

@Robert Garry, we need to discuss challenge trials at some point :wink:.

[2020-07-23 07:49:57]

**[Robert Garry]**

Wow - that Cell discussion with Gao and Shi should be fun...Not sure I can bring you over to the "dark side" and I think it is possible someone could die, but - yeah IMO - controlled trials better than "wild" trials given the circumstances.

[2020-07-23 07:56:45]

**[Kristian Andersen]**

Yeah, should be interesting. George popped up on a NASEM meeting last week and it was pretty interesting to get his take. A little different than here in the US...

I say we just make the whole of Florida a challenge trial :wink:

[2020-07-23 08:14:58]

**[Andrew Rambaut]**

I am talking to Wellcome Vaccines dept tomorrow about challenge trials. They are considering which stocks to manufacture. I am not that sure what to tell them other than a basal D614G.

[2020-07-23 08:44:32]

**[Kristian Andersen]**

Yeah, NIAID asked us about getting an isolate from a "mild infection"... Well, mild, severe, moderate, chances are they're all the same. I agree on getting something as basal on the tree as possible (that's assuming D614G \_does not\_ show resistance to neutralization - which is a real concern (e.g., GP A82V in Ebola does that)).

[2020-07-23 08:45:11]

**[Andrew Rambaut]**

Jeremy's preprint suggests it is sensitive to ABs

[2020-07-23 08:45:39]

**[Andrew Rambaut]**

But I guess the point is it is the dominant form and will remain so.

[2020-07-23 08:45:58]

**[Kristian Andersen]**

The UK has been playing hard and loose with viruses in the past, so I wouldn't be surprised if we'd see challenge trials from them. IMO, this virus is much too dangerous with too many uncertain long-term effects to deliberately infect people - especially given the HUGE number of cases we have in this country.

[2020-07-23 08:46:42]

**[Kristian Andersen]**

Yeah, everything is basically D614G by now, so that's kinda the virus we need to make sure the vaccine works against - but I'm not really concerned there's a difference between Doug and Dougless here.

[2020-07-23 08:47:02]

**[Andrew Rambaut]**

I agree that it is probably unnecessary - just try the vaccine.

[2020-07-23 08:48:25]

**[Kristian Andersen]**

Let's just immunize Florida and see what happens.... :smiling\_imp:

[2020-07-23 08:51:01]

**[Robert Garry]**

I could get behind that

[2020-07-23 08:51:23]

**[Robert Garry]**

but unfortunately it's not what they doing <https://www.forbes.com/sites/brucejapsen/2020/06/02/fauci-modernas-phase-3-covid-19-vaccine-trial-will-include-30000-young-and-old-individuals/#316e15174f75>

[2020-07-23 08:52:55]

**[Kristian Andersen]**

I'm \_super\_ worried about Moderna... Just not convinced that thing is safe.

[2020-07-23 08:53:03]

**[Robert Garry]**

Basically for Moderna they are immunizing/placeboing 30,000 people then sending them out to see how many get infected.

[2020-07-23 08:53:53]

**[Kristian Andersen]**

They \_really\_ need to do that trial in high-transmission areas - i.e., not the North East!

[2020-07-23 08:53:57]

**[Robert Garry]**

Agree - maybe not safe but even more dangerous - it may not work at all or very well - either would be a setback.

[2020-07-23 08:55:11]

**[Kristian Andersen]**

Yeah, it's unclear to me - definitely appear to be "not safe", but as you say - it could be even worse. I'm super worried this is going to be Trump's next political trick - he would have \_no\_ hesitation pushing a vaccine through where we have very little or no data on population-wide safety

[2020-07-23 08:58:05]

**[Robert Garry]**

A small controlled trial of 300 people - maybe fewer- would get you the same information - does it work? you could have an answer in less than a month then move on to the next one if it doesn't. What are they telling these 30,000 people - go out to bars? try to get infected. Probably not, but if they are giving them the proper advice - mask up social distance etc - you should have VERY FEW infections in the 30,000. Who did the power calculation to get 30K?

[2020-07-23 09:00:29]

**[Robert Garry]**

Population-wise safety another issue - I doubt that any of the 30,000 are in at risk groups - old - respiratory illness, obesity etc.

[2020-07-23 09:00:50]

**[Kristian Andersen]**

Yup, very true - I'm just very worried that those 300 people wouldn't fully understand what they're signing up for. Need the safety data on the vaccine in any case, which already requires a lot of people - but I guess it depends on whether we want (a) safety, or (b) efficacy data first. If the latter, challenge trial makes sense.

[2020-07-23 09:01:06]

**[Robert Garry]**

Yes - it's definitely Trump's next trick for sure....

[2020-07-23 09:02:17]

**[Kristian Andersen]**

He'd push it through - \_even\_ if we knew it was unsafe or even dangerous. No doubt. And that's bloody terrifying.

[2020-07-23 09:02:48]

**[Robert Garry]**

Enough safety data should be there in the Phase I and II trials - you're right that the Moderna safety data is HIGHLY suspect.

[2020-07-23 09:06:49]

**[Kristian Andersen]**

If I were a betting man, I'd put my money on ChAdOx1 and Sinovac - I'd forget anything RNA- or DNA-based for now - it's just too early for those platforms.

[2020-07-23 09:08:44]

**[Robert Garry]**

"fully understand what they're signing up for" - lay it out for them - they might die. We've got a 1000 dying each day just in the US. Yes - some trial participants could die - I think it's less likely with the better treatment regimens - dexty, remdesivir if they get in trouble - give them Ho or Crowe's MABs.

[2020-07-23 09:10:19]

**[Robert Garry]**

AGree about the RNA/DNA - There are other vectors that could work too - even VSV- the devil we know....

[2020-07-23 09:11:13]

**[Kristian Andersen]**

True - maybe Ad26 too (I don't know enough about that one). Ad5 does not seem appealing, although I'm pretty sure China will approve it (CanSino).

[2020-07-23 09:12:39]

**[Robert Garry]**

In my mind you definitely want the efficacy data first. If it doesn't work in young and health it won't work in the old and compromised.

[2020-07-23 17:26:21]

**[Kristian Andersen]**

Good "origin" section starting at the end of page 3 from Taubenberger here:  
<https://www.ajtmh.org/content/journals/10.4269/ajtmh.20-0849>

[2020-07-23 18:26:50]

**[Eddie Holmes]**

Cool! David Morens asked me to be involved but I thought I should stay out of it.

[2020-07-23 18:30:25]

**[Eddie Holmes]**

That's really going to piss-off the lab escape junkies. Glad some others are joining us on the hill.

[2020-07-24 05:43:08]

**[Robert Garry]**

<https://www.scientificamerican.com/article/malaria-gorilla-origin/>

[2020-07-24 05:43:10]

**[Robert Garry]**

<https://www.nature.com/articles/467404a>

[2020-07-24 05:48:05]

**[Robert Garry]**

Yes good to see people like Beatrice Hahn entering the fray. Worth pointing out the articles above where my friend Beatrice totally decimated Nathan Wolfe's over-hyped ~shit~ fecal sample that malaria parasites came from chimps. Eddie put it nicely in context... The only lesson Wolfe learned was how much press you can get with an over hyped mess - Wolfe quickly followed the chimp-malaria fiasco up with Bas-Congo virus ...

[2020-07-24 11:47:20]

**[Robert Garry]**

And, Tony kinda botched that first pitch...

[2020-07-24 14:00:53]

**[Kristian Andersen]**

<https://www.sciencemag.org/news/2020/07/trump-owes-us-apology-chinese-scientist-center-covid-19-origin-theories-speaks-out>

[2020-07-24 14:32:53]

**[Robert Garry]**

Well spoken gentlemen.

[2020-07-24 14:33:50]

**[Kristian Andersen]**

Thanks. I enjoyed reading her answers - Jon must have been extremely persistent...

[2020-07-24 14:39:47]

**[Eddie Holmes]**

Yes, great piece. Good answers. Rang true I thought. Ebright just...

[2020-07-24 14:46:59]

**[Eddie Holmes]**

Completely agree about the frozen samples. Very unclear what has been done there.

[2020-07-25 06:53:20]

**[Robert Garry]**

Thanks Eddie - Wolfe is dirtier than I thought. Much respect for telling Wolfe to fuck off.

[2020-07-25 06:57:22]

**[Robert Garry]**

Templeton prize winner Ayala also seems "nice." according to his Wiki.

[2020-07-25 06:59:39]

**[Robert Garry]**

Speaking of "nice" - Mikovitz is back [https://www.vice.com/en\\_us/article/7kpe3b/the-star-of-plandemic-spent-years-flooding-the-vaccine-court-system-with-bad-science](https://www.vice.com/en_us/article/7kpe3b/the-star-of-plandemic-spent-years-flooding-the-vaccine-court-system-with-bad-science)

[2020-07-25 07:01:12]

**[Robert Garry]**

Poor Tony <https://www.msn.com/en-us/news/us/local-stations-across-the-country-set-to-air-fauci-conspiracy-theory-over-the-weekend/ar-BB17abit> If only he would have not thrown the wild pitch.

[2020-07-25 07:54:17]

**[Kristian Andersen]**

Only in America... it's so sad that a person like her can even have a voice, let alone get on nationwide TV - Sinclair is not nothing...

[2020-07-25 16:56:52]

**[Eddie Holmes]**

It's so mental that it almost defies believe.

[2020-07-25 16:59:28]

**[Eddie Holmes]**

Doubtless they'll also have a theory for his bungled pitch.

[2020-07-25 17:00:11]

**[Andrew Rambaut]**

Looks like Sinclair are rethinking whether this is a good idea:  
<https://www.theguardian.com/us-news/2020/jul/25/sinclair-tv-stations-fauci-plandemic-conspiracy-theory>

[2020-07-25 17:01:56]

**[Eddie Holmes]**

Good

[2020-07-25 17:05:31]

**[Eddie Holmes]**

Andrew, do you know what has happened to Sunetra? She seems to have gone bat shit crazy.

[2020-07-25 17:12:42]

**[Andrew Rambaut]**

I know. I thought her first thing about the 'Oxford' model was perhaps just a miscommunication of some modelling scenarios. But the stuff about immunity is bonkers.

[2020-07-25 17:13:33]

**[Eddie Holmes]**

Completely bonkers. She's destroying her reputation.

[2020-07-25 17:15:34]

**[Eddie Holmes]**

Like this (paywalled, but the by-line says it all): <https://www.telegraph.co.uk/news/2020/06/27/lockdown-social-distancing-could-make-immune-system-weaker-says/>

[2020-07-25 17:19:06]

**[Andrew Rambaut]**

What??

[2020-07-25 17:19:52]

**[Eddie Holmes]**

Insane

[2020-07-25 17:34:05]

**[Eddie Holmes]**

[https://www.aier.org/article/how-global-capitalism-boosted-immunities/?fbclid=IwAR2QtgDRinC5Im-TEAJfj9SnEjMvFgRNROaehepPKGT67SGIW\\_epm5YMRQc](https://www.aier.org/article/how-global-capitalism-boosted-immunities/?fbclid=IwAR2QtgDRinC5Im-TEAJfj9SnEjMvFgRNROaehepPKGT67SGIW_epm5YMRQc)

[2020-07-25 18:10:05]

**[Kristian Andersen]**

That's nuts... The again, she is professor of \*theoretical\* epidemiology and not actually epidemiology... :wink:

[2020-07-25 18:31:48]

**[Eddie Holmes]**

Very true. Oxford must be really embarrassed. But they'll live.

[2020-07-25 23:29:14]

**[Kristian Andersen]**

Watching Gao give his talk at the Cell symposium - he always crack me up...

[2020-07-25 23:34:42]

**[Eddie Holmes]**

It's like a comedy sketch show. Has she shown the washing line of bloomers yet?

[2020-07-25 23:36:22]

**[Kristian Andersen]**

Haha, so true.

Not yet....

[2020-07-27 13:37:16]

**[Robert Garry]**

Nice paper coming Andrew! I hope I did not botch the discussion of the phylogenetic trees, etc. to the reporter too badly.

[2020-07-27 14:05:45]

**[Andrew Rambaut]**

Thanks! More stuff to wind up Ebright and the others.

[2020-07-27 14:19:40]

**[Kristian Andersen]**

Is this the "Nature Microbiology" paper I have been dodging reporters on today?

[2020-07-27 14:25:50]



[Andrew Rambaut]

Yeah. Just some phylogenies, recombination and date estimates of SARS related coronaviruses. Nothing you haven't heard already.

[2020-07-27 14:39:05]

[Kristian Andersen]

Cool!

One interesting thing I got from Trevor though - if he tries to date SARS2 via the related viruses (of which we now have a few), he gets a relatively nice signal for 2014/2015. Doesn't mean anything in isolation, but I still keep contemplating that 'pre' circulation scenario for emergence. They need to go hunt some more viruses in those Yunnan caves!

[2020-07-27 14:40:17]

[Andrew Rambaut]

It is meaningless to date SARS2 with related viruses - makes no sense.

[2020-07-27 14:41:08]

[Kristian Andersen]

I thought so too, but honing in on specific parts of the genomes that were homologous it seemed like it could be done - no idea about the details though.

[2020-07-27 14:43:39]

[Andrew Rambaut]

It also makes no sense that the SARS2 diversity circulating now was part of the pre-circulating scenario. The Wuhan haplotype may have been around for a month or two prior to Dec 2019 but not much longer given the transmissibility of the virus. This virus doesn't lurk unobserved.

[2020-07-27 14:45:03]

[Andrew Rambaut]

Has Trevor found his next thing to go off on Twitter about?

[2020-07-27 14:46:43]

[Kristian Andersen]

"This virus doesn't lurk unobserved" - as is, definitely true - but I \_do\_ wonder if a pre-furin site virus could. But I agree with you - I'm not sure such an analysis makes sense given our limited sampling. Assuming SARS2 came out of Yunnan diversity (which seems likely), it would be cool to go do some in-depth sampling from there.

And yes, maybe we'll get the big reveal on Twitter :wink:

[2020-07-27 14:48:08]

[Andrew Rambaut]

But if the acquisition of the furin site is the point at which it becomes epidemic then once again we are back to the common ancestor of the current diversity being in late 2019. We don't have any other nodes to date.

[2020-07-27 14:50:24]

[Kristian Andersen]

.... ehm, yes. That is, of course, true... Unless it's been in a freezer since that outbreak in the Mojiang mine... :parrot:

[2020-07-27 14:55:21]

[Kristian Andersen]

And @Robert Garry - I have come around on challenge testing... What I really want to see is early challenge trials in very small (~10-20) groups of people to establish efficacy. If it doesn't work in those, no need to move forward... I'm SUPER uncomfortable with 30,000 people now getting the Moderna vaccine - can you imagine how detrimental this is going to be for (COVID and otherwise) vaccine research if this vaccine actually isn't safe? Or may even lead to ADE?

Let's hope it works...

[2020-07-27 15:03:41]

**[Robert Garry]**

Yeah - that's a good idea - you could get down to the best set of candidates with 10-20 person trials in a few months. Same with the monoclonals, though showing protection in animals before the in-ppl screening would be good.

[2020-07-27 15:09:08]

**[Kristian Andersen]**

Yup.

[2020-07-27 15:09:55]

**[Kristian Andersen]**

Okay, so back to topic - Eddie and I just received this from Jon. This is serious !channel, so we need to consider this carefully. [shared file(s): Screen Shot 2020-07-27 at 3.08.41 PM.png]

[2020-07-27 15:10:22]

**[Robert Garry]**

Moderna trial started today in Louisiana BTW

[2020-07-27 15:13:06]

**[Kristian Andersen]**

Who the hell could this person be? Obviously the person gets some of the details (and intentions) wrong, but everything is otherwise pretty much correct - that is so extremely deep knowledge about how this played out.

[2020-07-27 15:14:28]

**[Andrew Rambaut]**

Ron talked to someone? He seemed like the one that really wasn't getting the point.

[2020-07-27 15:14:58]

**[Kristian Andersen]**

I can't imagine this being Christian

[2020-07-27 15:15:40]

**[Kristian Andersen]**

It's Ron or Marion I assume

[2020-07-27 15:15:52]

**[Andrew Rambaut]**

No. I talked to Christian at the WHO meeting and we had an interesting chat - he thought it had been circulating in humans for a while before the furin site appeared.

[2020-07-27 15:16:11]

**[Kristian Andersen]**

Seems like it must be Ron.

[2020-07-27 15:16:14]

**[Andrew Rambaut]**

I can't see it being Marion either.

[2020-07-27 15:17:34]

**[Kristian Andersen]**

I would be surprised if Marion was behind this, but I can't rule it out. I'm almost certain it's not Christian. I'm wondering if somebody could have mentioned this to e.g., Baric and then this is actually Baric - he always seemed

missed about the whole situation.

[2020-07-27 15:18:04]

**[Eddie Holmes]**

But we sent them all a draft, inc. Ron. Email of Feb 10.

[2020-07-27 15:19:05]

**[Kristian Andersen]**

The subject of the email is interesting - "The authors who wrote the paper saying that SARS-CoV-2 is not human engineered first tried convincing Anthony Fauci of the opposite". Probably somebody in America?

[2020-07-27 15:19:17]

**[Eddie Holmes]**

Here's the summary of Feb 7 sent to all people. [shared file(s): Summary.Feb7\_MF.pdf]

[2020-07-27 15:20:56]

**[Kristian Andersen]**

This part has me stumped "after quietly raising the alarm (\*or "spreading the rumor", as Jeremy Farrar apparently put it\*) "

[2020-07-27 15:21:14]

**[Kristian Andersen]**

Who would be privy to that information if Jeremy really said that?

[2020-07-27 15:21:15]

**[Andrew Rambaut]**

This channel starts on the 1st of Feb just prior to the phone call.

[2020-07-27 15:21:15]

**[Eddie Holmes]**

Feb 9 from Jeremy, sent to all "We now have (and we will get more) the pangolin data (Eddie has) we think we can tie this up even tighter with the next iteration and make a conclusive statement which will then be the go to scientific statement to refer to.

Eddie and I have just come off a call with the National Academy of Medicine in the US – who the White House has asked to produce a report on this...."

[2020-07-27 15:21:45]

**[Kristian Andersen]**

Quick Zoom?

[2020-07-27 15:22:23]

**[Eddie Holmes]**

ok.

[2020-07-27 15:22:59]

**[Eddie Holmes]**

It's just sour grapes if you ask me.

[2020-07-27 15:23:27]

**[Kristian Andersen]**

<https://us02web.zoom.us/j/9673242666>

[2020-07-27 15:26:10]

**[Andrew Rambaut]**

The document from the 2nd Feb:

[https://docs.google.com/document/d/1-bJCwpJCGAGDtUr\\_uVh9-E9i4PeevGb\\_rgdWXVDA1m4/edit](https://docs.google.com/document/d/1-bJCwpJCGAGDtUr_uVh9-E9i4PeevGb_rgdWXVDA1m4/edit)

[2020-07-27 15:41:19]

**[Andrew Rambaut]**

[https://docs.google.com/document/d/1HOVHVaaH2wMwAij\\_Mb-rLTV3QomBai-DwRDcn506OE/edit#](https://docs.google.com/document/d/1HOVHVaaH2wMwAij_Mb-rLTV3QomBai-DwRDcn506OE/edit#)

[2020-07-27 16:23:52]

**[Andrew Rambaut]**

In the document history is a named version from the 4th Feb called 'First Distributed Version'. Looking at my emails Eddie passed this version on the 4th to Jeremy who then distributed it to Fauci and others.

[2020-07-27 16:27:35]

**[Andrew Rambaut]**

We then reworked it and Jeremy sent it round the full group on the 8th. Ron replied about a point so definitely saw it.

[2020-07-27 16:28:46]

**[Andrew Rambaut]**

Jeremy's email -

```Kristen, Andrew, Bob, Eddie have reworked the summary and it is attached here.

We are pushing to get the sequence data from the reports on the pangolins, but do not have currently, clearly that is very important to incorporate.

Interested in your views

Is this reasonably balanced given the data?

Is there anything anyone disagrees with?

Is there anything more in relation to what would seem to be the two possibilities

Nature, Intermediate host, evolution and passage

Future data you may have

Advice on whether KA, AR, RG and EH should publish this.

These and other thoughts welcome in confidence.```

[2020-07-27 16:36:05]

[Kristian Andersen]

Very good - and I remember the followup to that where I'm actually saying that we need to get more conclusive data before we can say one thing or the other. I think our paper trail is good

[2020-07-27 16:37:48]

[Kristian Andersen]

One thing though - and @Eddie Holmes this is important - we *need* to talk to Jeremy or Tony first before saying *anything* about a meeting. If we confirm that the meeting did happen, then we automatically confirm that Tony and Jeremy were present - we can't do that, without getting their consent. I'll reach out to Tony (and Francis) to see if I can get a moment with them - Eddie, will you please do the same with Jeremy? Or should we do all three at the same time?

[2020-07-27 17:29:08]

[Eddie Holmes]

Agreed. I've now emailed Jeremy.

[2020-07-27 18:12:19]

[Eddie Holmes]

On the plus side, this may be the Altmetric boost we need...

[2020-07-27 18:12:58]

[Kristian Andersen]

Exactly!

[2020-07-27 19:02:23]

[Kristian Andersen]

Obviously the person writing the email... [shared file(s): Screen Shot 2020-07-27 at 7.02.03 PM.png]

[2020-07-27 19:50:36]

[Eddie Holmes]

I'm not sure what I would conclude except that it is completely inappropriate to discuss the thoughts of the editors at Nature. In addition, they completely fail to note that it was Clare that suggested Nature Medicine!! Clare seems to have rejected the paper largely on the grounds that she thought it would go out of date quickly.

[2020-07-27 19:55:33]

[Kristian Andersen]

Yeah, but only a reviewer would be privy to this information - nobody on the call (unless they reviewed the paper) would know this.

[2020-07-27 20:03:47]

[Eddie Holmes]

May be. I dunno.

[2020-07-27 20:07:21]

[Kristian Andersen]

It's possible Ron was that reviewer too - and then just relayed the whole story to Ralph. More likely, Ralph was the reviewer and talked to Ron about it and Ron probably said "that's funny, let me tell you something...". Ralph then got pissed when he saw Jon's article - once again not citing him - with our quotes once again stating that this is a natural virus. In the Baric universe, I could see how that would blow a fuse.

[2020-07-27 20:08:34]

[Eddie Holmes]

Yes, that makes sense to me.

[2020-07-27 20:09:43]

[Kristian Andersen]

Or, alternatively, @Robert Garry did it to boost our Altmetric score. That's a legit move.

[2020-07-27 21:48:29]

[Eddie Holmes]

Just to cheer you up, this was sent to me by Michelle in my group:

[2020-07-27 21:48:31]

[Eddie Holmes]

Hi Michelle

Great and very timely report on penguins and viruses.

While we are getting overwhelmed with expert opinion on coronavirus, I thought you might not be aware of... but could be interested in a very controversial paper just out from a group of astronomers that among other things has found viruses like Covid 19 could arrive from space and land in patches. They believe birds are the first to get infected as the virus falls through the atmosphere ...rather than passing on a mutated version.

Interesting angle but Norman Swan is not prepared to go out on a limb with it just yet.

Michael Troy
Senior Reporter/Producer
International and Network Desk

P
*+61 [REDACTED]
M
*+61 [REDACTED]
E
[REDACTED]

[2020-07-27 21:49:13]

[Eddie Holmes]

Doubtless it's Chandra Wickramasinghe.

[2020-07-27 22:28:13]

[Kristian Andersen]

Clever... Points for being a testable hypothesis too.

[2020-07-28 01:00:26]

[Andrew Rambaut]

That's our Nature Micro paper. Didn't I mention the bit about comets? It was Comet Neowise that brought SARS2.

[2020-07-28 05:10:43]

[Robert Garry]

Well done on the email to JC! The worst of the email from the rona expert who can no longer keep silent is the "digging" paragraph. It's seriously offensive - name another person who has made more contributions to virus evolution/phylogentic analysis than AR, EH and KA??? AR had written a paper on MERS evolution and there were others. What "schooling?" We clearly ignored - properly so as the email to JC points out - the schooling from the telecon to not mention "lab escape."

[2020-07-28 05:27:51]

[Robert Garry]

"@Robert Garry did it to boost our Altmetric score. That's a legit move." That will be the ending when they film this whole saga as a Knives-out/Agatha Christie style mystery.

[2020-07-28 05:40:51]

[Robert Garry]

Also totally in to the comet hypothesis. If the aliens sending these viruses on comets are clever enough to put them on comets in the first place, then surely they are clever enough to counter the whole burning up in the atmosphere thing.

[2020-07-28 05:42:46]

[Andrew Rambaut]

I took a picture of Neowise above my house. You can see it is still shedding coronaviruses:

[2020-07-28 05:46:16]

[Robert Garry]

That is awesome!

[2020-07-28 11:31:24]

[Robert Garry]

<https://www.msn.com/en-us/health/medical/close-relatives-of-the-novel-coronavirus-may-have-circulated-in-bats-for-decades-before-jumping-to-humans/ar-BB17gNfN> This piece is also likely to show up in _Scientific American_ according to the reporter, who works both for the paper and _SciAm_.

[2020-07-28 17:24:30]

[Eddie Holmes]

I wonder where Deep Throat will hawk his story next?

[2020-07-28 17:25:40]

[Kristian Andersen]

Who?

[2020-07-28 17:30:47]

[Eddie Holmes]

The anonymous cowardly fuck that emailed Jon. Have you read/seen 'All the Presidents Men'? Stuff of legend.

[2020-07-28 17:33:09]

[Eddie Holmes]

My point is that if Jon ignores him, will he send it to some other journo?

[2020-07-28 17:38:34]

[Kristian Andersen]

Ah, of course :zany_face:. Yeah, God knows what he does next - I invite him to do whatever and we'll crush that sad motherfucker.

[2020-07-28 17:40:01]

[Kristian Andersen]

I'm 98% certain this is Baric... He'll deeply regret it if he goes public with this information - and I can't really see how that would possibly do him any good?

[2020-07-28 17:50:00]

[Eddie Holmes]

I agree - must be Baric. We have all the documentation to back up what happened and he'd look like a total knob for trying to suppress discussion of lab origins. Anonymous emailing a journo is so, so pathetic. Even Jeremy told me that the email was "total bollocks".

[2020-07-28 17:53:37]

[Kristian Andersen]

It's really sad. It would be kinda funny if he tried to get this out - we'd turn the attention right back on him trying to suppress proper science and inquiry. It would make him look really bad...

[2020-07-28 18:00:02]

[Eddie Holmes]

Really bad

[2020-07-28 18:34:57]

[Kristian Andersen]

Sneaky thought.... Should we go on the attack? We could raise this issue with Clare since this is a clear and direct breach of confidentiality of the review process.

[2020-07-28 18:38:16]

[Kristian Andersen]

I could forward the email as coming "from a reporter disclosing confidential information from the review process".

[2020-07-28 18:38:49]

[Kristian Andersen]

(Jon would not be named/implicated)

[2020-07-28 18:45:23]

[Kristian Andersen]

Let me sleep on this - but I think this is what we should do. Clare would know exactly who this person is and it would prevent/mitigate future bs from this person

[2020-07-28 19:31:36]

[Kristian Andersen]

We could also write to Ralph on his Proton email - "Dear Ralph [...]"...

Sorry, but I feel like having some 'fun' here. I'm offended by this email and I'm not known for just taking the punches...

[2020-07-28 19:33:29]

[Eddie Holmes]

Let me sleep on it as well. I would be good to be proactive, but we don't want to drop anyone else in the shit.

[2020-07-28 23:04:34]

[Eddie Holmes]

Notice the use of the word 'coronavirologists' in this tweet and the anonymous email. [shared file(s): Screen Shot 2020-07-29 at 4.03.00 pm.png]

[2020-07-28 23:07:12]

[Eddie Holmes]

Perhaps we should all block in on Twitter just to let him know we know

[2020-07-29 04:55:59]

[Robert Garry]

"My point is that if Jon ignores him, will he send it to some other journo?" Eddie - you are a very wise man. Yes - Deep Throat WILL peddle - or already has - his fiction elsewhere - not to mention peddling the slander/libel on every barstool he sits on for the rest of his life [assuming anyone gets to sit on barstools again of course]. My prior experience with Joseph Fair* tells me the story will only get further and further embellished - so raising the issue with Clare makes perfect sense. Breach of review ethics is VERY serious. I'd be surprised if undark, slate etc has not already gotten the protonmail. I think we can assume DT is shopping this around as we speak. Imagine if an idiot reporter - like for ex Emmanuel Freudenthal - gets wind of this. On the other hand Amy Maxmen or other nature reporter might take the breach of review ethics seriously.

[2020-07-29 05:00:11]

[Robert Garry]

*BTW - you can't spell Covid-NInEtEen FRaUd without curefinder.

[2020-07-29 05:07:46]

[Andrew Rambaut]

I very much doubt he (who ever it is) will let it lie. But it is not clear what we can do.

[2020-07-29 05:28:41]

[Robert Garry]

Be prepared to counter-punch with the E/K email - inform potentially affected parties beyond Farrar [Fauci, Collins. Nature editors, etc} another possibility.

[2020-07-29 07:19:56]

[Robert Garry]

Is it too snarky to point out that the main conclusion of Baric's first SARS-CoV-2 paper rushed out in March is 180 degrees wrong? They wrote: "Compared to previously isolated SARS-CoV strains, 2019-nCoV likely uses human ACE2 *less* efficiently than human SARS-CoV (year 2002) but more efficiently than human SARS-CoV (year 2003)." IIRC we nearly fell for this but fortunately, before we finalized "proximal Origins" new data came out showing the opposite. <https://jvi.asm.org/content/94/7/e00127-20.long>

[2020-07-29 07:34:23]

[Kristian Andersen]

Wouldn't be the first time he was wrong :wink:.

I think contacting Clare is the right move - this is pretty serious and we need to counterpunch. I emailed Tony already and he's seen our draft emails - we haven't heard back as I'm sure he's much much too busy (that guy

probably gets 10k+ emails a day?).

[2020-07-29 07:58:40]

[Andrew Rambaut]

I agree about contacting Clare given she is named in the 'missive' and it is possible he will try doing something with Nature next.

[2020-07-29 08:06:15]

[Robert Garry]

Agree and also the Editor of NatMed - It's very clearly a breach of peer review - not to mention the rewrite of history to create a slanderous narrative. Thanks Eddie for pointing out the UnDark article :exploding_head: - I'm not feeling too sorry for the "Old Guard" coronavirologists in terms of their funding situation. Daszak and the Predict krewe got >\$200M and found only one over-hyped human non-pathogenic virus BASV. If Deep Throat pushes Nature maybe Amy Maxmen of Nature can write the real story....

[2020-07-29 08:06:39]

[Andrew Rambaut]

A couple more points we should remember here: we posted it to virological on the 17th before we sent it to Nature. Also this is a 'letter' not a research paper.

[2020-07-29 08:34:14]

[Robert Garry]

BTW - Proximal Origins is at 4.87m accesses - seems destined to cross 5m in a few weeks, which is actually quite remarkable.

[2020-07-29 12:50:17]

[Kristian Andersen]

Okay, so I have pretty much settled on us needing to contact Nature - it's the right thing to do. We should alert them to the problem, make it clear that they have divulged private and confidential information from the review process (and implicated high-ranking US officials) in a factually wrong narrative about a scientific study on a sensitive subject. We will mention that we have strong reason to believe that we know the identity of the person, but that we will not identify him - but that he is either reviewer 2 himself, or received (confidential) information from reviewer 2.

What I'm less certain about is whether this should be supplemented with a 'friendly' and carefully crafted email to Baric's Proton email alerting him to the issues ((1) releasing private and confidential information on a sensitive subject, (2) implicating high-ranking US officials in a meeting that may or may not have occurred, (3) writing libel with defamatory and incorrect statements about a scientific study). We would not name Ralph in the email, but thank him for his "many important scientific contributions to SARS and SARS2, including GoF, which we believe to be critically important work"). We'd suggest that he refrain from pushing his libel any further and that we would also not go any further to keep the focus on the science and outbreak response (but make it clear that we contacted the journal already).

The purpose of the email would be to stop him from going any further with this. Our enquiry to Nature could achieve the same, assuming Clare would contact Reviewer 2 with the concerns raised. I might prefer that option, but I want to leave the other option on the table too in case we need it.

Thoughts?

[2020-07-29 13:26:27]

[Robert Garry]

Contacting Nature is the right thing to do. They will have little recourse other than to contact Reviewer #2 and figuratively rap her or him on the knuckles. I'd include the E/K email, which responds to the libelous accusations decisively, but not name Jon Cohen. Responding to the protonmail is less obvious - it would be satisfying, but - trust me on this one - Deep Throat is already convinced beyond a shadow of a doubt that he or she is doing the right thing even if it means breaking every rule of confidentiality and peer review. Furthermore, even though the E/K email outline responds to the libelous accusations decisively, when Cohen shares it with DT [I think JC will] it will just be encouraging. Facts will be selectively extracted from the E/K email to confirm DT's pre-existing narrative.

[2020-07-29 13:32:49]

[Andrew Rambaut]

I would be against sending anything to DT directly as satisfying as it could be in the short term.

[2020-07-29 13:33:43]

[Eddie Holmes]

I agree. An email from all of us to Clare is the 1st thing to do.

[2020-07-29 13:34:42]

[Eddie Holmes]

I also think Jeremy should email everyone on the call to tell them about the leak.

[2020-07-29 13:34:55]

[Kristian Andersen]

Just to clarify - email to Proton would not be to satisfy our own urge for revenge - it's purely to make it clear that this goes no further. But yes, I'm in agreement - I think the first thing should be an email to Nature and then see where that takes us. We can bring out the nukes if necessary.

[2020-07-29 13:35:07]

[Kristian Andersen]

Oh, I like that idea too Eddie - do you want to ask him?

[2020-07-29 13:36:59]

[Eddie Holmes]

I've told Jeremy who we think it is and he agrees, and that the leaker was likely Ron. I'll see if he is willing to go any further.

[2020-07-29 13:38:19]

[Kristian Andersen]

Okay, great. Let me work a little on a draft for Nature. I'm in meetings for a few hours, but I'll get on it a little later today

[2020-07-29 13:40:03]

[Kristian Andersen]

And I don't think we want to give Clare the whole narrative we emailed to Jon - other than to say it's completely wrong. We can give it to her if she asks, but I don't think we necessarily want her to email all those details to the reviewer just yet. I don't think Jon will share back what we did yesterday with Deep Throat.

[2020-07-29 13:48:23]

[Kristian Andersen]

If Jeremy could mention that the meeting was confidential and the information classified (I believe it was a secure line?) that would be helpful. He should mention we will contact the journal and that the narrative is false (I assume he won't actually be sharing the email to Jon?)

[2020-07-29 14:00:57]

[Andrew Rambaut]

I seem to remember that Jeremy actually contacted Nature to tell them it would be coming. Have an email to that effect.

[2020-07-29 14:22:51]

[Eddie Holmes]

It was definitely to be on a secure line. I'll email Jeremy and see what he says. Kristian - do you want to draft the email to Clare.

[2020-07-29 14:24:10]

[Eddie Holmes]

Don't get me wrong, I want serious revenge on this. I spent much of the night plotting schemes. But, we need to absolutely take the moral high ground all the way through this.

[2020-07-29 14:29:49]

[Andrew Rambaut]

It also occurs to me that whoever in the meeting leaked it may not have intended it to get out and was just gossiping to his mate. A careful move keeping the meeting participants onside could be good.

[2020-07-29 14:40:56]

[Robert Garry]

We've got that high ground, but there are probably many more than a few in the Old Coronavirus Guard that don't like us "interlopers" getting so much positive attention [Cohen article a case in point] and have had enough. Looking down from the other side it actually does piss me off that curefinder - class clown and the worse grad student in history - was able to lie his way into a position as virus expert on national teevee [karma is a bear though]. Agree with Andrew that the leaker may not be nefarious - just a gossip - the info just got into the hands of one or a few of the righteously pissed off. I agree informing the meeting participants - even if they are not all exactly "happy" with us - would be a decent move.

[2020-07-29 14:42:38]

[Eddie Holmes]

Possible I guess. Any email from Jeremy should just be passive and just say remember it was confidential. It is also striking that we have not had one email, phone call of complaint from any on the call (or anyone else for that matter) about the paper. Nothing. The only moans we have had are from the lab escape mob.

[2020-07-29 15:59:25]

[Kristian Andersen]

How's this for a first draft:

Dear Clare,

We wanted to alert you to this anonymous email that was shared with us from a reputable journalist. The email makes several serious allegations about the research ethics of our "Proximal Origin" paper that we submitted to Nature a while back. The libelous allegations are false and we are taking this matter very seriously.

The anonymous emailer (let's call the person RB) names you and your journal and describes several private and confidential details about the review process. We believe that RB is either Reviewer 2 of our paper, or Reviewer 2 shared confidential information with RB. There are no other explanations for how RB could have obtained this information, except for a breach of the peer review process - we have not shared any of the peer review details put forward by RB.

The libelous accusations put forward by RB includes confidential details about private meetings held via secure lines involving senior US and UK officials/scientists on a topic that is highly sensitive. In addition to this, RB (and Reviewer 2, if RB is not Reviewer 2) also breached the confidentiality of the peer review process.

We are sorry to have to bring this to your attention, but given how serious a matter this is, we have no choice.

We look forward to hearing back from you on how we may resolve this matter. Please let us know if you have any questions. We are available for a phone call if that would be helpful.

Best,
Kristian and Eddie

[2020-07-29 16:02:19]

[Kristian Andersen]

... let me get this on a Google Doc...

[2020-07-29 16:03:25]

[Kristian Andersen]

<https://docs.google.com/document/d/1IMm6tD1L7a7yz6FFyhaY95y30DI7Zkg26wqsm6SYnal/edit?usp=sharing>

[2020-07-29 16:21:11]

[Andrew Rambaut]

Hi - I am not sure about this (emailing Clare) - are we giving too much away here?

[2020-07-29 16:23:36]

[Andrew Rambaut]

I am just trying to think through what she will do?

[2020-07-29 16:24:02]

[Kristian Andersen]

I don't think we're giving away anything are we?

She'll reach out to Reviewer 2 and possibly 1. And bring it up with the journal

[2020-07-29 16:43:34]

[Andrew Rambaut]

Made some suggested edits to disentangle the libellous allegations from the reviewing breach. Feel free to revert.

[2020-07-29 17:35:32]

[Eddie Holmes]

I've made some edits as well. My version is below. We need to think this through very carefully. Kristian, you should run it past your comms person. I don't think we should ask Clare to resolve the matter as it's not her doing and this just puts it ball in her court which seems unfair. I think just alerting her is enough:

[2020-07-29 17:35:35]

[Eddie Holmes]

Dear Clare,

We wanted to alert you to this anonymous email that was shared with us from a reputable journalist. The email makes several serious allegations, including details about a confidential and private meeting involving senior US and UK officials/scientists on a topic that is highly sensitive but ultimately led to our "Proximal Origins" paper that we submitted to Nature some months ago. The allegations are false, we feel they are libelous, and we are taking this matter very seriously. We are contacting you because the email also shows a breach in confidentiality of the peer review process.

The anonymous emailer (individual B) names you and Nature and describes several private and confidential details about the review process. Clearly, individual B is either Reviewer 2 of our paper, or Reviewer 2 shared confidential information with them. There are no other explanations for how this person could have known it had been reviewed by Nature or details of the review, except for a breach of the peer review process: we have not shared any of the peer review details with anyone. It does not appear that individual B knew that you discussed the paper directly with Nature Medicine, nor does it appear that the person knew who the handling editor was at that journal (Joao).

We are very sorry to have to bring this to your attention, but given how serious a matter this is, we feel we have no choice as our scientific reputations are being judged.

Please let us know if you have any questions. We are available for a phone call if that would be helpful.

Best,

Kristian and Eddie

[2020-07-29 18:05:06]

[Kristian Andersen]

Sounds good. And let's wait until we hear back from Jeremy before next steps - there's no rush

[2020-07-29 18:05:41]

[Kristian Andersen]

My comms person already looked at it and thought it looked good - he had a few minor edits that I introduced

[2020-07-29 18:38:31]

[Robert Garry]

Extra points for subtle clues - individual B - very Agatha Christie!

[2020-07-29 18:43:40]

[Kristian Andersen]

Well, I called him 'RB', but Andrew thought that was a little too much...

[2020-07-29 19:11:17]

[Eddie Holmes]

I've been thinking of a lot of worse names

[2020-07-29 19:23:08]

[Eddie Holmes]

My anger on this is increasing rather than abating.

[2020-07-30 03:14:38]

[Eddie Holmes]

Have done another edit. Seems fine to me. I emailed Jeremy this morning my time but have had no reply so far.

[2020-07-30 07:02:31]

[Robert Garry]

I agree about the anger increasing - we might all need office blow-up clowns.

[2020-07-30 07:45:48]

[Robert Garry]

Another point- Deep Throat says that Thomas was "quickly apprised of the situation." This might be "true" on some level and only Clare knows what Rev #2 told her in the private comments to editor box. Worth revisiting Clare's original comments - emphasis in bold:

While the Perspective is interesting and timely one of our referees raised concerns (*also emphasised to the editors*) about whether such a piece would feed or quash the conspiracy theories.

Critically, the purpose of our manuscript was not to quash conspiracy theories. Rather, our aim was to carefully examine in a balanced and unbiased manner the evidence for and against a number of possible probable scenarios for the proximal origins of SARS-CoV-2.

But more importantly this reviewer feels, and we agree, that the Perspective would quickly become outdated when more scientific data are published (for example on potential reservoir hosts).

Of course, it is likely that more scientific data will swing the balance in favor of one hypothesis over another. However, the same can be said of many of the papers published on COVID-19: as we learn more about the virus and the disease so previous publications may be quickly revised. We contend, however, our piece will remain relevant even if more data becomes available because these data would potentially confirm which of these scenarios is correct. Most importantly, our manuscript sets out what evidence is needed to test the hypotheses outlined and will therefore serve as an important starting point for guiding future research.

[2020-07-30 07:48:31]

[Kristian Andersen]

Yup, I looked back at those comments as well - I think DT is just overplaying what Clare actually did with that comment. But clearly it was an important part of her decision process - but I assume the comment had to do with the fact that new data would come out, and not about us 'stealing' the idea from others (she wouldn't have shopped it around with all the other journals if that was the case - she knows us, so no way she'd believe slander like that)

[2020-07-30 07:54:05]

[Robert Garry]

Agree - clearly she didn't believe it.

[2020-07-30 07:55:14]

[Robert Garry]

Also tragically Herman Cain who attended Trump's Oklahoma rally maskless has just died of COVID-19. This is huge.

[2020-07-30 07:58:22]

[Kristian Andersen]

Holy crap, yeah that's pretty big news...

[2020-07-30 08:12:40]

[Robert Garry]

Also the concern that, "the Perspective would quickly become outdated" has not come to pass obviously...

[2020-07-30 08:16:59]

[Robert Garry]

I wonder if Trump will change his Twitter pic? [shared file(s): image.png]

[2020-07-30 08:45:00]

[Kristian Andersen]

From Kathy Leung - those are some narrow confidence intervals... :thinking_face: [shared file(s): Screen Shot 2020-07-30 at 7.41.01 AM.png]

[2020-07-30 08:45:19]

[Kristian Andersen]

@Andrew Rambaut - any news from your BEAST runs on this question?

[2020-07-30 09:40:10]

[Andrew Rambaut]

Just posted a preprint

[2020-07-30 09:42:49]

[Kristian Andersen]

Online yet?

[2020-07-30 09:43:03]

[Andrew Rambaut]

Not yet

[2020-07-30 09:44:58]

[Kristian Andersen]

[thread - ID: 2020-07-30 09:44:58]

... if only I could see the queue :wink:. I'll be looking for it on my end

[2020-07-30 14:31:39]

[Eddie Holmes]

[thread - ID: 2020-07-30 14:31:39]

You can't do those plots independently for each country. The increase of G in Australia simply reflects the increasing number of imports with this mutation.

[2020-07-30 14:33:14]

[Eddie Holmes]

Nothing from Jeremy. I therefore suspect he won't email anyone.

[2020-07-30 14:37:20]

[Andrew Rambaut]

[thread - ID: 2020-07-30 14:31:39]

@Eddie Holmes Exactly - that is the whole problem with using counts of genomes. We have estimated the growth rate for 50-odd independent introductions into the UK. But it isn't a clean result.

[2020-07-30 14:38:25]

[Eddie Holmes]

[thread - ID: 2020-07-30 14:31:39]

@Eddie Holmes I keep telling people this. Drives me crazy.

[2020-07-30 14:54:39]

[Kristian Andersen]

[thread - ID: 2020-07-30 14:31:39]

@Eddie Holmes Yeah, Richard and I brought it up at the conference today, but I'm not quite sure they fully understood what the problem was... I kept saying "your analysis assumes growth from one introduction within the country only - the issue is that you have multiple introductions and you have many more G coming in later"...

This can only be done on a tree - there's just no way around it.

[2020-07-30 14:54:54]

[Kristian Andersen]

Hmmm, okay. Should I email Clare?

[2020-07-30 14:56:49]

[Eddie Holmes]

I'm happy for you to email her.

[2020-07-30 14:57:30]

[Kristian Andersen]

Alright - I think we should too, so let me email her now.

[2020-07-30 14:57:31]

[Eddie Holmes]

With me cc'd.

[2020-07-30 15:04:27]

[Kristian Andersen]

Done!

[2020-07-30 15:06:59]

[Eddie Holmes]

Great email! The fight back has begun.

[2020-07-30 15:11:17]

[Kristian Andersen]

Yeah, I think we all shaped that email pretty well! I definitely wouldn't be picking a fight with this bunch... Just saying. :boom::boxing_glove::man_in_business_suit_levitating:

[2020-07-30 15:12:09]

[Eddie Holmes]

Our fight is a righteous one.

[2020-07-30 15:12:46]

[Kristian Andersen]

I'm still pissed...

[2020-07-30 15:18:03]

[Eddie Holmes]

So am I. Frothing at the mouth.

[2020-07-30 15:46:41]

[Robert Garry]

Agreed - let's see what the response from Clare is (good thing I finished a couple more reviews for her at the last minute) - then discuss the counter-punch.

[2020-07-30 16:36:47]

[Robert Garry]

> And, to borrow a phrase [from DT], "it's a pretty ugly situation that I (obviously) think should be exposed."

[2020-07-30 17:27:14]

[Eddie Holmes]

Totally.

[2020-07-30 17:40:44]

[Eddie Holmes]

So fed up with this shit. [shared file(s): Screen Shot 2020-07-31 at 10.37.51 am.png]

[2020-07-30 17:47:23]

[Eddie Holmes]

But at least Scott wasn't anonymous.

[2020-07-30 17:50:34]

[Kristian Andersen]

Haha - why do they even take the time to write this shit? I just don't get it...

[2020-07-30 17:53:23]

[Eddie Holmes]

To help prove that they are less insignificant than everyone else thinks they are. Perhaps I should link-up Scott with

[2020-07-30 17:56:46]

[Kristian Andersen]

Hah, worth a try

[2020-07-30 19:25:18]

[Kristian Andersen]

Poor Alina :wink:

[2020-07-30 19:45:46]

[Eddie Holmes]

I know. How bloody stupid to think that the HKU people did all the sequencing for RmYN02 (RmYN01) are were just acknowledged. Makes you wonder what else she has wrong. She's so far down rabbit hole that she's having trouble breathing.

[2020-07-30 19:46:11]

[Eddie Holmes]

I was in a bad mood after Scott's email.

[2020-07-30 19:47:38]

[Kristian Andersen]

Yeah, she's gone off her rocker by now - it's kinda sad as I still liked her first preprint and I like the fact that somebody keeps digging. But by now it's just stupid stuff.

[2020-07-30 19:49:55]

[Eddie Holmes]

It is sad. She's clearly smart. I was trying not to be overly harsh, but you can't go around naming people like that. For her own good.

[2020-07-30 19:50:51]

[Kristian Andersen]

Agreed - and you did the right thing here. It's good that she gets some pushback too - you can just say shit about people on Twitter.... If you're trying to be a respected scientist that is.

[2020-07-30 19:53:08]

[Eddie Holmes]

Totally.

[2020-07-31 02:33:13]

[Eddie Holmes]

Listen to lighten the mood, here's something very Australian - "rootgate"

[2020-07-31 02:33:32]

[Eddie Holmes]

<https://www.betootaadvocate.com/breaking-news/i-know-you-dont-wanna-hear-this-but-gotdam-it-was-worth-it-says-melbourne-security-guard/>

[2020-07-31 05:26:53]

[Andrew Rambaut]

[thread - ID: 2020-07-30 09:44:58]

@Kristian Andersen We think it may have been pushed back with a note to go to MedRxiv but can't see because Erik Volz is lead and he is on leave. Annoying if so because we chose BioRxiv because that is where all the other D614G papers went.

[2020-07-31 05:26:59]

[Robert Garry]

Thanks for the article Eddie - made my day!

[2020-07-31 08:52:55]

[Kristian Andersen]

A total nothing-burger email from Clare. I don't think this is the appropriate action from Nature so I suggest writing back to her saying that we would like a little more to be done here, including contacting the reviewers to better understand the breach. I'd cc Skip this time. [shared file(s): RE: Breach of reviewer confidentiality - leaked to journalist]

[2020-07-31 09:27:38]

[Andrew Rambaut]

I am not that surprised - there is not much she could do other than give a warning the reviewers (and she doesn't know for sure which one it is). I think it is just good that she knows about this in case DT tries to contact Nature to make a complaint or something (unlikely as that would remove his anonymity).

[2020-07-31 09:31:37]

[Andrew Rambaut]

I suggest just replying and saying thanks we just wanted to her to know that there was someone trying to cause grief in case she got embroiled in it. I can't see any benefit in demanding anything from Nature - we don't want them to be upset with us.

[2020-07-31 09:44:26]

[Andrew Rambaut]

[thread - ID: 2020-07-30 09:44:58]

@Kristian Andersen Are you able to do anything? Or do we just press the transfer to MedRxiv button?

[2020-07-31 09:47:26]

[Kristian Andersen]

[thread - ID: 2020-07-30 09:44:58]

@Kristian Andersen I unfortunately can't do anything on my end - I only get the paper once it's through the first step. Does it have human data in it? If yes, then MedRxiv is required

[2020-07-31 09:47:57]

[Andrew Rambaut]

[thread - ID: 2020-07-30 09:44:58]

@Kristian Andersen Whether someone is dead or not?

[2020-07-31 09:49:17]

[Andrew Rambaut]

[thread - ID: 2020-07-30 09:44:58]

@Kristian Andersen So will transfer. Thanks.

[2020-07-31 09:50:46]

[Kristian Andersen]

[thread - ID: 2020-07-30 09:44:58]

@Kristian Andersen Yeah, if you have data like that in there that requires human subjects research approval so it ends up with MedRxiv...

[2020-07-31 10:10:15]

[Kristian Andersen]

Yeah, I agree we don't want to push it - however, from the email it doesn't appear that Clare thought about doing anything at all, which I really don't think is appropriate here - at a minimum she needs to contact the reviewers about the breach. I don't think that's an unreasonable request? I would kinda hope journals would take breaches seriously...

[2020-07-31 10:57:32]

[Robert Garry]

It's an OK response - she probably had to consult a lawyer to allow use of the term "disappointing, if." Consider this a successful immunization if DT tries to push this further with Nature or if DT tries for some other journalist. Nature can't say they weren't warned. Journals - like universities - are risk adverse - don't want to do ANYTHING to damage the brand - if they can sweep under the rug that's their first impulse.

[2020-07-31 11:13:55]

[Andrew Rambaut]

I agree. She probably wouldn't say if they did escalate it but my guess is a black mark against the reviewer (if only in Clare's mind).

[2020-07-31 14:50:27]

[Robert Garry]

I just have one question- is Colin Wood really his real name?

[2020-07-31 14:58:39]

[Eddie Holmes]

That's essentially what I expected from Clare - she's always very careful, particularly by email (I've had to chat with her about a few sensitive matters). I agree with Andrew that there is a black mark against the reviewer and that we should just write back and say thanks and just felt you had to know in case it escalates.

[2020-07-31 15:01:33]

[Eddie Holmes]

The Betoota Advocate is a spoof paper, like The Onion. So, it's all made up....except that the new outbreak in Australia did indeed started by security guards rooting returned travellers in hotel quarantine.

[2020-07-31 15:16:59]

[Andrew Rambaut]

It's beautiful - just have to read it in a thick Aussie accent.

[2020-07-31 15:21:24]

[Kristian Andersen]

When I saw the photo in the article (on my phone...) I thought it was a picture of Eddie... I mean, forgive me, but the guy is ~bald~ bold and holding a beer... :man-shrugging:

[2020-07-31 15:22:15]

[Kristian Andersen]

For Clare, let's go with the majority opinion here - I think we should push her some more, but I see the benefits of not doing that... @Eddie Holmes do you want to reply back to her?

[2020-07-31 15:36:44]

[Eddie Holmes]

Yes, I'll reply. Let's keep calm for now - we can raise the stakes later if necessary.

[2020-07-31 15:37:49]

[Eddie Holmes]

Colin Wood is a spoof of 'Collingwood' - one of the most famous Aussie rules teams (the great Ian Barr supports them)

[2020-07-31 15:42:29]

[Eddie Holmes]

I gave my 1st talk in Australia in the late '80s. It was some heavy phylogenetics stuff. Not knowing, in that talk I said something like "I have major issues with rooting". Pete Lockhart then got his mate to ask me a question which was something like "We'd like to hear more about your rooting problems".

[2020-07-31 15:56:05]

[Robert Garry]

Can I use this in my book?

[2020-07-31 15:56:35]

[Robert Garry]

Proper attribution of course...

[2020-07-31 15:56:50]

[Robert Garry]

Unless you are saving it for your memoirs Eddie!

[2020-07-31 16:00:59]

[Kristian Andersen]

If ever we get that FOIA for our Slack channel...

[2020-07-31 16:09:19]

[Eddie Holmes]

Please do Bob. I can still remember the sniggering at the back of the lecture hall as I tried to explain the difficulties in finding the optimal rooting position.

[2020-07-31 16:15:15]

[Andrew Rambaut]

Bob, if you do have any significant section in your book about Eddie, make sure you talk to Pete Lockhart. There are many many more stories.

[2020-07-31 16:16:08]

[Eddie Holmes]

Pro tip.

[2020-07-31 20:27:43]

[Eddie Holmes]

Sent the email as requested. Hopefully it conveyed that while we are not telling her to do anything, we fucking pissed off.

[2020-07-31 20:36:50]

[Kristian Andersen]

Yeah, good reply!

[2020-08-01 06:55:12]

[Robert Garry]

Prof Bill's paper is out in AoV

[2020-08-01 06:55:29]

[Robert Garry]

He ends it thus, "In the past, they have occurred only occasionally, but in the 21st century, the emergence of a pandemic virus has just changed the world as we have known it."

[2020-08-01 06:55:53]

[Robert Garry]

Title

A palindromic RNA sequence as a common breakpoint contributor to copy-choice recombination in SARS-COV-2

Journal

Archives of Virology, (), 1-8 *DOI*

10.1007/s00705-020-04750-z Your article is available as 'Online First':

<http://link.springer.com/article/10.1007/s00705-020-04750-z>

[2020-08-01 16:00:17]

[Eddie Holmes]

Yes, good stuff. I tweeted about it yesterday.

[2020-08-02 15:07:11]

[Eddie Holmes]

I see that Steven Salzberg is the latest to make a complete arse of himself.

[2020-08-02 17:49:44]

[Kristian Andersen]

Unbelievable. It's the second time I have noticed him being a complete arse - the other time was amplifying that idiotic WaPo WIV story. This one about vaccines though is a really serious misstep.

[2020-08-02 18:51:45]

[Eddie Holmes]

Yes, saw the WaPo one. He's been an arse for ages: he forced himself on a paper of mine years ago although he did fuck all. He keeps hyping his flu cred, but he's a software guy. This one is a total shocker though. What a knob.

[2020-08-02 19:06:18]

[Kristian Andersen]

Doesn't surprise me - he seems like a dick... And yeah - this one is completely left field

[2020-08-02 20:27:20]

[Kristian Andersen]

Fox is really grasping for straws these days... <https://www.youtube.com/watch?v=7voTUuVT5i4>

[2020-08-02 23:19:47]

[Eddie Holmes]

Even the Fox news bloke seemed a tad unconvinced. Interesting that she mentioned Zhang's lab though. That won't do him any favours.

[2020-08-03 06:51:03]

[Robert Garry]

[thread - ID: 2020-08-03 06:51:03]

More great reporting by Ed Yong. https://www.theatlantic.com/magazine/archive/2020/09/coronavirus-american-failure/614191/?utm_source=twitter&utm_medium=social&utm_campaign=share "Science famously self-corrects. But during the pandemic, the same urgent pace that has produced valuable knowledge at record speed has also sent sloppy claims around the world before anyone could even raise a skeptical eyebrow. The ensuing confusion, and the many genuine unknowns about the virus, has created a vortex of fear and uncertainty, which grifters have sought to exploit. Snake-oil merchants have peddled ineffectual silver bullets (including actual silver). Armchair experts with scant or absent qualifications have found regular slots on the nightly news. And at the center of that confusion is Donald Trump." He did miss one snake oiler: <https://www.lifesitenews.com/opinion/msnbc-virus-expert-says-he-contracted-covid-19-evidence-says-otherwise> whose been f'ing up outbreaks for years: <https://www.pbs.org/wgbh/frontline/film/outbreak/>

[2020-08-03 06:53:50]

[Andrew Rambaut]

[thread - ID: 2020-08-03 06:51:03]

Yes - this is really great article. Ed does this stuff so well.

[2020-08-03 07:35:50]

[Robert Garry]

He should be nominated for a well-deserved Pulitzer - truly.

[2020-08-04 17:16:55]

[Eddie Holmes]

You can almost see the froth coming from this mouth: <https://onlinelibrary.wiley.com/doi/full/10.1111/cla.12425>

[2020-08-04 23:03:47]

[Andrew Rambaut]

Bloody cladists. What unconstructive sanctimonious dribble.

[2020-08-05 00:11:08]

[Eddie Holmes]

I couldn't be a cladist. I couldn't cope with that level of anger all day. Please pass to Paul Sharp.

[2020-08-05 11:09:42]

[Robert Garry]

Eddie - is this another "parody" article? From the critic of Andersen et al. "As a side note, an amino acid is a "composite character," meaning it is composed of different parts (the nucleotides) that may represent separate evolutionary events. ... Future work would do well to examine the actual nucleotide sequence when investigating genetic evolution and ancestry, and keep "function" of the translated product as a different question, important as it may be."

[2020-08-05 11:13:32]

[Andrew Rambaut]

Cladists are daft and pompous.

[2020-08-05 11:15:30]

[Robert Garry]

I know the type...

[2020-08-05 12:51:11]

[Robert Garry]

Another COVID

hoaxer:<https://www.thedailybeast.com/inside-the-sick-hoax-coronavirus-death-roiling-arizona-state-university>

[2020-08-05 13:03:20]

[Robert Garry]

This one took damage to science, including science by minorities, to a new low.

[2020-08-05 15:05:19]

[Eddie Holmes]

Yes, I was reading about this yesterday. Some people spend way too much time on Twitter. The journal 'Cladistics' is indeed the parody of a proper scientific journal.

[2020-08-06 16:55:58]

[Kristian Andersen]

:face_with_symbols_on_mouth: [shared file(s): Screen Shot 2020-08-06 at 4.55.40 PM.png]

[2020-08-06 17:29:41]

[Andrew Rambaut]

It's Trump's stupid fault

[2020-08-06 17:35:08]

[Kristian Andersen]

That is CRAZY

[2020-08-06 19:38:41]

[Eddie Holmes]

It can't be the similar age one though as its from 2005

[2020-08-06 19:39:24]

[Eddie Holmes]

At least it's not Idiot Ragu.

[2020-08-07 05:41:21]

[Robert Garry]

I never should have started that journal.:rage:

[2020-08-07 07:05:32]

[Kristian Andersen]

Haha, I missed this was Vir J! Between Jesus and Chloroquine, I'm not sure I can forgive you Bob...

[2020-08-07 11:24:52]

[Robert Garry]

Oh ~god jesus~ goodness gracious - I had completely blocked that one out - at least I set a record for fastest retraction.

[2020-08-07 15:52:20]

[Eddie Holmes]

I didn't know you started Virol J Bob! That's a great factoid. I had also completely forgotten about the Jesus one! The first line of the Abstract is still a corker "The Bible describes the case of a woman with high fever cured by our Lord Jesus Christ. Based on the information provided by the gospels of Mark, Matthew and Luke, the diagnosis and the possible etiology of the febrile illness is discussed." How DID that get through? Brilliant.

[2020-08-07 15:58:32]

[Kristian Andersen]

Yeah, Bob, how _did_ that get through?

Oh, but there are so many other fun Bob'toids.... Casinos? Comics? The list goes on...

[2020-08-07 16:09:27]

[Eddie Holmes]

I'm very looking forward to the memoirs Bob (with a new Appendix on Deep Throat).

[2020-08-08 06:02:34]

[Robert Garry]

"how _did_ that get through?" Bad editing - obviously. . I did manage to convince the journal to take it down in about 24 hours. "looking forward to the memoirs" I'm still working on the title....

[2020-08-08 06:07:36]

[Robert Garry]

<https://www.snopes.com/fact-check/fauci-quote-hydroxychloroquine/> In-box is filling up with VJ "stuff."

[2020-08-08 06:12:04]

[Andrew Rambaut]

This obsession with hydroxychloroquine is bonkers. Is it all just trying to distort reality so Trump turns out to be right? Of all the things he has put out it is not one that people were particularly fussed about.

[2020-08-08 06:51:17]

[Kristian Andersen]

Yup, it's all about Trump wanting to be right - no matter the consequences. If that involves completely bending the truth, so be it.

It's unreal.

[2020-08-08 08:35:07]

[Robert Garry]

Actually it's real and we're all paying the consequences. "Narcissistic personality disorder — one of several types of personality disorders — is a mental condition in which people have an inflated sense of their own importance, a deep need for excessive attention and admiration, troubled relationships, and a lack of empathy for others. But behind this mask of extreme confidence lies a fragile self-esteem that's vulnerable to the slightest criticism." Trump checks each and every box;

<https://www.mayoclinic.org/diseases-conditions/narcissistic-personality-disorder/symptoms-causes/syc-20366662>

I'd add that it's progressive overtime and often associated with other personality disorders, such as Munchausen's syndrome. The problem is NPD endows certain "super-powers," the main one being the ability to lie - in a way that's convincing to about 40% of the US population - and experience not a shred of guilt.

[2020-08-08 09:07:03]

[Kristian Andersen]

This is really rather excellent...

<https://virological.org/t/the-sarbecovirus-origin-of-sars-cov-2-s-furin-cleavage-site/536>

[2020-08-08 16:53:19]

[Eddie Holmes]

Alina's lack of understanding of evolution is really disturbing. Evolution has been able to produce people that can argue on Twitter but not 4 amino acids that continually come and go.

[2020-08-08 20:11:35]

[Kristian Andersen]

It's getting really dumb.. Love the "Evolution has been able to produce people that can argue on Twitter but not 4 amino acids that continually come and go" :wink:. I have used a similar phrase many times with journalists - "if it's hard to imagine that a virus could have gained 12 bases, just remember that you and I are currently discussing this 'mystery' via Zoom, beaming our voices to the space and back. Evolution did that".

[2020-08-09 06:00:48]

[Robert Garry]

Dear Dr. Garry,

It has been several months since we last spoke – I hope you are well.

NBC News correspondent Janis MacKey Frayer was granted a tour of the WIV BSL 4 labs on Friday – the first international correspondent to do so since the Covid outbreak. She will file for The Today Show tomorrow, Monday. I know from your NATURE article on the origins of the virus and our conversations that you and your co-authors concluded that it is improbable that the virus was manufactured in a lab. Because that was several months ago now (feels like a lifetime ago!), I wanted to get an update from you as to whether you still feel that it is impossible or improbable that the outbreak started from the WIV labs in any form. (Manufactured or just “escaped” due to an error of some sort.)

I know you may very well feel that this has been “asked and answered” many times, but in the interests of accuracy I wanted to check in before this airs tomorrow morning.

Kind regards,

Amy

Amy Perrette

Producer

NBC News London

[2020-08-09 06:02:42]

[Robert Garry]

I thought the Today Show had a science contributor?

[2020-08-09 07:42:00]

[Kristian Andersen]

Hah! And this is pretty interesting....

[2020-08-09 13:57:39]

[Eddie Holmes]

I got the same

[2020-08-09 13:58:23]

[Eddie Holmes]

Did you reply Bob?

[2020-08-09 14:00:28]

[Robert Garry]

Yes - told her no change -highly improbable.

[2020-08-09 14:01:09]

[Eddie Holmes]

I'll do the same

[2020-08-09 14:11:30]

[Andrew Rambaut]

And that if they were doing GOF experiments in a Cat 4 lab then they are much more safety conscious than the Netherlands or the US.

[2020-08-09 15:27:59]

[Robert Garry]

True! In other weekend emails - Virology Journal EiC (Batman!) asked me to participate in a letter re the CDC chloroquine/SARS paper clarifying that NIH/Fauci did not run the journal in 2005. Hmmm. Little known factoid: the only reason I started VJ was to provide a little balance - there was already a PNAS.

[2020-08-09 18:51:51]

[Eddie Holmes]

So bizarre that such a clarification is needed. Sums up the current mess we are in.

[2020-08-10 05:50:34]

[Robert Garry]

https://www.today.com/video/inside-the-wuhan-lab-at-center-of-coronavirus-controversy-89836101738?playlist=mmlsnnd_todayarchivesmonday

[2020-08-10 06:25:18]

[Robert Garry]

Not much in this report.

[2020-08-10 06:28:13]

[Andrew Rambaut]

"So you are 100% sure there was no release?" , "Yes, 100%", "Great thanks"

[2020-08-10 08:35:05]

[Robert Garry]

Yeah - This will not help, but will be harmful. This is like an ex-postdoc of mine [I fired her]. To say she had no lab skills did not capture the essence. She had negative lab skills.

[2020-08-10 08:42:12]

[Kristian Andersen]

Yeah, absolutely nothing in this reporting - but then again, what did they expect to find? It's a lab... like so many other labs.

"Five virologists familiar with lab protocols found it improbable...". I guess that's us - which is kinda strange.

[2020-08-10 10:43:46]

[Robert Garry]

It make a little more "sense" now - most of their science consultants are "virologists" that are unfamiliar with lab protocols.

[2020-08-10 14:25:53]

[Eddie Holmes]

Yes, pointless.

[2020-08-10 17:10:28]

[Kristian Andersen]

[thread - ID: 2020-08-10 17:10:28]

@Andrew Rambaut - reading your Doug paper in a little more detail since the NYT folks asked about it... Question for you - looking at this figure, I largely see overlap in cluster sizes _earlier_ in the epidemic. Since Dougless came in early and Doug came in later - where, importantly there was A LOT more ongoing transmission - is it possible that when you measure "cluster sizes" (or any of the downstream phylodynamic estimates) that it's possible that a larger subset of Doug clusters that you assign to transmission within the UK could be due to multiple introductions as compared to Dougless? Reading the methods, I'm wondering if you have multiple examples of, say, a cluster actually being made up of two introductions of identical viruses from neighboring countries, but then gets counted as a single introduction on your tree?

I assume this effect would be more significant for later clusters - before mitigation - and could therefore skew cluster size towards Doug's being larger because they're more likely to be due to multiple introductions of identical viruses than Dougless'. One way to control for this would be to either make sure that clusters are all from the same city/region - but I assume you run out of power if you start dividing the dataset like that.

Separate to a potential skew due to time, there's also a potential skew due to source. If you look at introductions from the same time period, Dougless would primarily be coming from China (less travel), while Doug would be coming from neighboring countries - again, this'd increase the likelihood of multiple introductions of identical Doug

viruses into the UK as compared to Dougless viruses.

The fitness effect you see for Doug is relatively minor, so I wonder if little potential confounding factors like these could explain the difference? There's also the peculiar effect of skews towards younger for Doug, which could likely also contribute (cause or effect is pretty interesting here - very difficult, if not impossible, to sort out though). [shared file(s): Screen Shot 2020-08-10 at 3.58.47 PM.png]

[2020-08-10 18:06:30]

[Eddie Holmes]

They asked me as well Kristian but I declined to comment this time....good call as you are much better informed on this than I.

[2020-08-11 04:03:09]

[Andrew Rambaut]

[thread - ID: 2020-08-10 17:10:28]

It has annoyed me that the only metric that statistically supports D614G fitter hypothesis is the basic fit to the number of genomes - the issue is that there are so many confounding factors here. Erik's analysis does try to control for introductions by trying to focus only on local incidence but you have highlighted the issue that our method of inferring introductions is likely biased by the same issues.

[2020-08-11 04:04:41]

[Andrew Rambaut]

[thread - ID: 2020-08-10 17:10:28]

@Kristian Andersen I think most of the D lineages (after the very early ones) actually came from Spain in returning holiday makers. There was a large lineage A epidemic there (at the time unnoticed).

[2020-08-14 12:10:57]

[Kristian Andersen]

@Eddie Holmes do you agree with this? I thought Australia was pretty adamant that recent surges were due to tourism - but it's unclear to me whether politics or science might be behind those statements... [shared file(s): Screen Shot 2020-08-14 at 12.09.46 PM.png]

[2020-08-14 14:22:24]

[Eddie Holmes]

The story here is that the outbreak in Victoria was due to an escape from hotel quarantine from return travellers. There's even an inquiry going on that the moment. I can see from the tree that you are suggesting that the virus was in Australia prior to the current outbreak? That is certainly not the narrative here. I will need to ask about this. To clarify, I'm not involved in any of the Australian analysis: it's being done by the public health people in each state. They've shut me out completely.

[2020-08-14 14:25:28]

[Eddie Holmes]

Are we sure that the NextStrain tree is just massively subsampled, missing key background lineages?

[2020-08-14 14:25:34]

[Kristian Andersen]

Yeah, that's what I thought too - returning travelers and quarantine issues. I should have clarified that the statement I shared is from the most recent Nextstrain narrative: <https://nextstrain.org/narratives/ncov/sit-rep/2020-08-14>.

I'm not sure we can really conclude it's local acquired from this data, but I haven't looked at it directly (so I'm not sure whether I agree or disagree with the Nextstrain folks here...)

[2020-08-14 14:26:08]

[Kristian Andersen]

And yes - my concern exactly relates to whether subsampling has taken out necessary context - combined with bias, of course.

[2020-08-14 14:27:13]

[Eddie Holmes]

[thread - ID: 2020-08-14 14:27:13]

I'm going to ask around about this. At face value it's either a massive fuck-up by the people analysing the data or it's irresponsible subsampling from NextStrain.

[2020-08-14 14:27:41]

[Kristian Andersen]

Whether correct or not, pretty interesting though - especially given the pretty strong political line that this is due to return travelers (could be - but I'm also not sure about that...).

[2020-08-14 14:29:50]

[Eddie Holmes]

True! I'm on it. Thanks for pointing this out!!

[2020-08-14 14:32:12]

[Kristian Andersen]

You bet - definitely worth an extra (careful...) look.

They made some conclusions on our Baja / SoCal sequences that are definitely not correct though, so something to keep in mind (in this particular point, it's impossible to say whether the virus moved South (as suggested), North, or from some completely different location). [shared file(s): Screen Shot 2020-08-14 at 2.29.40 PM.png]

[2020-08-14 14:32:46]

[Eddie Holmes]

My money is on NextStrain screwing it up.

[2020-08-14 14:32:48]

[Kristian Andersen]

And just for reference - here's the wording from our own report [shared file(s): Screen Shot 2020-08-14 at 2.32.03 PM.png]

[2020-08-14 14:33:28]

[Eddie Holmes]

Bloody Trevor.

[2020-08-14 14:51:10]

[Andrew Rambaut]

[thread - ID: 2020-08-14 14:27:13]

The issue here is that this is NextStrain's 'Oceania' site. This has a focus on Oceania genomes and down-samples the rest of the world which means it will over sample Australia.

[2020-08-14 14:56:20]

[Kristian Andersen]

[thread - ID: 2020-08-14 14:27:13]

@Eddie Holmes And they don't check to see if these genomes are shared outside Australia? For that types of question, one really needs to look outside the sandbox... (this reminds me of the ever-occurring issue of people taking short reads and blasting them against viral databases to conclude that they have viruses in their samples... Only to realize later that they are human reads).

[2020-08-14 15:36:31]

[Eddie Holmes]

Yes, that's my guess.

[2020-08-14 15:37:45]

[Eddie Holmes]

I will be criticising NextStrain if so. I'm just checking with the Melbourne people now.

[2020-08-14 15:44:18]

[Eddie Holmes]

[thread - ID: 2020-08-14 14:27:13]

@Eddie Holmes Pretty incompetent analysis. I'm going to enjoy this.

[2020-08-14 15:45:17]

[Andrew Rambaut]

[thread - ID: 2020-08-14 14:27:13]

@Eddie Holmes Does anyone actually pay attention to these 'sit reps'?

[2020-08-14 15:46:52]

[Eddie Holmes]

[thread - ID: 2020-08-14 14:27:13]

@Eddie Holmes No idea. But the hotel quarantine thing is huge in Australia. There's a formal inquiry at the moment and heads will roll.

[2020-08-14 15:47:46]

[Andrew Rambaut]

[thread - ID: 2020-08-14 14:27:13]

@Eddie Holmes My worry is that these young, talented scientists have squandered a huge opportunity to do great science and help understand the pandemic and instead do silly ephemeral shite like this.

[2020-08-14 15:50:16]

[Eddie Holmes]

[thread - ID: 2020-08-14 14:27:13]

@Eddie Holmes Completely agree. They are being dragged along by Trevor's ego.

[2020-08-14 15:57:58]

[Kristian Andersen]

[thread - ID: 2020-08-14 14:27:13]

@Eddie Holmes Andrew, you trained them, so we blame you... :smiling_imp:

[2020-08-14 16:01:38]

[Kristian Andersen]

[thread - ID: 2020-08-14 14:27:13]

@Eddie Holmes Mostly, I'm just a little confused - because these are big and important questions so we all know that we need to be really careful what we say (especially because of a few prior misfires). And some of these mistakes are really simple - as in, I can spot them and I'm still in elementary school when it comes to these types of questions (hence I collaborate with people who graduated already - just so I don't cock up too much).

[2020-08-15 00:46:06]

[Andrew Rambaut]

This is what they are inferring the Baja/CA thing from: [shared file(s): image.png]

[2020-08-15 00:48:44]

[Andrew Rambaut]

They all come off that large polytomy. They need to stop looking at the time tree.

[2020-08-15 01:08:43]

[Eddie Holmes]

Yes, I can confirm that the Australian thing is definitely a NextStrain cock-up.

[2020-08-15 10:10:09]

[Kristian Andersen]

Yeah, the time-tree really needs to be ignored - especially if it comes out of TreeTime. For transmissions, we're always just looking at the ML tree and that's how we came to the conclusion that the outbreaks "are likely connected, but we can't determine directionality". One additional (major) issue if focusing on the time tree - we don't have the same sampling period for Baja that we have for San Diego...

[2020-08-15 15:39:54]

[Kristian Andersen]

So interesting:

<https://virological.org/t/two-ebola-virus-variants-circulating-during-the-2020-equateur-province-outbreak/538>

Man, Ebola evolution has gotten so weird since 2014. It used to be such a well-behaved virus with a logical clock, but that's certainly changed. How interesting.

[2020-08-15 15:59:56]

[Andrew Rambaut]

Yeah. The MBK67 has areas of low coverage suggesting a difficult sample. But it has to be survivor relapse/latent infection, surely?

[2020-08-15 16:00:55]

[Andrew Rambaut]

Perhaps which ever bat colony produced the 2018 outbreak had some latently infected bats but seems less likely.

[2020-08-15 16:01:39]

[Andrew Rambaut]

Probability of it happening in the middle of another outbreak in the same region? Weird

[2020-08-15 16:05:32]

[Kristian Andersen]

Yeah, MBK67 is super weird, but I talked to Mike earlier in the week and it sounds like it's basal on the clade - I can't quite suss it out from the tree as it's displayed. If that is the case, then it might not actually be a survivor relapse, but rather a new spill-over from the very same reservoir. Very interesting indeed - let's touch base on it with Mike next week too.

[2020-08-15 16:06:48]

[Kristian Andersen]

And yes, from a probability standpoint - two separate outbreaks starting essentially at the same time? Clearly not impossible, but definitely seems risk overall is just up for Ebola - people encroaching on animal habitat I guess.

[2020-08-15 16:07:45]

[Andrew Rambaut]

I wouldn't trust the basal thing - it has lots of low coverage areas including over quite a few SNPS internal to the outbreak.

[2020-08-15 16:08:23]

[Andrew Rambaut]

Strong ascertainment bias - EVD will be noticed in that area.

[2020-08-15 16:08:54]

[Kristian Andersen]

Ah, okay - I asked Mike if that sequence had any of the human diversity from the previous outbreak and he said no. But if it's a low coverage sample, who knows. Very very interesting (and so messed up...)

[2020-08-15 16:09:30]

[Andrew Rambaut]

I will take another look before our chat.

[2020-08-15 16:10:04]

[Kristian Andersen]

Also, interestingly - more cases of vaccinees getting primary Ebola, only to relapse later on after having received mAbs... This definitely needs some further looking into.

[2020-08-15 16:15:56]

[Andrew Rambaut]

Yeah, not coming out basal for me... [shared file(s): image.png]

[2020-08-15 16:17:28]

[Andrew Rambaut]

Don't have all the 2018 genomes there for some reason.

[2020-08-15 16:26:00]

[Eddie Holmes]

Very weird indeed. Can we rule out a fuck-up?

[2020-08-15 16:27:28]

[Andrew Rambaut]

The genome has a lot of low coverage bits. Are we sure they weren't doing some retrospective sequencing of 2018 samples and contaminated?

[2020-08-15 16:28:30]

[Andrew Rambaut]

But then there are 11 nuc differences.

[2020-08-15 17:44:11]

[Kristian Andersen]

Strange... I do wonder if a lab contaminant could be behind this - we should check with Mike.

[2020-08-17 05:12:52]

[Robert Garry]

"Can we rule out a fuck-up?" Never - It's like a rule of nature [been there]- like you can't "prove a negative." I'd want to know how the samples were stored.

[2020-08-17 08:06:36]

[Robert Garry]

Ironical that second wave questions are particularly relevant in both Australia and Louisiana.

[2020-08-17 15:32:53]

[Eddie Holmes]

<https://www.wsj.com/articles/chinas-cdc-built-to-stop-pandemics-stumbled-when-it-mattered-most-11597675108>

[2020-08-17 15:50:30]

[Kristian Andersen]

Do you have a PDF? I don't have access to WSJ...

[2020-08-17 15:54:51]

[Eddie Holmes]

Try this: [shared file(s): WSJ.pdf]

[2020-08-17 15:57:56]

[Eddie Holmes]

Confidentially, I heard that George knew before Dec. 30....

[2020-08-17 16:50:54]

[Kristian Andersen]

Very interesting article... I have a *really* hard time believing that George didn't know until 12/30 - that seems, well, surprising.

[2020-08-17 17:05:34]

[Eddie Holmes]

It's also counter to what I heard. We'll see. George is really after Zhang at the moment: his grants have been blocked in a pathetic display of revenge. Egos are out of control. Not sure the National Health Commission are going to like this article. Will be interesting to watch the fall-out.

[2020-08-17 18:00:16]

[Robert Garry]

Agree - very dumb - layer on top the idiots currently in charge of US-China policy. Gao is wrong about GVP, but some more Bat CoV sequencing would be prudent.

[2020-08-17 19:20:11]

[Eddie Holmes]

There will be a lot of bloodletting in China. Totally unnecessary.

[2020-08-18 02:21:31]

[Eddie Holmes]

Did you see this one by the way. Shocker:

<https://onlinelibrary.wiley.com/doi/10.1002/bies.202000091#.XzuQZz-nCHx.twitter>

[2020-08-18 02:30:37]

[Eddie Holmes]

A low point in the history of BioEssays.

[2020-08-18 05:30:22]

[Robert Garry]

Offered without comment: <https://edition.cnn.com/2020/08/18/asia/wuhan-water-park-party-intl-hnk/index.html>

[2020-08-18 05:33:00]

[Andrew Rambaut]

This can't be safe, surely:

[2020-08-18 05:57:40]

[Robert Garry]

More evidence for Co-met Co-ronavirus?

[2020-08-18 14:46:01]

[Eddie Holmes]

I think the one from the Wuhan Institute of Virology has a leak.

[2020-08-18 16:59:12]

[Kristian Andersen]

"prominent virologists and other eminent scientists" - I believe this is us? :clap:

[2020-08-18 17:02:30]

[Kristian Andersen]

I love their discussion of the furin site - "This furin cleavage site, *which is poly or multibasic by definition since its composed of multiple basic amino acids*". Smart people, them.

“In addition to the inexplicable genetic distance from its sister strains, which screams out for an intermediate relative to complete the phylogenetic picture, SARS-CoV-2 [...]”.

Fuck it, I'm going to use that in one of my upcoming publications too - the tree SCREAMS out for an intermediate relative!!!

[2020-08-18 17:22:16]

[Eddie Holmes]

I just don't get how BioEssays took this shite.

[2020-08-18 17:28:34]

[Kristian Andersen]

Hah, yeah, dunno. It's fine though - but I just don't understand that people keep ignoring pangolins... So dumb. I agree it was mysterious - really mysterious - but then some pangolin viruses came around and mystery solved. Clearly not Bayesians.

[2020-08-19 12:29:31]

[Kristian Andersen]

Anybody have access to this one?

<https://www.wsj.com/articles/nih-presses-u-s-nonprofit-for-information-on-wuhan-virology-lab-11597829400>

[2020-08-19 13:00:22]

[Kristian Andersen]

Full text here: <http://archive.is/XUaSd>

[2020-08-19 13:58:42]

[Kristian Andersen]

Worth a read - IMO some of the requests are reasonable (others definitely not) if EgoHealth wanted their grant reissued.

[2020-08-19 14:19:31]

[Eddie Holmes]

Yes, I read this earlier. EgoHealth just don't help themselves by the ridiculous way they consistently over-hype the importance of their work.

[2020-08-19 15:34:34]

[Andrew Rambaut]

And then don't release the data (I.e. Guinea bat Ebola)

[2020-08-19 15:41:18]

[Kristian Andersen]

Yup. It's really disgusting. BioHip and EgoHealth should have a baby.

[2020-08-20 04:37:20]

[Robert Garry]

Have to say that WSJ doing better reporting than say NBC - the quote from Varmus - wow. What I can't really imagine is the conversations Lauer had - with say the CIA - to lead him to ask Daszak that series of questions. I also suspect that pressure to act on Ego - and try to extract China damaging info - now before the election - is coming from outside NIH.

[2020-08-20 06:51:08]

[Kristian Andersen]

Yup

[2020-08-20 07:08:03]

[Robert Garry]

Science has always been political, but often in a good way. NIH has usually been at least somewhat off limits. Not with this administration obviously.

[2020-08-20 07:52:42]

[Robert Garry]

<https://www.theatlantic.com/health/archive/2020/08/long-haulers-covid-19-recognition-support-groups-symptoms/615382/> Ed is the best in the business. This article however has some stuff in it that is rather troublesome: One examples: "Several studies have found that most COVID-19 patients produce antibodies that recognize the new coronavirus, and that these molecules endure for months. Their presence should confirm whether a long-hauler was indeed infected. But there's a catch: Most existing antibody studies focused on either hospitalized patients or those with mild symptoms and swift recoveries. By contrast, Putrino told me that in his survey of 1,400 long-haulers, two-thirds of those who have had antibody tests got negative results, even though their symptoms were consistent with COVID-19. Nichols, for example, tested negative for antibodies after twice testing positive for the coronavirus itself. "Just because you're negative for antibodies doesn't mean you didn't have COVID-19," Putrino said." Really??? - "two-thirds of those who have had antibody tests got negative results" - I'm incredulous...

[2020-08-20 07:54:07]

[Kristian Andersen]

Yeah, it was an issue in his first article too - I suspect the vast majority of these people are, in fact, not COVID survivors...

[2020-08-20 08:06:34]

[Robert Garry]

CFS is a real thing, but faking it is also real as is fake COVID.

[2020-08-20 08:17:24]

[Robert Garry]

So unlike Ed - you would have thought he might have included someone just a little bit skeptical.

[2020-08-20 08:19:48]

[Kristian Andersen]

Yeah, I think he has a bit of a blind spot when it comes to these people - they have very personal stories and are clearly sick, but it's just not clear that it's due to COVID.

[2020-08-20 08:20:17]

[Kristian Andersen]

(and I'm not saying long-term COVID isn't a thing - it definitely is, and probably more so than we realize).

[2020-08-20 08:26:01]

[Robert Garry]

Agreed - Ian will have job security for some time to come...

[2020-08-21 08:55:12]

[Kristian Andersen]

Just FYI - a little background on that mine... [shared file(s) 

[2020-08-21 14:34:18]

[Eddie Holmes]

Interesting. I also heard that they could not rule out a fungus. Who is this person? Even if it was a coronavirus there's no evidence that it was RaTG13 and RaTG13 is not the source of SARS-CoV-2.

[2020-08-21 14:38:19]

[Kristian Andersen]

Not sure who the person is... Maybe him/her:

<https://www.linkedin.com/in/quang-tuan-pham-49a400103/?originalSubdomain=au>

[2020-08-21 16:57:20]

[Kristian Andersen]

Oh boy - I'll be presenting at AGBT with the other two presenters being Jemma and Oli. I'll clearly be responsible for Amateur Hour, so please send time-appropriate jokes my way so I can keep the audience entertained... :zany_face:

[2020-08-21 17:17:29]

[Eddie Holmes]

Ask Oli if his work is just a lame copy of Trevor Bedford's.

[2020-08-21 18:15:58]

[Kristian Andersen]

Great idea! That'll get him fired up! :fire:

[2020-08-22 09:10:24]

[Andrew Rambaut]

Frankie Bollocks: <https://twitter.com/BallouxFrancois/status/1296911184545943554>

Can't see this going well...

[2020-08-22 09:49:30]

[Kristian Andersen]

OMFG - he actually went there? Completely lost his marbles .

[2020-08-22 09:50:29]

[Kristian Andersen]

I have been seeing several of his "school" threads that have been thoroughly unhelpful - but comparing to traffic deaths (which so many nutters have done - mostly on Fox News) truly is a new low for him.

[2020-08-22 09:57:39]

[Kristian Andersen]

I really don't understand his analogy either - I mean, we have things like seatbelts, airbags, crumple zones, and autonomous braking invented - is he saying we should go back to a 1950s car with COVID? Just pretend it isn't there?

It's worked really well for the US.

[2020-08-22 10:22:41]

[Andrew Rambaut]

Exactly - it is a bad analogy in so many ways. Huge investment in road safety to the point where it is very small in UK.

[2020-08-22 10:23:31]

[Andrew Rambaut]

But that of course isn't the point because one traffic accident doesn't cause 4 more a few days later.

[2020-08-22 10:25:06]

[Kristian Andersen]

So strange. I guess he's happy he's finally found the spotlight - he tries really hard to be a good scientist, but he just isn't... I really wish he'd go back to just being insignificant though - this is dangerous shit (and yeah - car accidents don't have an R0 of 2.5).

[2020-08-22 16:11:51]

[Eddie Holmes]

Mental. Did you see his latest big tree Tweet as well? Says there was no evidence for lab passage etc. I agree, but you can't infer that from a dirty great circular tree.

[2020-08-22 16:12:51]

[Kristian Andersen]

Didn't see that - link?

[2020-08-22 16:13:43]

[Eddie Holmes]

<https://twitter.com/BallouxFrancois/status/1297207044664184832?s=20>

[2020-08-22 16:20:28]

[Kristian Andersen]

Yeah.... can't really dismiss potential passage or engineering based on a circular tree. I'm glad he's found his community on Twitter though - the highlight of any career. Surely.

[2020-08-22 16:27:03]

[Eddie Holmes]

Surely. He's one a whole set of people who let Twitter go to their head.

[2020-08-22 16:46:05]

[Kristian Andersen]

Very few have made that transition successfully - there are a handful though, like Natalie Dean who's managed to stay remarkably on point.

[2020-08-22 17:10:20]

[Eddie Holmes]

I draw the line at one who thinks they're living out a Camus novel.

[2020-08-22 17:18:13]

[Kristian Andersen]

You're sooo old man :stuck_out_tongue_winking_eye:

[2020-08-22 18:47:48]

[Eddie Holmes]

You're not wrong. Papers with Camus quotes should automatically be rejected.

[2020-08-23 15:29:49]

[Eddie Holmes]

This photo I just took seems strangely profound - even the dog has abandoned The Donald... [shared file(s): IMG_1361.JPG]

[2020-08-24 04:10:15]

[Andrew Rambaut]

Koonin doing mad stuff again...

```Prediction of the incubation period for COVID-19 and future virus disease outbreaks

Ayal B Gussow; Noam Auslander; Yuri I Wolf; Eugene Koonin

Research article

**Abstract:** Background: A crucial factor in mitigating respiratory viral outbreaks is early determination of the duration of the incubation period and, accordingly, the required quarantine time for potentially exposed individuals. During the COVID-19 pandemic, optimization of quarantine regimes becomes paramount for public health, societal well-being and the global economy. However, the biological factors that determine the duration of the virus incubation period remain poorly understood.

**Results:** We demonstrate a strong positive correlation between the length of the incubation period and disease severity for a wide range of human pathogenic viruses. Using a machine learning approach, we develop a predictive model that accurately estimates, solely from several virus genome features such as the number of protein-coding genes and the GC-content, the incubation time ranges for diverse human pathogenic RNA viruses including SARS-CoV-2. The predictive approach described here can directly help in establishing the appropriate quarantine



durations and thus facilitate controlling future outbreaks.

Conclusions: Perhaps, surprisingly, incubation times of pathogenic RNA viruses can be accurately predicted solely from generic features of virus genomes. Elucidation of the biological underpinnings of the connection between these features and disease progression can be expected to reveal key aspects of virus pathogenesis``

Let me guess - the best predictor of what an incubation time is what was the incubation time of related viruses. But this will be an immensely complicated paper that will do my head in.

[2020-08-24 04:11:05]

**[Andrew Rambaut]**

For BMC Biology so presumably on the way down the journal impact ladder

[2020-08-24 06:55:56]

**[Kristian Andersen]**

How cares about plausibility or biological mechanisms when we have machine learning!

[2020-08-24 15:17:32]

**[Eddie Holmes]**

Good grief. What BS.

[2020-08-24 15:18:57]

**[Kristian Andersen]**

No Eddie, ML, not BS! Because, cool.

[2020-08-24 15:21:21]

**[Andrew Rambaut]**

Particularly annoys me they have stolen the acronym for maximum likelihood too

[2020-08-24 15:24:42]

**[Kristian Andersen]**

Haha, yeah - has confused the shit out of me on multiple occasions. Let's just call it #AI - way cooler anyway.

[2020-08-24 15:44:13]

**[Eddie Holmes]**

I think reviewers just give up with Koonin's papers. They are so dense that people just go 'fuck it, it's probably fine'.

[2020-08-24 15:44:33]

**[Eddie Holmes]**

In other news I think he's confused Bart for Homer:

<https://www.newyorker.com/magazine/2020/08/31/did-pangolins-start-the-coronavirus-pandemic>

[2020-08-24 15:56:30]

**[Andrew Rambaut]**

He was probably thinking - he couldn't possibly mean Homer. Must be Bart he thinks he looks like. With that triangular spiky hair.

[2020-08-24 15:57:45]

**[Eddie Holmes]**

Not every day that you get lampooned in The New Yorker though. A keeper.

[2020-08-24 15:59:54]

**[Kristian Andersen]**

Need to read this whole thing. But in terms of accuracy, it appears spot on - based on this "He has a quick wit and a perfectly round, bald head".

[2020-08-24 16:00:14]

**[Kristian Andersen]**

Mind you - a \*perfectly\* round head and not just a round head.

[2020-08-24 16:02:43]

**[Eddie Holmes]**

I had better get the calipers out.

[2020-08-24 16:49:15]

**[Eddie Holmes]**

Having some fun with Alina. Clueless.

[2020-08-24 18:45:11]

**[Eddie Holmes]**

She seems to seriously think that humans gave a SARS-CoV-2-like virus to pangolins....which obviously raises more questions than it resolves.

[2020-08-24 19:32:49]

**[Kristian Andersen]**

Importantly though, that virus must have come from the lab.

[2020-08-24 19:41:57]

**[Eddie Holmes]**

Exactly. It's just all completely contradictory.

[2020-08-25 16:52:48]

**[Kristian Andersen]**

<https://time.com/5882918/zhang-yongzhen-interview-china-coronavirus-genome/>

[2020-08-25 19:09:43]

**[Eddie Holmes]**

Oh wow!

[2020-08-25 19:15:51]

**[Eddie Holmes]**

Fuck. He's bloody brave. That ain't going to go down well. He's just had his latest grants stopped. George is totally furious with him because he feels he should get all the credit. This ain't going to end well.

[2020-08-25 19:44:40]

**[Kristian Andersen]**

Yeah, I thought it was a pretty interesting article - especially the title. The article itself doesn't really talk too much about "controversies", but still, a pretty worthwhile read.

[2020-08-25 20:06:01]

**[Eddie Holmes]**

They've actually punished him and the team a lot more than he has let on.

[2020-08-25 20:10:09]

**[Kristian Andersen]**

That I can certainly believe!

[2020-08-26 00:47:51]

**[Eddie Holmes]**

Just had my first freedom of information journo request....

[2020-08-26 00:54:19]

[Andrew Rambaut]

For which story?

[2020-08-26 02:38:45]

[Eddie Holmes]

Vague fishing exercise:

[2020-08-26 02:38:47]

[Eddie Holmes]

The application for information is expressed as follows and covers the time period from 29 December 2019 to 23 July 2020:

Records generated after the outbreak of SARS-CoV-2 in China in communications with individuals or institutions located in China. The timeframe for these records is December 29, 2019, through the fulfillment of this request.

The categories of records covered under this request include the following:

1. Copies of communications such as emails sent (including by CC, BCC or forward) to or from personnel at the Viral Evolution Lab with the Faculty of Science (<https://www.sydney.edu.au/science/our-research/research-areas/life-and-environmental-sciences/viral-evolution.html>)

2. Copies of documents that involve informal or formal policies, legislation, or legal authorities or responsibilities, for example: opening, closing or interim summaries/status reports; memoranda; official and/or unofficial policy statements; notes; meeting minutes or summaries; etc.

With regard to search criteria:

In general, searches should be broad enough to encompass any discussion (whether internal or external) of SARS-CoV-2 with individuals or institutions in China. Electronic search terms used to find responsive records should include but not be limited to "China CDC", "Wuhan CDC", "Wuhan Institute of Virology", "George Gao", "Gao Fu", "Shi Zhengli", "Bi Yuhai", "Yuan Zhiming", "Wang Yanyi", "Chinese Academy of Sciences", "CAS", "Jinyintan", "Union Hospital", "Tongji Hospital", "China Red Cross", "BGI", "Beijing Genomics Institute".

The applicant clarified the scope of the application as follows:

"I'm looking for any correspondences between the University of Sydney's lab conducting coronavirus research (<https://www.sydney.edu.au/science/our-research/research-areas/life-and-environmental-sciences/viral-evolution.html>) and scientists in China, including but not limited to researchers at the China Center for Disease Control and Prevention, with which the lab has an ongoing collaboration."

[2020-08-26 02:47:36]

[Eddie Holmes]

Clearly, they are looking for links between me and various people/institutions in China. I've gone through all my email and the only person on that list of searches (and the Uni have advised me only consider that specific list of search terms) is George. There are about 8 email chains between George & I (and some others) since Jan 1, amounting to 23 pages in a PDF, most of which is blank pages or other people. Nothing dodgy, although there's one pleading that Zhang be shown mercy). I'm going to fight them having it, but there's nothing there. Journo will be very disappointed.

[2020-08-26 06:58:16]

[Kristian Andersen]

What a load of bollocks!

This, btw, is one reason I mostly use my gmail...

[2020-08-26 15:25:26]

[Eddie Holmes]

Yes, it's a good reason. But, of that long list of search terms, there's only a few emails between myself and George.

[2020-08-26 15:30:21]

[Eddie Holmes]

P.S. And it's ridiculous to think that scientists can't use their Uni emails when discussing the early stages of a global pandemic. I can't think of anything that is more appropriate for 'business' use than that. Honestly.

[2020-08-26 15:31:06]

**[Kristian Andersen]**

Yup. The world has truly gone insane.

[2020-08-26 17:17:25]

**[Eddie Holmes]**

Is that reinfection story bollocks then Kristian?

[2020-08-26 17:23:37]

**[Kristian Andersen]**

*[thread - ID: 2020-08-26 17:23:37]*

I suspect the first one may be - but the one from the US today looks good. Again, we should totally expect reinfections so none of them are surprising - I just get really fucking grumpy when people talk about what we can learn about COVID immunity and vaccines from  $n=1$  studies (some of which might be false positives). It's just idiotic - we learn exactly nothing! (well, we learn that reinfections are possible - but of course they are - we fucking knew that! We need to know frequency and time dependency before we can say \*anything\* about immunity/vaccines).

[2020-08-26 17:25:17]

**[Kristian Andersen]**

I was mostly ticked off by so many people saying "oh, this is totally normal, it's textbook immunology and the case clearly shows that immunity works". Total bollocks - let's hope that's the case, but we just don't know and if reinfections are a frequent occurrence then that is a huge issue from an epidemic control perspective.

[2020-08-26 17:26:09]

**[Eddie Holmes]**

Agree.  $n = 1$  is ridiculous.

[2020-08-26 17:26:30]

**[Eddie Holmes]**

Also, the sun: what is good for? [shared file(s): image.png]

[2020-08-26 17:27:53]

**[Kristian Andersen]**

Aaaaaaahahahahahahaha, that is AMAZING!!!! Soooo funny!

[2020-08-26 17:29:48]

**[Eddie Holmes]**

I just hate those quiescent states. So annoying!

[2020-08-26 17:30:51]

**[Kristian Andersen]**

I know - wtf man! Spewing those viruses our way! Not fair, really not fair.

[2020-08-26 17:34:41]

**[Eddie Holmes]**

Apparently, the Wuhan Institute of Virology were manipulating sun spots in the lab. Devious fuckers.

[2020-08-27 02:02:18]

**[Andrew Rambaut]**

*[thread - ID: 2020-08-26 17:23:37]*

@Kristian Andersen I agree. Although the much tighter timeline and some oddities in the genomes make me wonder if it could have been a co-infection with a one variant coming to the fore later on.

[2020-08-27 02:05:27]

**[Andrew Rambaut]**

Of course there was that crazy and well-entrenched dogma that flu pandemics occur every 11 years. Surprised no one suggested sunspot cycles then (or perhaps they did).

[2020-08-27 02:06:40]

**[Andrew Rambaut]**

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3291401/>

[2020-08-27 07:03:58]

**[Kristian Andersen]**

*[thread - ID: 2020-08-26 17:23:37]*

@Kristian Andersen Agreed - some really strange things going on in that case report. Plus, unlike the HKU report, the US folks clearly don't understand sequencing very well - it's almost cute when they talk about the virus sequencing part ;)

[2020-08-27 07:10:55]

**[Andrew Rambaut]**

*[thread - ID: 2020-08-26 17:23:37]*

@Kristian Andersen Wrote a quick report on the HK phylogenetics for the UK gov people: [https://docs.google.com/document/d/1gmK2rYN1qaZOF13y\\_KPInNexnFzY2njUraWWSLr8p4k/edit#](https://docs.google.com/document/d/1gmK2rYN1qaZOF13y_KPInNexnFzY2njUraWWSLr8p4k/edit#) But basically it is either real or a tube mix up with other samples from March.

[2020-08-27 07:48:49]

**[Kristian Andersen]**

*[thread - ID: 2020-08-26 17:23:37]*

@Kristian Andersen Yup, I agree with that assessment. And again - we know that reinfections must occur, so this single case really doesn't tell us anything we didn't already know IMO (and my issue is then that it very well could be a mix-up - because formally showing that reinfections do occur is obviously important. Only, we shouldn't extrapolate from that to concepts of population immunity and vaccines, etc...)

[2020-08-27 12:03:17]

**[Kristian Andersen]**

Bob and I are now officially in the same 'Family' as the Grand Wizard of EgoHealth. I guess he didn't burn all his bridges at NIH...

<https://www.niaid.nih.gov/news-events/niaid-establishes-centers-research-emerging-infectious-diseases>

[2020-08-27 14:23:37]

**[Eddie Holmes]**

Congrats! I was a bit puzzled by some of the recipients. Nikos is a great, but a complete fruit cake.

[2020-08-27 14:46:51]

**[Kristian Andersen]**

Disappointing to see Helen write about the EgoHealth grant, as opposed to writing about how great it is that NIAID will be supporting these centers with an \$82 million commitment... <https://www.statnews.com/2020/08/27/nih-award-s-grant-to-ecohealth-alliance-months-after-uproar-over-political-interference/>

[2020-08-27 15:20:24]

**[Kristian Andersen]**

I also had no idea Jenn was part of GVP. Interesting. <http://www.globalviromeproject.org/leadership-team>

[2020-08-28 01:02:23]

**[Andrew Rambaut]**

She is best buddies with Peter - but seems like a COI now she works for Gates.

[2020-08-28 01:05:33]

[Andrew Rambaut]

It is curious that B&M people can sit on boards but it is up to B&M what they do with their money.

[2020-08-29 13:06:20]

[Kristian Andersen]

This is actually pretty interesting - I missed this previously. Furin sites and rapid passage... [shared file(s): Screen Shot 2020-08-29 at 1.05.04 PM.png]

[2020-08-29 15:33:30]

[Eddie Holmes]

We await the paper, but the key point is that (they claim) these were SARS-CoV related. To me, this makes perfect sense: obviously, prior to the pandemic they would have been most interested in viruses related to the known human pathogen (SARS-CoV) rather than to random bat viruses in a completely different part of the tree. That said, the Embeoviruses (e.g. HKU-1) more often have furin sites and seem to be more often rodent associated. Does make you think about rodent hosts.

[2020-08-29 15:41:02]

[Kristian Andersen]

To me the main interest is that they have a rodent model where SARS-CoV-2 can grow very rapidly. Previously we have talked about "passage in animals" and concluded that that type of work would have required e.g., ferrets, which would have been a lot harder. But having a mouse colony with human ACE2s make large-scale culturing experiments with something like SARS-CoV-2 easy.

But yeah, this type of work was all part of the EgoHealth grant, so no surprises that they had the models. But on the question of "could they have performed large-scale culturing models in animals", where we had previously leaned "very unlikely" that's now "very likely" - having this type of mouse available makes a big difference. Doesn't change anything, but need to keep this in mind.

[2020-08-29 15:45:48]

[Eddie Holmes]

True, but I don't see how a passage in a mouse model would produce a virus so well adapted to humans and with that RBD. Makes no sense to me at all. I'm leaning more toward the idea that it was circulating in humans for a while but was undetected....one lineage then exploded in Wuhan.

[2020-08-29 15:53:23]

[Kristian Andersen]

That's the key here - that mouse model is using the human ACE2 receptor, so it'd be a perfect fit - plus the acquisition of furin sites during rapid passage as we discussed in the paper (as is seen for flu). Can't be dismissed out of hand as what she's saying in her answer that they were doing exactly those types of experiments. Doing that type of work with a novel (bat) CoV would constitute a non-trivial risk for sure - she does not mention whether this is BSL-2 or BSL-3, but likely the former.

But I'm glad you're now leaning towards the "pre-circulation" theory - now we just need to have Andrew come around to that :wink:

[2020-08-29 16:02:43]

[Eddie Holmes]

Fair point about ACE2, but the RBD is very different to SARS-CoV. To me, if the furin cleavage site is active in cell culture then it is also likely to be active in evolution. This also means that she and a lot of people of lying. Why admit to this stuff in interview if something dodgy had happened? Also, there is absolutely NO intelligence and NO chatter about them doing these experiments. People talk about their work and there would be no reason to cover it up then.

[2020-08-29 16:05:36]

[Kristian Andersen]

Yup, totally agree - and this to me really is becoming the strongest argument - if they were fiddling around with SARS2 prior to the pandemic, then surely something would have leaked by now? I mean, we have even had whistleblowers contact us! Yet, nothing - totally zero. I know China has an oppressive regime, but keeping

something like that completely behind closed door just doesn't seem plausible.

It's important to keep in mind that one of our arguments against animal culture just disappeared though.

[2020-08-29 16:08:03]

**[Eddie Holmes]**

Well, we did say 'had not previously been described'. It has now. We were right at the time!

[2020-08-29 16:08:31]

**[Eddie Holmes]**

Daszak would have known and you bet he's had his emails screened.

[2020-08-29 16:09:05]

**[Kristian Andersen]**

Yeah, very true - actually, maybe we should file a FOIA... :wink:

[2020-08-29 17:48:27]

**[Kristian Andersen]**

Okay, so just for the heck of it, I decided to look at some at Baric's mouse adaptation experiments with SARS-1. He grew SARS-1 repeatedly in mice (<https://pubmed.ncbi.nlm.nih.gov/19853271/>) to gain "mouse adapted" variants. Imagine somebody had done the same for SARS-2 - we'd expect to see at least \_some\_ of these mutations fixed in SARS-2, right?

There are 14 "mouse adapted" mutations in SARS-1. If I compare those to residues in SARS-2, 2/14 are the same between the mouse adapted version and SARS-2, \_however\_, in both those cases the residues are identical between SARS-2 and RaTG13, so it's the ancestral state. In other words, there's no evidence at all for mouse adaptation of SARS-2 - and in fact, seeing 0/14 'mouse residues' is pretty darn strong evidence against.

And as a last check, I looked at whether any of these have reverted/mutated during the pandemic - nope.

So we lose one argument, but gain a new one. That's a good day.

[2020-08-29 17:52:11]

**[Kristian Andersen]**

And in case anybody wants to take a look at the alignment, here's the Geneious file - GOF (mouse adapted) variants in the "Sequence variant" track. [shared file(s): Mouse adaptation.geneious]

[2020-08-29 23:57:50]

**[Eddie Holmes]**

Nice work. I was going to suggest posting something like this on Virological, but perhaps it better just to keep it in the back pocket for now?

[2020-08-30 07:20:07]

**[Kristian Andersen]**

Yeah, I suggest we keep chipping away at it. I have gotten a lot of requests for Origins v2.0, so maybe we'd want to consider that in a couple of months...

[2020-08-30 14:19:55]

**[Eddie Holmes]**

In reality, other than twiddling around the edges, there is nothing new much for Origins 2.0. No new viruses of note since March. Lots of theories, but nothing concrete. Definitely need to wait a bit.

[2020-08-30 22:51:01]

**[Eddie Holmes]**

Had to write a reference for someone EgoHealth and I'm amused to see that they have a 'chief of staff':

[2020-08-30 22:51:02]



[Eddie Holmes]

\*Aleksei Chmura, PhD\*  
\_Chief of Staff\_

EcoHealth Alliance

[2020-08-31 14:55:36]

[Robert Garry]

"Bob and I are now officially in the same 'Family' as the Grand Wizard of EgoHealth." This make me more than a "little bit nauseous," but so be it. I'm looking forward to the in-person meetings.

[2020-08-31 22:55:01]

[Kristian Andersen]

Probably the most jarring COVID abstract I have read in a paper I just got for review for Nature Medicine:

\_"Here, from 273 COVID-19 patients, we identified six cases of reinfection based on clinical, phylogenic, virological, serological, and epidemiological data. During the secondary episode, we observed re-emergence of COVID-19 symptoms, new pulmonary lesions on CT images, increased viral load, and secondary humoral immune responses. More importantly, reinfection occurred not only in patients with inadequate or loss of immunity after the primary infection, but also in patients with measurable levels of neutralizing antibodies."\_

I need to look more carefully tomorrow morning, but on first glance the paper looks solid... This would not be good to say the least.

[2020-08-31 23:33:35]

[Andrew Rambaut]

Are the genomes different? Could these be chronic infections?

[2020-08-31 23:35:22]

[Andrew Rambaut]

I guess they are different given '\_phylogenic'.\_

[2020-09-01 07:06:28]

[Kristian Andersen]

Yup, different genomes so not relapse

[2020-09-01 07:14:15]

[Andrew Rambaut]

How are the 273 patients selected. It seems implausible that in most parts of the world 6 out of 273 would even be exposed twice let alone infected.

[2020-09-01 07:18:56]

[Robert Garry]

Yes - jarring if it holds up. Perhaps not surprising - SOME people get colds over and over again [repertoire holes?] and we know immunity to CoVs is rather short-lived at least in some people. I'd really want to see sequence data in both episodes for each patient. Too many people think they had COVID in November to January but really did not. Then there is the whole false-positive PCR thing - so a Ct in the high 30s or 40 might not be real per the NYT a few days ago. Yes - sequence confirmed in the first episode or may not be real. I'm also concerned about the mention of secondary" humoral responses. This is not evidence of reinfection. It seems to me that all of the humoral responses to SARS-CoV-2 appear to be secondary (likely due to previous seasonal exposures). In the COVID patients we've looked at IgG comes up at the same time as IgM and IgA, like a secondary response. Several other papers show the same thing. Also what are the neut titers? If they are low as seems typical they might well not be protective. Also I agree with Andrew - some weird selection bias?

[2020-09-01 07:20:42]

[Andrew Rambaut]

Is the paper pre-printed?

[2020-09-01 07:35:38]

**[Kristian Andersen]**

This is from China, so early in the pandemic - I believe the 273 was patients at that particular location that they could follow up on. They have neut titers in all patients from first and second episodes.

6 out of 273 is indeed very high - I'd say at the upper limit of what you might expect if pretty much everybody were susceptible within a three month period. The paper is preprinted, but I contacted the editor yesterday to see if they want to accelerate - IF the paper is as good as it looks at a first glance. I kinda prefer this isn't preprinted - it needs to be properly reviewed before going out since it'll create an uproar.

[2020-09-01 14:21:12]

**[Eddie Holmes]**

Not entirely unexpected given some of the common cold coronas. The classic literature (by Phil Minor) was suggesting multiple infection episodes within a year.

[2020-09-01 14:36:24]

**[Andrew Rambaut]**

But in this case it smells fishy. I don't believe there was enough SC2 around in Beijing for 6 out of their 273 patients even to have multiple exposures of radically different viruses, let alone actually become infected.

[2020-09-01 14:40:15]

**[Eddie Holmes]**

Perhaps, but the official numbers from China are clearly large underestimates.

[2020-09-01 14:41:56]

**[Andrew Rambaut]**

I agree but even so. One of the 6 is 2 years old.

[2020-09-01 14:42:29]

**[Andrew Rambaut]**

(but I don't know how I know that because I haven't seen the paper)

[2020-09-01 14:42:54]

**[Eddie Holmes]**

Excellent educated guess.

[2020-09-01 14:44:04]

**[Eddie Holmes]**

There are two different things: (i) does the paper show reinfection; (ii) does it give a reliable frequency of reinfection because of sampling biases.

[2020-09-01 14:49:54]

**[Kristian Andersen]**

Trying to get clarity on some of these questions - because both are important. I requested the raw data, so going to take a look at that first in case something got mixed up.

If these six are actual my high risk (e.g. frontline workers assuming they're immune) than I can believe it. But if they're a random sampling, then it looks really unlikely - and yes, there's a baby in there too....

[2020-09-01 14:50:27]

**[Kristian Andersen]**

Or toddler - whatever - little human (I don't know kids...)

[2020-09-02 06:52:22]

**[Robert Garry]**

Agree with all this - yeah fishy - but very troubling especially if the second round was worse than the first in some cases. Obvious huge implications for vaccines (ADE). May need to reprioritize human monoclonals.

[2020-09-06 08:42:16]

**[Robert Garry]**

<https://tulane.edu/covid-19/dashboard> Love it or hate it - I've insisted on a transparent process for the COVID testing program at Tulane and the admin agreed. The university has been "completely open" for classes about two weeks (students started to come on campus August 10. A treasure-trove of data on transmission amongst young nearly all asymptomatic individuals and their aggressively sought out contacts who are placed in quarantine. Interestingly, at least half of the new cases last week showed up in the quarantined students.

[2020-09-06 10:04:39]

**[Andrew Rambaut]**

I am quoted in support of SARS-CoV-2 coming from space:  
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7358766/> !

[2020-09-06 11:12:26]

**[Kristian Andersen]**

The fact that US colleges are still trying to open up - it makes my blood boil as it puts the communities they are in at risk and makes it near impossible to open much more critical things, such as primary school. Do the fucking teaching online - it cannot be done!

Nice quote Andrew - "Don't think any epidemiologist is still thinking that a non-human animal reservoir has had anything to do with the nCoV-2019 epidemic since December. Certainly the genome data doesn't support that." I'm not quite sure that supports their theory though...

[2020-09-06 11:37:08]

**[Andrew Rambaut]**

Well, once you rule out spillover from animals, what do you have left? Oh, OK, sick miners and mislabelled samples and nefarious goings on in labs. But then space would be the next thing on the list.

[2020-09-06 11:39:49]

**[Andrew Rambaut]**

We start start in 2 weeks. Because students are not being forced to be in Edinburgh we have to provide the option to do it entirely online. So everyone I know is going to do it all online. Even if the students are sitting in the dorm room or library or whatever. The teachers will be at home.

[2020-09-06 16:14:47]

**[Robert Garry]**

"blood boil as it puts the communities they are in at risk" - Agree - we'll see - I think you just made a testable hypothesis.

[2020-09-06 16:25:24]

**[Robert Garry]**

yes - great quote! Agree - "space would be the next thing on the list" - what else? Love the fact that the first \*Keyword is:\* Diseases from space... I do think to be even more "convincing" the theory needs to account for "who" is loading these comets with these near perfect pathogens.

[2020-09-06 16:47:10]

**[Eddie Holmes]**

Is this a thing? A journo just sent it to me: [shared file(s): PIIS2211124720311748.pdf]

[2020-09-06 16:57:47]

**[Kristian Andersen]**

Yup, common sneaky anti-virus mechanism - it appears SARS2 might be especially good at doing this.

[2020-09-06 17:01:11]

**[Eddie Holmes]**

What about the natural variant with a longer ORF?

[2020-09-06 17:02:21]

**[Eddie Holmes]**

Do we know how common this? I've not read the paper I should say.

[2020-09-06 17:07:46]

**[Kristian Andersen]**

Yeah, sorry, that I don't know

[2020-09-06 17:10:03]

**[Eddie Holmes]**

No worries.

[2020-09-06 22:59:27]

**[Andrew Rambaut]**

Wins a prize for the most gratuitous use of `quasispecies`: "but also describe the emergence of natural SARS-CoV-2 quasispecies with an extended ORF3b gene that may potentially affect COVID-19 pathogenesis".

[2020-09-07 03:04:32]

**[Eddie Holmes]**

I was trying to get past that. But failing.

[2020-09-07 03:07:43]

**[Andrew Rambaut]**

'natural'

[2020-09-07 08:46:18]

**[Robert Garry]**

Yes - the mechanism seems to be mutation of a "premature" stop codon. However, the issue of insertions and particularly deletions (including deletions near the furin site) is a real thing - becoming a problem with the animal models according to a discussion I was having with respiratory pathogens branch at CDC on Friday - if the stocks are not properly grown [ie by passing a low MOI] the furin site gets screwed and the viruses are no longer pathogenic in animals. Related - worried about ongoing vaccine trials - rumbles are could all be major disasters in progress under the hot spotlights [human and animal versions]. Live challenges (yes - @Kristian Andersen I agree - no placebo) may be they only way out to find vaccines that actually work.

[2020-09-07 08:49:27]

**[Kristian Andersen]**

Trump going to force through an EUA for \_any\_ vaccine by end of October is going to be the biggest - and by far most consequential - mistake America will do when it comes to COVID-19. And there's been plenty of major mistakes along the way...

Not optimistic to say the least.

[2020-09-07 09:05:10]

**[Robert Garry]**

I'm pretty sure he's going to try to do this - esp as the poll numbers either stay the same or more likely move a bit more to Biden/Harris - this is literally who he is and nothing else other than getting re-elected matters in the least - I'm also pretty sure this is going to be a line in the sand for not only the vaccine manufacturers but the FDA, NIH, even the Warp Speed commandos themselves - be ready to speak out.

[2020-09-07 09:13:21]

**[Andrew Rambaut]**

<https://www.nytimes.com/2020/09/04/science/covid-vaccine-pharma-pledge.html>

[2020-09-07 09:21:48]

**[Kristian Andersen]**

Yeah, it's crazy when "Big Pharma" should be the ones we put our trust in and not the (formerly) best protection agency in the world. It's loopy.

While this announcement (if it actually comes out - but I'm sure it will) is good, it still won't prevent him from forcing through an EUA. I'm 99% sure it'll happen - irrespective of all the "checks and balances" in place, including statements from the main vaccine manufactures.

[2020-09-07 09:28:40]

**[Andrew Rambaut]**

It would still require a company to request it surely?

[2020-09-07 09:36:57]

**[Kristian Andersen]**

Yeah, presumably it would require a company to stand behind the submission of all the data - but the trials themselves are not run by the companies and they're not involved in data generation, so I think the EUA could likely be pushed through with everything already available. They can of course refuse to distribute the vaccine, but the crazy thing here is that Trump likely has no or very little interest in actually distributing the vaccine - he just wants it approved and then leave it to others to figure out what to do. The main risk here is that with the EUA, some would demand the vaccine and it'd sideline the clinical trials, causing very significant delays for the development of \_actual\_ safe and efficacious vaccines.

[2020-09-07 11:01:22]

**[Kristian Andersen]**

I assume this has been cleared with Broad Institute's public relations and communications.... :thinking\_face: [shared file(s): EhU-bU6XgAllG\_f.jpeg]

[2020-09-07 11:13:31]

**[Robert Garry]**

Who are these "preeminent" scientists of which they speak? Hoping to see some strong quotes...

[2020-09-07 11:43:24]

**[Kristian Andersen]**

Bob, that's you.

[2020-09-07 14:23:12]

**[Andrew Rambaut]**

Not as wild a theory as asteroids

[2020-09-07 14:23:33]

**[Andrew Rambaut]**

They can quote me on that

[2020-09-07 15:28:44]

**[Eddie Holmes]**

Alina is a fool. Just ignore her.

[2020-09-08 05:05:06]

**[Robert Garry]**

got this unsigned email Hello,

Sorry to disturb you.

Covid put everyone in the world under a serious threat. It's very important to find the origin.

Dr. Kristian G. Andersen published a paper "The proximal origin of SARS-CoV-2" on Nature Medicine 26, 450–452, 2020.

Now, 18 Scientists from a dozen countries speak out their Questions concerning the proximal origin of SARS-CoV-2, on Journal of Medical Virology.

Questions concerning the proximal origin of SARS-CoV-2  
<https://onlinelibrary.wiley.com/doi/epdf/10.1002/jmv.26478>

Also, Dr. Limeng Yan from HKU P3 Lab expressed her claims that Covid is Lab-modified based on a PLA-owned virus ((GeneBank: MG772934.1 & MG772933.1)). She also mentioned that RaTG-13 was a fabricated one, which was used to mislead scientists of the real origin.

<https://youtu.be/qm9XLjlrzXE>

What's your guys' opinion? Thanks

Best Regard,

[2020-09-08 05:06:09]

**[Andrew Rambaut]**

I got this email too.

[2020-09-08 05:09:34]

**[Robert Garry]**

the "paper" is pretty lame...

[2020-09-08 06:54:08]

**[Kristian Andersen]**

Same - and my whole lab got the email as well...

[2020-09-08 08:17:40]

**[Robert Garry]**

At least Deep Throat is staying under his/her rock for the moment. My worry with Alina et al. is for a "Butterfly Effect" whereby the presidential race comes down to a few votes in the Wisconsin, Pennsylvania, Michigan and/or Minnesota and Trump's "leadership" on the origins of the Wuhan Flu origins sways a handful of voters delivering him the Electoral College. If that happens my wife and I will be heading out....

[2020-09-08 13:55:13]

**[Eddie Holmes]**

But I thought we were censoring all these papers? How did this one sneak through? Darn.

[2020-09-09 08:17:51]

**[Robert Garry]**

Attached please find a formal request for retraction of the Nature Medicine article, "The proximal origin of SARS-CoV-2."

Representatives of Nature Medicine, the Springer Group, the authors and their associated institutions, and relevant medical journal affiliates have been copied in this request. To avoid a cascade of confusing replies, BCC has been utilized. Replies to me are welcome, but not required. The retraction request should speak for itself.

Because the article may be tied to USG grants (NIH grant U19AI135995, U19AI135995, U54 HG007480 and U19AI142790), HHS and NIH have been copied to assist with final integrity.

Where no clear ethics boards or oversight boards were available, the leadership teams of respective institutions were selected. A complete list of recipients may be made available upon request.



It is my hope that each of your institutions will see the dilemma and correct the record accordingly.

Most respectfully submitted,

---

\*Xander D. Arena, CNMT(RS)\*

[REDACTED]

[2020-09-09 08:23:16]

**[Andrew Rambaut]**

That is a made up name surely?

[2020-09-09 08:24:57]

**[Andrew Rambaut]**

If we retracted it we might get our number 1 Altmetric rank back?

[2020-09-09 08:35:59]

**[Robert Garry]**

pseudonym - probably

[2020-09-09 08:36:18]

**[Robert Garry]**

but a published author

<https://www.giladorigami.com/origami-database-book/1045/Origami-on-the-Edge-by-Xander-D-Arena>

[2020-09-09 08:38:17]

**[Robert Garry]**

we might get our number 1 Altmetric rank back? - hmmm - something "to consider...

[2020-09-09 08:52:44]

**[Robert Garry]**

"Fortunately," my university is used to crazy people (mostly fueled or actually sent by fake covid survivor Curefinder) sending attack emails my direction. Good thing "Xander" appears not to have a clue about FOIA, actually something that can't be round-filed.

[2020-09-09 09:09:57]

**[Andrew Rambaut]**

Well also he seems to be claiming that (what he says) are flawed arguments is grounds for retraction - these are simply our assertions based on our interpretation of the data. That is simply a case for an academic reply.

[2020-09-09 09:10:54]

**[Andrew Rambaut]**

His Origami book looks cool but I won't be getting it now.

[2020-09-09 09:16:00]

**[Kristian Andersen]**

I'm convinced though [shared file(s): Request for Retraction Figure 1.jpg]

[2020-09-09 09:32:52]

**[Andrew Rambaut]**

"crafted by man using origami"

[2020-09-09 09:39:30]



**[Kristian Andersen]**

I know - it's pretty perfect. Gotta say though - I'd expect more pizzazz from somebody who wrote a book on origami...

[2020-09-09 09:53:18]

**[Kristian Andersen]**

Haven't read it yet: <https://www.bostonmagazine.com/news/2020/09/09/alina-chan-broad-institute-coronavirus/>

[2020-09-09 12:38:42]

**[Kristian Andersen]**

Oh boy, this article reads like a bad case of somebody just discovering evolution for the first time.... It's exceptionally bad - it'll be interesting to see if the Broad will go ahead and simply ignore it.

[2020-09-09 13:24:30]

**[Eddie Holmes]**

Xander's Figure 1 is going straight into my talks.

[2020-09-09 13:27:16]

**[Kristian Andersen]**

I'm not quite sure I understand his figure, but hey - that doesn't seem to matter.

[2020-09-09 13:27:55]

**[Kristian Andersen]**

(as you'll learn from that Boston Mag article - it's really terrible. Worse than I had expected to say the least - but a good waste of 30mins)

[2020-09-09 13:37:43]

**[Eddie Holmes]**

I've not got the energy to read any of this stuff any more.

[2020-09-09 13:40:55]

**[Kristian Andersen]**

This one is kinda cute - "scientist sees evolution in action for the first time and is perplexed by its complexity". Any argument against engineering is shot down as censorship. :thinking\_face:

[2020-09-09 14:17:46]

**[Eddie Holmes]**

Xander's logic, and likely that of Alina, reminds me of this: [https://www.youtube.com/watch?v=yp\\_l5ntikaU](https://www.youtube.com/watch?v=yp_l5ntikaU)

[2020-09-10 04:54:57]

**[Robert Garry]**

<https://www.youtube.com/watch?v=j05Dn00WoC0&feature=youtu.be> - this seems to be where Xander is getting some of his information.

[2020-09-10 06:54:06]

**[Robert Garry]**

As for Alina - 1) shouldn't Eric Lander, who is a very smart person, have a talk with her? and at-risk of channeling Xander 2) seems like the question "science or censorship?" is a false binary.

[2020-09-10 13:44:56]

**[Robert Garry]**

Had a talk with my Dean - Xander gave him a call yesterday...

[2020-09-10 14:07:01]

**[Eddie Holmes]**

Sorry, Xander called your Dean? Seriously?? That's getting close to harassment.

[2020-09-10 15:12:36]

**[Robert Garry]**

Yeah - I didn't want to raise this {at Kristian's urging I'm trying to maintain my mental health}, but I think it's possible Xander got the Dean's direct number from ~Covidfaker~ Curefinder. Not clear how else Xander got directly thru the buffer. Fair has arranged for various types of harassment (and done so directly himself) over the years. His favorite tactic is "complaining" directly to the Tulane Deans, whose private numbers have made it to his "rolladex." As Kristian can attest he's also feed nonsense to several reporters (Todd Frankel at the WashPost being one). Deep Throat, Xander Arena [fake name?], Curefinder among others. In the comic books this is known as a Rogue's Gallery, except in the comic books the rogues are generally more competent.

[2020-09-10 16:19:19]

**[Kristian Andersen]**

That's nuts - I hope your dean told him to fuck off.

The guy contacted Scripps too and our lawyers contacted me so they could "investigate if an investigation is necessary". Our VP told them "It's bullshit, investigation closed". I like how Scripps deals with 'politics'...

[2020-09-10 16:56:30]

**[Eddie Holmes]**

Yes, just found out that he contacted my Head of Department.

[2020-09-10 16:57:05]

**[Eddie Holmes]**

Bob - that's a terrible story! Why is Covidfaker so upset with you?

[2020-09-10 17:25:11]

**[Kristian Andersen]**

Frankie Bollocks really has gone off the deep end..

<https://twitter.com/BallouxFrancois/status/1304087664233152513?s=20>

[2020-09-10 17:26:58]

**[Kristian Andersen]**

Serious question - has he always been such a dick? I only meat him once in person and thought he was douchy, but his Twitter really is next level stuff...

[2020-09-10 17:34:22]

**[Robert Garry]**

It may have started when I asked Tulane to revoke his PhD.

[2020-09-10 17:40:06]

**[Eddie Holmes]**

Yes, that would do it Bob. Nice one though.

[2020-09-10 17:41:23]

**[Eddie Holmes]**

Oh, Xander is on Twitter. I'm just going to block him now for the fun of it:

[https://twitter.com/XanderArena?ref\\_src=twsrc%5Egoogle%7Ctwcamp%5Eserp%7Ctwgr%5Eauthor](https://twitter.com/XanderArena?ref_src=twsrc%5Egoogle%7Ctwcamp%5Eserp%7Ctwgr%5Eauthor)

[2020-09-10 17:48:07]

**[Eddie Holmes]**

Kristian, to your question (so many dicks today): yes, Frankie Bollocks has always been such a dick. He's another one of those people who've descended into Twitter-induced madness. I've stopped looking at Twitter (other than checking out Xander). It's been 2 weeks. I do feel being off it has benefitted my mental health.

[2020-09-10 18:32:20]

**[Kristian Andersen]**

“descended into Twitter-induced madness” - I’m definitely not innocent when it comes to this either and I hate myself a little more after every shitty tweet that I tweet... I sometimes look at my own Twitter feed and roll my eyes :face\_with\_rolling\_eyes:.

Taking a break from it wouldn’t be a bad idea - I find most of my reading via Twitter, but I also end up spending way way too much time reading these days - making me increasingly grumpy :zany\_face:.

[2020-09-10 18:59:45]

**[Eddie Holmes]**

I agree it's useful for reading, but I value my blood pressure more.

[2020-09-11 06:04:25]

**[Robert Garry]**

Kristian knows this - I'm too obsessive [maybe a little too compulsive] to handle twitter. I'll read'em, but participating would soon become all-consuming .

[2020-09-11 20:31:45]

**[Eddie Holmes]**

Is this believable? Best tree scale bar ever. [shared file(s): SSRN-id3680955.pdf]

[2020-09-11 20:40:14]

**[Kristian Andersen]**

Haha, I never noticed the scale bar - that’s awesome!

Yes, I think this one is believable - they clearly don’t know phylogenetics, but they don’t really need to for such a simple analysis.

The Chinese paper I reviewed checks out as well.

[2020-09-11 20:56:20]

**[Eddie Holmes]**

Good, that's what I thought. Superbly crappy tree though.

[2020-09-11 20:57:44]

**[Kristian Andersen]**

Yeah, it’s funny - the writing is super funky too so I think they had to get this one out the door quickly. Let’s hope this case study isn’t representative of what is to come 3-6 months down the line...

[2020-09-11 21:01:50]

**[Eddie Holmes]**

And the preprint looks like a photocopy.

[2020-09-11 22:06:52]

**[Kristian Andersen]**

Eddie, great OpEd - something like that was needed! One thing though:

“The coronavirus’s sluggish pace of mutation is good news for us: A virus that evolved more rapidly would have a greater chance of outrunning any vaccines or drugs developed to counter it.”

I don’t think we can say this for two reasons: (1) there’s currently no vaccine induced selection pressure on the viral population, but lord knows what it’ll do once there is, and, most importantly, (2) what we \_don’t\_ capture via the evolutionary rate estimates is the rather frequent strange recombination events observed in SARS-CoV-2 - all of those are masked out in alignments and phylogenetic analyses, because it’s a different evolutionary process (it’s - very interestingly - driven by the proofreading activity of the virus... go figure). Especially the latter point is important when we think about vaccine escape since big and consequential genomic rearrangements can happen really quickly.

[2020-09-11 22:30:12]

**[Eddie Holmes]**

Logically, I would say that a lower rate of evolution must also reduce the rate of antigenic drift (particularly if a lot of the mutations in SARS-CoV-2 are APOBEC related). But, that said, I agree with your points. What you ought to know is that my original submission looked absolutely \*nothing\* like what I submitted. Nothing. I never had a section on reinfection for a starter. The Editor re-wrote everything. It was torture. Just torture. My original statement on the vaccines said: "SARS-CoV-2 is in the evolutionary slow lane for an RNA virus. This is good news because it means that the virus will find it just a bit harder to 'escape' from any future vaccines or antiviral drugs if and when they are developed". So, not quite the same.

[2020-09-11 22:34:28]

**[Kristian Andersen]**

Well, whatever the editor did the product is still very good :wink:.

That's funny about the reinfection part, because I \_did\_ find that a little out of place - and the concern here isn't as much that people are reinfected with a more dangerous virus, it's just the fact that they're reinfected in the first place... (which, as you - or the editor... - say is what we'd expect - but we don't yet know how frequent reinfections are (on this point, I'm concerned - very. But I'm a pessimist)).

[2020-09-11 22:36:22]

**[Kristian Andersen]**

(and by concerned, I mean that I think after a few months, a good proportion of people are probably going to be susceptible - I wouldn't be surprised if we're at ~50% being susceptible after 6-9 months...)

[2020-09-11 22:37:34]

**[Eddie Holmes]**

Exactly! I didn't want any of that in but she insisted! It was a fight. I added a bit saying that there were too few cases of reinfection to conclude anything but she said it was too vague.

[2020-09-11 22:39:00]

**[Eddie Holmes]**

I had bits about the possible evolution of seasonality and more emerging coronaviruses in the future but they were all axed. It was brutal.

[2020-09-11 22:39:30]

**[Eddie Holmes]**

One for the memoirs anyway.

[2020-09-11 22:40:25]

**[Kristian Andersen]**

Hah - well all that stuff can be used for the next OpEd in 6 months when we have answers to all these various questions! :beer:

[2020-09-11 22:41:42]

**[Eddie Holmes]**

Totally!

[2020-09-12 06:58:41]

**[Robert Garry]**

Great job on the OpEd Eddie - the brilliance shines thru even with a heavy-handed editor.

[2020-09-12 07:15:59]

**[Robert Garry]**

I'm a little more optimistic that immunity, natural or vaccine, will impact the spread of SARS-CoV-2. As Kristian knows [please keep this to the channel] we've found a fairly high level of serorxty to several SARS-CoV-2 proteins, N, S, RDB in Sierra Leonean samples going back several years. Some of the samples neutralize SARS-CoV-2 pseudovirus. Probably a related betacoronavirus, but not a known seasonal CoV [HKU-1 or OC43]. May help

explain (and I can't really fathom a lot of other explanations) why SARS-CoV-2 has not exploded in most of Africa. We're trying to get a dataset to post ASAP on Virological.

[2020-09-12 07:27:46]

**[Robert Garry]**

Unrelated - I'm looking for a good current Nidovirus tree. Fig 7 here seems good but I'm the \*last\* to judge a tree: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6211748/> Other trees I've seen have artiviruses closer to toroviruses, but I think that's not correct. I've been looking at some of the spikes of non-CoV Nidoviruses - many have furin sites - some have YUGE mucin-like domains. S2s are more flu-like (one long helix/leash) than the CoV S2s.

[2020-09-12 07:38:43]

**[Kristian Andersen]**

I'm hopeful vaccines will be able to get us to where we need to be immunity wise, just not so sure about natural immunity and how long-lasting it is - but even if it isn't, there's still no doubt that it's already helping to drive down cases in at-risk areas. Let's see what happens in NYC this late fall / winter...

Looking forward to seeing those cross-reaction results - very interesting!

[2020-09-12 16:31:15]

**[Eddie Holmes]**

I agree Kristian. Open questions.

[2020-09-12 16:35:23]

**[Eddie Holmes]**

Bob - that nidovirus tree does look a little wobbly in places, esp. the long branches to GAV and PSCNV. I'm not sure of the true branching order. We've actually found a whole bunch of fish ronases. Both freshwater and marine. The tree is proving tricky to resolve though: [shared file(s): coronas\_v2\_gblocks\_tree.pdf]

[2020-09-13 05:52:29]

**[Robert Garry]**

THANKS - Fascinating - look forward to the manuscript. Interesting how the fish CoVs seem to my naive eye be in "basal" positions leading to the different genres. Different than the antennaviruses?

[2020-09-13 07:20:35]

**[Robert Garry]**

Just a note - had not seen the "letovirus." Not too deep a dive - a little occupied with Sally - but spike looks like your snake toroviruses [Guangdong red-banded snake torovirus] not as much like the serpentoviruses [love the name].

[2020-09-13 14:43:13]

**[Eddie Holmes]**

Yes, the fish viruses do not look basal but there is no bootstrap support in those parts of the tree and the branches are long so it's all a bit uncertain. Clearly, though, we only have a tiny sample of these viruses from nature. Letovirus was a new one on me as well.

[2020-09-14 05:44:02]

**[Robert Garry]**

"tiny sample of these viruses from nature" Yes - limiting. But, I'm really curious how your snake toroviruses and serpentoviruses (that are pretty potent pathogens) fit into your tree above. Also that cluster with the pacific salmon nidovirus is really interesting. The salmon virus is the only one I found and its spike is very interesting to say the least. Here's what I think is the pacific salmon nidovirus s1/s2 junction: ISEAINKVVEAFSHYS\*RVTR\*TV\*RR\*VITNTISA\*RRRR\*STDYGGGVHSN. Three-ish furin sites surrounded by predicted O-linked glycans.

[2020-09-14 14:46:56]

**[Kristian Andersen]**

[thread - ID: 2020-09-14 14:46:56]

Already getting some attention... The long awaited Yan Report. <https://zenodo.org/record/4028830#.X1922Wj0nIW>

[2020-09-14 14:47:33]

**[Kristian Andersen]**

“If we just ignore all the more recent data, then the data clearly shows this was created in the lab. Sorta”.

[2020-09-14 14:54:48]

**[Kristian Andersen]**

Here's the PDF in case it disappears again... [shared file(s): The\_Yan\_Report.pdf]

[2020-09-14 15:05:34]

**[Eddie Holmes]**

Yes, chatting with Jon Cohen about it now. What total shit.

[2020-09-14 15:07:16]

**[Eddie Holmes]**

The accusations at the end that RmYN02 and the pangolin sequences are fraudulent seems like defamation to me (and I'm on these papers). I'm going to chat the co-authors about whether we want to pursue legal action.

[2020-09-14 15:08:47]

**[Kristian Andersen]**

Yeah, Jon's been emailing - fishing.

[2020-09-14 15:08:56]

**[Kristian Andersen]**

Love this part [shared file(s): Screen Shot 2020-09-14 at 11.31.24 AM.png]

[2020-09-14 15:09:12]

**[Kristian Andersen]**

Citation 17 is “Eddie Holmes’ CV” :wink:

[2020-09-14 15:10:03]

**[Kristian Andersen]**

Proposing that all the bat and pangolin sequences are fraudulent and hence SARS-CoV-2 is a lab construct is - well, absurd. We have people like Alina to thank for this.

[2020-09-14 15:13:18]

**[Eddie Holmes]**

Ugh. I had better call the University lawyers this morning.

[2020-09-14 15:46:01]

**[Kristian Andersen]**

Worth pointing out that “Rule of Law Foundation” and “Rule of Law Society” can be found here: <https://rolsociety.org/en/> and <https://rolfoundation.org/>.

Worth clicking through and looking at the photos...

[2020-09-14 15:48:57]

**[Eddie Holmes]**

Brilliant! Totally independent then.

[2020-09-14 15:49:31]

**[Kristian Andersen]**

Totally.

[btw, this could get ugly, so we might need to respond at some point - but let's see what happens]

[2020-09-14 15:52:03]

**[Eddie Holmes]**

As I said, I will be contacting the lawyers this morning about the parts that relate to me. I don't think we need to necessarily respond as a group. I've had enough though.

[2020-09-14 16:27:18]

**[Robert Garry]**

[https://www.huffingtonpost.it/entry/e-possibile-creare-un-virus-in-laboratorio-senza-lasciare-traccia-la-risposta-dellesperto\\_it\\_5f5f3993c5b62874bc1f7339](https://www.huffingtonpost.it/entry/e-possibile-creare-un-virus-in-laboratorio-senza-lasciare-traccia-la-risposta-dellesperto_it_5f5f3993c5b62874bc1f7339) "So you rule out that SARS-CoV-2 is a laboratory chimera? we ask him. "Not with the viruses that have been sequenced and reported to date." Are the databases public? "Yes, the sequences can be downloaded. But then, I can't know if the researchers publish every single sequence. How could I know? There are millions of virus sequences..." New interview of Baric - in Italian.

[2020-09-14 16:28:43]

**[Robert Garry]**

Making the rounds on the conservative underground...

[2020-09-14 16:30:48]

**[Robert Garry]**

"We have people like Alina to thank for this." Perhaps Deep Throat himself as well...

[2020-09-14 16:30:59]

**[Kristian Andersen]**

Interesting - does Deep Throat know something we don't? The guy has attacked me multiple times for even suggesting that we needed to consider a potential lab connection.

[2020-09-14 16:54:01]

**[Robert Garry]**

Precisely - DT does not believe that we noncoronavirologists should have the audacity to suggest anything.

[2020-09-14 17:04:56]

**[Robert Garry]**

I wonder if Jon Cohen knows about the connection of the Yan Report to Steve Bannon?  
<https://nypost.com/2020/08/20/steve-bannon-was-arrested-on-chinese-billionaires-28m-yacht/>

[2020-09-14 17:13:14]

**[Eddie Holmes]**

The key question now is who is going to play us in the movie? Matt Lucas is up for me.

[2020-09-14 17:51:47]

**[Kristian Andersen]**

Oh, Guo Wengui's boat... Interesting find Bob. Gotta say - the connection here is a little too easy to find, so I'm surprised she used those affiliations. This should be red meat for Jon!

[2020-09-14 17:54:13]

**[Kristian Andersen]**

I don't know Eddie... [shared file(s): image.png]

[2020-09-14 17:54:55]

**[Kristian Andersen]**

[I just googled Matt Lucas and I'm dying.... :dizzy\_face:]

[2020-09-14 17:59:12]

**[Kristian Andersen]**

shared file(s): Screen Shot 2020-09-14 at 5.56.39 PM.png

[2020-09-14 18:03:18]



**[Eddie Holmes]**

Bringing Matt Lucas and Chris Hemsworth together in a movie would be brave choice, but one that I think is artistically justified.

[2020-09-14 20:53:56]

**[Kristian Andersen]**

I can confirm that the report is now making the rounds in the upper echelons - how fun. @Robert Garry - let us know if you hear anything from the State Department...

Worth reading the paper a couple of times to be able to respond to offhanded questions should they come up - I suspect they will, but I have no interest going through additional rounds on this BS.

[2020-09-14 21:23:07]

**[Eddie Holmes]**

I passed it onto the Govt. officials here. I'm not going to read it. We simply published a paper on the subject. We are not involved in any of the stuff in China.

[2020-09-14 21:33:39]

**[Kristian Andersen]**

We got Bob sorted out as well [shared file(s): Screen Shot 2020-09-14 at 9.33.11 PM.png]

[2020-09-14 22:54:35]

**[Andrew Rambaut]**

*[thread - ID: 2020-09-14 14:46:56]*

Can someone fill me in - what is the 'Yan Report' and why is it being given consideration?

[2020-09-14 22:57:40]

**[Kristian Andersen]**

*[thread - ID: 2020-09-14 14:46:56]*

@Kristian Andersen She's the scientist who's been making the round on Fox News (and other conservative media) for months alleging that SARS-CoV-2 came from the lab. She's got decent credentials, so the right is listening.

This is her report... Cherry picking and ignoring all recent data.

[2020-09-14 22:59:37]

**[Andrew Rambaut]**

And they say that 'ZC45' is the progenitor. Nuts.

[2020-09-14 23:01:40]

**[Kristian Andersen]**

They say a lot of things... But yeah, ZC45 was the template... (they might want to look at the alignment again...)

[2020-09-14 23:03:32]

**[Andrew Rambaut]**

3690 nucleotide differences between ZC45 and SC2. That is a lot of engineering.

[2020-09-14 23:05:22]

**[Kristian Andersen]**

"Accelerated evolution", of course.

They completely ignore the new pangolin and bat CoVs (since they're fake). If they had included them, all their arguments go away.

[2020-09-14 23:08:45]

**[Andrew Rambaut]**

I wonder what Jon's angle is then? He emailed me but with nothing but the 'report' in the email.

[2020-09-14 23:10:04]

**[Kristian Andersen]**

Same here - I'm not sure what his angle is either, but sounds like Eddie talked to him.

[2020-09-14 23:31:05]

**[Andrew Rambaut]**

I just replied to say 3690 nucleotide differences.

[2020-09-14 23:31:21]

**[Eddie Holmes]**

I was just about ask about how many nt differences there were between ZC45 and SC2. Thanks for that. I think Jon thinks it's shite. He noted all the ifs, buts and maybes. And the smoking gun in underlined bold font.

[2020-09-14 23:31:52]

**[Eddie Holmes]**

I think they used the conspiracy theory template in Word.

[2020-09-14 23:32:37]

**[Kristian Andersen]**

That smoking gun is present in RaTG13 as well... So hardly a smoking gun - it's a conserved sequence

[2020-09-14 23:32:57]

**[Andrew Rambaut]**

It is funny that they have killed RaTG13 as evidence so now have to find something else.

[2020-09-14 23:33:03]

**[Kristian Andersen]**

[Trust me - I looked for these. Hard :wink: ]

[2020-09-14 23:33:33]

**[Kristian Andersen]**

Yeah - it's remarkable how they dismiss all the new sequences - because they're fake. We have idiots like Alina to thank for that.

[2020-09-14 23:33:59]

**[Eddie Holmes]**

Now, you see I thought that the conspiracy theory was manipulation from RaTG13 itself from miners? It's just SO hard to keep up!

[2020-09-14 23:34:37]

**[Kristian Andersen]**

Oh, yes - of course. Followed by accelerated evolution in lungs to create SARS2

[2020-09-14 23:35:01]

**[Kristian Andersen]**

Where it's been hiding out since that mine thingie, I'm not sure - but probably a freezer or something.

[2020-09-14 23:35:13]

**[Eddie Holmes]**

Does this mean that these conspiracy theorists think the other conspiracy theorists are conspiracy theorists for suggesting that RaTG13 is real? I need to know.

[2020-09-14 23:35:41]

**[Kristian Andersen]**

Nah, that's just a conspiracy theory.

[2020-09-14 23:36:42]

**[Andrew Rambaut]**

Just saw this -

```In fact, a Chinese BSL-3 lab (the Shanghai Public Health Clinical Centre), which published a Nature article reporting a conflicting close phylogenetic relationship between SARS- 35 36 CoV-2 and ZC45/ZXC21 rather than with RaTG13 , was quickly shut down for "rectification" . It is believed that the researchers of that laboratory were being punished for having disclosed the SARS-CoV-2—ZC45/ZXC21 connection.``

They don't notice that that you are on that paper, Eddie?

[2020-09-14 23:37:57]

[Eddie Holmes]

So, am I in the conspiracy or not?

[2020-09-14 23:38:55]

[Eddie Holmes]

The rectification was for publishing the sequence, not the link to ZC45.

[2020-09-14 23:40:00]

[Kristian Andersen]

Well, they do cite your CV, so there's that.

[2020-09-14 23:40:20]

[Eddie Holmes]

Do I get a citation?

[2020-09-14 23:40:29]

[Kristian Andersen]

Oh yes

[2020-09-14 23:40:42]

[Eddie Holmes]

I'm all for it then.

[2020-09-14 23:41:07]

[Andrew Rambaut]

Ooh. Just saw this bit:

```Since many phylogenetic analyses categorize coronaviruses based on the sequence similarity of the RdRp gene only SARS-CoV-2 and ZC45/ZXC21 are separated into different groups/sub-lineages in phylogenetic studies.``

So they are saying 'they' used RdRp from a different virus to confuse phylogenetics!

[2020-09-14 23:41:16]

**[Kristian Andersen]**

shared file(s): Screen Shot 2020-09-14 at 11.40.57 PM.png

[2020-09-14 23:41:43]

**[Andrew Rambaut]**

Then they constructed RaTG13 with that RdRp as well to act as a decoy.

[2020-09-14 23:41:47]

**[Eddie Holmes]**

Fuck, that's cunning.

[2020-09-14 23:41:56]

**[Andrew Rambaut]**

But forgot to put the RBD or furin site in.

[2020-09-14 23:42:19]

**[Eddie Holmes]**

It was a busy day - they had the lab to bleach.

[2020-09-14 23:42:44]

**[Kristian Andersen]**

They put a restriction site INSIDE the furin site so they can follow the viruses over time - it's all very clever.

[2020-09-14 23:43:35]

**[Andrew Rambaut]**

I wonder if they encoded any secret messages in the synonymous codon usage?

[2020-09-14 23:44:06]

**[Andrew Rambaut]**

"made in China"

[2020-09-14 23:44:16]

**[Kristian Andersen]**

Ohhhh - maybe they put "Eddie Holmes" in there

[2020-09-14 23:44:50]

**[Kristian Andersen]**

Now THAT'D be a smoking gun. Actually - we might want to scan to see if there's a "Made in USA" in there - that seems more likely.

[2020-09-14 23:45:55]

**[Eddie Holmes]**

Made in China would be perfect. Then they'd be moaning about all the cheap foreign imports.

[2020-09-14 23:47:45]

**[Eddie Holmes]**

'Kung flu. Patent pending'.

[2020-09-15 00:51:06]

**[Eddie Holmes]**

Seriously, I think Jon Cohen might write something - he seemed impressed with the Bannon link - so it would be worth emailing him some of these comments about why these paper is shite.

[2020-09-15 04:22:11]

**[Andrew Rambaut]**

Fake picture? Good though

<https://twitter.com/CelerySorbet/status/1305788210413318146?s=20>

[2020-09-15 04:22:43]

**[Andrew Rambaut]**

Has everything...

[2020-09-15 05:03:28]

**[Andrew Rambaut]**

Another one...

<https://twitter.com/BojoBodean/status/1305758556923351040?s=20>

[2020-09-15 05:40:52]

**[Andrew Rambaut]**

I just sent Jon, Carl's twitter thread:

[https://twitter.com/CT\\_Bergstrom/status/1305743494913245184?s=20](https://twitter.com/CT_Bergstrom/status/1305743494913245184?s=20)

Everything you need to know about this shit report.

[2020-09-15 06:49:11]

**[Robert Garry]**

There is more:

<https://www.buzzfeednews.com/article/janelytvynenko/a-site-tied-to-steve-bannon-is-writing-fake-news-about-the>

[2020-09-15 07:01:51]

**[Robert Garry]**

Must see: <https://www.youtube.com/watch?v=mVrCRm-KXvE>

[2020-09-15 07:07:09]

**[Robert Garry]**

The video is incredible - mentions Dr Yan aka Captain Marvel. The Yan Report has been a WiP since February....

[2020-09-15 07:33:33]

**[Robert Garry]**

Gao - this won't be surprising - is a frequent visitor to Trump's Mar-a-Lago

<https://www.miamiherald.com/news/nation-world/national/article245132400.html>

[2020-09-15 07:37:06]

**[Kristian Andersen]**

This is getting more bizarre by the minute...

[2020-09-15 07:39:28]

**[Andrew Rambaut]**

Yes. Had some press enquiries (through the Science Media Centre) - I have just pointed out this Bannon stuff and can let them work out where they want to go with it.

[2020-09-15 07:44:24]

**[Kristian Andersen]**

I like to add in a "they ignore all recent data, which disproves all their main analyses". It'll be interesting to see where this goes - I hope Jon writes about since this is right down his alley.

[2020-09-15 08:44:48]

**[Robert Garry]**

Yan>>>Poon <https://gnews.org/262859/>

[2020-09-15 12:30:41]

**[Robert Garry]**

How does exile Gao end up with a \$23M dollar boat? How does Yan exile herself from HKU and find what's probably a pretty lucrative gig with Gao/Fox News? So much dirty money flowing at least some of it thru Mar-a-Lago.

[2020-09-15 13:52:06]

**[Kristian Andersen]**

Yup. This is pretty next-level shit - might sit this one out.

[2020-09-15 13:57:28]

**[Andrew Rambaut]**

Staying well clear of this one. The Bannon connection is enough to destroy its credibility (and probably any lingering credibility this stuff had more generally). Basically Alina is going to have to make a decision as to whether she wants to be associated with these people now.

[2020-09-15 14:01:19]

**[Eddie Holmes]**

Totally agree. The Bannon thing couldn't be better....puts a bomb under all the conspiracy theorists. We can just watch the fall-out from a safe distance.

[2020-09-15 14:18:50]

**[Kristian Andersen]**

Yup - and not to mention - with this level of involvement, this is getting dangerous too. Not going down that path - enough grey hairs and troubled wife already.

Alina has been remarkably quiet... Maybe it's dawning on her that she's an idiot.

[2020-09-15 14:35:15]

**[Robert Garry]**

This has been next-level from the beginning [Anna's instincts are correct]. Hasn't really changed. It's just that Proximal Origins knocked the conspiracy theorists off their rails. Now we know the names of some of the drivers of the news cycles, who obviously have deep roots. Kristian's twitter on this is very interesting. Yan has a lot of supporters. Yes Alina is an idiot, but the worst kind - a useful one to those with an agenda. Bannon is hero to many on the right. The China virus meme is a big part of Trump's re-election scam. Yan's paper is so full of shit - a Rube Goldberg scheme where the marble falls off the rail at the first turn - , but there are not that many of us that can debunk the shit.

[2020-09-15 14:39:53]

**[Robert Garry]**

Hopefully, the right journo's tear into the whole Bannon thing. Definitely we should stay in the science lane and not comment about the politics. Watching it from afar will be entertaining.

[2020-09-15 14:50:56]

**[Eddie Holmes]**

Wise words Bob. I was thinking of reminding Alina that Inspector Clouseau was also a detective.

[2020-09-15 15:07:46]

**[Eddie Holmes]**

More wise words from Jon Cohen:

[2020-09-15 15:07:56]

**[Eddie Holmes]**

"They have perfected the art of baffling with bullshit, dressing up arguments in technical language that you can decipher but is indecipherable to people outside of the field. Leaving aside their peculiar motivations, they waste our time".

[2020-09-15 15:09:56]

**[Kristian Andersen]**

Very wise words

[2020-09-15 15:10:03]

**[Andrew Rambaut]**

That is exactly it. It is so tiring.

[2020-09-15 15:10:05]

**[Kristian Andersen]**

And tragically true

[2020-09-15 17:38:11]

**[Kristian Andersen]**

Hah. <https://twitter.com/Ayjchan/status/1305959113537581059?s=20>

[2020-09-15 17:48:55]

**[Eddie Holmes]**

Well, well, well. Has Inspector Clouseau seen the light?

[2020-09-15 17:49:32]

**[Kristian Andersen]**

I doubt it - but she's likely seeing some of her mistakes...

[2020-09-15 17:50:21]

**[Kristian Andersen]**

I'm getting so many fucking questions about this shit - from journalists, colleagues, etc. I'm going to do a short Twitter thread on the main scientific claims and turn off comments - then that'll be all I have to say on the matter, book closed.

[2020-09-15 17:52:37]

**[Eddie Holmes]**

Seems wise. You could mention that the Wu et al. Nature paper was submitted before anyone had heard about RaTG13 so it could never have been included in that study anyway.

[2020-09-15 17:53:23]

**[Eddie Holmes]**

You might mention what a monumental waste of everyone's time this is.

[2020-09-15 17:53:27]

**[Kristian Andersen]**

I'm not even going to go there - I have no concerns about the bat or pangolin data so simply ignoring all of that is just dumb (well, that data invalidates their findings, so of course, I get it).

[2020-09-15 17:53:48]

**[Eddie Holmes]**

More than dumb: dishonest.

[2020-09-15 17:56:28]

**[Kristian Andersen]**

I wonder what Bannon promised her (and honestly - I'm a little surprised by how extremely obvious the connection is here - it took me a five second google search to figure it out... At least hide that part somewhat)

[2020-09-15 17:58:25]

**[Eddie Holmes]**

It has played into our hands beautifully

[2020-09-15 18:06:57]

**[Eddie Holmes]**

Amusing that Inspector Clouseau still finds time to moan about the Proximal Origins paper even though it seems we were right all along?

[2020-09-15 18:26:54]

**[Eddie Holmes]**

Enjoyed the thread.

[2020-09-15 18:41:16]

**[Kristian Andersen]**

There will be no further comments. Promise...

[2020-09-15 19:06:39]



**[Eddie Holmes]**

I thought had better chime in with my non conflicts of interest though...

[2020-09-15 19:25:44]

**[Kristian Andersen]**

Yeah, sorry - my usage of "we" was confusing referring to my lab (where I always say "our lab" and "we"... ) and not necessarily the Proximal authors. Having collaborations with China clearly isn't a conflict either - and as you said, is a good thing ffs!

[2020-09-15 23:46:23]

**[Andrew Rambaut]**

Ebright is squirming too.

[2020-09-16 02:15:54]

**[Eddie Holmes]**

I'm not I can stand to look at him...

[2020-09-16 05:23:06]

**[Robert Garry]**

Well done gentlemen. I do hope Cohen or another credible journalist does the deep dive and publishes the truth. Yan, Alina, Ebright, Baric, Xander, the guy from Pitt have all been "co-opted" by Bannon/Gao [still can't get over the Captain Marvel video] to aid Trump's re-election.

[2020-09-16 05:35:08]

**[Robert Garry]**

<https://www.thedailybeast.com/steve-bannon-linked-groups-push-study-claiming-china-manufactured-covid?ref=scroll> - it's a start, but a note to Angie that furin sites are not YET found in other bat-CoVs.

[2020-09-16 06:53:50]

**[Robert Garry]**

Dr Yan [Captain Marvel] last night on the most watched show on US Cable TV: <https://www.bing.com/videos/search?q=carlson+dr.+yan+youtube&docid=13822525050847&mid=416167E02C98435F55DD416167E02C98435F55DD&view=detail&FORM=VIRE>

[2020-09-16 07:02:57]

**[Robert Garry]**

Interesting to note [no sexism intended, NBC did the same with Covidfaker]: Dr Yan's make-up, new glasses and wardrobe all with significant upgrades from her earlier Fox appearances. The media training also evident. Make no mistake this is a well-orchestrated campaign to legitimize the Kung Flu nonsense coming out of the current Administration.

[2020-09-16 07:27:03]

**[Kristian Andersen]**

Unreal...

I \_suspect\_ this might backfire - but we'll see.

[2020-09-16 07:47:00]

**[Robert Garry]**

Trump is confident in his base - nothing is going to shake that 43-46% of the US voting population. What this is intended to do is to peel off a few percent of the Biden supporters so that the massive electoral college bias hands him the election [see 2016].

[2020-09-16 07:59:22]

**[Robert Garry]**

Proximal Origins clearly in the sights of the Trump re-election effort. Here's batshit crazy Michael Caputo - before Twitter took down his account - who Trump tasked with blocking Fauci (he failed) and fact-checking MMWR. [shared file(s): image.png]

[2020-09-16 08:05:53]

**[Kristian Andersen]**

Batshit crazy - absolutely. It's kinda funny that the PR director had to get off Twitter because he had a PR crisis... What an arse.

[2020-09-16 08:57:46]

**[Robert Garry]**

Captain Marvel gets Twitter account suspended as well -

<https://meaww.com/who-is-dr-li-meng-yan-twitter-account-suspended-covid-19-man-made-internet-reactions>

[2020-09-16 12:08:42]

**[Andrew Rambaut]**

Franky B at it again: <https://twitter.com/ballouxfrancois/status/1306282179685646337> - good kicking from Emma.

[2020-09-16 12:56:02]

**[Kristian Andersen]**

OMFG - how can this guy still be employed? He's gotta go.

I'm surprised he didn't call Emma a "little girl"... She'd fucking skewer him in a debate - I'd love to watch that.

[2020-09-16 13:58:29]

**[Eddie Holmes]**

I was chatting with Leo Poon about this yesterday. He's mortified that this is his postdoc. She has no inside knowledge of what could have happened in Wuhan as she was based at HKU.

[2020-09-16 13:59:30]

**[Eddie Holmes]**

It does look she's been weaponised though.

[2020-09-16 14:01:01]

**[Andrew Rambaut]**

*[thread - ID: 2020-09-16 14:01:01]*

Dear Christopher Barnes II,  
No.

[2020-09-16 14:02:54]

**[Eddie Holmes]**

Wow. I think that's the most concepts I seen in single paragraph.

[2020-09-16 14:09:23]

**[Eddie Holmes]**

Can I call my memoirs "Donald Trump: My Part in this Downfall"?

[2020-09-16 14:27:58]

**[Andrew Rambaut]**

Lets hope so

[2020-09-16 14:46:47]

**[Robert Garry]**

"I was chatting with Leo Poon about this yesterday. He's mortified that this is his postdoc." Believe me I feel his pain.

[2020-09-16 15:05:31]

**[Eddie Holmes]**

Can you imagine?

[2020-09-16 15:19:00]

**[Kristian Andersen]**

[thread - ID: 2020-09-16 14:01:01]

@Andrew Rambaut This is AMAZING... Haha

[2020-09-16 15:42:47]

**[Andrew Rambaut]**

[thread - ID: 2020-09-16 14:01:01]

He has just sent me a zip file of his medical records. I am not going to open it.

[2020-09-16 15:43:08]

**[Andrew Rambaut]**

[thread - ID: 2020-09-16 14:01:01]

@Andrew Rambaut Happy to share here if anyone wants them.

[2020-09-16 15:44:27]

**[Kristian Andersen]**

[thread - ID: 2020-09-16 14:01:01]

@Andrew Rambaut We're happy letting you handle it.

I suspect stool samples may be coming next - from his three year old diarrhea.

[2020-09-16 16:21:32]

**[Robert Garry]**

The dude rented an island. Maybe he knows Gao and Bannon? On the other hand this could be an opportunity for the right person [not me]. Ian is good at procuring donations from rich folk - and this is right up his [new] alley, long-haul COVID [which may be a real thing - just not in the people that test negative].

[2020-09-16 16:24:40]

**[Andrew Rambaut]**

Ian. Good plan. Will pass him on and if it pays off, ask for a finders fee.

[2020-09-16 17:06:24]

**[Kristian Andersen]**

@Robert Garry - I have NO idea how you found that Captain Marvel YouTube video, but I finally watched it... Hoooooooooooooly shit - that is some bizarre sketch comedy right there. Andrew/Eddie, make sure you watch it too if you haven't already - it's hilarious. <https://www.youtube.com/watch?v=mVrCRm-KXvE>

[2020-09-16 17:12:27]

**[Kristian Andersen]**

It's comforting to know that the completely stoned out guy has the highest level of clearance in the country - one step away from the nuclear codes.

[2020-09-16 17:13:00]

**[Eddie Holmes]**

I've watched it a few times. So good. Two pissed blokes in front of a camera.

[2020-09-16 17:18:12]

**[Kristian Andersen]**

It's incredible - 0:21s is one for the history books. Completely hammered/stoned out of his mind.

[2020-09-16 18:31:04]

**[Robert Garry]**

Alina is tweeting up storm on Yan in real time....

[2020-09-16 18:43:12]

**[Eddie Holmes]**

Just digging the hole bigger and bigger

[2020-09-16 18:45:10]

**[Eddie Holmes]**

Although I really doubt that many people are viewing this stuff.

[2020-09-16 19:44:47]

**[Eddie Holmes]**

This does seem a little incestuous: <https://www.telegraph.co.uk/global-health/science-and-disease/scientists-examine-possibility-covid-leaked-lab-part-investigation/>

[2020-09-16 19:46:45]

**[Kristian Andersen]**

Yeah, having the Grand Wizard of EgoHealth lead that investigation is ridiculous - if there's any connection to the lab, Pete would be implicated (and probably already know about it).

[2020-09-16 19:49:59]

**[Eddie Holmes]**

Will only add fuel to the conspiracy theories. REALLY DUMB!

[2020-09-16 19:50:41]

**[Kristian Andersen]**

Yeah, that really doesn't make any sense - that's fishy as hell

[2020-09-16 19:54:36]

**[Eddie Holmes]**

I've no idea what they were thinking. Plus, he's not the best person to do it scientifically.

[2020-09-16 19:56:21]

**[Kristian Andersen]**

Yeah, really seems dumb - definitely not the right person to do this no matter what.

[2020-09-16 20:03:36]

**[Eddie Holmes]**

Daszak even says that the conspiracy theorists won't be happy....I agree, but by calling them 'conspiracy theorists' he automatically undermines his claim to be going into the investigation with an 'open mind'.

[2020-09-16 20:11:05]

**[Eddie Holmes]**

Stupid own goal.

[2020-09-16 20:14:46]

**[Kristian Andersen]**

We had our kick-off meeting with this new NIH CREID network today, which Peter is part of. I couldn't help but reference our 2018 Nature commentary right after his talk... He spend a lot of time saying how we'll "predict and prevent the next pandemic", I basically said "let's get real". He's so full of himself.

[2020-09-16 20:15:40]

**[Kristian Andersen]**

shared file(s): Screen Shot 2020-09-16 at 8.15.20 PM.png

[2020-09-16 20:15:53]

**[Kristian Andersen]**

:hankey:

[2020-09-16 20:15:57]

**[Eddie Holmes]**

There was a story about the GVP in The Guardian as well: [https://www.theguardian.com/global-development/2020/sep/16/how-to-predict-a-pandemic-worlds-most-dangerous-viruses?CMP=share\\_btn\\_tw](https://www.theguardian.com/global-development/2020/sep/16/how-to-predict-a-pandemic-worlds-most-dangerous-viruses?CMP=share_btn_tw)

[2020-09-16 20:16:21]

**[Eddie Holmes]**

Good for you!

[2020-09-16 20:17:06]

**[Kristian Andersen]**

“\*‘Why wait for it?’ How to predict a pandemic’\*”

Sounds so simple...

[2020-09-16 20:18:22]

**[Eddie Holmes]**

They don't say 'how' at all: "It has accurately predicted where the last three outbreaks would emerge, though not their timing". Err, not a prediction then.

[2020-09-16 20:19:57]

**[Eddie Holmes]**

“Pandemics are like terrorist attacks,” he says. “We know roughly where they originate and what’s responsible for them, but we don’t know exactly when the next one will happen. They need to be handled the same way – by identifying all possible sources and dismantling those before the next pandemic strikes.” Yes, waterboard as many bats as possible.

[2020-09-16 20:21:26]

**[Kristian Andersen]**

Haha, fuck yeah!

[2020-09-17 05:34:19]

**[Robert Garry]**

The Lancet investigation appears to have been born in the greenroom of MSNBC where Daszak and Sachs have been guests (both in NYC so convenient). It would not surprise me if the Deep Throat team hasn't been lobbying Richard Horton for this as well since the ignorant noncoronavirologists probably left stones unturned and lack credibility.

[2020-09-17 05:44:03]

**[Robert Garry]**

As for GVP - I noticed that the price tag has drifted to \$4B. :exploding\_head: K -Good job at CREID with the slide - not lost on the Grand Wizard - The GVP congame and scam is not going to go away easily and all it will do is draw money from long-term processes, like CREID, that will work or at least help.

[2020-09-17 06:08:22]

**[Robert Garry]**

As for the Fucking weather analogy it's false. In fact the weather analogy fits much more to your Nature response to GVP. What really happens is that you detect "outbreaks" of weather systems first [you can see some of these on the attached map] then you can track and predict where they go and when they go. I just wasted 2 days prepping for Sally that for days was said to be heading straight to NOLA and ended up 200 miles to the east - Katrina was going to Pensacola, FL as a Tropical Storm - wrong- the predictions are not perfect. [shared file(s): image.png]

[2020-09-17 06:43:47]

**[Andrew Rambaut]**

Just had the following email. It seems reasonable to get to the bottom of what is up with RaTG13 (I imagine it was sloppy work under extreme pressure). Obviously RaTG13 isn't the whole story and the nutters' obsession with it is misplaced (the existence of the pangolins and RmYN02 tell you almost as much).

```Dear Andrew,

I was recently contacted by a national fact-checking body, run by Norwegian media outlets. The topic was the conspiracy surrounding an alleged release of sars-cov-2 from a Chinese lab. They pointed me to this so-called Yan-report, detailing how sars-cov-2 could possibly have been generated by functional genetics.

The "Yan-report" seems obsessed with RaTG13, and cite a number of preprints (most crap, but some less so) questioning the veracity of the sequence. As RaTG13 is kind of central in arguments re the origin of sars-cov-2, I wanted to have a quick look at the sequence data.

I am looking at this now together with my colleague Ola Brynildsrud, and so far, we have not been able to re-create the RaTG13 genome in GenBank from the published metagenome fastqs and sanger amplicons published with the RaTG13 genome:

paper:

<https://www.nature.com/articles/s41586-020-2012-7>

sequence data:

https://www.ncbi.nlm.nih.gov/Traces/study/?acc=SRP249482&o=acc_s%3Aa

I wanted to check whether any of you proper Covid people have looked into this dataset, or simply used the published GenBank sequence. The best would probably be to post the question on virological, but I don't have a user there.

It might well be that the authors have been sloppy in uploading all their raw sequence data, but as said, the published raw data does not seem to be enough to generate the RaTG13 assembly, not even when we have said assembly to align reads against. But we're still working on this.

Kind regards,

Vegard Eldholm

Norwegian Institute of Public Health```

I don't know how much further you want to get into this @Kristian Andersen but I think he is going to email you.

[2020-09-17 06:44:43]

[Andrew Rambaut]

(I just don't know enough about sequencing bioinformatics and genome assembly to look at this).

[2020-09-17 06:57:03]

[Kristian Andersen]

I might take a look at the sequence data - overall, I have no concerns though given that this is how sequencing of low-coverage genomes often occurs. Patchwork....

[2020-09-17 07:01:42]

[Andrew Rambaut]

I guess the question is has there been any 'imputation'? From the above it would seem they can't even get the consensus when they map to the actual consensus?

[2020-09-17 07:03:04]

[Andrew Rambaut]

It would also matter which bits are low coverage. I would prefer to move on but it would be good to be armed with the knowledge - who knows where this will go next.

[2020-09-17 07:10:39]

[Kristian Andersen]

I suspect the data is scattered across repos

[2020-09-17 08:07:54]

[Robert Garry]

I agree with Andrew that the main point is that our analysis would not have changed much at all without RaTG13. The pangolin CoVs (that Alina seems focused on) and other BtCoVs were sufficient for the Proximal Origins analysis. I do recall a PR that talked of a 99% CoV that unfortunately never came.

[2020-09-17 08:13:32]

[Andrew Rambaut]

> Update from Vegard:

```Quick update: We were in the end able to obtain a decent assembly of RaTG13. The description of their approach is lacking to say the least, but the genome seems legit enough, and seems extremely unlikely to involve any sort of fraud.

We'll post a little commenn on virological, as there might be others looking into the same question.``

[2020-09-17 08:14:59]

**[Kristian Andersen]**

Hah - I'm glad they're so thorough before bugging other scientists...

I'm downloading the raw data now - lemme have a quick look

[2020-09-17 09:05:52]

**[Kristian Andersen]**

Yeah, no concerns really @Andrew Rambaut [shared file(s): RaTG13.jpg]

[2020-09-17 09:06:11]

**[Kristian Andersen]**

Very few unresolved bases (a handful)

[2020-09-17 09:09:16]

**[Robert Garry]**

Good to see - Is there an analysis of the pango data? That seems to be a sticking point as well.

[2020-09-17 09:13:15]

**[Robert Garry]**

"who knows where this will go next" --- not going away anytime soon - too important for the Presidential election - thanks for the rapid science response to Yan. Tucker/Yan now playing the censorship/victim card since Twitter suspended/flagged their accounts. Reminds me of the Grand Wizard - getting his NIH grant suspended was probably the best thing that ever happened to him.

[2020-09-17 09:24:17]

**[Kristian Andersen]**

I haven't looked at the pangolin data - I'm not quite sure where the raw data is since I believe it was all uploaded to the Chinese data portals. Might be good to do an independent review though - just so we have it. @Eddie Holmes - do you know where the relevant raw data live?

[2020-09-17 14:05:35]

**[Eddie Holmes]**

No, the pango data is elsewhere. Just look in Tommy's paper. It was RmYN02 that went to the Chinese databases. Let me make this very clear: the Guangdong pangolin viruses have been sequenced multiple times by multiple groups. They have also been Sanger sequenced. Plus there are Pangolins from Guangxi that have been sequenced. There is nothing wrong with the pangolin sequences. Inspector Clouseau's argument is that Guangdong pangolins are a single outbreak - and she's right about that - and then she seems to think that Guangdong pangolins may have gotten their viruses from humans which is just crazy. She also persistently claims that all the pangolin sequences were all derived from the one in the Viruses paper (pre-pandemic of course) which is untrue: there's a separate assembly in Tommy's paper.



[2020-09-17 14:07:24]

**[Eddie Holmes]**

The pangolin viruses were Sanger sequenced here and this paper clearly shows that these animals are sick:  
<https://www.biorxiv.org/content/10.1101/2020.06.22.164442v1>

[2020-09-17 14:08:31]

**[Eddie Holmes]**

Do not fall into the stupid narrative set by Alina Chan. The idea that these viruses are fake is insulting.

[2020-09-17 14:10:47]

**[Kristian Andersen]**

"the Guangdong pangolin viruses have been sequenced multiple times by multiple groups. They have also been Sanger sequenced. Plus there are Pangolins from Guangxi that have been sequenced"

Yup, I know this - hence I have no concerns about the data. Would still be nice to be able to say "yes, I looked at it dummy, and the data is perfectly fine" (as I just did with RaTG13). I'll grab the data and play around with it a bit.

[2020-09-17 14:16:18]

**[Eddie Holmes]**

The pangolin viruses from the Viruses paper were first assembled in that Virological post.

[2020-09-17 14:21:30]

**[Eddie Holmes]**

All reads from Tommy's paper are on the SRA. The Guangdong ones are P1L and P2S. P2S is from the scales and at a bit patchy. All explained in the paper.

[2020-09-17 14:36:45]

**[Eddie Holmes]**

What \*really\* pisses me off is that everything is explained very carefully in Tommy's paper - the provenance of the sequences, how they were sequenced and analysed - and ALL the data is publicly available on GISAID/SRA. As clean as it gets - take a look. But fucking Alina has managed to sow doubt by linking it to those dodgy pangolin papers.

[2020-09-17 14:38:12]

**[Kristian Andersen]**

Yeah, I totally agree Tommy's paper is very clear on this - the issue is that the other paper definitely isn't. But that doesn't take away the fact that Tommy's study is clean. Typical conspiracy way of dealing with inconvenient data.

[2020-09-17 14:39:10]

**[Eddie Holmes]**

Agreed. So fucking annoying.

[2020-09-17 14:39:52]

**[Kristian Andersen]**

The collective insanity is starting to get to me...

[2020-09-17 14:44:12]

**[Eddie Holmes]**

I hear you. Just as long as the journal editors keep sane. On that subject the following..."Are mouse and cat the missing link in the COVID-19 outbreaks in seafood markets?"...has just come up on bioRxiv. No real data of course...

[2020-09-17 15:03:16]

**[Kristian Andersen]**

I can guarantee you that mice played no role in this - the virus can't infect rodents.... Cats? Weeeeeee!!!!

[2020-09-17 15:07:33]

**[Eddie Holmes]**

Cats are indeed evil.

[2020-09-17 15:13:30]

**[Robert Garry]**

Excellent gentlemen - The Inspector really should just do a complete mea culpa and get on with her career.

[2020-09-17 15:21:12]

**[Robert Garry]**

<https://www.tandfonline.com/doi/full/10.1080/22221751.2020.1817796#>

[2020-09-17 15:23:32]

**[Robert Garry]**

\*A serological survey of SARS-CoV-2 in cat in Wuhan\*

[2020-09-17 15:28:10]

**[Robert Garry]**

I don't really have any faith that the Grand Wizard and his Lancet team of witches and warlocks is going to add anything to this discussion. The info in the channel posts above debunk the Yan/Chan nonsense completely!

[2020-09-17 16:48:45]

**[Eddie Holmes]**

I wrote to Jeremy Farrar saying that it was totally idiotic and counter-productive to put the Grand Wizard in charge of the Lancet team. I've no idea what they were thinking.

[2020-09-17 17:39:06]

**[Robert Garry]**

Perfect Eddie! What I think will happen is that in the pursuit of objectivity Lancet's team will feel obliged to swipe "mightily" at Proximal Origins (cause GVP is a scam, we know it and we're noncoronavirologists) and present a super-lame counter to Yan/Chan. They'll probably put something out that is the equivalent of ~DT~ Baric's Italian HuffPost crap, which was very unhelpful. The channel posts and prior tweets do more to counter the tiresome bs than anything Daszak et al. can muster.

[2020-09-17 20:29:22]

**[Kristian Andersen]**

Getting interesting [shared file(s): Screen Shot 2020-09-17 at 8.28.31 PM.png]

[2020-09-17 20:30:39]

**[Kristian Andersen]**

Basically descending into complete madness. I really can't figure out if these are actual people or just bots? They have the weirdest profiles, so I kinda assume bots...

[https://twitter.com/search?q=%40K\\_G\\_Andersen&src=typed\\_query&f=live](https://twitter.com/search?q=%40K_G_Andersen&src=typed_query&f=live)

[2020-09-17 20:38:37]

**[Eddie Holmes]**

I get those as well. Plus emails.

[2020-09-17 20:39:39]

**[Eddie Holmes]**

Yikes though, that is nasty!

[2020-09-17 20:40:27]

**[Kristian Andersen]**

They have gotten significantly more nasty as of late - with even more weird-looking Twitter names. I assume bots.

[2020-09-17 20:44:12]

**[Eddie Holmes]**

Just going through them. Fuck. The Nuremberg Trials one is....

[2020-09-17 20:46:31]

**[Kristian Andersen]**

Yup, pretty wacky shit. I should save some of these and frame them for the office (once I get to go back...). Would be way cooler than BS diplomas, awards, and covers on the wall!

[2020-09-17 20:47:07]

**[Eddie Holmes]**

Kristian's Wall of Hate.

[2020-09-17 20:48:02]

**[Kristian Andersen]**

:fire::smiling\_imp:

[2020-09-17 20:53:50]

**[Eddie Holmes]**

I feel I need a shower after reading that filth. Revolting. But the Daszak appointment seems to have united everyone!

[2020-09-17 20:57:58]

**[Kristian Andersen]**

The People Against EgoHealth!!

[2020-09-17 21:07:35]

**[Kristian Andersen]**

I made myself a collage to serve as a proud memory. (you can pin this on my tombstone :wink: ) [shared file(s): Twitter\_Gold\_v1.png]

[2020-09-17 21:12:24]

**[Eddie Holmes]**

I'm going to print one now. I like 'fuck your evil soul'? I think that's Shakespeare, but I can't remember the play.

[2020-09-17 21:13:00]

**[Kristian Andersen]**

Must have been the one in Copenhagen.

[2020-09-17 21:14:55]

**[Eddie Holmes]**

I thought it was 'Taming of the Pangolin'.

[2020-09-17 21:16:13]

**[Eddie Holmes]**

Or 'Two Gentlemen of Wuhan'. I'll get my coat.

[2020-09-17 21:17:07]

**[Kristian Andersen]**

Better to grab another beer I think. :beer:

[2020-09-17 21:17:16]

**[Eddie Holmes]**

I think so.

[2020-09-17 21:35:02]

[Eddie Holmes]

Prof Tritto seems well qualified I see. Seems to specialise in male genital enlargement:  
<https://www.giuseppetritto.com/services>

[2020-09-17 21:39:55]

[Kristian Andersen]

"Amazon Bestseller" - although I can't seem to find his book. But no - we certainly don't have the credentials to match his. Definitely not. Penisology and all.

[2020-09-17 21:41:57]

[Eddie Holmes]

Sounds like he can enlarge your credentials for a fee.

[2020-09-17 21:42:48]

[Kristian Andersen]

No need.

[2020-09-17 21:43:05]

[Eddie Holmes]

:rolling\_on\_the\_floor\_laughing:

[2020-09-17 21:45:01]

[Kristian Andersen]

I'll see myself out. :door:

[2020-09-18 05:14:36]

[Robert Garry]

"Daszak appointment seems to have united everyone!" Since we're making analogies to classic literature, I'll point out that this was the precise plotline of visionary author Alan Moore's *\*Watchmen\**. Trump is definitely a dystopian version of Nixon, while Daszak has substantial equivalence to a genetically-engineered squid. As for all the Twitter "love" I do have to admit it's impressive! It makes Covidfaker's collection of hate-tweets seem almost tame.

[2020-09-18 05:55:33]

[Robert Garry]

Unfortunately, Daszak's farce is already a tragedy. It's mind-blowing that Sachs/Horton appear to have no appreciation how terrible a choice this was.

[2020-09-18 10:19:05]

[Kristian Andersen]

Now we truly have descended into absurdity. OH BUT WHAT ABOUT THE BACTERIA??? THAT'S WEIRD! No it's not - FFS. [shared file(s): Screen Shot 2020-09-18 at 10.17.02.png]

[2020-09-18 10:35:34]

[Robert Garry]

Alina should ask Boston Magazine to retract their article. In this case self-"censorship" would have served her well. Based on her comments about Yan re being a whistleblower I'm guessing there are some Chinese politics going on that I'll never understand. A hard lesson to let the science drive the science rather than letting your personal political views drive the science.

[2020-09-18 14:44:51]

[Eddie Holmes]

Bacteria! Insane. Yes, she's not a whistleblower - just a fantasist with an axe to grind.

[2020-09-18 14:53:30]

[Kristian Andersen]

Yup.

For what it's worth, I decided to reassemble all these bloody genomes to take a look myself. I'll post it all on virological once I'm done.

[2020-09-18 15:02:43]

**[Robert Garry]**

It can't hurt - Unfortunately, it won't stop the Captain or the Inspector. It may be a counterweight. Reading through Alina's latest tweet emesis, she is as Eddie says definitely a fantasist. I'm also starting to think that Gao may be paying her by the word.

[2020-09-18 15:04:21]

**[Kristian Andersen]**

Agreed - this won't change anything but I want to at least have something I can point to. It's just so so dumb. Really. (luckily, I'm enjoying this since it's been a long time I last did some \*actual\* work, so I'm happy to be assembling shit again).

[2020-09-18 15:04:50]

**[Kristian Andersen]**

It's just so soothing to see code run over my screen...

[2020-09-18 15:22:25]

**[Eddie Holmes]**

Yan is the fantasist. Alina has just lost it.

[2020-09-18 15:39:56]

**[Kristian Andersen]**

Here's what I'm assembling - missing anything? [shared file(s): Screen Shot 2020-09-18 at 15.39.27.png]

[2020-09-18 15:40:31]

**[Kristian Andersen]**

MP789 is the same(ish) as the one that was initially reported on virological

[2020-09-18 15:58:43]

**[Kristian Andersen]**

Pretty interesting. Looking at RmYN02 the consensus is totally solid, however, I actually think there's another closely related bat CoV in there at a ~15% frequency. I'll dig a little deeper, but Tommy might be interested in looking at that

[2020-09-18 16:02:00]

**[Kristian Andersen]**

I SO hoped some of these intrahost mutations near the RBD or the FCS, but sadly no. Would have been cool!

[2020-09-18 16:08:47]

**[Eddie Holmes]**

You mean RmYN01? Yes, I've been asking Weifeng to get some analysis done on that for ages.

[2020-09-18 16:10:53]

**[Eddie Holmes]**

I think he said he only had an incomplete genome, including the RdRp, although even though that would be really interesting.

[2020-09-18 16:11:56]

**[Eddie Holmes]**

Sorry, you mean in the RmYN02 reads? I seem to remember Weifeng discussing that before. Might even be noted in the paper. Can't remember. RmYN02 is pooled from a number of bats - 11 or 13, I can't quite recall.

[2020-09-18 16:18:31]

**[Kristian Andersen]**

Yeah, RmYN02 - the more complete of the two genomes. Definitely another genome in there

[2020-09-18 16:20:30]

**[Kristian Andersen]**

It's another bat CoV closely related (but not identical) to others previously sequenced. Every yellow bar is an intrahost variant >10% (SNPs are all linked as far as I can tell, so I think it's just one additional genome) [shared file(s): Screen Shot 2020-09-18 at 16.19.28.png]

[2020-09-18 16:25:42]

**[Eddie Holmes]**

Yes, I agree. I'll check back what we did - if anything - about this. It would be really interesting to see a phylogeny with that, RmYN02 and RmYN01 included.

[2020-09-18 16:37:13]

**[Kristian Andersen]**

I'm just going to pull that minority genome out - I'll keep you posted... Yeah, this is very interesting

[2020-09-18 16:39:04]

**[Eddie Holmes]**

Great!

[2020-09-18 17:14:52]

**[Kristian Andersen]**

Here's what I have assembled so far - all look great. Only need to assemble one of the remaining pangolin CoVs, which has a huge dataset. RBD in green.

Conclusion? Nothing to see here.... as expected. [shared file(s): MP789.jpg, P1E.jpg, P2S.jpg, P2V.jpg, P3B.jpg, P4L.jpg, P5E.jpg, P5L.jpg, RaTG13.jpg, RmYN02.jpg]

[2020-09-18 17:40:16]

**[Eddie Holmes]**

Great work! So annoying that these people are accusing of fabrication when they are honest scientists working hard. Makes by blood boil.

[2020-09-18 18:03:12]

**[Kristian Andersen]**

Here's the minor genome - probably not a complete genome, but definitely present. [shared file(s): minor\_variant\_genome.fa]

[2020-09-18 18:03:31]

**[Kristian Andersen]**

Alignment + tree [shared file(s): Alignment with minor RmYN02 RAXML Tree.nex, Alignment with minor RmYN02.nex]

[2020-09-18 18:03:54]

**[Eddie Holmes]**

Cool! Quick tree?

[2020-09-18 18:05:24]

**[Kristian Andersen]**

And some stats.

This is all some fast hacked together stuff, so the boys should take a closer look.

Tree above - quick ML tree. You'll see close clustering with the consensus genome, but this might be an artifact because non-coverage in the minor genome would just display the consensus genome. Definitely worth looking a little closer. [shared file(s): variants.tsv, variants\_pos.pdf]

[2020-09-18 18:11:03]

**[Eddie Holmes]**

Got it! Sorry, our posts crossed. I'll have a chat to Weifeng. Nice one. Is RmYN01 closer than ZC45? I'm trying to get more bat ronas as we speak (through a very unusual source). More later.

[2020-09-19 08:59:36]

**[Robert Garry]**

```ppltStrfrraTSgvs```

Don't want to distract from this important work and I think @Andrew Rambaut has already figured most of this out, but there is a relevant story about furin cleavage sites in MERS CoV. This sequence is from HKU5, which has a very MERS-like spike [<https://pubmed.ncbi.nlm.nih.gov/23720729/>] and a somewhat better FCS than the minimal one in MERS-CoV. The capitalized STS are predicted O-glycans. Maybe these are used maybe not, but coincidences keep popping up {HKU1, OC43, MHC etc}. It's another data point that I believe shows that the furin site in SARS2 could evolve naturally. At the end of the day [thanks to this good work K and E] besides the wild thrashing around the "unusual" FCS is about all the Yans and Chans of the world are going to have left.

[2020-09-19 09:11:01]

[Robert Garry]

I think you should put this up in a peer-reviewed journal ASAP. Maybe it's my mean streak, maybe it's just that I think that Daszak is going to screw it up or maybe I think the RBG September surprise has shook up the Presidential race, but the "IT ESCAPED FROM WIV*" crowd is empowered not depowered at the moment - science literally be damned.

[2020-09-19 09:17:09]

[Kristian Andersen]

Nah, I got more important papers to attend to - most importantly, one from NOLA :wink:. I'll put a summary up on Virological later today though - just so one can point to it.

[2020-09-19 09:28:05]

[Robert Garry]

OK that should do it - next best thing. It will probably elicit more "Running Dog" commentary on the twitter. Maybe a good thing - you can add to your montage. Nature should give Batwoman a chance to respond to her accusers [http s://www.minervanett.no/alina-chan-coronavirus-covid19/contradicting-statements-cast-doubts-on-chinese-raw-data/364540](http://s://www.minervanett.no/alina-chan-coronavirus-covid19/contradicting-statements-cast-doubts-on-chinese-raw-data/364540) Nothing nefarious there. And yeah - Mardi Gras manuscript!

[2020-09-19 16:02:24]

[Eddie Holmes]

Great job Kristian. Pretty amazing/ridiculous/depressing that we are still debating data that was all published by March.

[2020-09-19 19:39:50]

[Kristian Andersen]

Alright, all assembled - everything checks out. What a huge fucking surprise....

<https://virological.org/t/on-the-veracity-of-ratg13/551/9>

[2020-09-19 20:19:28]

[Eddie Holmes]

Oh what a surprise (and what a waste of time). I enjoyed Frankie's poll. He's gradually loosing his mind.

[2020-09-19 20:50:51]

[Kristian Andersen]

Rupert's take down of that poll was brilliant! F Bollocks is such an arse - unbelievable.

<https://twitter.com/bealelab/status/1307437018645958658?s=21>

[2020-09-20 05:39:02]

[Robert Garry]

Yes great job Kristian - unfortunately necessary. Kudos also for proper use of the word hooey in a tweet and good response to GVN.

[2020-09-20 06:52:02]

[Robert Garry]

``pptssrlrraTsg``

spike glycoprotein [BtPa-BetaCoV/GD2013]

GenBank: AIA62343.1 This one is from another Merbecovirus a little closer to where it might have mattered in China. Bottom line, and maybe it's my myopia for not realizing this before, but there are bat betacoronaviruses in China that have furin cleavage sites that evolved naturally. This one also has a predicted O-glycan, which may or may not be used.

[2020-09-20 06:54:56]

[Robert Garry]

pptistrlrratSgvS spike [Bat coronavirus (BtCoV/A434/2005)]

GenBank: ABG11962.1 Here's the other one from china - two predicted O-glycans

[2020-09-20 06:57:32]

[Robert Garry]

<https://virological.org/t/the-sarbecovirus-origin-of-sars-cov-2-s-furin-cleavage-site/536> makes this conversation a bit more relevant - although that virological post seems to have been one of the factors that sent Alina down the rabbit hole.

[2020-09-20 07:45:50]

[Robert Garry]

ppttsTrvrraTSgvsS spike glycoprotein [Pipistrellus abramus bat coronavirus HKU5-related]

GenBank: QHA24687.1 best for last FOUR predicted O-glycans.

[2020-09-20 14:04:14]

[Eddie Holmes]

Yes, I saw that one. Those furin cleavage sites are definitely out there in nature.

[2020-09-20 15:28:16]

[Robert Garry]

The other common thread is that when they appear they are generally insertions: Here's HKU5 S aligned with closely related HKU4 S Merbecoviruses. Pattern repeats with HKU1, OC43 (Embecoviruses). SARS2 vs the other Sarbecoviruses is showing it can happen with the Sarbecoviruses. [shared file(s): image.png]

[2020-09-20 17:31:09]

[Eddie Holmes]

That's really interesting!

[2020-09-20 17:35:44]

[Eddie Holmes]

Is that a furin insertion?

[2020-09-20 18:57:06]

[Kristian Andersen]

Bob, time for your first Virological post... this is important :wink:

[2020-09-20 20:17:49]

[Robert Garry]

Thanks - will do - need to dig a bit deeper...but yes insertion is what it looks like...

[2020-09-21 06:14:05]

[Robert Garry]

Topic: Special Seminar by Dr. Zhengli Shi

Time: Sep 21, 2020 09:00 AM Eastern Time (US and Canada)

Join Zoom Meeting <https://umaryland.zoom.us/j/91277177632?pwd=NEJtdUdKQ1ZNUVQ4ZWU0YjVlVl9lUT09>

[REDACTED]

One tap mobile

[2020-09-21 10:20:50]

[Robert Garry]

Good seminar - - very solid scientist - they have a lot of new bat-CoVs - she also got several questions re Yan/Chan

[2020-09-21 14:07:08]

[Kristian Andersen]

Cool - I unfortunately missed it, because, well, 6am. How did she handle the questions about Yan?

[2020-09-21 14:19:29]

[Eddie Holmes]

Good to hear. Looking forward to seeing those new bat CoVs.

[2020-09-21 14:19:33]

[Robert Garry]

Graciously - but you could certainly tell that it was getting wearisome dealing with the questions. All you can do with faced with the nonsense is say it's not true and that the evidence is faulty - try to keep to the science/facts. BUT - Liar's Dividend is a real thing - fakes and frauds know that they are more than likely going to get away with it even if they eventually are proven wrong. At that point they can claim victimhood and in the meanwhile they get the attention they crave.

[2020-09-21 14:21:32]

[Robert Garry]

Simultaneous responses - but yeah seems like they have sequences and samples from 10s of 1,000s of bats from most provinces.

[2020-09-21 14:49:27]

[Eddie Holmes]

What people like Alina don't realise is that they are effectively calling Shi and a lot of other people liars. She does not comprehend the hurt and monumental waste of time she is causing.

[2020-09-21 15:26:51]

[Robert Garry]

I'd entertain the possibility that she does realize it and just doesn't care and thinks it's a good career move [it's really not].

[2020-09-21 15:45:14]

[Kristian Andersen]

It's an "end of career" move - she just hasn't realized it yet... What's so annoying with her and other folks doing the same is that they just don't understand this type of work. They don't understand the viruses ("isn't that FCS peculiar". "Isn't it peculiar that we haven't identified the reservoir yet") and the technology ("why does this sample have less bacterial reads"). People doing this type of work knows, but to amateurs it all looks mysterious....

One thing we can definitely say for sure based on the raw RaTG13 sequence - this thing wasn't cultured. If it was, it'd have way way higher coverage. It's all just really dumb.

[2020-09-22 05:02:29]

[Robert Garry]

Looking forward to Eddie's GVN talk as well.

[2020-09-22 07:01:23]

[Robert Garry]

Well done!

[2020-09-22 10:24:08]

[Robert Garry]

So much for letting science drive the analysis:

<https://hk.appledaily.com/china/20200921/JENA7RUJHZHYXBMZ6ZN5WSDGME/>

[2020-09-22 10:24:43]

[Robert Garry]

Yan Limeng claimed to publish a second paper, which will present all the characteristics of the virus. (the Internet)

A

A

A

After Li Meng Yan, a former researcher at the School of Public Health of Hong Kong University and a Chinese virologist who fled to the United States, posted on Twitter last Monday (14) alleging that the Chinese military laboratory produced the Wuhan pneumonia virus, her Twitter account was immediately blocked. In an interview with the "Talkradio 77 WABC" radio station on Sunday (20th), she pointed out that the Wuhan pneumonia virus is an enhanced version of the SARS virus, and that the CCP may release other viruses.

Yan Limeng said that she will publish a second report soon, claiming that together with the first report before, it will show all the characteristics of the Wuhan pneumonia virus, and referring to the unusual characteristics of the virus and the explanation of how China can produce the virus. And the expertise of the Chinese government and their laboratories found that the virus was changed to specifically target humans in the laboratory.

As for whether there is a vaccine for Wuhan pneumonia in China, Yan Limeng pointed out that China uses traditional methods to produce the virus, but vaccine development and antidote are another matter. "First of all, this (virus) is an enhanced version of SARS-1..., but until today We know that there is still no vaccine for SARS-1."

Regarding the future global epidemic, she said: "(The virus) has caused a historical pandemic. Because it is highly contagious and there is no effective way to control it, the most important thing is that it was deliberately released from the laboratory. So there will be viruses that are released again and again, maybe even other types of mutants or viruses, so we should not expect that the virus will be controlled quickly and everything will return to normal. This is impossible."

Yan Limeng emphasized, "The only thing we have to do is to solve the virus from the root cause, just like treating a patient, you must understand the cause of the disease in order to be able to treat it effectively. The root cause here is the CCP. They are responsible and conduct a thorough investigation. This is the solution to the virus."

[2020-09-22 10:58:00]

[Robert Garry]

Unfortunately, the agency that formerly tried to live up to it's name (CDC) has shed any pretense that they are anything but a political arm of the Trump White House. The FDA is following right around the corner.

[2020-09-22 10:58:21]

[Andrew Rambaut]

https://www.centerforhealthsecurity.org/our-work/pubs_archive/pubs-pdfs/2020/200921-in-response-yan.pdf

[2020-09-22 11:04:57]

[Kristian Andersen]

Holy shit - some other scientists stepped up. Haven't read that response yet - any good?

[2020-09-22 14:37:10]

[Robert Garry]

If assigning a grade I'd say A for effort, A+ for participation and B+ for content.

[2020-09-22 14:44:27]

[Eddie Holmes]

Hope the GVN thing was ok Bob. Would have been better - with more discussion - if they have not spent so much time patting each other on the back at the start.

[2020-09-22 14:44:32]

[Kristian Andersen]

I just read it as well - not very impressed. I'd say an over B- grade.

[2020-09-22 14:46:17]

[Eddie Holmes]

Do you know the Hopkins authors?

[2020-09-22 14:46:23]

[Kristian Andersen]

Nope

[2020-09-22 14:48:03]

[Kristian Andersen]

They got a number of things wrong - some of which could be problematic. E.g., they mention that SARS1 has a furin cleavage site in the spike - that's clearly not true and suggestive of them not looking very closely at the literature.

I'll posit that my much shorter Twitter thread did a better job :wink:

[2020-09-22 14:50:08]

[Eddie Holmes]

SARS1 furin is a shocker. Best not associate ourselves with these people. Your Twitter thread was very good: really wound them up!

[2020-09-22 15:32:02]

[Robert Garry]

Agree about the patting - but you did great Eddie! Action-packed 9 slides...and more than a few well placed blows toward the GVP crowd. I must have blown over the SARS1 furin bit in the Gronvall piece - that would have definitely lowered my grade probably even below the B-.

[2020-09-22 15:43:19]

[Robert Garry]

<https://pubmed.ncbi.nlm.nih.gov/32869021/> Furin site is important

[2020-09-22 16:58:57]

[Eddie Holmes]

Glad to hear it! B- is generous.

[2020-09-25 05:54:15]

[Andrew Rambaut]

I'm going round in circles...

[2020-09-25 06:38:12]

[Andrew Rambaut]

Don't think he likes you dissing Trump, Kristian.

[2020-09-25 06:48:18]

[Robert Garry]

Did Xander make this origami?

[2020-09-25 06:57:59]

[Kristian Andersen]

Beautiful!

[2020-09-25 12:16:42]

[Robert Garry]

<https://www.ft.com/content/b782f666-6847-4487-986c-56d3f5e46c0b>

[2020-09-25 12:18:06]

[Robert Garry]

Interesting article NIH awarded a contract to CSU to grow it's own challenge strain.

[2020-09-25 12:18:43]

[Kristian Andersen]

Yup, saw that yesterday - still not sure what I feel about it :wink:

[2020-09-25 12:27:06]

[Robert Garry]

Angie_Rasmussen others still not a fan of it. Your way - small 30 people no placebo trials would be a good screen IMO. High Risk - High Reward US still losing ~1000 per day.

[2020-09-25 12:30:49]

[Robert Garry]

I am not a big fan of the way the RCTs are being managed - not one bit. 30-60,000 people being told to go out and get themselves infected is less ethical than the controlled human challenges - just my opinion.

[2020-09-25 12:51:56]

[Kristian Andersen]

Yeah, I'm not a fan of the RCTs either - I don't think they'll tell us what we need to know robustly and quickly enough. I kinda liked the German experiment where they set up relatively high-risk settings (during a concert) to better understand how transmission works. So a strategy that I kinda like here would be akin to a "COVID Party" strictly with people that are vaccinated - no control group. No need to figure out dosing, isolates, etc., which is far from trivial.

[2020-09-25 13:06:47]

[Robert Garry]

:beer::beer::beer::beer::beer: would probably make the experiment work better.

[2020-09-25 13:07:00]

[Robert Garry]

But I really like the idea.

[2020-09-25 13:08:15]

[Kristian Andersen]

I think *any* party in the UK involves copious amounts of exactly that, so that goes without saying...
:stuck_out_tongue_winking_eye:

[2020-09-25 18:53:49]

[Eddie Holmes]

This is now being put in mail boxes in Sydney: [shared file(s): IMG_2538.JPG, IMG_2537.JPG]

[2020-09-25 19:36:49]

[Kristian Andersen]

Wow! That is NUTS. I'm surprised they didn't include that Eddie Holmes brought it to Australia though.... Maybe that'll be in v2.0....

People like this should be prosecuted and thrown in jail - this is dangerous misinformation!

[2020-09-25 19:38:47]

[Robert Garry]

Murdoch, Fox, ~Ga~Guo and Bannon are behind this, but is there any indication on the pamphlet who is distributing this tri-fold garbage?

[2020-09-25 19:40:21]

[Eddie Holmes]

No idea where it comes from yet. Dangerous shit as Kristian says.

[2020-09-25 19:41:09]

[Robert Garry]

it will probably show up in Florida, Pennsylvania, Minnesota and North Carolina next if it hasn't already.

[2020-09-25 19:42:03]

[Eddie Holmes]

Definitely a campaign.

[2020-09-25 19:42:59]

[Robert Garry]

Is there an election in Australia?

[2020-09-25 19:43:10]

[Eddie Holmes]

Nope

[2020-09-25 19:44:55]

[Robert Garry]

Murdoch, Fox, Gao and Bannon playing the long game...

[2020-09-25 19:45:49]

[Eddie Holmes]

My guess is that it is The Epoch Times crew

[2020-09-25 20:50:06]

[Eddie Holmes]

Bob, you were right! Got hold of the front cover and it is sponsored by the New Federal State of China: [shared file(s): IMG_2536.JPG]

[2020-09-25 20:50:43]

[Eddie Holmes]

And who runs this organisation - Guo Wengui and Stephen Bannon. Fuck!

[2020-09-25 21:05:49]

[Robert Garry]

Wow - the whole cartel is in high gear. I'm pretty sure Trump is going to focus on the "China virus" Tuesday night in the debate.

[2020-09-25 21:08:16]

[Kristian Andersen]

"Note, CCP = Chinese Communist Party". Just to be sure the idiots get it...

It's a scary time. Seriously.

[2020-09-25 21:10:33]

[Eddie Holmes]

Seriously. It's hard to believe that we've got ourselves involved in this.

[2020-09-25 21:12:30]

[Eddie Holmes]

I've passed it all onto a reporter at the NYT who is doing a very big piece on the Yan report. They were amazed by this leaflet. I've also passed it onto the state health officials who ought to know about the dangerous misinformation that's going around.

[2020-09-25 21:13:21]

[Kristian Andersen]

> Seriously. It's hard to believe that we've got ourselves involved in this
I'm sure Matt Lucas is thrilled.... :man_in_business_suit_levitating:

[2020-09-25 21:14:29]

[Kristian Andersen]

Is it Nicholas Wade who's on it at NYT? He asked me some rather strange questions (which I dodged).

[2020-09-25 21:17:43]

[Eddie Holmes]

Amy Qin. She's the China correspondent. She was recently kicked out of China and is now in Taiwan. She seems fine. She's very interested in the Bannon angle.

[2020-09-25 21:18:39]

[Kristian Andersen]

Great! I did not appreciate Nicholas' angle - just dumb basic questions.

[2020-09-25 21:19:57]

[Eddie Holmes]

She's not a scientist - more into the politics - but I think they want to take down the Yan report. Would be great.

[2020-09-26 07:09:11]

[Robert Garry]

Good news. NYT usually assigns a back-up reporter for a major story to "fact-check." So, it's a process. Hope Qin brings in the miamiherald reporting <https://www.miamiherald.com/news/nation-world/national/article245132400.html>

[2020-09-26 07:30:50]

[Robert Garry]

Speaking of Fox News Angie Rasmussen [who I like a lot, but find myself not so subtly disagreeing with on more than a few occasions - aerosol transmission/masks, antibody-negative long-haulers, human challenge trials] is in an all-out twitter WAR with Alex Berenson complete with threats of lawsuits. Berenson, a frequent guest on Tucker Carlson, has sold 100s of thousands of copies of short "books" ~21 pages about "Unreported Truths" of COVID-19. This is likely a lot more \$\$\$ than AR has made with her twitter and occasional article for Forbes. Berenson is likely an inspiration, maybe even a writer, for Guo/Bannon trifold Truth About COVID-19.

[2020-09-26 07:55:45]

[Kristian Andersen]

Oh wow, just looked at some of those exchanges - harsh. I can't imagine what kind of abuse _she_ gets. Love her "take no prisoners" style though - tough as nails.

[2020-09-26 08:11:34]

[Robert Garry]

Agreed, but so far I have not seen AR called a "running dog." It might take a while for her to reach that level. Might be coming - that BillyBostickson persona, who is documenting the ties of the Proximal Origins authors to the CCP, has ties to Alex Berenson.

[2020-09-26 08:21:20]

[Robert Garry]

When "they" find out the AR works with Ian the "circle" will be complete.

[2020-09-26 12:04:37]

[Robert Garry]

Offered without comment:

[2020-09-26 12:04:40]

[Robert Garry]

<https://medium.com/@gillesdemaneuf/wiv-ecohealth-the-mojiang-miners-cases-and-a-bat-sampling-trip-in-april-2012-74be5c2e0a0a>

[2020-09-26 12:15:15]

[Robert Garry]

No idea who belongs to DRASTIC. Maybe these people?

<https://www.frontiersin.org/articles/10.3389/fpubh.2020.581569/abstract> DRASTIC, Lancet Wizard team, Yan Team and Chan - I don't think we are going to learn a damn thing that's useful.

[2020-09-26 12:50:07]

[Robert Garry]

The idea that they "hid" the mine incident after a news article in Science

<https://www.sciencemag.org/news/2014/03/new-killer-virus-china> and a report in EID is pretty absurd to say the least.

[2020-09-26 13:56:07]

[Kristian Andersen]

It's so dumb - constantly moving the goalpost...

[2020-09-26 16:28:31]

[Eddie Holmes]

On and on it goes. So dumb indeed. The miners story is such a bloody waste of time (not least because RaTG13 is not the origin) but it's conspiracy theory gold. Pretty soon I'm sure we'll hear about a DRASTIC-sponsored expedition to the mine. If the intelligence agencies had anything that Trump could use in the election it would be out by now. The 'best' they've got is Yan. Pathetic.

[2020-09-26 16:30:05]

[Eddie Holmes]

I'm 'unfortunately' acknowledged in that thesis. This got some people into a frenzy. But my acknowledgment is for helping on a completely different story. All adds up though...

[2020-09-27 06:07:00]

[Robert Garry]

Meanwhile Gentlemen we stand at the brink of a new milestone - 5M accesses. In short: it made a difference. The proximal origin of SARS-CoV-2

• Kristian G. Andersen, Andrew Rambaut, W. Ian Lipkin, Edward C. Holmes & Robert F. Garry
Nature Medicine *volume 26*, pages 450–452(2020)Cite this article

• *4.99m Accesses*

• *483 Citations*

• *34855 Altmetric*

• Metrics

[2020-09-27 06:17:30]

[Robert Garry]

<https://www.dailymail.co.uk/news/article-8773985/Britain-plans-withhold-cash-finds-coronavirus-came-from.html>
Boris gets into the act to help his pal Donald.

[2020-09-27 06:28:14]

[Andrew Rambaut]

But then there was this bit of the speech:

> But even as we strive for a vaccine, we must never cut corners, slim down the trials or sacrifice safety to speed. Because it would be an absolute tragedy if in our eagerness, we were to boost the nutjobs – the anti vaxxers, dangerous obsessives who campaign against the whole concept of vaccination and who would risk further millions of lives.

[2020-09-27 06:28:52]

[Andrew Rambaut]

Probably the first time 'nutjobs' has been used in a speech to the UNGA.

[2020-09-27 06:30:11]

[Andrew Rambaut]

But then there was this bit:

> Our first aim should be to stop a new disease before it starts. About 60 percent of the pathogens circulating in the human population originated in animals and leapt from one species to the other in a "zoonotic" transmission. The world could seek to minimise the danger by forging a global network of zoonotic research hubs, charged with spotting dangerous animal pathogens that may cross the species barrier and infect human beings. Which I imagine is the whole Cameron/Illumina/GVP thing

[2020-09-27 06:38:10]

[Robert Garry]

For sure Trump stands head and shoulders above Boris on the nutjob scale. Setting up "zoonotic research hubs" would be vastly superior to GVP if done correctly. GVP is just a money grab.

[2020-09-27 06:45:09]

[Robert Garry]

<https://asia.nikkei.com/Spotlight/Coronavirus/World-needs-to-know-origins-of-COVID-19-Australia-PM-tells-UN>

[2020-09-27 06:49:04]

[Robert Garry]

I hope he's talking about which bat species carries the direct progenitor...

[2020-09-27 14:12:52]

[Eddie Holmes]

Australia has pushed this line for months and it has really pissed off China. I don't think it's unreasonable. They are not really thinking lab origins, more the wildlife trade/wet market angle. It seems ok to me and China would do well to be more open. But they are seeing it as a threat to their sovereignty and they are acting as the local bully. The Johnson thing is very interesting. I have a very bad feeling that Daszak et al. are going to be put in charge and will be given buckets of cash.

[2020-09-27 17:43:38]

[Robert Garry]

Agree on all counts Eddie and share the bad feeling.

[2020-09-27 18:26:51]

[Eddie Holmes]

Just heard that Xander stuck a formal complaint to my research integrity office. They're going to write a short report telling him where to stick it. I think they are getting in touch with your research integrity offices as well. What a waste of time.

[2020-09-27 19:29:56]

[Kristian Andersen]

Already in touch... Scripps wrote all the institutions earlier last week. I told them to expect more bs to come
:face_with_rolling_eyes:

[2020-09-27 19:39:02]

[Eddie Holmes]

I said the same. Such a pain.

[2020-09-28 04:39:53]

[Robert Garry]

But, he did have a Venn Diagram.

[2020-09-28 04:44:34]

[Robert Garry]

Xander retweeted:

[2020-09-28 04:44:41]

[Robert Garry]

*Billy Bostickson & *
@BillyBostickson
.

Sep 21

I just published on Medium our DRASTIC Team's Questions for Scientists and the WHO on the origin of SARS-COV-2

Part 1: <https://link.medium.com/5wlgcRuYX9>

[2020-09-28 04:45:38]

[Robert Garry]

I guess this starts to answer: "who is DRASTIC?"

[2020-09-28 14:10:01]

[Eddie Holmes]

I blocked him ages ago. Offensive. Usual garbage in the questions...everything is a conspiracy. I had to laugh at #64 and the wide-angle Simplot view. These people are mad.

[2020-09-29 02:31:40]

[Eddie Holmes]

In other news, I got a nice email from Stanley Plotkin. @Andrew Rambaut he reminded me of the Hooperfest at the Royal Society. A conspiracy theory from a previous pandemic.

[2020-09-29 03:04:18]

[Andrew Rambaut]

Seems like a different era. Can you imagine having a similar meeting on this? Mind you Hooper has been abusing Mike Worobey for years.

[2020-09-29 04:01:27]

[Robert Garry]

"A conspiracy theory from a previous pandemic." It's really deja vu all over again. A serious virus emerges from nature. Then, you have the made in a lab crowd, the accidental release crowd [sorta like Hooper], the Plandemic cults and the deniers pouring out from the woodwork and from under their rocks. COVID-19 whips it all up [with the help of social media] into an extra toxic stew by adding in international politics [with more than a hint of racism although AIDS had/has that too] and of course the Fox/Bannon/Trumpists.

[2020-09-29 04:26:40]

[Robert Garry]

It's Africa's problem/it's the China virus, they eat monkeys/they eat bats, it only kills homos, Haitians, hookers and heroin addicts/it only kills old and sick people, wear a condom/wear a mask...

[2020-09-29 05:04:55]

[Robert Garry]

A little more deja vu involving a familiar character, vaccines, viruses and a scandal. <https://retractionwatch.com/2020/09/29/the-doctor-who-fooled-the-world-an-excerpt-from-brian-deers-new-book-about-andrew-wakefield/> Deer is the reporter who relentlessly pushed a reluctant Richard Horton/Lancet to finally retract the Wakefield fraud.

[2020-09-29 14:08:34]

[Eddie Holmes]

Did you know that Peter Daszak worked for Andrew Wakefield for a while?

[2020-09-29 14:37:57]

[Robert Garry]

I was looking for the jawdrop icon but the vomit one will do as well. I guess that's where the Grand Wizard learned the power of hype.

[2020-09-29 14:39:27]

[Robert Garry]

Truth stranger than fiction...

[2020-09-29 15:13:21]

[Eddie Holmes]

Oh yes. Shame more people don't know about it.

[2020-09-30 05:03:29]

[Robert Garry]

1.

Crohn's disease after in-utero measles virus exposure.

Ekbom A, Daszak P, Kraaz W, Wakefield AJ.

Lancet. 1996 Aug 24;348(9026):515-7. doi: 10.1016/S0140-6736(96)04429-7.

PMID: 8757154

2.

Detection and comparative analysis of persistent measles virus infection in Crohn's disease by immunogold electron microscopy.

Daszak P, Purcell M, Lewin J, Dhillon AP, Pounder RE, Wakefield AJ.

J Clin Pathol. 1997 Apr;50(4):299-304. doi: 10.1136/jcp.50.4.299.

PMID: 9215145

[2020-09-30 05:03:44]

[Robert Garry]

Someone should write a book...

[2020-09-30 10:32:49]

[Robert Garry]

Another thing Wakefield taught Daszak was the power of science by press conference: "Although the paper said that no causal connection had been proven, before it was published, Wakefield made statements at a press conference and in a video news release issued by the hospital, calling for suspension of the triple MMR vaccine until more research could be done. This was later criticized as science by press conference." From WIKI

[2020-09-30 16:36:54]

[Kristian Andersen]

Large ex vivo and in vivo study from Baric's group on D614G. The effect is there, but it's very subtle IMO...

<https://www.biorxiv.org/content/10.1101/2020.09.28.317685v1>

[2020-09-30 16:56:26]

[Eddie Holmes]

Yes, I approved this at bioRxiv. Still, how it places out in the epidemiological context is way more complicated. To me, local epidemiology is a far more important driver.

[2020-09-30 17:01:39]

[Kristian Andersen]

No doubt.

[2020-09-30 17:40:58]

[Eddie Holmes]

I assume you saw this paper by Shi? Perhaps we even discussed it. Pretty interesting. Notable that Rhinolophus sinicus bats are in Hubei and have a range of ACE2 receptors. [shared file(s): Journal of Virology-2020-Guo-e00902-20.full.pdf]

[2020-09-30 17:50:53]

[Kristian Andersen]

Nope haven't seen it - need to read it!

[2020-09-30 17:56:56]

[Eddie Holmes]

I've not read it carefully either. Let me know you think.

[2020-10-01 19:39:46]

[Kristian Andersen]

Eddie Holmes is no longer my friend on Twitter :crying_cat_face: - Eddie, I take this as my queue to shut up... :stuck_out_tongue_winking_eye:.

In better news - we can only hope... [pun intended]

<https://www.nytimes.com/live/2020/10/01/us/trump-vs-biden?action=click&module=Top%20Stories&pgtype=Homepage#hope-hicks-coronavirus>

[2020-10-01 19:43:35]

[Kristian Andersen]

Pretty interesting genomic report from New Zealand (confidential for now, I assume) that looks well-reasoned: <https://nextstrain.org/community/narratives/ESR-NZ/GenomicsNarrativeSARSCoV2/2020-10-01>

[2020-10-01 19:48:09]

[Robert Garry]

This looks weird: <https://osf.io/s4td6/> There was a simultaneous outbreak of the zoonotic Nipah henipavirus in Wuhan - 4 out of 5 patients have the virus in Jinyintan Hospital , along with SARS-Cov2, in their metagenome - which seems to have resolved by itself

AUTHORS

Sandeep Chakraborty

[2020-10-01 19:50:38]

[Robert Garry]

But yes if not prayers we at least have hope! Either he gets it or a HCQ/Azithromycin overdose.

[2020-10-01 19:52:50]

[Kristian Andersen]

Hmmmm that IS weird. Presumably though, if these reads are real surely they must be contamination from other sequencing experiments at WIV.

[2020-10-01 19:53:41]

[Kristian Andersen]

E.g., I know people found plenty of evidence of Lassa in GTEx individuals from the Broad... Obviously there was no outbreak of Lassa in Boston - just the Broad doing its thing.

[2020-10-01 19:59:20]

[Kristian Andersen]

Yeah, I'm pretty sure these are contaminants - you can see the reads via the raw SRA:

<https://trace.ncbi.nlm.nih.gov/Traces/sra/?run=SRR11092059>

<https://trace.ncbi.nlm.nih.gov/Traces/sra/?run=SRR11092060>

<https://trace.ncbi.nlm.nih.gov/Traces/sra/?run=SRR11092061>

<https://trace.ncbi.nlm.nih.gov/Traces/sra/?run=SRR11092062>

Many other viruses in there too

[2020-10-01 20:00:12]

[Eddie Holmes]

I'm now your friend again @Kristian Andersen...I obviously unfollowed by mistake. :older_man:

[2020-10-01 20:00:49]

[Kristian Andersen]

Of course... It's okay Eddie - I want to unfollow myself as well :wink:

[2020-10-01 20:00:58]

[Kristian Andersen]

Have a look at this one: <https://trace.ncbi.nlm.nih.gov/Traces/sra/?run=SRR11092059&krona=on>

[2020-10-01 20:01:21]

[Eddie Holmes]

Let's hope that Hope was spreading things around on Trump's chopper.

[2020-10-01 20:01:35]

[Kristian Andersen]

LOTS of viruses in there - obviously contaminants. I'm surprised the tinfoil hats haven't picked up on it yet. YET.

[2020-10-01 20:02:16]

[Robert Garry]

Yeah - reminds me of the rotavirus in the BASV metagenomic data. Not going to stop the Alina' and Yan's of the world from building a mountain, Yeah they picked it up the DRASTIC crowd.

[2020-10-01 20:03:28]

[Kristian Andersen]

Yup.

[2020-10-01 20:04:44]

[Eddie Holmes]

What other viruses are you seeing in there?

[2020-10-01 20:05:25]

[Kristian Andersen]

Lots... If you click on the Krona plot above then "virus" in the bottom right

[2020-10-01 20:05:29]

[Eddie Holmes]

Oh, now I see....

[2020-10-01 20:06:07]

[Kristian Andersen]

If you limit "Max depth" to 4 then you get a better view

[2020-10-01 20:07:06]

[Kristian Andersen]

Most flu + SARS2 - with a bit of Nipah

[2020-10-01 20:07:38]

[Kristian Andersen]

... and clearly Nipah work going on at WIV: https://www.researchgate.net/profile/Zhengli_Shi

[2020-10-01 20:10:05]

[Eddie Holmes]

Yes, they must have all escaped simultaneously and ended-up in the same patients but no one else. That's the obvious explanation.

[2020-10-01 20:10:18]

[Kristian Andersen]

Well, obviously.

[2020-10-01 20:12:13]

[Robert Garry]

Perhaps another clever distraction like the "made-up" RatG13?

[2020-10-01 20:13:23]

[Eddie Holmes]

Did you look in our patient as well? <https://www.ncbi.nlm.nih.gov/bioproject/?term=PRJNA603194>

[2020-10-01 20:14:49]

[Robert Garry]

Just don't tell me there is Nipah v in there.

[2020-10-01 20:15:56]

[Robert Garry]

I'd be OK with a cricket virus - maybe a nice fish filovirus.

[2020-10-01 20:17:11]

[Kristian Andersen]

Ohhh boy...

[2020-10-01 20:17:14]

[Eddie Holmes]

Pretty darn certain there as no Nipah in there!

[2020-10-01 20:18:24]

[Kristian Andersen]

THERE'S 61% DARK MATTER!!!!!!! [shared file(s): Screen Shot 2020-10-01 at 8.18.04 PM.png]

[2020-10-01 20:19:07]

[Eddie Holmes]

Spooky!

[2020-10-01 20:19:20]

[Kristian Andersen]

I know. Clearly made up.

[2020-10-01 20:19:25]

[Kristian Andersen]

<https://trace.ncbi.nlm.nih.gov/Traces/sra/?run=SRR10971381&krona=on>

[2020-10-01 20:19:39]

[Kristian Andersen]

[nothing to see - so boring :wink:]

[2020-10-01 20:20:13]

[Robert Garry]

Oh my - good thing we went to two-factor encryption.

[2020-10-01 20:21:08]

[Eddie Holmes]

Which one is that Kristian?

[2020-10-01 20:21:16]

[Kristian Andersen]

That's yours

[2020-10-01 20:21:29]

[Eddie Holmes]

Thought so. We hid it well.

[2020-10-01 20:21:36]

[Kristian Andersen]

Yup

[2020-10-01 20:21:56]

[Eddie Holmes]

Did you see before? [shared file(s): WeChat Image_20200103182929.jpg]

[2020-10-01 20:21:58]

[Kristian Andersen]

This must be amplicon/enriched sequencing, right? Not metagenomic?

[2020-10-01 20:22:40]

[Kristian Andersen]

What's that Eddie?

[2020-10-01 20:22:48]

[Eddie Holmes]

No. Shotgun with rRNA depletion.

[2020-10-01 20:23:53]

[Eddie Holmes]

That's the original sequencing report from mid-late December where the commercial company first found reads for 'SARS'.

[2020-10-01 20:24:36]

[Eddie Holmes]

59 reads and spent everyone into major panic.

[2020-10-01 20:26:22]

[Kristian Andersen]

Ah, interesting. And this didn't get to George? I mean - 59 SARS reads is a pretty red flag. Mid December?

[2020-10-01 20:27:14]

[Eddie Holmes]

I'll try to get you the exact date. George bloody knew!!!

[2020-10-01 20:28:34]

[Kristian Andersen]

Yeah, I have a REALLY hard time seeing how George wouldn't have known (I think it was the interview with Zhang where it was mentioned? And btw - Zhang = Times 100, which is pretty cool!)

[2020-10-01 20:31:45]

[Eddie Holmes]

He bloody knew. No doubt. Yes, I was the go-between with TIME and Zhang. I told him not to do it - I thought there might be trouble - but his ego got the better of him.

[2020-10-01 20:35:12]

[Eddie Holmes]

Zhang has now been booted out of China CDC and is now full-time in Shanghai. George is absolutely furious with him for stealing his glory. At the end of the day, it's all about ego.

[2020-10-01 20:38:31]

[Eddie Holmes]

The other thing is that sequencing report I sent was from WeChat. This chat was all over social media in China. And yet there is no chat about nothing from WIV.

[2020-10-01 20:41:09]

[Eddie Holmes]

Oh, and obviously, our patient was sequenced in Shanghai (and was a fish market worker). So, clearly sequencing contamination at WIV.

[2020-10-01 20:41:18]

[Robert Garry]

Trump begins quarantine as close aide Hope Hicks tests positive for coronavirus
President Trump told Fox News's Sean Hannity during a live interview Thursday night that he and the first lady were tested after they learned about Hicks and were planning to quarantine. Hicks traveled with the president several times this week.

[2020-10-01 20:42:28]

[Robert Garry]

Trump in quarantine is a pretty big deal - this will be interesting...

[2020-10-01 20:42:55]

[Kristian Andersen]

Let's hope he stays there.

[2020-10-01 20:43:13]

[Eddie Holmes]

For the next 20 years.

[2020-10-01 20:43:52]

[Kristian Andersen]

> Zhang has now been booted out of China CDC and is now full-time in Shanghai. George is absolutely furious with him for stealing his glory. At the end of the day, it's all about ego.

Yeah, I can see that... I didn't think about that with Time 100, but obviously that must have pissed off George like nothing else.

[2020-10-01 20:44:55]

[Eddie Holmes]

George wanted to be the global hero on COVID. Discovered the virus, Nobel prize etc.

[2020-10-01 20:45:15]

[Kristian Andersen]

Didn't quite go according to plan...

[2020-10-01 20:45:29]

[Eddie Holmes]

He's been furious with Zhang since we released the sequence.

[2020-10-01 21:10:19]

[Eddie Holmes]

In other news, this looks good: [shared file(s): 120475767_10218533870683604_3529426926273920355_n.jpg]

[2020-10-01 21:13:35]

[Eddie Holmes]

Must be set in New Orleans. Steamy down there.

[2020-10-01 21:15:13]

[Kristian Andersen]

I wouldn't be surprised if MJ Edwards is actually a pseudonym for RF Garry...

[2020-10-01 21:17:39]

[Eddie Holmes]

Indeed. I can see no reason why RF Garry couldn't have come up with this: [shared file(s): iovzfs1g4q51.jpg]

[2020-10-01 21:22:21]

[Kristian Andersen]

Not sure - Bob would never say "Indeedily"

[2020-10-01 21:22:55]

[Eddie Holmes]

I need to get 'Indeedily' into a paper.

[2020-10-01 21:23:26]

[Kristian Andersen]

You do that - I'll try to incorporate the rest....

[2020-10-01 21:26:53]

[Eddie Holmes]

I wonder what will happen when Alexa starts some alignments?

[2020-10-01 22:08:28]

[Kristian Andersen]

<https://twitter.com/realDonaldTrump/status/1311892190680014849?s=20>

[2020-10-01 23:10:53]

[Kristian Andersen]

Gotta ask though - do we actually believe he's got it? Or desperate last-ditch attempt given recent disasters?

I wouldn't put it past him, but what a terrible thing to question... So I'll only do it in private :wink:

[2020-10-01 23:18:14]

[Eddie Holmes]

My immediate reaction is that it smells very fishy. Not that I'm a conspiracy theorist or anything (:sunglasses:), but getting the sympathy vote straight after a debate humiliation is a tad suspect. I predict a 'superman' recovery with no symptoms...or an attempt to delay the election.

[2020-10-01 23:18:51]

[Eddie Holmes]

Yes, only discuss this in private...although I see that Carl B. is posing some questions.

[2020-10-01 23:20:24]

[Eddie Holmes]

Can't see Trump giving it to Melania as they've been physically distant for years.

[2020-10-01 23:25:05]

[Kristian Andersen]

Yeah, the timing ain't right here... And I mean - Hicks is the PR 'genius' right. She reports a positive earlier today, he then Tweets "we're getting tested" hours later and then two hours after that "we're positive".

They have a million IDNow machines at the WH since everybody is getting tested constantly - that's a 15 minute test.

Doesn't check out. [not that I'm a conspiracy theorist or anything].

[2020-10-01 23:26:43]

[Andrew Rambaut]

I'm in the wrong timezone - missed some serious banter.

[2020-10-01 23:26:51]

[Kristian Andersen]

You did

[2020-10-01 23:27:03]

[Kristian Andersen]

Nothing important though, so all good.

[2020-10-01 23:27:45]

[Eddie Holmes]

Trump got a kung flu chop. Or perhaps not...

[2020-10-01 23:28:18]

[Kristian Andersen]

Haha, nice summary

[2020-10-01 23:28:55]

[Eddie Holmes]

On the bright side, he'll have plenty of time for tweeting

[2020-10-01 23:29:12]

[Kristian Andersen]

Can't wait.

[2020-10-01 23:29:46]

[Eddie Holmes]

"China did this to me!"

[2020-10-01 23:30:33]

[Kristian Andersen]

Yeah, it'll be interesting to see what he comes up with - and based on that we'll 100% know if this is real or not.

[2020-10-01 23:31:28]

[Kristian Andersen]

Looking at the timelines and recent events, I'm calling bullshit for now. I might come to regret that, but hey.

[2020-10-01 23:32:13]

[Eddie Holmes]

I'm with you. Election delay next.

[2020-10-01 23:32:56]

[Kristian Andersen]

That's what I'm thinking.

[2020-10-01 23:36:52]

[Kristian Andersen]

Plus, the writing... In the first tweet it's "First Lady" and Covid 19 - in the last one it's @FLOTUS and COVID-19. That last one wasn't written by him - it was prepared.

Alright, I'll take off my tinfoil hat now and go to sleep. I'll do a two six-pack of Corona wager on this one. [shared file(s): Screen Shot 2020-10-01 at 11.22.20 PM.png]

[2020-10-01 23:38:16]

[Eddie Holmes]

You're right! Get some rest.

[2020-10-02 00:33:01]

[Eddie Holmes]

Here's the Wuhan timeline from my deep throat on the ground there. Bit later than I remembered but full genome still ready on Dec. 27th and CDC told on that day:

[2020-10-02 00:33:11]

[Eddie Holmes]

[thread - ID: 2020-10-02 00:33:11]

Dec 25, samples sent to Company A

Dec 26, fragments of SARS-CoV-2 discovered by Company A

Dec 27, full genome obtained by Company A

Dec 27, 28, Person in Charge (Company A) report to both CDC and hospital, discuss these matters

Dec 30, Company B had the data from another patient

Dec 31, Company B's report got "leaked", which is the one I sent to you (59 reads)

[2020-10-02 03:27:19]

[Robert Garry]

[thread - ID: 2020-10-02 03:27:19]

I sympathize Andrew - Indeedily, missed some important banter. Truth MUCH stranger than fiction. I took a break from the banter to feed the dog (watching my daughter's German Shepard while she's posted in Kuwait). Then wake up to the news that Trump tests positive. That was quick. First thought: I think odds: real >95%; Covidfaker <5%. Not a good look after all the denials BS etc. This hurts him politically. Not grounds to delay the election. Second debate will be likely be cancelled. Questions: Were Hope, Trump and Melania all infected at the same time? If so whose the index case? Will there be more positives in Trump's inner circle? Do they wait to give him the Mabs? Is Fauci his doctor now?

[2020-10-02 03:45:45]

[Eddie Holmes]

Yes, you're doubtless right. Extraordinary timing though.

[2020-10-02 04:18:49]

[Robert Garry]

Yes truly extraordinary! Can't make it up...

[2020-10-02 04:59:38]

[Andrew Rambaut]

[thread - ID: 2020-10-02 03:27:19]

@Robert Garry And may actually kill him.

[2020-10-02 05:00:49]

[Andrew Rambaut]

[thread - ID: 2020-10-02 03:27:19]

@Robert Garry If he gets a bit dead or out of action, does Pence automatically go to the top of the ticket?

[2020-10-02 05:05:08]

[Andrew Rambaut]

So we are putting together the programme for Virus Genomics an Evolution 2021 (postponed from this year) - hopefully in person in September. Had a crazy idea of inviting Shi Zhengli from WIV. Probably zero chance she would come or be allowed to come but could be interesting. Anyone heard her talk? Or is it a really dumb idea?

[2020-10-02 06:07:58]

[Robert Garry]

She's good - talked to the GVN group.

[2020-10-02 06:26:48]

[Robert Garry]

Not as good as Eddie however but that goes without saying....

[2020-10-02 06:27:20]

[Robert Garry]

[thread - ID: 2020-10-02 03:27:19]

@Robert Garry Yes

[2020-10-02 06:46:40]

[Kristian Andersen]

[thread - ID: 2020-10-02 03:27:19]

@Robert Garry But look at the line of succession. If Pence is infected too, next on that list is Pelosi... Imagine the constitutional crisis if we had to go down that list.

I don't know man - I'm 55/45 on bullshit vs real. Let's see what happens...

[2020-10-02 06:49:38]

[Kristian Andersen]

[thread - ID: 2020-10-02 00:33:11]

Very interesting. I'd say that that's still a pretty quick response - Market was shut down 1/1, right? Could have been faster for sure, but not sure this is out of the ordinary give what must have been quite chaotic (plus stigma of SARS).

[2020-10-02 06:51:49]

[Robert Garry]

[thread - ID: 2020-10-02 03:27:19]

@Robert Garry Trump for sure knows he needed to shake up the election. I'm less than %5 that he joins @Covidfaker in the fake covid club, but that's non-trivial.

[2020-10-02 06:54:08]

[Robert Garry]

Eddies timeline very useful - yes fast but they type of response we'd hope becomes routine.

[2020-10-02 07:19:18]

[Kristian Andersen]

If true - 100% BS:

<https://twitter.com/RanuDhillon/status/1311944315472547843?s=20>

If she's only positive Wednesday afternoon, the likelihood of two people getting infected and having a positive result the day after would be near zero. That's not how it works.

[2020-10-02 07:32:24]

[Robert Garry]

Hicks, Trump and Melania probably got infected from the same index case. After they found out he was exposed from Hicks or someone else instead of quarantining he did fund-raisers so yes 100% BS - only thing certain is that they are lying there asses off about the timelines.

[2020-10-02 07:34:52]

[Kristian Andersen]

Yes, very true - Hicks not being the index case (which is highly plausible) would explain the timeline.

This kinda stuff on Twitter is fascinating (and scary):

<https://twitter.com/TimInHonolulu/status/1311883569086623744?s=20>. Came across it from Carl's timeline.

[2020-10-02 07:36:48]

[Kristian Andersen]

If Hicks not index though, that puts Joe well within the danger zone... Shit.

[2020-10-02 07:41:46]

[Robert Garry]

I actually think Joe is probably OK - trump tested negative on Tuesday and Wednesday probably Thursday morning. So probably not infectious even though shouting. The risk is that there were other fools on Team Trump that had not gotten the same testing and were there in Cleveland spreading the virus. Joe and ALL his team definitely need to be tested twice a day. Others on team Trump Jared, Ivanka etc are at very high risk because it appears there was a super-spreader in the White House - let'

[2020-10-02 07:42:49]

[Robert Garry]

s just hope that person stayed home and did not go the Cleveland. I'm guessing that they already know or suspect who the index case is or will find out shortly.

[2020-10-02 07:44:16]

[Robert Garry]

That and get the Mabs ready...

[2020-10-02 07:52:50]

[Robert Garry]

"Mild symptoms" - expect to have more 100% BS about this whole story.

[2020-10-02 09:58:57]

[Kristian Andersen]

Very interesting and very good paper on that darn furin cleavage site. Very cool.

<https://www.biorxiv.org/content/10.1101/2020.09.30.318311v1>

Viruses without furin cleavage site = less transmission and less pathogenic (from other studies). Makes me believe

the 'pre-circulation' hypothesis of a furin site-lacking virus in humans a little more (or other animals - maybe cat-like?). It then picks up that site - which is seen in other human coronaviruses - and boom. Pandemic. Interestingly, the exact site in SARS2 is observed in some of the FIP isolates, hence a potential connection to cat-like animals.

Good thread summarizing some of the findings: <https://twitter.com/influenzal/status/1311959153166954498?s=20>

[and of course - I want to know if they virus lacking the furin site can actually pick it up after repeated passage in culture on e.g., human lung cells... :wink:]

[2020-10-02 10:03:12]

[Robert Garry]

also with the cats!

[2020-10-02 10:04:02]

[Kristian Andersen]

Yes

[2020-10-02 10:04:59]

[Kristian Andersen]

Interestingly - I'm on a call with all the San Diego clinical labs at the moment. Everybody is like "WTF with those Tweets/timing last night given that the house is full of rapid tests...."

[2020-10-02 10:37:15]

[Robert Garry]

Maybe pass the virus on cat cells.

[2020-10-02 10:38:18]

[Kristian Andersen]

Yes - or human lung tissue cells. Bob, we need you to do this... :wink:

[2020-10-02 13:05:07]

[Robert Garry]

On it.

[2020-10-02 13:06:42]

[Robert Garry]

Meanwhile some possible clues to the transmission https://www.southbendtribune.com/news/local/notre-dame-president-tests-positive-for-covid-19/article_ba3ac3dc-04ce-11eb-9204-ff90cfd4d130.html They better damn well get some sequences. Mike Lee Senator also positive not sure how he fits in.

[2020-10-02 13:14:10]

[Kristian Andersen]

Yeah, a bunch of people testing positive - clearly a SSE over the weekend. And clearly real, not fake - so good call Bob! I'll remember to sleep before putting on my tinfoil hat next time... (yet, this is Trump, so we unfortunately _always_ have to consider BS a very likely possibility).

As for Trump himself - well, you reap what you sow. I don't want anybody to get COVID-19 - including Trump - but he's the number one reason why it's so widespread. I have no sympathy for him - I reserve that for the other 50k people testing positive every single day and the families of the 200k+ people now dead from COVID-19 in this country.

[2020-10-02 13:16:19]

[Kristian Andersen]

Adding up... <https://twitter.com/oliverdarcy/status/1312115176984903680?s=20>

I'm sorry, but this is just idiotic - and so predictable (and, most importantly, preventable). Joe better not have the

bug!

[2020-10-02 15:02:55]

[Eddie Holmes]

Quite a lot to catch-up on. I don't think we'll get any straight info about Trump's condition.

[2020-10-02 15:05:32]

[Eddie Holmes]

That cleavage site paper is really interesting...a key point is that the polybasic insertion is selected against in Vero cells: that journalist from the NYT (Nicholas Wade) was trying to argue with me that passage in Vero cells was a way that the polybasic insertion could occur...clearly the conspiracy theorists have been discussing this. So, this blows it out the water.

[2020-10-02 15:06:26]

[Kristian Andersen]

Not completely...

[2020-10-02 15:07:13]

[Eddie Holmes]

@Andrew Rambaut I think you could to invite Shi. Coming from you the invite might be accepted: it will deemed to be a friendly audience.

[2020-10-02 15:07:42]

[Eddie Holmes]

Ha, I knew you'd say that!

[2020-10-02 15:07:49]

[Kristian Andersen]

No way the virus would have gained it in Veros, but there's a non-zero chance that it could have gained it upon passage on human primary cells - e.g., human lung cells. The concern here is that we know that type of work was going on at WIV (the EgoHealth stuff), so we certainly can't dismiss it based on this. Hence Bob needs to do the experiment :wink:

[2020-10-02 15:08:29]

[Eddie Holmes]

Agreed. I only meant the Vero cell thing. Somebody must have proposed this.

[2020-10-02 15:08:51]

[Kristian Andersen]

In other words - had they repeated e.g., the experiment previously done with bovine coronavirus, no questions SARS-CoV-2 with the FCS would have been selected very rapidly.

[2020-10-02 15:12:11]

[Eddie Holmes]

By the way, I only gave Wade some generic off-the-record comments. He was suggesting that the observation that all the human viruses are monophyletic was evidence for a lab escape....he's definitely been drinking the Kool-aid.

[2020-10-02 15:13:09]

[Kristian Andersen]

Doesn't surprise me about Wade - really disappointing. But reading his questions I was like "well, I'd have to start with explaining evolution to him first - I ain't got time for that shit".

[2020-10-02 15:15:58]

[Eddie Holmes]

He probably has a hotline to Alina. I'm for the cryptic circulation in humans theory as well, not least because of getting the first cluster of cases most be tiny.

[2020-10-02 15:18:47]

[Kristian Andersen]

[thread - ID: 2020-10-02 15:18:47]

Yeah, I think that's a really intriguing possibility. Could have been related to animal farming, which would (strongly?) select for the FCS popping up in the first place.

[2020-10-02 15:19:31]

[Eddie Holmes]

I can easily believe that.

[2020-10-02 15:19:50]

[Kristian Andersen]

Clearly, once this thing hit humans, there was (is :disappointed:) very very strong selection for maintaining that site.

[2020-10-02 15:21:12]

[Eddie Holmes]

Totally. But, as you say, that's no surprise.

[2020-10-02 15:31:33]

[Eddie Holmes]

In other news, I was *confidentially* (so keep to yourself) asked to comment on this. I've not read it, but looking that the tree these viruses are really not that close to Rubella. Bit surprised they got this into Nature. [shared file(s): Relatives of rubella virus in diverse mammals.pdf]

[2020-10-02 15:43:20]

[Kristian Andersen]

Aahaha. I pushed back really hard on that paper - I reviewed it and was unenthused to say the least.

[2020-10-02 15:43:37]

[Kristian Andersen]

I was shocked when they accepted it

[2020-10-02 15:45:05]

[Kristian Andersen]

I might have referenced back to some of your earlier studies to say how low impact this one is....

```In the revised version of the manuscript the authors provide evidence to show that yellow-necked field mouse could be the/a reservoir for rustrela virus. They have also toned down their language about relevance to human disease. However, beyond these points, my main comments from the first submission still stand - the study is well performed and the methods appropriate, but the scope is too limiting and not of sufficient interest to the broad audience of Nature. The authors discuss the relevance of their findings to e.g., the ability to develop an animal model for Rubella, but that is much too early to tell - the authors don't isolate the virus, let alone show that the viruses are capable of infecting animals - and, importantly, whether that leads to comparable disease to Rubella.

So while I find the study of interest and I think these are cool findings, I just don't see how the study would rise to the interest of the readership of Nature. Boiled down, the study is a metagenomic survey of a few different species of animals where a couple of novel viruses have been identified (albeit relatives of Matonaviridae - which have not previously been described). Compare the current study to previous virus discovery studies in Nature by e.g., Shi et al (PMID 29618816 and 27880757) where they discover hundreds of viruses - including close relatives of human pathogens - from very large-scale surveys.```

[2020-10-02 16:07:45]

**[Eddie Holmes]**

Spot on. I've no idea why they took this. A similar story can be told for a multitude of viruses. We previously found a relative to Rubella virus in fish.

[2020-10-02 16:24:13]

**[Robert Garry]**

I think you should use the opportunity to point out yes Eddie's fish virus [if you seek you find] but that surveillance of emerging pathogens in humans is a MUCH MORE direct and cost-effective strategy to respond to pandemic threats. What are we supposed to do - spend a couple of billion and make vaccines to these viruses? Just my 2 cents.

[2020-10-02 17:03:32]

**[Eddie Holmes]**

Great point! A Science journalist wants talk about the paper so I will stress that.

[2020-10-02 23:01:39]

**[Eddie Holmes]**

By the way, Nicholas Wade has \*a lot\* of baggage: [https://en.wikipedia.org/wiki/Nicholas\\_Wade](https://en.wikipedia.org/wiki/Nicholas_Wade)

[2020-10-02 23:01:55]

**[Eddie Holmes]**

<https://whyevolutionistrue.com/2014/08/09/our-letter-to-the-new-york-times-criticizing-nicholas-wades-book-on-race/>

[2020-10-02 23:25:27]

**[Robert Garry]**

Thanks for the reminder re Wade. More shoes dropping re Team MAGAA. The Saturday Rose Garden nomination of ACB and the attendant indoor dinners etc is looking like a super-spreading event. Another hub likely was debate prep sessions. Could be lots of other shoes to drop in the Trump family inner circle.

[2020-10-02 23:40:30]

**[Eddie Holmes]**

Amazing stuff re: team MAGA. You really couldn't make this stuff up.

[2020-10-03 01:09:34]

**[Andrew Rambaut]**

*[thread - ID: 2020-10-02 15:18:47]*

@Kristian Andersen In avian flu it is appears when the virus enters high density chicken flocks (i.e., from wild populations). For CoV I can imagine it being selected for in farmed animals. I doubt it was selected for in humans but that is just a hunch. Once in humans, selection is maintaining it against a within host tendency to loose it (i.e., the deletion papers).

[2020-10-03 07:22:09]

**[Kristian Andersen]**

Imagine that - NOBODY could have predicted that something like this could have happened....

Such a bunch of idiots - plain and simple.

[2020-10-03 08:10:15]

**[Robert Garry]**

One month and maybe - just maybe - the beginning of the end of the clown show.

[2020-10-03 08:39:02]

**[Robert Garry]**

Holy shit Chris Christy positive test.

[2020-10-03 08:51:08]

**[Kristian Andersen]**

The only positive thing ever said about Chris Christy.

[2020-10-03 09:19:27]

**[Robert Garry]**

Of 6 ppl in Trump's debate prep last Sat. 4/6 now positive (Hicks, Trump, Sepian and now Christy) . Only Rudy and Neonazi Steve Miller yet to announce test results.

[2020-10-03 09:21:14]

**[Andrew Rambaut]**

<https://www.theonion.com/rudy-giuliani-tests-positive-for-slew-of-obscure-bat-di-1845255014>

[2020-10-03 09:30:35]

**[Robert Garry]**

Totally makes sense to me. [shared file(s): image.png]

[2020-10-03 09:58:09]

**[Robert Garry]**

Kristian can you verify the metagenomic assemblies (assuming the Harvard folks got around to posting them)? We wouldn't want Dr. Yan or Alina questioning the veracity of this important new data.

[2020-10-03 09:59:51]

**[Kristian Andersen]**

The Boston outbreak data?

[2020-10-03 10:01:46]

**[Robert Garry]**

No - Rudy's bat viruses - sorry not clear on that!

[2020-10-03 10:02:37]

**[Robert Garry]**

Should have use the sarcasm mode.

[2020-10-03 10:03:41]

**[Kristian Andersen]**

Haha, Garry sarcasm is one step above me... :wink:

[2020-10-03 10:05:25]

**[Robert Garry]**

No worries - if you have to explain the jokes they are probably not that good!

[2020-10-03 14:26:33]

**[Eddie Holmes]**

Never has Figure 1, panel D seemed more appropriate: [shared file(s): Grubaugh.NatMicro19.pdf]

[2020-10-03 16:29:14]

**[Kristian Andersen]**

No, it's so funny reading that old paper! Novel coronavirus too!!

[2020-10-03 17:03:04]

**[Robert Garry]**

Just don't show it to DRASTIC - it will make their collective head explode.

[2020-10-03 17:08:13]

**[Kristian Andersen]**

Haha

[2020-10-03 17:09:24]

**[Kristian Andersen]**

It all links back to Eddie after all...

[2020-10-05 10:29:00]

**[Robert Garry]**

Kayleigh McEnany and 2 others in the WH communications office are positive.

[2020-10-05 10:35:39]

**[Kristian Andersen]**

Many more to come.

[2020-10-05 10:51:00]

**[Robert Garry]**

Yeah it's really true that most cases are due to these "super-spreader events." Bad terminology but it's true - a case either doesn't spread or spreads to few or there are many cases all linked.

[2020-10-05 10:55:52]

**[Kristian Andersen]**

While there are certainly SS events, it's still not clear to me if events like these are due to a person being particularly prone to spreading, or whether it's just the event itself (in other words - could any standard patient lead to these events, or does it take something special?).

[2020-10-05 10:57:17]

**[Kristian Andersen]**

@Eddie Holmes the paper you shared a while back about the ACE2 selection - very interesting and so messed up. Basically, ACE2 in bats and SARS-like CoVs are in a constant evolutionary race swapping AAs frequently. When you combine it with this part (from the paper): "we found that bat SARSr-CoV RBDs showed a higher binding affinity to human ACE2 than to R. sinicus ACE2s but did not display obvious differences among the R. sinicus ACE2s" - well, you'll always have a disaster in the waiting....

[2020-10-05 11:06:40]

**[Robert Garry]**

"could any standard patient lead to these events, or does it take something special" It's probably both - put your standard patient in the right situation [like the WH gala or a bar]- they will SS. I also think there are likely special patients that exist that spread especially well and that very high virus load is a major discriminator btwn the standard and special patients.

[2020-10-05 12:34:11]

**[Kristian Andersen]**

Yeah, no doubt both play a role - but important to know the contribution of each as it's not really clear what drives most SSEs.

[2020-10-05 13:50:02]

**[Eddie Holmes]**

@Kristian Andersen Do you believe the data that "bat SARSr-CoV RBDs showed a higher binding affinity to human ACE2 than to R. sinicus ACE2s". Seems so counter-intuitive.

[2020-10-05 14:19:14]

**[Kristian Andersen]**

Yeah, they show that particular point using a couple of different assays, so I think probably true. I agree it's a little counter-intuitive, but probably the binding to hACE2 is generally speaking more optimized for binding to the RBD (so it's inherently a higher affinity binding - no matter the RBD).

[2020-10-05 15:05:14]

**[Eddie Holmes]**

Thanks for looking into it. Pretty amazing. Emergence here we come.

[2020-10-05 15:17:13]

**[Kristian Andersen]**

I honestly don't know how we're all not dead already... :skull:

[2020-10-06 08:52:25]

**[Robert Garry]**

<https://gbdeclaration.org/> This is precisely what the US has been doing already - IMO - maybe others- it's not working out so well.

[2020-10-06 09:13:20]

**[Kristian Andersen]**

So many fallacies in that document my head hurts - very dangerous people. Yes, it doesn't work, and the people who drafted this have been proven wrong over and over and over again - the fact that they still have a platform I just don't understand.

[2020-10-06 13:48:57]

**[Eddie Holmes]**

Total shocker. I know Sunetra well. Classic attention seeking behaviour. FOMO.

[2020-10-06 13:49:46]

**[Kristian Andersen]**

It's so fucked - a Nature journalist I talked to last month also just pinged me about it. These people are simply insane - I don't know what other way to put it.

[2020-10-06 13:53:15]

**[Eddie Holmes]**

Close enough for me. They've miscalled it every time...why do people believe a single word they say?

[2020-10-06 13:56:22]

**[Kristian Andersen]**

I honestly don't know... I mean, these guys said we were basically all immune already, yet....

[2020-10-06 14:00:39]

**[Eddie Holmes]**

"Nursing homes should use staff with acquired immunity". Fuck me.

[2020-10-06 14:02:36]

**[Kristian Andersen]**

Yup. Welcome back Immunity Passports - I didn't miss you (and, of course, they totally disregard re-infections, but that's a minor detail).

[2020-10-06 14:04:53]

**[Eddie Holmes]**

"Older people should have their groceries delivered". I think that's the extent of their science.

[2020-10-06 14:05:37]

**[Kristian Andersen]**

Hah, yeah - free delivery for old people! Problem solved.

[2020-10-06 14:05:47]

**[Kristian Andersen]**

I especially love the alternative to their declaration "lockdown [...] measures in place until a vaccine is available". Point me to a single credible scientist who suggested that... It's not either we sit on our couch and wait for a vaccine, or we all go out and get infected (while "protecting the vulnerable" - which, of course, also doesn't work).

[2020-10-06 14:07:29]

**[Eddie Holmes]**

It's just idiotic. It's not a declaration - it's a clown's charter.



[2020-10-06 16:53:39]

**[Robert Garry]**

Logical - It's Trump's charter. Trump is a clown (Joe Biden said so 2X). Ipso fatso [sic] - it's a clown's charter.

[2020-10-07 04:56:32]

**[Robert Garry]**

More fun and games with the Greek alphabet. [shared file(s): image.png]

[2020-10-07 05:01:18]

**[Robert Garry]**

<https://www.npr.org/2020/10/07/920548399/tracker-key-trump-contacts-who-have-tested-positive-for-the-coronaviruses>

[2020-10-07 05:02:40]

**[Robert Garry]**

It looks like Ronna [Corona] McDaniel may have been the first case - can't make it up,

[2020-10-07 05:21:43]

**[Andrew Rambaut]**

Oh come on - release the sequences. It would be a great dataset for workshops.

[2020-10-07 14:27:26]

**[Eddie Holmes]**

Science wrote a piece on that rubella paper. Its pretty vexing is that authors say in the Science commentary - as I also pointed out to the writer but she ignored - that these new viruses are obviously not the direct ancestors of rubella virus and yet they don't say that in the original paper! Indeed, they sort to try to imply in the Nature article that they are.

[2020-10-07 14:33:49]

**[Kristian Andersen]**

Yeah, just came across that article - surprised to see Science writing it up and I can 100% assure you that they tried to imply that these were direct ancestors - it was in their original submission. In the original submission they also talked about how these viruses would "complicate our eradication efforts for rubella and other diseases". Overselling at its best. I'm totally fine with the paper being published in Nature, but I'm very surprised to say the least.

[2020-10-07 14:46:08]

**[Eddie Holmes]**

Cheeky buggers. Sort of annoying that I told all this to the Science journalist and she lets the authors of the paper make that point. Anyway. Very lucky to get that into Nature.

[2020-10-07 14:50:55]

**[Kristian Andersen]**

Yeah, very lucky. Good people though, so good for them.

I'm surprised @Robert Garry hasn't chimed in - the first author did a lot of stuff in Sierra Leone as part of our program (I spent several week with him there), but I can't remember if he was actually at Tulane or not. Something makes me believe probably yes - he was a bit of a weirdo... :wink:

[2020-10-07 15:03:23]

**[Robert Garry]**

Not at Tulane AFAIK - I recognize the name and face but we did not interact that much. All I can say about the rubi-like viruses is that at least they didn't try to sell them as human pathogens like Bas-Congo virus. That being said we're about to put something up on virological - might run it by here first - showing serorxty to SARS-CoV-2, N, S and RBD in samples from SL back to 2008. More questions than answers but the serorxty is definitely there - diff labs, diff proteins, different assays - tried to falsify it but failed.

[2020-10-07 16:13:27]

**[Robert Garry]**

Don't hold me to these precise numbers. Still cleaning up the dataset.\*Cross-reactive antibodies to SARS-CoV-2 nucleoprotein, spike and receptor binding domain in pre-COVID-19 plasma and serum samples from Sierra Leonians.\*

A mystery regarding the COVID-19 pandemic has been the relatively low case numbers and fatality rates in most countries in Sub-Saharan Africa compared to many other countries worldwide (Mbow et al., 2020). Insufficient testing, under-reporting of cases/deaths, and population demographics must be considered, but other explanations remain open possibilities. Muller and co-workers (2007) showed that antibodies reactive to SARS-CoV antigens could be detected in 7 of 26 African bat species collected in South Africa and the Democratic Republic of the Congo (DRC) from 1986 to 1999 (Müller et al., 2007). The overall seroprevalence was approximately 7% (47/705) with the highest rates found in the fruit bat *Rousettus aegyptiacus* (16%) and the insectivorous bat *Mops condylurus* (12%). Antibodies to other human coronaviruses were not detected. The results were confirmed by western blotting, however, neutralizing activity to SARS-CoV or CoV nucleic acids were not found. This important study raises the possibility that a novel betacoronavirus(es) related to SARS-CoV and SARS-CoV-2 is present in African bats.

To investigate possible exposure to betacoronavirus proteins in Africans we tested plasma and serum samples collected before the reporting of the first Chinese COVID-19 cases in late 2019 for the presence of antibodies that bind to SARS-CoV-2 nucleoprotein, spike or receptor binding domain (RBD). Samples were collected for a study of sequelae in Ebola survivors and their contacts in Kailahun and Kenema Districts in the Eastern Province of Sierra Leone between September 2016 and April 2019. Different ELISA-based assays to distinct SARS-CoV-2 proteins were used to mitigate against spurious reactivities to any one protein construct. Samples were tested in multiple laboratories.

The ReSARS™ CoV-2 nucleoprotein (N) IgG ELISA developed by Zalgen Labs uses recombinant full-length SARS CoV-2 N produced in *Escherichia coli* BL21(DE3) PLYS cells as the immobilized viral antigen in test wells. The Zalgen N ELISA shows >98% sensitive and specificity using serological panels from healthy United States blood donors. Plasmids for SARS-CoV-2 S protein were generated from synthetic codon-optimized DNA through sub-cloning into the pHCMV3 expression vector. RBD (residues 319-591) and "HexaPro" S (Hsieh et al., 2020) were transiently transfected into FreeStyle 293-F cells. Four days after transfection clarified supernatants were passed through a 0.22µm filter and then over StrepTactin resin (Qiagen). Proteins were eluted from the column with 2.5mM des-thiobiotin in binding buffer. The HexaPro Spike and RBD were further purified by size-exclusion chromatography. Spike and RBD ELISA showed >99% specificity when run on US normal blood samples.

Significant numbers of positive ELISA reactivities to SARS-CoV-2 N, S and RBD were observed in serum and plasma samples from the Ebola survivor cohort. As expected there was a correlation between reactivities to trimeric S and RBD ( $p < .0001$ ). Significant correlations were also observed between the reactivities to N and S ( $P = .003$ ) or N and RBD ( $p < .0001$ ). Using conservative cutoffs, 43% of samples (83/192) were positive for reactivity to either the SARS-CoV-2 N and/or the RBD. 33/192 were reactive to both N and RBD, 19/192 were reactive to N only and 31/192 were reactive to RBD only. Similar results were obtained in comparing the reactivities of N to S. Differences in reactivities to N and S or RBD are expected and similar to differential reactivities observed for LASV nucleoprotein versus glycoprotein (Heinrich et al., 2020).

The distribution of the positive samples over the time of collection appears to be non-random. Approximate two-thirds (20/31, 65%) of samples collected in October 2016 contained antibodies that reacted to either N, RBD or both. Preliminary findings of positive reactivity is noted for samples collected in 2008 (20/94, 21%) and in samples from late 2019 (17/160, 11%). These results suggest that the duration of antibody seroreactivity observed may be relatively short-lived as with certain other CoVs (Edridge et al., 2020; Long et al., 2020). However, we have not determined the duration of the immune responses in the subjects tested. It is unknown whether or not such responses offer any protection for SARS-CoV-2 infection or disease. Potentially, prior immunity to a SARS-like CoV in a portion of the Sierra Leonean population may mitigate against SARS-CoV-2 spread or induction of serious disease. Recent studies suggest that pre-existing immune responses against endemic human coronaviruses can mitigate disease manifestations from SARS-CoV-2 infection (Sagar et al., 2020).

These results should be interpreted in the context of other recent studies that have demonstrated serologic cross-reactivity of SARS-CoV-2 with endemic and seasonal betacoronaviruses (Hicks et al., 2020). Antibodies reactive to SARS-CoV-2 S2 in SARS-CoV-2-uninfected individuals with recent HCoV infection were detected using a sensitive flow cytometry-based method (Ng et al.). Pre-existing memory B cells that are cross-reactive with other betacoronaviruses are activated on SARS-CoV-2 infection (Song et al., 2020). Cross-reactive monoclonal antibodies (mAbs) were isolated from the memory B cells. Several studies have reported T cell reactivity against SARS-CoV-2 in people with no known exposure to the virus, which may in part be related to prior exposure to seasonal coronaviruses [reviewed in (Doshi, 2020)].

A caveat to the findings are that the assays deployed are research-use-only assays or laboratory-based assays that are not FDA-approved for clinical use. However, comparison of N and S assays on a panel of New Orleans healthcare workers (HCW) showed a 100% correlation to the Abbott Architect antibody immunoassay, which has been granted FDA Emergency Use Authorization (Lau et al., 2020). The results presented suggest that some Sierra Leoneans have been exposed to a betacoronavirus that presents multiple cross-reactive epitopes with SARS-CoV-2 or its protein antigens. While MERS-CoV, a betacoronavirus, has been detected in dromedary camels in Africa (Kandeil et al., 2019) and alphacoronaviruses have been detected in bats in Ghana (Pfefferle et al., 2009) there has been limited sampling of CoVs in African wildlife. There are only a few studies of the prevalence of infections with seasonal CoVs [HKU1, OC43, NL64 and 229E] in Africans (Kiyuka et al., 2018; Subramoney et al., 2018). Thus, the extent of CoV diversity circulating in animals and humans in Africa is largely unknown. Despite these shortcomings we consider that it is important to share these results so that they may be confirmed [or disproven] and extended to other countries in Africa. Additional confirmatory experiments, including neutralization tests, are in progress.

[2020-10-07 17:32:02]

**[Kristian Andersen]**

Quick read, looks good to me - let's get it on Virological... :wink: (I'm out until next week, so expect silence from me for a few days - oh, the bliss).

[2020-10-07 19:37:11]

**[Eddie Holmes]**

Great job Bob! Have a good break Kristian.

[2020-10-08 07:44:15]

**[Andrew Rambaut]**

You had this email

`Dr. Yan 2nd Report: SARS-CoV-2 Is an Unrestricted Bioweapon` ?

[2020-10-08 07:45:07]

**[Andrew Rambaut]**

Going to stay out of this one altogether. At least the main media isn't going to take it seriously I would imagine.

[2020-10-08 08:40:01]

**[Robert Garry]**

I'm not yet blessed with this report. Yes likely another dud, but fodder for the "base."

[2020-10-08 08:57:44]

**[Robert Garry]**

As for the Great Barrington Declaration it is as suspected bankrolled by the Trumpist right-wing "American Institute for Economic Research (AIER)" <https://www.aier.org/>. AIER is linked to Philip-Morris and the DeVos cabal.

[2020-10-08 12:05:57]

**[Robert Garry]**

This channel visited Sunetra's "Oxford" model back in July. Eddie linked to an AIER article. Also seems her linkage to AIER goes back at least to then. hmmm.

[2020-10-08 14:55:01]

**[Eddie Holmes]**

Poor Great Barrington, MA. Tarnished forever.

[2020-10-08 14:57:07]

**[Eddie Holmes]**

Very interesting link to the AIER. Very revealing!

[2020-10-08 21:30:05]

**[Eddie Holmes]**

<https://www.abc.net.au/news/science/2020-10-09/anti-beijing-group-with-links-to-steve-bannon-misinformation/12735638>

[2020-10-09 06:42:51]

**[Robert Garry]**

Thanks Eddie - and well done!

[2020-10-10 16:24:10]

**[Eddie Holmes]**

This is pretty entertaining. Shame he mentioned the prediction stuff though: <https://bit.ly/2SG3Y2w>

[2020-10-10 20:21:30]

**[Eddie Holmes]**

shared file(s): Screen Shot 2020-10-11 at 2.17.33 pm.png

[2020-10-10 20:21:53]

**[Eddie Holmes]**

One of your's Kristian?

[2020-10-10 23:17:39]

**[Eddie Holmes]**

shared file(s): tenor.gif

[2020-10-11 06:56:02]

**[Robert Garry]**

Agreed - entertaining - hope he gets the prize and navigates the politics. As for SongFei2017 - definitely part of proTrump efforts. As for @Kristian Andersen it's good to see that his reputation is > Dr Yan  
<https://www.wsj.com/articles/what-the-pandemic-has-taught-us-about-science-11602255638>

[2020-10-11 09:14:20]

**[Robert Garry]**

5M [shared file(s): image.png]

[2020-10-11 18:56:08]

**[Robert Garry]**

Seems like the "prior art" goes back several years.

[2020-10-12 08:15:42]

**[Robert Garry]**

<https://changingtimes.media/2020/10/12/sars-cov-2-lab-origin-hypothesis-gains-traction/>

[2020-10-12 14:28:05]

**[Eddie Holmes]**

Well, that's a ragbag of garbage. Alina's statement about the 'research integrity' of the viruses closest to SARS-CoV-2 is a disgrace.

[2020-10-12 14:33:56]

**[Andrew Rambaut]**

The argument that not having a close relative argues against natural origins is bonkers. That is the best argument against lab origin.

[2020-10-12 15:16:30]

**[Eddie Holmes]**

Totally. That they have to resort to talking about fraudulent studies and research integrity just shows how devoid of actual data they are.

[2020-10-12 15:27:40]

**[Robert Garry]**

The only virtue to the article is that it gathers a fraction of the garbage in the same bag. Looks like Alina is at least friendly with the Xander/BillyB/DRASTIC krewe.

[2020-10-12 15:33:22]

**[Eddie Holmes]**

Yes! Like that cohort of villains in the Lego Batman movie.

[2020-10-12 15:39:35]

**[Robert Garry]**

Yes indeed - except the Batman villains have an overall higher level of competence.

[2020-10-14 11:17:00]

**[Robert Garry]**

Some decent reporting on the Grand Barrington nonsense:

<https://www.buzzfeednews.com/article/stephaniemlee/herd-immunity-bhattacharya-atlas-barrington>

[2020-10-14 13:27:42]

**[Eddie Holmes]**

Thanks for the link. Alas, governments seem to be using it to justify their crappy public health policies.

[2020-10-15 10:53:49]

**[Kristian Andersen]**

Did anything happen while I was gone?

No? Okay, good.

[2020-10-15 13:23:48]

**[Eddie Holmes]**

All good. At ease.

[2020-10-15 21:35:25]

**[Kristian Andersen]**

Ohhh, lookie - Gnews made a profile of me - how nice of them: <https://gnews.org/zh-hans/425231/>

[2020-10-15 21:37:31]

**[Kristian Andersen]**

Separately - @Andrew Rambaut, do you happen to have a good visual/tree showing that we can find identical SARS2 genomes across multiple countries across different time? Giving a talk to the CDC folks on Monday and wanting to make the point that any type of phylogenetic inference is bloody hard with this thing.

[2020-10-15 22:59:18]

**[Andrew Rambaut]**

*[thread - ID: 2020-10-15 22:59:18]*

Here is a figure that Áine made a while back. Shows the separation in days for the sampling date between identical sequences on polytomies. [shared file(s): polytomies.png]

[2020-10-15 22:59:45]

**[Andrew Rambaut]**

Need to update it

[2020-10-15 23:00:30]

**[Andrew Rambaut]**

But will probably do what you need. credit: Áine O'Toole, University of Edinburgh

[2020-10-16 04:45:08]

**[Robert Garry]**

I want to sigh once again that the brilliance and depravity of human nature and science determine the difference between angels and demons. Scientists such as Lipkin and this Anderson, as well as such scientists as Malik, Pan Liewen, Cao Wuchun, Chen Wei, Chen Fang, Shi Zhengli, etc., show the degeneration of human nature, the loss and sorrow of the scientific spirit. Despicable is the pass of the despicable, because they annihilate the voice of inner justice, and lack the constraints of self-morality and rules. In order to be promoted from associate professor to professor, they can be more "developed" in the mainstream science world, and they can ignore the life and death of the world. dignity. Their selfishness, indifference, and despicableness further reflect the selflessness, enthusiasm and nobleness of Dr. Yan's personality.

Mankind must bear in mind that science is divided into good and evil, and the direction and goal of scientific development must not be handed over to the hands of demon experts who destroy human nature. For a title, a few bounties sold their souls to the devil, the CCP. Do they think they can survive? No, if the dictator runs out of you, he will definitely abandon you, just like Frank Plummer, Zhang Shousheng, Zhao Yongfang, etc. The just cause of mankind is a field of competition with evil. Before the CCP sinks the ship, persuade the abused Anderson, Marlik, Lipkin and others to jump off the ship.

[2020-10-16 04:52:48]

**[Robert Garry]**

The "Batman" Professor Anderson who criticized Dr. Yan Limeng sold his soul to the CCP [shared file(s): image.png]

[2020-10-16 07:10:14]

**[Kristian Andersen]**

Haha, love that - I need to use that comic if somebody digs this out.. :wink:.

I should point out that I prefer to be known as "Spiderman" though, not "Batman". It goes better with my climber alter ego.

[2020-10-16 07:10:57]

**[Kristian Andersen]**

*[thread - ID: 2020-10-15 22:59:18]*

@Andrew Rambaut Excellent, thanks Andrew. Out past 90+ days.... that's nuts.

[2020-10-16 07:21:44]

**[Andrew Rambaut]**

*[thread - ID: 2020-10-15 22:59:18]*

@Andrew Rambaut Probably some dumb shit there too - contamination, mislabelling etc,

[2020-10-16 07:22:47]

**[Andrew Rambaut]**

*[thread - ID: 2020-10-15 22:59:18]*

@Andrew Rambaut (this is all GISAID data but from back in May? some time)

[2020-10-16 07:28:26]

**[Kristian Andersen]**

*[thread - ID: 2020-10-15 22:59:18]*

@Andrew Rambaut Yeah, I suspect that's probably true. The distribution is still fat around 30-40 days though and that sorta tells you everything you need to know about how hard inference is...

[2020-10-16 13:34:57]

**[Eddie Holmes]**

Wowser. Can I be 'fish boy'? Loved that text Bob...I can't help but think they have a point about Lipkin:thinking\_face:

[2020-10-16 13:36:19]

**[Eddie Holmes]**



I'll also take 'Racoon dog man'.

[2020-10-16 13:44:10]

**[Kristian Andersen]**

"Fish Boy" is nice - I'll ask them. Maybe they'll counter with "Fishy Boy"...

They DO have a point about Lipkin - I hate being put in the same boat as him. WHO SUGGESTED ADDING THAT TURD AS AN AUTHOR??? WHO, HUH?!

[2020-10-16 13:47:05]

**[Eddie Holmes]**

Actually, true to fashion, Lipkin suggested himself as an author. I was merely the foolish turd facilitator.

[2020-10-16 13:48:06]

**[Eddie Holmes]**

Think of it as a cunning way to draw some of the fire away from you.

[2020-10-16 13:48:16]

**[Kristian Andersen]**

We all agreed to include him, so we can only hate you a little bit. I'll still demand a Corona beer the next time I see you though.

[2020-10-16 13:48:42]

**[Kristian Andersen]**

&gt; Think of it as a cunning way to draw some of the fire away from you.  
Smart - I'll remember to call it the Lipkin virus next time.

[2020-10-16 13:50:19]

**[Eddie Holmes]**

If Lipkin had discovered SARS-CoV-2 he would have patented it!

[2020-10-16 13:50:49]

**[Kristian Andersen]**

Maybe he did...

[2020-10-16 13:51:59]

**[Eddie Holmes]**

If you're Batman Lipkin is Lex Luthor.....Lex Useless even

[2020-10-16 14:40:32]

**[Eddie Holmes]**

I just got this:

[2020-10-16 14:40:34]

**[Eddie Holmes]**

Dear Edwards,

It would be appreciated if you would help me with the following questions on viral evolution.

I want to work on predicting the next viral crisis, but I don't have a clear picture of my idea on this. Here is the idea:

One of the main steps in zoonotic transfer is the ability of an animal virus to enter human respiratory cells. So we can list all surface proteins of human epithelial cells (in the respiratory tract) and then using molecular docking we predict (viral) complementary proteins. Viruses with these proteins can potentially enter human cells. By translating these proteins into nucleotides, we have a list of potentially dangerous viruses; some of them are not yet evolved. Using modeling we can estimate the required time for evolving these viruses from currently available viruses and finally figure out how far we are from the next viral crisis.



1. Is this proposal meaningful scientifically?
2. Is it already done?
3. Any suggestion and comment on this is appreciated.

Sincerely yours  
Hassan

[2020-10-16 14:40:58]

**[Eddie Holmes]**

I have a few for 3. :man-facepalming:

[2020-10-16 14:43:43]

**[Kristian Andersen]**

I think this bit "I don't have a clear picture of my idea on this" in particular rings true.

[2020-10-16 14:44:16]

**[Andrew Rambaut]**

Pass it on to Lipkin, Edwards

[2020-10-16 14:45:01]

**[Kristian Andersen]**

#mean

[2020-10-16 15:10:30]

**[Eddie Holmes]**

I will indeed pass it onto Lex. He can patent the workflow.

[2020-10-16 16:49:46]

**[Kristian Andersen]**

Good thing that hoeman (a) caught Eddie in the morning and (b) me pre-Friday beers.

[2020-10-16 17:05:50]

**[Eddie Holmes]**

Yes, that was quite entertaining. I was just bored so thought I would push a bit. Very keen on the Andersen lab tin hats though. Make them durable enough to be used for future pandemics.

[2020-10-16 17:12:28]

**[Kristian Andersen]**

*[thread - ID: 2020-10-16 17:12:28]*

I'm so sick and tired of this shit - plus I have to write a paper (on testing...) and needed the distraction.

I should totally make those branded tinfoil hats - might make up for some of the lost income of the yet-to-be-paid dues from the CCP.

[2020-10-16 17:17:16]

**[Eddie Holmes]**

I'm expecting the CCP to at least name one of those islands they are building after me.

[2020-10-16 17:18:55]

**[Kristian Andersen]**

"Eddie Island". Quite like that.

[2020-10-16 17:21:41]

**[Eddie Holmes]**

It has a certain ring to it. I hear the construction of 'Lipkin Lagoon' is proceeding at a pace.

[2020-10-16 17:50:24]

**[Kristian Andersen]**

I hear it sprung some sort of leak - something about a "lesion" at one of the poles.

[2020-10-16 21:05:36]

**[Eddie Holmes]**

Unrelated: I get this from Sue (Suxiang) Tong at the CDC. Please pass around:

[2020-10-16 21:05:46]

**[Eddie Holmes]**

Hi Eddie,

Hope you are doing well during this pandemic time.

Since day 1, our team at CDC has been actively involved in WGS of SARS CoV 2. Because of this, our team has been restructured to genomics team in addition to have pathogen discovery activity. This expansion/shift involves essentially hiring a few new permanent and term-limited FTEs, contractors in our team. With that in mind, I wanted to reach out to see if you had any suggestions of recent graduates, post-docs, or other colleagues who has strong background in genomics, bioinformatics and virus evolution analysis that might be interested these opportunities. We greatly appreciate your help. Please feel free to send any suggestions or directly refer interested folks to me.

Thanks and all the best.

Sue T

[2020-10-17 06:04:56]

**[Andrew Rambaut]**

*[thread - ID: 2020-10-16 17:12:28]*

Should just say 'Proximal' and have our Altmetrics badge on it.

[2020-10-17 06:06:34]

**[Andrew Rambaut]**

:tired\_face:

[2020-10-17 07:29:02]

**[Kristian Andersen]**

Andrew - it's been like that for months....

Not acceptable IMO. We need Trump to tweet our paper...

[2020-10-17 07:56:05]

**[Robert Garry]**

<https://www.thedailybeast.com/chinese-billionaires-network-hyped-hunter-biden-dirt-weeks-before-rudy> Agreed! One tRump tweet would do it. The same Gnews krewe literally demonizing @Kristian Andersen and Lex [Eddie is very likely in the que] are multitasking by demonizing the Bidens. Guo/Bannon need to lay off the Jim Beam/Swisher Sweets for a few minutes and connect the dots.

[2020-10-17 12:32:22]

**[Andrew Rambaut]**

Seen this?

[https://twitter.com/Atul\\_Gawande/status/1317514309325434880](https://twitter.com/Atul_Gawande/status/1317514309325434880)

[2020-10-17 12:36:07]

**[Kristian Andersen]**

Oh, wow. I'll be on the lookout...

[2020-10-17 15:52:17]

**[Eddie Holmes]**

A second order conspiracy. What fun. I've not been contacted.

[2020-10-18 06:54:33]

**[Robert Garry]**

It an old song, but true today "Clowns to the left of me, Jokers to the right, here I am,.."

<https://www.organicconsumers.org/blog/gain-function-ghouls-sars-cov-2-isnt-scariest-thing-could-leak-lab> "It's been less than a year since SARS-2 somehow escaped from a lab in Wuhan, China, infecting millions, triggering serious illness and death among the elderly (especially those in nursing homes) and those with serious pre-existing chronic diseases (obesity, diabetes, hypertension, and heart, lung and liver disease), and melting down the global economy."

[2020-10-18 13:29:06]

**[Eddie Holmes]**

I wonder if Steve Bannon eats organic? The tin-foil hats are being shared among some bizarre bed fellows.

[2020-10-18 13:37:15]

**[Kristian Andersen]**

Example?

He looks like he's eating mercury, so I guess that kinda qualifies as organic...

[2020-10-19 04:55:54]

**[Robert Garry]**

Cocaine is an "organic" product and of course the poppy is also a flower.

[2020-10-20 15:57:44]

**[Robert Garry]**

You heard this here first: "Speaking on his \*\_700 Club\_ TV show this Tuesday\*, evangelist \*Pat Robertson\* had some bittersweet news for supporters of President Trump. Robertson says God told him Trump will be reelected, but the End Times will start soon thereafter.

The veteran Christian evangelist said that Trump is going to win "without question," but after he's sworn in, "trouble is going to happen. According to Robertson, Trump will face challenges from the Chinese, a nuclear-armed North Korea, the Russians — "after Trump is sworn in, we're going to see civic disobedience in America that will just be mind-boggling." He then cited more than one passage from the Bible to back up his assertions about future world events. Robertson said that after these tribulations, there will be a "great spiritual revival" all over the world, proceeded by a period of peace — and then possibly an asteroid hitting the earth, bringing about the End Times. That's a hell of an endorsement for Trump."

[2020-10-20 16:00:40]

**[Kristian Andersen]**

Crrraaaaaazzzzzzyyyyyyy

[2020-10-20 16:47:35]

**[Eddie Holmes]**

If God can tell Pat about these future events, why didn't he/she/it when him about COVID-19? Or was God in on what was happening at the WIV? We need to know.

[2020-10-20 19:09:52]

**[Eddie Holmes]**

@Kristian Andersen I just got this: Hello Professor Holmes

My name is Thomas Crow. I'm a freelance science writer who writes for Crikey, Scitech's Particle website and New Zealand eScience Institute.

I'm looking at writing a story on how they've recently updated the RaTG13 genome in the NCBI gene bank:  
<https://www.ncbi.nlm.nih.gov/nuccore/MN996532>  
and Pete Doherty recommended you as a good person to contact about this.

I saw some people claiming on Twitter that this is evidence that the virus was not naturally occurring and that it was manufactured in a lab. I don't know enough about reading genomes to parse this update, but I was wondering if you could have a look and let me know if there's any significance you can see (apparently there's been a couple of base pair changes).

I don't expect you to read through the whole thing! I'd just like your take on anything that jumps out at you or if you have a possible explanation as to why the gene bank was updated. I think it would be good to address this by an expert before rumours start picking up.

Thank you.

--

Thomas Crow  
Science Writer\_  
[REDACTED]  
Twitter  
LinkedIn

[2020-10-20 19:10:48]

**[Eddie Holmes]**

I've no interest in the story, but I see they updated RaTG13 on GenBank. Anything significant?

[2020-10-20 19:11:45]

**[Eddie Holmes]**

Bloody good timing. Not.

[2020-10-20 19:16:53]

**[Eddie Holmes]**

Only appears to be a few base changes by the look of it.

[2020-10-20 19:25:02]

**[Kristian Andersen]**

They're writing about an article about a sequence being updated on Genbank? Fuck me.

There is NO significance to this and it's not worth commenting on - ANYBODY who does this type of work knows that sequences get updated every now and again, especially when the sequences are (a) important and (b) had a few low-coverage regions that might have had assembly errors. This changes nothing - and as you say, only a handful of completely insignificant changes.

This is 100% business as usual - move on.

[2020-10-20 19:29:26]

**[Kristian Andersen]**

FWIW, the new sequences 100% match the consensus sequence I generated and shared on Virological, which might have been a better assembly than their own. It's possible that they just downloaded my bam files (which I made available on Google Cloud) and then they called the consensus from those.

Again, all totally standard.

[2020-10-20 19:30:35]

**[Eddie Holmes]**

Yes, that's what I just told him. The tinfoil hats have got their diapers in a twist over it.

[2020-10-20 19:31:08]

**[Kristian Andersen]**

Of course they have. Soooooooooo mysterious

[unless you actually know how to do this type of work]

[2020-10-20 19:32:14]

**[Eddie Holmes]**

Next, Inspector Clouseau will probably notice it's your bam files and then a whole new conspiracy will start....

[2020-10-20 19:32:58]

**[Kristian Andersen]**

Yup. Sorry - I faked those too. :man\_in\_business\_suit\_levitating:

[2020-10-20 19:34:14]

**[Eddie Holmes]**

Such a web of lies we have woven.

[2020-10-20 19:35:28]

**[Kristian Andersen]**

Clever, really. All for the fat checks we're receiving from the CCP.

[2020-10-20 20:18:51]

**[Kristian Andersen]**

Bloody hell - PREDICT made it into Biden's pandemic plan.... (which is very good otherwise):  
<https://joebiden.com/covid19/>

[2020-10-20 23:52:42]

**[Andrew Rambaut]**

You mean they didn't fix the RBD that they messed up when they created RaTG13?

[2020-10-21 05:52:32]

**[Robert Garry]**

Apparently a new pango set was also unloaded recently. No there there either obviously. But yeah timing.

[2020-10-21 05:53:12]

**[Robert Garry]**

Predict did get rebooted - right? Matt Stremlau involved with Tufts...

[2020-10-21 05:54:53]

**[Robert Garry]**

If Joe wants to support a true pandemic surveillance program he should tell Tony to immediately double (triple) funding for the existing EIDRCs.

[2020-10-21 05:57:26]

**[Robert Garry]**

As for making stuff up - Eddie, I have to admit that RmYN02 is pretty clever as well.

[2020-10-21 06:27:45]

**[Robert Garry]**

<https://elemental.medium.com/why-covid-19s-origin-story-is-still-a-mystery-46b0b336f122>

[2020-10-21 11:06:35]

**[Kristian Andersen]**

@Eddie Holmes - I think she might be talking about your data...  
<https://twitter.com/Ayjchan/status/1318969676886573058?s=20>

What an idiot - this is one step too far.

[2020-10-21 11:47:56]

**[Robert Garry]**

I would say several steps too far.

[2020-10-21 11:48:00]

**[Andrew Rambaut]**

She has really nailed her colours to the mast now. Explicitly suggesting a conspiracy amongst scientists and editors?

[2020-10-21 11:51:31]

**[Robert Garry]**

Agreed - At least Yan is open with her politics.

[2020-10-21 11:54:56]

**[Kristian Andersen]**

Simply unbelievable - had she mentioned specific people, this would be grounds for a lawsuit.

[2020-10-21 13:29:48]

**[Eddie Holmes]**

I think she's just gone mad.

[2020-10-21 13:31:27]

**[Kristian Andersen]**

This is really something

[2020-10-21 13:32:21]

**[Eddie Holmes]**

Who's her boss at the Broad?

[2020-10-21 13:39:47]

**[Robert Garry]**

Blg Boss is Eric Lander. Maybe we could enlist Pardis to do an intervention. This kind of behavior does not bode well for her career.

[2020-10-21 14:11:44]

**[Eddie Holmes]**

I might pass it onto Clare at Nature. I've taken a screenshot and I will be using it in the future.

[2020-10-21 14:39:32]

**[Eddie Holmes]**

The best bit about Alina's tweet is that she actually says 'think for a bit'. Oh the irony.

[2020-10-21 14:54:27]

**[Robert Garry]**

5 minute report just on CNN going after the Yan Report. Angie Rasmussen and other s doing a pretty good job. But, really should be better use of science instead of just saying it's crap.

[2020-10-21 14:55:37]

**[Eddie Holmes]**

Thanks for the tip. Angie is tough, but not subtle.

[2020-10-22 01:05:51]

**[Eddie Holmes]**

I

[2020-10-22 01:06:46]

**[Eddie Holmes]**

I'll choose Honey Traps please Brian: [shared file(s): Screen Shot 2020-10-22 at 7.01.01 pm.png]

[2020-10-22 07:11:05]

**[Robert Garry]**

Good choice Eddie! I think this is the break we've been waiting for. If we can get Trump to tweet about how "Proximal Origins authors paid off with CCP honeys," we'll be back at #1 on Altmetric in no time. Now all we need is to get the Gnews boys working their photoshop and made-up email magic.

[2020-10-22 07:13:39]

**[Andrew Rambaut]**

I think that graphic is one to print and frame

[2020-10-22 07:39:48]

**[Robert Garry]**

On it!

[2020-10-22 07:52:52]

**[Robert Garry]**

In case you haven't seen this;

<https://www.cnn.com/2020/10/21/politics/coronavirus-lab-theory-yan-bannon-invs/index.html>

[2020-10-22 07:57:16]

**[Robert Garry]**

This alignment shows how insertions in three subgenuses of betacoronaviruses generate FCS and predicted O-linked glycans. SARS-CoV-2 is not a "unicorn." [shared file(s): image.png]

[2020-10-22 08:20:30]

**[Kristian Andersen]**

That's a nice alignment Bob - yours? Have you looked at the feline coronaviruses too? Some of them have the \_exact\_ same furin site. E.g.,

[https://www.ncbi.nlm.nih.gov/protein/AIL54259.1?report=genbank&log\\$=prottop&blast\\_rank=1&RID=T38N3HVE016](https://www.ncbi.nlm.nih.gov/protein/AIL54259.1?report=genbank&log$=prottop&blast_rank=1&RID=T38N3HVE016)

[https://www.ncbi.nlm.nih.gov/protein/AIL54258.1?report=genbank&log\\$=prottop&blast\\_rank=2&RID=T38N3HVE016](https://www.ncbi.nlm.nih.gov/protein/AIL54258.1?report=genbank&log$=prottop&blast_rank=2&RID=T38N3HVE016)

[https://www.ncbi.nlm.nih.gov/protein/AIL54263.1?report=genbank&log\\$=prottop&blast\\_rank=3&RID=T38N3HVE016](https://www.ncbi.nlm.nih.gov/protein/AIL54263.1?report=genbank&log$=prottop&blast_rank=3&RID=T38N3HVE016)

[2020-10-22 08:54:45]

**[Robert Garry]**

Yes - I did that but anyone could have. Yes beyond some with the PRRAR the feline coronaviruses have interesting divergence including insertions or predicted O-linked glycans at the S1/S2 junction.

[2020-10-22 09:32:33]

**[Robert Garry]**

Some of the feline CoVs but not others have a second FCS (also appears due to an insertion) at the S2' cleavage site just upstream of a putative fusion peptide. [shared file(s): image.png]

[2020-10-22 12:19:21]

**[Robert Garry]**



Someone please correct me if I'm wrong, but if I'm looking at the sequences correctly all that was done is to fill in 15 nucleotides at the 5' end of the RaTG13 genome. Everything else is 100% the same. The ends are the hardest part right? That's why many "near-complete" genomes are missing nucleotides at the end, for example Bas-Congo virus, and the Ekpomas. Yet, Alina and the DRASTIC krewe are conflating and combining this very minor change to RaTG13 with her perceived "problems" with all the pango sequences. [shared file(s): image.png]

[2020-10-22 12:46:44]

**[Eddie Holmes]**

Can something about those alignments be posted on virological?

[2020-10-22 12:53:35]

**[Kristian Andersen]**

Alina is talking about the pangolin sequences where there's overlap in the data used - as described in Eddie's paper. It's one big nothingburger. I had to unfollow her yesterday - just makes my blood boil listening to this type of complete bull shit.

[2020-10-22 13:16:43]

**[Robert Garry]**

Yes - seems like Alina's main problem - she got a lot of problems - with is with Xiao et al. Lam et al could not be any more transparent, but Alina likes to cast a wide net. She also had BS about RaTG13, but looks like she took that down. Yeah - the alignments can be posted on Virological - writing some text....

[2020-10-22 13:26:19]

**[Eddie Holmes]**

I stopped following her some time ago. I can't stand to even think about her.

[2020-10-22 13:27:54]

**[Kristian Andersen]**

Oh, she still got her BS about RaTG13 on her Twitter - it's just an amateur talking about stuff she does not understand. Sad really - and again, that whole thread yesterday was just completely over the top. Would have made Cinnamon Jesus proud.

[2020-10-22 13:51:13]

**[Eddie Holmes]**

I passed yesterday's thread to a few journalists (unblocked specially). So nice to be flippantly accused of mass murder.

[2020-10-24 16:21:44]

**[Eddie Holmes]**

*[thread - ID: 2020-10-24 16:21:44]*

PNAS may have hit a new low. I think the data availability statement sums this up perfectly. [shared file(s): Seitz\_PNAS.pdf]

[2020-10-24 20:12:51]

**[Robert Garry]**

Yes - this is nonsense. Wow.

[2020-10-24 20:44:15]

**[Robert Garry]**

Meanwhile - Ready for 2020 to end

[2020-10-24 20:44:21]

**[Robert Garry]**

shared file(s): image.png

[2020-10-24 21:23:25]

**[Eddie Holmes]**

Shit, hope you dodge that one Bob.

[2020-10-24 21:29:32]

**[Kristian Andersen]**

What a load of bollocks...

Bob, yeah, hope you dodge that one too - insane how many storms have been heading that way this year.

[2020-10-25 06:16:40]

**[Robert Garry]**

Thanks - crazy - hopefully Zeta just an annoyance, but sure to chew up an inordinate amt of time.

[2020-10-25 06:49:04]

**[Andrew Rambaut]**

[thread - ID: 2020-10-24 16:21:44]

Yeah. This really sucks. Dumb. I like the note: 'Whereas all authors agreed on the final manuscript, not every author agrees on every point in the paper.'

[2020-10-25 06:50:21]

**[Andrew Rambaut]**

[thread - ID: 2020-10-24 16:21:44]

@Eddie Holmes The only virus I can think of that alters host behaviour to enhance transmission is rabies and that is pretty extreme (and a hardly a subtle action).

[2020-10-25 07:19:38]

**[Kristian Andersen]**

[thread - ID: 2020-10-24 16:21:44]

COVID has put to light the things that desperately need to change/die. PNAS is on that list. Demagogues too. And Stanford.

[2020-10-25 07:41:27]

**[Robert Garry]**

I'd add to Kristian's list TV science "experts" [especially those that fake the disease they are spreading disinformation about], outbreak culture in general and - related to the latter - "science" by Zenado/internet [Yan]/twitter {Chan}. The current iterations of CDC, FDA and WHO also need many changes... As for the PNAS article it's about as useful as the "COVID came from snakes or on a meteorite" papers.

[2020-10-25 08:14:42]

**[Kristian Andersen]**

I'm all for science \_messaging\_ on twitter, but yes, this whole science \_by twitter\_ gotta stop - it's ridiculous. I believe a certain Fred Hutch researcher hopefully learned that as well...

[2020-10-25 13:52:29]

**[Robert Garry]**

More crap - not even subtle... [shared file(s): image.png]

[2020-10-25 14:09:28]

**[Kristian Andersen]**

Yup, author sharing - big conspiracy. I'm impressed by how all these scientists - and I guess I'm the Kingpin here - all faked COVID origins. Very clever.

I can see she claims RmYN02 is fake too and that nobody can verify it's real, because the data isn't available / genome can't be assembled. Which is funny, since I did that over a month ago...  
<https://virological.org/t/on-the-veracity-of-ratg13/551/8>

[2020-10-25 14:48:37]

**[Eddie Holmes]**

Seems she is directly accusing me. I think I will email Lander. Is there an email address that he might answer.

[2020-10-25 14:49:00]

**[Eddie Holmes]**

Very close to slander.

[2020-10-25 14:56:29]

**[Kristian Andersen]**

It's crossed multiple lines by now. Eric is both at [REDACTED] and [REDACTED]. Might want to cc Pardis since you know her... (she's [REDACTED])

[2020-10-25 15:22:40]

**[Eddie Holmes]**

*[thread - ID: 2020-10-24 16:21:44]*

@Eddie Holmes Indeed, EVERY PNAS paper I have reviewed has been shite. Doing another one now.

[2020-10-25 15:30:29]

**[Eddie Holmes]**

Thanks! Multiple lines indeed. The Li preprint was posted in June. The authors got in touch with me because they wanted help to get the paper published and it do it correctly as they got a real bashing the 1st time around (they were the 99% similar crew). In correspondence with them it's clear that they are totally straight but rather naive. They don't normally bat this high up. In this paper they clear show the pangolins are sick and they Sanger sequenced the spike protein. All good. I also made them make the provenance of the sequences completely clear (i.e. part of the same outbreak). I don't see anything nefarious in here at all (how the fuck can you fake the CT scan of a pangolin lung - Tippex?). The paper got decent reviews at Nature Microbiology but the Chinese authorities are not letting them publish it because of the loss of face the first time around. Good work Inspector Clouseau. I've not been in touch with them for a while now so I'll see what's the latest.

[2020-10-25 16:01:07]

**[Eddie Holmes]**

The complicating thing about Alina though is that she has clearly gone mad and you are watching this process in real time

[2020-10-25 16:13:55]

**[Andrew Rambaut]**

Might be worth asking Pardis for any internal insight before formally going to Lander? Danny Park follows her so presumably sees what is going on.

[2020-10-25 16:48:09]

**[Kristian Andersen]**

Let me see if I can get a hold of Pardis and Danny - we have a meeting on Wednesday.

We have gone full conspiracy by now and the Broad name (of which both Bob and I are always members) are being dragged through this as well. She's alleging both misconduct and conspiracy - against some very well-known scientists. And, of course, all completely bullshit by an amateur who has never done this type of work.

I know how my institution would handle it - I don't think the Broad wants to be part of this either...

[2020-10-25 16:52:28]

**[Kristian Andersen]**

.... not to mention - accusing reviewers of her technical comment of being being complicit in the death of millions... seems fair enough.

[2020-10-25 17:07:15]

**[Eddie Holmes]**

I'm going to sleep on this and perhaps send something tomorrow. She is directly accusing me.

[2020-10-26 03:58:12]

**[Robert Garry]**

Alina's new BFFs: <https://threadreaderapp.com/thread/1320376404102377472.html> "Unpublished passage experiment in either human cells or humanized mice, which resulted in the accidental "sampling" of internal GOF work that were then erroneously reported as a "coronavirus infection" in the pangolin samples, leading to the Viruses paper by Liu et al."

[2020-10-26 09:34:58]

**[Robert Garry]**

Added the cat coronaviruses - fit the pattern of in-frame inserts and predicted O-linked glycans ----working on a Virological post

[2020-10-26 09:35:22]

**[Robert Garry]**

here the new figure - needs a little cleaning [shared file(s): image.png]

[2020-10-26 09:36:25]

**[Kristian Andersen]**

This is great!

[2020-10-26 09:36:28]

**[Robert Garry]**

Similar thing re the insertion in reverse on the S2' site

[2020-10-26 09:39:20]

**[Kristian Andersen]**

Yeah, very nice/interesting - imagine that, evolution allowed a virus to pick up a few additional AAs creating a super functional site.... Who would have known.

[2020-10-26 09:40:56]

**[Robert Garry]**

Yeah - hard to blame on the CCP...

[2020-10-26 09:42:17]

**[Robert Garry]**

Not surprisingly, the insert alters pathogenesis of the cat virus...

[2020-10-26 09:48:39]

**[Kristian Andersen]**

Oh, didn't know that - the FCS 'version' is worse?

[2020-10-26 09:52:57]

**[Robert Garry]**

<https://www.buckscountycouriertimes.com/story/news/2020/10/20/covid-19-cat-infected-euthanized-pennsylvania-coronavirus/5991097002/>

[2020-10-26 09:55:39]

**[Robert Garry]**

file:///Users/robertgarry/Downloads/viruses-12-00083%20(1).pdf

[2020-10-26 09:56:14]

**[Robert Garry]**

it's complicated...

[2020-10-26 14:37:22]

**[Kristian Andersen]**

Rebel :tada:

<https://www.smh.com.au/national/nsw/virus-rebel-professor-edward-holmes-named-nsw-scientist-of-the-year-20201026-p568qj.html>

[2020-10-26 14:46:13]

**[Eddie Holmes]**

Jesus. Embarrassing. The pics were taken in the soil lab as mine is PC2 (and I do have a lab before you ask). Bob - love those feline viruses! Bloody great.

[2020-10-26 15:04:40]

**[Andrew Rambaut]**

Love the random glassware. Surprised they didn't fill them with coloured liquids.

[2020-10-26 15:09:11]

**[Kristian Andersen]**

Worth pointing out that glassware like that is used for (a) chemistry experiments and (b) bacterial culture.

At least they don't have him holding a pipette upside down (and I'll point out that the glassware is pointing in the right direction too).

[2020-10-26 15:10:47]

**[Andrew Rambaut]**

Can I tweet it? Would be good to get out the bit about pissing off the Chinese Authorities! But I don't want to wind up the tin foilers if it will make things worse.

[2020-10-26 15:11:09]

**[Andrew Rambaut]**

I see it is already out there...

[2020-10-26 15:12:24]

**[Kristian Andersen]**

Oli beat you to it - obviously.

[2020-10-26 15:12:51]

**[Andrew Rambaut]**

And David Robertson. But not sure either of them are followed by the tin foil people

[2020-10-26 15:13:04]

**[Kristian Andersen]**

David for sure is.

[2020-10-26 15:13:31]

**[Kristian Andersen]**

Is that a huge bag of Renminbi next to him though? And does that flask say RaTG18?

[2020-10-26 15:14:33]

**[Robert Garry]**

AWESOME!

[2020-10-26 15:51:58]

**[Eddie Holmes]**

I really should have written RaTG18 on one of those flasks. Damn. Next time.

[2020-10-26 15:57:49]

**[Eddie Holmes]**

Wow, it's getting bigger than Watergate: [shared file(s): image (1).png]

[2020-10-26 16:03:06]

**[Andrew Rambaut]**

Bonkers

[2020-10-26 16:05:18]

**[Eddie Holmes]**

A perfect pictorial depiction of a conspiracy theory.

[2020-10-26 16:07:01]

**[Andrew Rambaut]**

Officially it is called a 'wall of crazy':

<https://www.esquire.com/uk/culture/film/news/a7703/detective-show-crazy-walls/>

[2020-10-26 16:10:57]

**[Eddie Holmes]**

Love it.

[2020-10-27 09:25:38]

**[Robert Garry]**

Well - I don't think she should be shocked at all. [shared file(s): image.png]

[2020-10-27 09:26:14]

**[Kristian Andersen]**

One additional proof that she's an idiot.

[2020-10-27 09:26:36]

**[Kristian Andersen]**

I wonder if they mentioned the Broad Institute... I'm sure Lander would be happy about that.

[2020-10-27 09:42:57]

**[Robert Garry]**

She keeps perpetuating the crap that nobody can assemble the genomes from the raw seq data.

[2020-10-27 09:43:43]

**[Robert Garry]**

Just guessing, but I think Eric would not be happy.

[2020-10-27 09:53:10]

**[Kristian Andersen]**

\*She\* may not be able to assemble the genomes because she has no idea what she's doing - however, other people (myself included) can. Easily. I even made the bam files publicly available for anybody to download.

[2020-10-27 10:03:08]

**[Andrew Rambaut]**

It sounds like the Broad needs to do an intervention. Just discuss what she is trying to achieve from this.

[2020-10-27 10:06:06]

**[Andrew Rambaut]**

Perhaps they could actually go through the data with her and give her the opportunity to try to persuade a few of them that know what they are doing. She won't be able to but perhaps they could bring her back from the brink, save her career (assuming they want to).

[2020-10-27 10:08:21]

**[Kristian Andersen]**

She's so deep in now that there's no coming back - if I was the Broad I'd make a clean cut.

[2020-10-27 10:21:27]

**[Andrew Rambaut]**

It really doesn't make any sense what she thinks she will get out of this - I assume this is entirely a genuine belief that she has discovered a truth and soon she will be celebrated for it. It is not like she is just giving the right wingers what they want either.

[2020-10-27 10:24:23]

**[Kristian Andersen]**

I think she strongly believes that she has uncovered something that the scientific world hasn't managed to do - fueled by a ton of crackpot followers on Twitter. The main problem, of course, is that she does not understand evolution or genomics - experience is pretty key here.... It's just really dumb - but after she started accusing scientists of covering this up, she no longer has my sympathy.

[2020-10-27 10:36:19]

**[Robert Garry]**

Beyond the accusations that the bat and pangolin sequences are fraudulent is the whole FCS is a :unicorn\_face: BS and that no one has ever seen a FCS generated that way before.

[2020-10-27 10:37:13]

**[Kristian Andersen]**

You can't fix stupid. :man-shrugging:

[2020-10-27 13:31:53]

**[Eddie Holmes]**

I will write to Eric (cc Pardis) today. Enough is enough.

[2020-10-27 13:34:09]

**[Eddie Holmes]**

How many times have we seen this: people start to believe their own tweeter hype that they are some sort of profound insight. There needs to be a new syndrome - tweeter-induced delusions.

[2020-10-27 13:35:36]

**[Eddie Holmes]**

I like the way she says 'top experts' which is a sort of tacit admission that she's not one.

[2020-10-27 14:46:40]

**[Kristian Andersen]**

"Twitter Associated Triumph delusion" - aka TWAT.

[2020-10-27 15:35:46]

**[Andrew Rambaut]**

*[thread - ID: 2020-10-27 15:35:46]*

If you look at all the replies that these people get every time they tweet - it is just a flood of validation saying how brilliant they are, thanking them for telling the truth, how brave they are. Because they are on that side of the fence they get none of the abuse. It clearly just feeds the delusion.

[2020-10-27 15:37:48]

**[Eddie Holmes]**

Just emailed Lander: Dear Professor Lander,  
I apologise for troubling you, but I wish to raise my very strong concerns about the online behaviour of one of your employees at The Broad Institute - Dr. Alina Chan. Over the past few months Dr. Chan has used Twitter to make increasingly strong claims about the origin of SARS-CoV-2, in particular that it may be of lab rather than natural



origin.

Of course, Dr. Chan is absolutely entitled to make these claims even though I strongly disagree with the comments made. However, in recent weeks her tweets have come far more inflammatory and in my opinion have clearly 'crossed the line' on multiple occasions. In particular, she has stated that there are serious question marks over the 'research integrity' of a number of papers (and their authors) that have been published on SARS-CoV-2 origins. She is particularly bothered that the same authors are appearing on multiple papers with the clear implication that she has uncovered some form of conspiracy and that these papers and their authors are therefore tarnished. I am one of these authors. In fact, I am the main author in question as I am involved in many of these papers. I've attached a number of these tweets below. You will see that in one she flippantly accuses people like me of mass murder.

While I am all for free speech and dissenting opinion, questioning my research integrity online and implying that I am involved in some sort of cover-up is totally unacceptable. I've tried to let this go as much as I can, but enough is now enough. I will therefore pass all her tweets, as well as those of a variety of other people, to my lawyers here to assess if any can be classed as defamation. If they do, I will not hesitate to take legal action.

To be clear, I am absolutely assure that there is nothing untoward about any of these papers. For example, she claims that the original sequence data for the bat virus RmYN02 is unavailable, which is plainly incorrect: Dr. Kristian Andersen managed to download it, reassemble the genome, and post it online. What Dr. Chan sees as conspiracy is simply collaboration, and as I've worked on emerging viruses for 30 years and very well known in this field, it is no surprise that people ask me to be involved in these studies. To tarnish my good name and suggest that I am involved, even tacitly, in any conspiracy is deeply, deeply insulting. She seems to have little comprehension of the hurt she is causing good and honest scientists who just want get to the bottom of what happened and who have done nothing wrong.

Again, I have no problem with Dr. Chan expressing her opinions but the accusations she is making again me are troubling and insulting. I will not stand for my reputation to be questioned like this.

With best wishes,

Eddie Holmes

[2020-10-27 15:39:19]

**[Eddie Holmes]**

Quite hard to phrase, but I hope that at least shows how pissed off I am. I cc'd Pardis and included a number of the tweets.

[2020-10-27 15:40:54]

**[Robert Garry]**

Very well done Eddie - the message is quite clear and appropriate..

[2020-10-27 15:41:24]

**[Eddie Holmes]**

Thanks! I'll let you know what happens.

[2020-10-27 16:27:45]

**[Kristian Andersen]**

[thread - ID: 2020-10-27 15:35:46]

@Andrew Rambaut So the opposite of what Eddie and I get when we tweet?

[2020-10-27 16:29:47]

**[Kristian Andersen]**

Agreed. Very well done.

[2020-10-27 16:29:56]

**[Kristian Andersen]**

(and necessary - so thanks Eddie!)

[2020-10-27 16:30:09]

**[Andrew Rambaut]**

*[thread - ID: 2020-10-27 15:35:46]*

@Andrew Rambaut Exactly, you pair of CCP lap-dogs

[2020-10-27 16:31:55]

**[Kristian Andersen]**

*[thread - ID: 2020-10-27 15:35:46]*

@Andrew Rambaut Climate Prediction Center? Community Planners Committee? Certified Professional Coder? Confused...

[2020-10-27 16:32:15]

**[Kristian Andersen]**

*[thread - ID: 2020-10-27 15:35:46]*

@Andrew Rambaut Oh. :wink:

[2020-10-28 02:29:30]

**[Eddie Holmes]**

Tommy Lam says he has more sero-positive pangolins. More details when I have them.

[2020-10-28 02:44:06]

**[Andrew Rambaut]**

From markets? Cool.

[2020-10-28 02:50:15]

**[Eddie Holmes]**

Likely directly from Malaysia I now hear. Very cool.

[2020-10-28 02:52:52]

**[Andrew Rambaut]**

That is big then -

[2020-10-28 02:54:51]

**[Eddie Holmes]**

Yup, very big. First sniff of something new for months! I'll keep you in the loop.

[2020-10-28 06:37:33]

**[Robert Garry]**

Maybe an expedition to Kuala Lumpur is on order - Kristian can do some climbing on rocks and I heard they have Bat(u) Caves their.

[2020-10-28 07:03:05]

**[Kristian Andersen]**

Let's go!!! [cool indeed - assuming they're not also fake... :wink:]

[2020-10-28 07:12:16]

**[Andrew Rambaut]**

Make sure you get on the paper, Eddie so Alina can add another arrow on her wall of crazy.

[2020-10-28 13:10:02]

**[Eddie Holmes]**

Oh yes, can you imagine. Let's hope there are some dodgy Malaysian collaborators.

[2020-10-28 13:11:04]

**[Eddie Holmes]**

Tommy also says that Ian Wilson has shown that the Guangxi pangolin virus binds well to human ACE2.

[2020-10-28 13:12:42]

**[Kristian Andersen]**

Yup, I'm sure that's true - I'll ask Ian if I 'see' him

[2020-10-28 14:27:04]

**[Eddie Holmes]**

I'm also looking forward to the next episode of 'Clueless Detective' on Twitter.

[2020-10-28 22:45:04]

**[Eddie Holmes]**

We have a late - left field - entry for the most inappropriate Tweet of the week and the clear winner in the 'worst example when trying to make a point' category: [shared file(s): Screen Shot 2020-10-29 at 11.52.32 am.png]

[2020-10-28 22:46:45]

**[Kristian Andersen]**

Oh, good god.

[2020-10-29 00:00:48]

**[Andrew Rambaut]**

Why mess around - implement Godwin's law in the first tweet.

[2020-10-29 01:04:40]

**[Eddie Holmes]**

Hadn't seen that one - brilliant.

[2020-10-29 15:51:55]

**[Kristian Andersen]**

The stuff of legends.

<https://twitter.com/matchbox982/status/1321909888709095424?s=20>

[2020-10-29 16:29:31]

**[Eddie Holmes]**

I just saw. 'Pangolin Idiot' is just priceless. We definitely need t-shirts.

[2020-10-29 16:56:37]

**[Kristian Andersen]**

:rolling\_on\_the\_floor\_laughing: [shared file(s): Screen Shot 2020-10-29 at 4.55.25 PM.png]

[2020-10-29 16:56:48]

**[Kristian Andersen]**

[I need to get into the t-shirt business]

[2020-10-29 17:08:17]

**[Andrew Rambaut]**

Might be time to get out the Danish hairdressing advert...

[2020-10-29 17:15:05]

**[Kristian Andersen]**

I

[2020-10-29 17:15:07]

**[Eddie Holmes]**

Genius. [shared file(s): EliS1tqUYAAYMVG.jpg]

[2020-10-29 17:15:14]

**[Kristian Andersen]**

I'm thinking we're on to something here.

[2020-10-29 17:15:38]

**[Kristian Andersen]**

It really is a good t-shirt - great idea, Eddie.

[2020-10-29 17:16:00]

**[Eddie Holmes]**

It is! I definitely want one.

[2020-10-29 17:16:10]

**[Andrew Rambaut]**

Perhaps the honey traps logo?

[https://andersenlab.slack.com/files/UT3183GLT/F01DTCPASP2/screen\\_shot\\_2020-10-22\\_at\\_7.01.01\\_pm.png](https://andersenlab.slack.com/files/UT3183GLT/F01DTCPASP2/screen_shot_2020-10-22_at_7.01.01_pm.png)

[shared file(s): Screen Shot 2020-10-22 at 7.01.01 pm.png]

[2020-10-29 17:16:22]

**[Andrew Rambaut]**

(on the back?)

[2020-10-29 17:16:39]

**[Eddie Holmes]**

Or...."He is nothing"?

[2020-10-29 17:17:30]

**[Kristian Andersen]**

YES

[2020-10-29 17:18:40]

**[Andrew Rambaut]**

So good. Love it.

[2020-10-29 17:30:37]

**[Kristian Andersen]**

Three careers finally come together. Took a while. [shared file(s): model.jpg]

[2020-10-29 17:32:25]

**[Eddie Holmes]**

Brilliant!

[2020-10-30 01:56:01]

**[Andrew Rambaut]**

<https://twitter.com/bobapposite/status/1321907998197993480?s=21>

[2020-10-30 01:56:29]

**[Andrew Rambaut]**

Did we forget to consider bat super colliders as a source of SC2?

[2020-10-30 02:05:58]

**[Eddie Holmes]**

<http://www.bat-kharkov.in.ua/en/bat-collider-en/>

[2020-10-30 02:07:45]

**[Eddie Holmes]**

You learn something new every day. He's right though - we did not consider a bat ecopark in the Ukraine. There's something for Proximal Origins II.

[2020-10-30 02:16:05]

**[Eddie Holmes]**

Actually, Kharkiv looks like an emergence accident waiting to happen. I'll tip-off PREDICT:  
<http://www.bat-kharkov.in.ua/en/rescue-100-bats-in-kharkiv-en/>

[2020-10-30 09:16:43]

**[Andrew Rambaut]**

'Country full of bats and scientists' [shared file(s): image.png]

[2020-10-30 09:17:47]

**[Andrew Rambaut]**

I blocked him because of the comment about Rothschilds - [shared file(s): image.png]

[2020-10-30 09:19:07]

**[Andrew Rambaut]**

Russian operative? Really grasping at straws if they think they are going to get any traction on the 'origin in Ukraine' idea.

[2020-10-30 09:20:21]

**[Andrew Rambaut]**

"if Rambaut has no Ukraine sequences he has nothing"

[2020-10-30 09:20:34]

**[Andrew Rambaut]**

It's true

[2020-10-30 09:20:40]

**[Kristian Andersen]**

Haha, the internet truly is bonkers. Credit to him for making a testable hypothesis.

Separately, I have heard the Bat ICUs are once again at capacity - I guess he didn't know \_that\_.

[2020-10-30 11:42:52]

**[Kristian Andersen]**

This is a pretty bonkers preprint, however, some of the points are actually pretty interesting (although I can't possibly assess the validity): <https://zenodo.org/record/4119263#.X5xXlnIKg2w>

[2020-10-30 11:44:17]

**[Kristian Andersen]**

The ENA recording dates in early December are correct - and that is actually a little weird. @Eddie Holmes - do you have any idea when BGI might first have sequenced anything from a really early suspected case?

The spread a long Line 2 - while I can't possibly confirm any of that - is also not totally bonkers.

[2020-10-30 11:47:13]

**[Kristian Andersen]**

The guy emailed me (probably all of us?) back in May. Mostly bonkers stuff, but not completely. [shared file(s): SARS-CoV-2 origin]

[2020-10-30 12:50:15]

**[Kristian Andersen]**

Some of this stuff is actually pretty interesting - but necessarily because of what the paper insinuate. The Huanan market is on Line 2 as well (so is WIV) and where one of these early sequences differ from Hu-1, it is indeed ancestral (as in, the same as RaTG13).

I think it's entirely possible these may be some of the very earliest patients and suspected in early December - only later to be sequenced. That Lancet paper with patients dating back to the very beginning of December also shows that China probably knew something was going on early December and not mid-December, which I think is the 'official' story. Not too surprising, but some of these details are pretty interesting. Doesn't really point to lab origins - although the registration dates are a little puzzling and I'm not sure if this particular hospital should raise a flag (it has a weird name, but don't they all - some hospital bound to be first seeing patients...).

[2020-10-30 14:43:29]

**[Eddie Holmes]**

Here are the sequencing dates that I am pretty bloody certain are correct:

[2020-10-30 14:43:34]

**[Eddie Holmes]**

- Dec 25: Patient samples sent to (sequencing) Company A
- Dec 26: Fragments of SARS-CoV-2 discovered by Company A
- Dec 27: Full genome obtained by Company A
- Dec 27, 28: Company A report to CDC and hospital in Wuhan
- Dec 30: Company B sequence data from another patient
- Dec 31: Company B's report (59 reads) "leaked" on social media

[2020-10-30 14:43:52]

**[Eddie Holmes]**

I think company B is the BGI.

[2020-10-30 14:44:24]

**[Kristian Andersen]**

Yeah, that's kinda what I thought. There's no question these four runs were registered on 12/10 though - which is kinda peculiar.

[2020-10-30 14:45:16]

**[Kristian Andersen]**

I thought maybe BGI would have made a bunch of registrations (because I assume they're sequencing from patients frequently), but that wasn't really the case - as far as I can see, only these four ones.

[2020-10-30 14:45:59]

**[Kristian Andersen]**

E.g., this one: <https://www.ebi.ac.uk/biosamples/samples/SAMEA6507890>

[2020-10-30 14:48:42]

**[Kristian Andersen]**

Interesting list of collaborating institutions there too - I assume Weifeng is probably the person from Shandong.

[2020-10-30 14:49:32]

**[Eddie Holmes]**

Yes, I can check with Weifeng. I don't understand it, but I can't believe those dates are correct.

[2020-10-30 14:50:04]

**[Kristian Andersen]**

The dates are correct, I think - I don't think those can be wrong, since they're all recorded by the ENA - not the submitter.

[2020-10-30 14:50:32]

**[Andrew Rambaut]**

Could ask Ewan Birney to look into it. Perhaps they have additional logs?

[2020-10-30 14:51:13]

**[Kristian Andersen]**

Yeah, probably. It is kinda peculiar to me - these are also all young people.

[2020-10-30 14:53:24]

**[Eddie Holmes]**

When do they add the sample collection date?

[2020-10-30 14:53:34]

**[Kristian Andersen]**

Once they submit the data

[2020-10-30 14:54:20]

**[Kristian Andersen]**

But the "creation date" is stamped in automatically - I don't think they'd have filled in any of the other information until they submitted the data - but that's a good question for Ewan

[2020-10-30 14:55:33]

**[Kristian Andersen]**

All the assemblies are on the CNGB too - but no automatic dates stamped.

<https://db.cngb.org/search/project/CNP0000881/> (submitter being "Weijun Chen" - but obviously a million people with that name)

[2020-10-30 14:55:34]

**[Eddie Holmes]**

So, to be clear, what happened on 12/10? The BGI sent a file to EBI?

[2020-10-30 14:56:37]

**[Kristian Andersen]**

No, on 12/10 BGI created four data entries with EBI. Data was then later filled in. Typically that's not really how it's done.

[2020-10-30 14:57:41]

**[Kristian Andersen]**

So creation is 12/10, but upload is at a later date (I don't think we can know when - collection date is 12/26 and the data was released to the public 1/30)

[2020-10-30 14:58:45]

**[Kristian Andersen]**

Creating a BioSample for a pandemic virus two weeks before it's known that you have a patient with said virus is a little strange - if the timeline is correct.

[2020-10-30 15:00:26]

**[Eddie Holmes]**

The collection date sounds totally right. I don't understand why there is a file creation date 2 weeks earlier. Makes no sense at all. And why would BGI know about this? They are a commercial company that have nothing to do with Wuhan. WIV do their sequencing in-house I think.

[2020-10-30 15:03:08]

**[Kristian Andersen]**

That's the bit that's strange - because typically you don't create a BioSample before you have the data, unless you know the data is immediately forthcoming and you want to make sure there's no delay in submitting the data.



[2020-10-30 15:04:50]

**[Kristian Andersen]**

So if those BioSamples were created on, say 12/25, then that's totally what you'd expect - but we're talking two weeks before there was any (official) realization of a novel coronavirus.

[2020-10-30 15:05:56]

**[Eddie Holmes]**

Yes, I don't get it at all. I'm contacting people now. But 2 weeks also sounds WAY too far in advance!

[2020-10-30 15:06:16]

**[Kristian Andersen]**

Yeah, definitely - very interesting.

[2020-10-30 15:21:23]

**[Eddie Holmes]**

Company A is Vision Medicals. I don't believe for a nanosec that BGI knew there was a pandemic virus on Dec. 10th. That time-line makes zero sense with any known timeline, the epidemiological history of the outbreak, nor what was on Chinese social media. Nor would WIV have anything to do with BGI. The best time-line is here and confirmed my colleagues in China: <https://apnews.com/article/3c061794970661042b18d5aeaaed9fae>

[2020-10-30 15:23:20]

**[Eddie Holmes]**

The idea that 2-3 weeks before all this it was known at a commercial sequencing company based in a different city seems untenable to me. Nor does it fit the time-line of the first patients seen by the doctors (sorry to include a wikipedia link): [https://en.wikipedia.org/wiki/Li\\_Wenliang](https://en.wikipedia.org/wiki/Li_Wenliang)

[2020-10-30 15:24:10]

**[Eddie Holmes]**

However, I'm checking with colleagues there now.

[2020-10-30 15:33:45]

**[Kristian Andersen]**

One explanation is that BGI created these four BioSamples for a different purpose and then backfilled with the SARS2 data when they generated it. But I don't think there's any ambiguity that these were created on 12/10 - only we don't know for what purpose (so could have been for a novel coronavirus, could have been for something else - the metadata describing the BioSample very likely weren't entered until the data were deposited).

[2020-10-30 15:35:25]

**[Kristian Andersen]**

I would love to see the full submission history for these entries - Andrew, dig a little :wink:

[2020-10-30 15:51:58]

**[Kristian Andersen]**

Eddie, it's your paper... :wink:

[https://www.thelancet.com/article/S0140-6736\(20\)30251-8/fulltext](https://www.thelancet.com/article/S0140-6736(20)30251-8/fulltext)

I assume this is the same Weijun Chen who's the submitter of the data and is from BGI.

[2020-10-30 15:52:25]

**[Kristian Andersen]**

He'd know what's up with that early creation date.

[2020-10-30 15:54:58]

**[Kristian Andersen]**

If you had some suspected cases of novel coronavirus, Weijun would be the kind of guy you'd contact - he's been developing diagnostics for SARS too, so would make sense. I think there's probably an earlier timeline here that they may have been obscuring a little - which, honestly, wouldn't surprise me that much.

[2020-10-30 16:22:50]

**[Eddie Holmes]**

Yes, I looked at the Lancet paper straight away. I've already contacted Weifeng. If that fails I'll contact Weijun Chen.

[2020-10-30 16:25:29]

**[Eddie Holmes]**

The point is who is the 'you' in your question? Who did they work for? A doctor in Wuhan? What people would do is run the standard panel of tests and if they failed perhaps contact a sequencing company like BGI. But if that were the case why did they not submit samples until 2 weeks later? My guess is that they were created for something else and then backfilled.

[2020-10-30 16:25:38]

**[Kristian Andersen]**

Yeah, it'll be interesting to see what they say - also, this is from the paper about the metadata [shared file(s): Screen Shot 2020-10-30 at 4.08.13 PM.png]

[2020-10-30 16:26:29]

**[Kristian Andersen]**

"My guess is that they were created for something else and then backfilled"

Yeah, that's my suspicion too - although that \_is\_ a little unusual.

[2020-10-30 16:28:11]

**[Eddie Holmes]**

But I think the other option is even more unusual...but I'm as keen to find out as you! At the very least we need a compelling answer for the trolls who are about to descend upon us...

[2020-10-30 16:30:09]

**[Kristian Andersen]**

Yeah, once the tinfoil hats get hold of this. :boom:

[2020-10-30 16:31:55]

**[Eddie Holmes]**

But it also doesn't fit the WIV narrative as they don't do anything with the BGI.

[2020-10-30 16:33:22]

**[Eddie Holmes]**

And the BGI are not even in Wuhan.

[2020-10-30 16:33:41]

**[Kristian Andersen]**

Yeah, I don't really see how any of this fits with WIV (other than it being close to PLA). It fits better with the Huanan market (since the whole "Line 2" narrative isn't all that stupid)

[2020-10-30 16:34:52]

**[Kristian Andersen]**

One thing "Steve" considers a potential hypothesis here is a "vaccine challenge trial" - which isn't totally idiotic. But we'd have known about some SARS2 related virus if that were the case.

[2020-10-30 16:35:22]

**[Eddie Holmes]**

Raccoon dogs in the market would be so simple....yes, the vaccine trial is mad.

[2020-10-30 16:38:05]

**[Eddie Holmes]**

We know there must have cases around at that time. All those posterior diversity stuff is complete BS though. That Wade guy from the NYT kept rattling on about that.

[2020-10-30 16:40:21]

**[Kristian Andersen]**

Yeah, we know the early cases occurred back in the beginning of December, so it's certainly not completely mad to think that somebody was investigating using sequencing around that time.

[2020-10-30 16:42:50]

**[Eddie Holmes]**

But very likely in that there is just no footprint of this anywhere else...anyway, I've put the feelers out and I'll update you as soon as I hear anything.

[2020-10-30 16:45:30]

**[Eddie Holmes]**

Also having a chat with Tommy later so will be armed with more pangolies.

[2020-10-30 16:45:48]

**[Kristian Andersen]**

Don't forget to wear your new shirt!

[2020-10-30 16:46:08]

**[Kristian Andersen]**

... and just so we have the paper saved here on Slack... [shared file(s): COVID Pandemic Began at PLA Hospital in Wuhan.pdf]

[2020-10-30 16:46:58]

**[Eddie Holmes]**

I've had quite a few preorders for that shirt!!

[2020-10-30 17:05:51]

**[Eddie Holmes]**

The BGI people first made their data entry in China on Dec. 26th:

[2020-10-30 17:06:00]

**[Eddie Holmes]**

shared file(s): Screen Shot 2020-01-30 at 8.50.31 PM.png

[2020-10-30 17:06:09]

**[Eddie Holmes]**

shared file(s): Screen Shot 2020-10-31 at 11.03.59 am.png

[2020-10-30 17:07:46]

**[Eddie Holmes]**

This time-line makes sense but it does show that George Gao must have known about it before Dec. 30!! I never believed that one for a second.

[2020-10-30 17:09:22]

**[Kristian Andersen]**

Yeah, this totally makes sense given the timeline. And yeah - George must have known.

The ENA entries must have been created for some other purpose and backfilled. But it \_is\_ weird - because they only created those four on ENA and then nothing for a few weeks.

[2020-10-30 17:10:26]

**[Eddie Holmes]**

We'll get to the bottom of it. That also provided me with Weijun Chen's email address so I'm just contacting him now.

[2020-10-30 17:10:57]

**[Kristian Andersen]**

Okay, cool - I'm sure they're going to have a totally mundane explanation - like why RaTG13 was named that way :wink:

[2020-10-30 17:11:52]

**[Eddie Holmes]**

On it.

[2020-10-30 17:11:56]

**[Kristian Andersen]**

(and one pretty critical thing against the bonkers theories in the paper - wouldn't WIV have been mentioned in the BioSample had the virus come from there....? :man-shrugging:)

[2020-10-30 17:12:13]

**[Eddie Holmes]**

Totally!!

[2020-10-30 20:54:37]

**[Eddie Holmes]**

Tommy says there are rumours that people knew earlier. My boy [REDACTED] told me this: "As for the entry date, I have not read the long document yet, but that submission date is possible. They all talked about the sampling might occur much earlier (from different occasions). Therefore, I wouldn't be surprised if the sample is collected around that time (Dec 10th, not too bad). And I wouldn't be surprised if they have "changed" the sampling date". Nothing officially. At worse it means that the China CDC must have known earlier which will throw the shit badly on them, particularly George. May be not a bad thing. Does not impact origins in any way as I see it.

[2020-10-30 20:58:57]

**[Eddie Holmes]**

Tommy has 6 SARS-CoV-2 sero-positive pangolins that are currently being metagenomically sequenced. The other news - which is obviously strictly confidential - is that someone in China (Tong?) has apparently obtained a MERS-like virus from a pangolin.

[2020-10-30 21:33:03]

**[Kristian Andersen]**

Very interesting, makes sense. Based on this, the most likely explanation is that they probably had the very earliest patients sequenced around Dec 10th and then somebody slammed the brakes. The samples we have that are dated 12/26 are likely earlier then - and actually supported by the sequences themselves (one of these appear basal). The root is funky too - @Andrew Rambaut, I wonder if uncertainty in the dates around the very earliest samples could help explain that? Probably... (although, last I checked, the root is still funky if you remove all the dates).

[2020-10-30 21:33:45]

**[Kristian Andersen]**

In any case - this is going to cause another shit storm for the Chinese they're going to have a very hard time cleaning up - let's hope it happens after the election....

[2020-10-30 21:41:22]

**[Kristian Andersen]**

*[thread - ID: 2020-10-30 21:41:22]*

The most basal sample being WH4 - this one: <https://www.ncbi.nlm.nih.gov/biosample/SAMEA6507893>. The GPS coordinates on that points to a nursing home right next to the Line 2 main station (patient being a 39 old man).

Very interesting - it appears that there might have been some early cases the world didn't know about... (or rather, cases they did know about, but they occurred earlier)

[2020-10-30 21:41:39]

**[Eddie Holmes]**

Yes, a shit storm if true. But that's just [REDACTED]. Let's see if I can anything 'official'.

[2020-10-30 21:46:20]

**[Eddie Holmes]**

I really want to see that pango data!

[2020-10-30 21:48:08]

**[Kristian Andersen]**

Yup - and I'm sure you will before the rest of us! Pangolying idiot!

[2020-10-30 21:50:58]

**[Eddie Holmes]**

Those t-shirts will be priceless.

[2020-10-30 21:53:01]

**[Kristian Andersen]**

*[thread - ID: 2020-10-30 21:53:01]*

I'll need to get a bunch for VGE next year!

[2020-10-30 23:30:05]

**[Eddie Holmes]**

Dear Eddie,  
Thank you for your email. To be honest, I noticed the outbreak from the media in the morning of December 31, 2019. George knew the outbreak several hours earlier than me, midnight December 30, 2019 also from the media. In addition, as you know, what I do is to analyze the genome sequences from BGI and China CDC. I don't know what is going on with the information you sent. I guess it might be a typo. Anyway, I have contacted the collaborator from BGI to give a logical explanation. If necessary, I will tell this to George.  
Best wishes,  
Weifeng

[2020-10-31 01:16:47]

**[Andrew Rambaut]**

*[thread - ID: 2020-10-30 21:41:22]*

I think the GPS coordinates are truncated to two decimal places so I wouldn't make too much inference from them (assume +/- 1km).

[2020-10-31 01:18:24]

**[Andrew Rambaut]**

*[thread - ID: 2020-10-30 21:53:01]*

@Kristian Andersen Limited edition - signed.

[2020-10-31 07:30:09]

**[Kristian Andersen]**

Interesting email from Weifeng. Importantly though - the dates can't be typos as they're automatically generated....

[2020-10-31 15:26:58]

**[Eddie Holmes]**

Yes, I told him that and that it was important we get it resolved. George is a slippery bugger but Weifeng is totally straight and a very good guy. If he says he knew on the 31st then I believe him. I can't say I believe George though. I'll update as I hear more.

[2020-10-31 22:07:02]

**[Kristian Andersen]**

Thanks Eddie! Looking forward to learning more...

I'm out until Thursday next week though - gotta escape this 'effing election!

[2020-11-01 00:47:07]

**[Andrew Rambaut]**

Good plan. You going out into the desert?

[2020-11-01 01:12:11]

**[Eddie Holmes]**

Let's hope it's settled by Thursday.

[2020-11-01 06:14:35]

**[Kristian Andersen]**

Yeah, heading as deep into the desert as we can - the mountains of Death Valley. Hopefully we'll be at least 50 miles away from the nearest paved road / cell tower!

[2020-11-01 07:37:56]

**[Kristian Andersen]**

To Eddie's comment - let's just say, we have contingency plans if Tuesday doesn't go as expected... [shared file(s): Image from iOS.jpg]

[2020-11-01 07:57:25]

**[Robert Garry]**

Very interesting thread gentlemen. Agree that this will send the DRASTIC/Alina/Bannon axis into a frenzy. Fortunately - they don't have the background to piece this together before the election. Earlier cases in Wuhan would not be all that much of a surprise (of course that was predicted in Proximal Origins). Also a lot of people in hindsight think they had COVID in late 2019, but didn't. On another note - We got power back at the house yesterday after Zeta -no internet at the house thou. If Tuesday does not go well though I'll be leaving the country as well.

[2020-11-01 08:55:10]

**[Robert Garry]**

Maybe just a coincidence but Alina is recommending this "Jess." I'm still waiting for my pity award, but a nice wad of cash from CCP would do as well I suppose. [shared file(s): image.png]

[2020-11-01 12:19:07]

**[Eddie Holmes]**

Cash as cash Bob. I'm not exactly sure what Jess is calling but I look forward to future comments.

[2020-11-01 16:04:20]

**[Andrew Rambaut]**

```Thomas West [REDACTED]>  
Russia-1 TV News Interview: Covid-19 Origins

Hello Dr. Rambaut, my name is Thomas West, an American producer for Russia-1. If you're unfamiliar with the channel, it is the largest news channel in Russia, averaging 100 million viewers per day.

We are doing a documentary on the origins of COVID-19 and are seeking experts willing to give interviews to weigh in on the subject. We want every theory coming from the scientific community to be fairly represented, and would like to invite you to give your professional input on the theory you think is most likely true.

We will not take up much of your time. If you are interested in participating or have any questions, please let me know by replying to this email, or by contacting me at my personal phone number: [REDACTED].

We'd prefer to set up an interview within the next 2 weeks and send an interview team out to your location, but phone/webcam interviews are also welcome.

Thank you for your response and have a wonderful day,

Thomas``

[2020-11-01 16:04:47]

[Andrew Rambaut]

Oh, right. Going to jump straight into that one

[2020-11-01 16:11:27]

[Andrew Rambaut]

The phone number is Atlantic City NJ (don't know if Russia-1 have an office there). But googling the email address [REDACTED] gives you one hit: <https://www.youtube.com/watch?v=ctpfRxvC0JQ>

First comment:

> Email me at [REDACTED] if you're interested in collaborating on song projects! [shared file(s): image.png]

[2020-11-01 16:12:46]

[Andrew Rambaut]

Scam? Or just a genuine producer with a sideline in song writing who also uses his home email address for work?

[2020-11-01 17:09:35]

[Eddie Holmes]

Yes, he contacted me the other day. I declined. Like the song stuff. I saw you got an email from Colonel Alexei? He's been emailing me for months. He's hilarious.

[2020-11-02 06:47:55]

[Robert Garry]

<https://www.nytimes.com/2020/11/02/world/world-health-organization-china-trump-coronavirus.html?smid=>

[2020-11-02 11:35:46]

[Eddie Holmes]

Dear Eddie,

Thank you for your email. To be honest, I noticed the outbreak from the media in the morning of December 31, 2019. George knew the outbreak several hours earlier than me, midnight December 30, 2019 also from the media. In addition, as you know, what I do is to analyze the genome sequences from BGI and China CDC. I don't know what is going on with the information you sent. I guess it might be a typo. Anyway, I have contacted the collaborator from BGI to give a logical explanation. If necessary, I will tell this to George.

Best wishes,

Weifeng

[2020-11-02 11:36:34]

[Eddie Holmes]

And it has indeed been corrected to Jan 29th 2020: <https://www.ebi.ac.uk/biosamples/samples/SAMEA6507890>

[2020-11-02 11:36:51]

[Eddie Holmes]

[thread - ID: 2020-11-02 11:36:51]

The perfect fix!

[2020-11-02 11:39:56]

[Eddie Holmes]

Interesting story in the Times Bob. I'll look at that carefully later.

[2020-11-02 13:07:35]

[Eddie Holmes]

Interesting article indeed. Not a good look for the WHO nor George Gao really. Hilarious that Ian is so desperate to get into the action yet is so peripheral. Most of all, it is amazing that we really no nothing concrete about those market samples. Not a good look.

[2020-11-02 13:54:03]

[Andrew Rambaut]

[thread - ID: 2020-11-02 11:36:51]

@Eddie Holmes The tinfoil brigade are going to love this!

[2020-11-02 14:57:26]

[Eddie Holmes]

[thread - ID: 2020-11-02 11:36:51]

@Eddie Holmes Indeed, but it's the best outcome. Hopefully EBI can confirm if necessary.

[2020-11-02 15:29:16]

[Eddie Holmes]

[thread - ID: 2020-11-02 11:36:51]

@Eddie Holmes And let's face, the tinfoil hat brigade would moan whatever the solution.

[2020-11-04 09:15:26]

[Andrew Rambaut]

Where's a Dane when you need him to translate something:

<https://www.dr.dk/nyheder/indland/statens-serum-institut-mink-med-muteret-virus-kan-oedelaegge-effekten-af-vaccine#!/>

[2020-11-04 09:15:51]

[Andrew Rambaut]

> Danish Prime Minister Mette Frederiksen announce that all mink at all mink farms in Denmark must be killed. Coronavirus have mutated in mink and that could ruin the effect of a future Covid19 vaccine.

[2020-11-04 09:16:03]

[Andrew Rambaut]

Sounds like bollocks to me.

[2020-11-04 12:44:53]

[Eddie Holmes]

Yup, sounds like another rash use of the word 'mutation'.

[2020-11-04 14:29:13]

[Andrew Rambaut]

Actually, I have some inside information from WHO (please keep confidential):

> We have tested a variant with four simultaneous changes in the spike protein (Amino acid changes: 69del, Y453F, I692V, M1229I). This variant has been found in five minkfarms and also in humans in the surrounding community. A complete GISAID upload of all Danish Sars-CoV-2 sequences of human origin is planned for the end of week 45. We have cultured this virus from a human patient and evaluated whether it was sensitive to neutralizing antibodies (antisera) from a collection of sera from convalescent COVID-19 patients. We found that this virus showed less sensitivity (resistance) for neutralizing antibodies from persons with previous COVID-19 infection.

[2020-11-04 14:29:35]

[Andrew Rambaut]

Why they are not releasing this information and the data I don't know.

[2020-11-04 14:53:52]

[Eddie Holmes]

Interesting. Looking forward to the press on this one.

[2020-11-04 15:03:15]

[Robert Garry]

Opinion: To stop the next pandemic, we need to unravel the origins of COVID-19

View ORCID Profile

David A. Relman

PNAS first published November 3, 2020; <https://doi.org/10.1073/pnas.2021133117>

[2020-11-04 18:03:57]

[Eddie Holmes]

[thread - ID: 2020-11-04 18:03:57]

This is crap: "This argument fails to acknowledge the possibility that two or more as yet undisclosed ancestors (i.e., more proximal ancestors than RaTG13 and RmYN02) had already been discovered and were being studied in a laboratory—for example, one with the SARS-CoV-2 backbone and spike protein receptor-binding domain, and the other with the SARS-CoV-2 polybasic furin cleavage site". (1) RmYN02 was not being worked on; (2) the spike protein receptor-binding domain in both these viruses is completely different to SARS-CoV-2; and (3) RmYN02 does not have a polybasic furin cleavage site.

[2020-11-04 20:16:55]

[Eddie Holmes]

I bet you're jealous: [shared file(s): Screen Shot 2020-11-05 at 3.16.13 pm.png]

[2020-11-04 23:14:02]

[Andrew Rambaut]

[thread - ID: 2020-11-04 18:03:57]

@Eddie Holmes I think this is suggesting they may have had another, secret, virus that was the actual progenitor of SC2. So basically they found SC2 in nature, brought it back to the lab, didn't tell anyone, and then it got out. Definitely can't rule that out just by looking at the genome but massively less likely than the same virus making the jump in the 1000s of contact events between humans and animals in the wild/animal trade.

[2020-11-04 23:15:39]

[Andrew Rambaut]

The promotion gigs start rolling in. It will remind Kristian of his youth. Better check the company isn't bank-rolled by the CCP?

[2020-11-05 00:52:32]

[Eddie Holmes]

Obviously I won't be doing this.

[2020-11-05 00:55:14]

[Eddie Holmes]

[thread - ID: 2020-11-04 18:03:57]

@Eddie Holmes Yes, you're right. I misread it. BUT where would the RBD come from? Plus still proposes a lot of lying. I expected better of David Relman,

[2020-11-05 14:02:35]

[Kristian Andersen]

Not jealous :point_up_2: [shared file(s): kga.jpg]

[2020-11-05 14:03:32]

[Kristian Andersen]

What else did I miss? Mink? Anything public on the specific mutations? I can see some of these have already been found in human cases, so unclear to me how we know they originated in mink?

[2020-11-05 14:05:55]

[Andrew Rambaut]

Y453F seems to have arisen 5 or 6 times in humans. But it arose 4 times independently in Marion's mink genomes and now in Denmark. Seems possible it is an adaptation to mink's ACE2 but also can occur in humans but not really go anywhere.

[2020-11-05 14:11:18]

[Andrew Rambaut]

The variant that the Danes are going on their crazed furry creature killing spree about has 4 spike mutations - 69del, Y453F, I692V, M1229I

[2020-11-05 14:13:03]

[Kristian Andersen]

Thanks Andrew - yeah, I noticed Y453F was found in NL as well. Is it public knowledge that these are the four mutations, or is that WHO confidential for now? I have a TON of DK reporters asking about this, but haven't found anything official.

[2020-11-05 14:14:12]

[Kristian Andersen]

For this mink stuff - I could totally see selection in mink driving things like immune escape. Presumably selection for transmission (including longer infectious period) is high given that they're caged up.

[2020-11-05 14:15:40]

[Andrew Rambaut]

Confidential but everyone is going bonkers at Denmark for not giving out any details.

[2020-11-05 14:16:39]

[Kristian Andersen]

So ridiculous - they have been sitting on a ton of mink+human sequencing data for months and nothing released. I'll call them out to a couple of journalists

[2020-11-05 14:19:09]

[Andrew Rambaut]

They just dumped a whole lot of human data on GISAID but it is all from Apr/May not sure why they did that

[2020-11-05 15:58:02]

[Andrew Rambaut]

OK - looks like they were midway through the upload. Now they have about 800 up going up until October.

[2020-11-05 16:24:20]

[Robert Garry]

[thread - ID: 2020-11-04 18:03:57]

@Eddie Holmes I don't know David Relman, but I have heard he was a serious Microbiologist. This paper is indeed CRAP, When we go on our expedition to Malaysia hopefully there will be an opportunity to discuss David's father and "step-mother" (both former EICs of NEJM).

[2020-11-05 16:34:58]

[Eddie Holmes]

I can't focus on COVID-19 after listening to Trump. Ashamed to be a member of the same species.

[2020-11-05 16:36:34]

[Robert Garry]

Agreed Eddie Trump is a disgrace.

[2020-11-05 16:38:44]

[Eddie Holmes]

Deranged disgrace.

[2020-11-05 16:39:33]

[Eddie Holmes]

[thread - ID: 2020-11-05 16:39:33]

I hope they can cover the mink killing in the next series of Borgen. That would make a strong plot line I feel.

[2020-11-05 16:40:35]

[Robert Garry]

48% of the US population voted for Trump. That is also a disgrace.

[2020-11-05 16:41:02]

[Eddie Holmes]

Unfathomable.

[2020-11-05 16:44:36]

[Eddie Holmes]

[thread - ID: 2020-11-04 18:03:57]

@Eddie Holmes He does a lot of microbiome stuff. Not a virus or emerging disease guy. No idea why he decided to weigh in.

[2020-11-05 16:49:30]

[Andrew Rambaut]

[thread - ID: 2020-11-05 16:39:33]

Someone is pushed into the cage and is eaten by covid mink

[2020-11-05 16:58:55]

[Kristian Andersen]

[thread - ID: 2020-11-04 18:03:57]

@Eddie Holmes I'm on a White House OSTP committee with David - I can confirm he weighs in on EVERYTHING. Literally.

Stanford syndrom.

[2020-11-05 17:01:26]

[Eddie Holmes]

I'd watch that.

[2020-11-05 17:02:03]

[Eddie Holmes]

[thread - ID: 2020-11-04 18:03:57]

@Eddie Holmes :man-facepalming:

[2020-11-06 12:24:34]

[Kristian Andersen]

We failed to convince Dr. O :cry: [shared file(s): Screen Shot 2020-11-06 at 12.23.58.png]

[2020-11-06 13:47:21]

[Eddie Holmes]

That's a bummer. Looking forward to their book.

[2020-11-06 13:53:01]

[Kristian Andersen]

NYTimes bestseller I'm sure.

[2020-11-06 16:31:38]

[Kristian Andersen]

Just got a chance to read Relman's PNAS piece a little more carefully - such drive!! Really made my blood boil.

Logical fallacy and misunderstandings of the scientific method in every single paragraph. Just look at this one.

... and this is coming from the guy who's skeptical about every data point I have seen so far - but this type of stuff is just more crap from the Stanford/PNAS junk mill. Disappointing. [shared file(s): Screen Shot 2020-11-06 at 4.24.29 PM.png]

[2020-11-06 19:01:58]

[Eddie Holmes]

I agree. Total junk. Just bin it.

[2020-11-07 18:21:43]

[Eddie Holmes]

Are we going to (a) write a response to Relman or (b) leave it wait for more data?

[2020-11-07 18:29:30]

[Kristian Andersen]

I say we leave it. I'll tell him he's an idiot the next time I 'see' him

[2020-11-07 18:30:40]

[Eddie Holmes]

Fair enough. Hopefully some new data will appear soon.

[2020-11-07 18:46:05]

[Kristian Andersen]

.. more pangolying would be great :wink:

[2020-11-07 18:50:16]

[Eddie Holmes]

On it.

[2020-11-08 16:39:02]

[Eddie Holmes]

<https://www.who.int/publications/m/item/who-convened-global-study-of-the-origins-of-sars-cov-2>

[2020-11-08 17:49:21]

[Eddie Holmes]

Sorry, I think this an old report.

[2020-11-09 02:19:07]

[Eddie Holmes]

https://wwwnc.cdc.gov/eid/article/26/12/20-3386_article

[2020-11-09 03:44:03]

[Andrew Rambaut]

Looks like it could be a handy outgroup for the SC2, pangolin, RaTG13 clade

[2020-11-09 06:46:14]

[Robert Garry]

Pretty nice analysis in Fig 1E. Imagine - natural gain/loss of function via indels in coronaviruses. Alina is probably looking for typos as we speak.

[2020-11-09 09:19:52]

[Robert Garry]

Not one of the big 4 glam journals (Nature, Nature Med, Cell or Science) , but getting the cover of JVI for an old school virology paper still feels pretty good. Thanks CViSB et al. for funding.... [shared file(s): image.png]

[2020-11-09 09:21:16]

[Kristian Andersen]

Nice - what is it though? :wink:

[2020-11-09 09:25:28]

[Robert Garry]

two flu virions exposed to a fusogenic/virotoxic peptide fusing with each other.

[2020-11-09 09:27:26]

[Robert Garry]

I don't know if you remember me freaking out when this image of SARS-Cov_2 came out from NIAID - same deal - fusing virions. [shared file(s): image.png]

[2020-11-09 09:29:30]

[Kristian Andersen]

What the heck is up with that? Once fused, no longer infectious?

[2020-11-09 09:40:18]

[Robert Garry]

Depends on the concentration. Still infectious for the most part at low concentrations/fewer fusion events.

[2020-11-09 09:42:25]

[Kristian Andersen]

Viruses are weird...

[2020-11-09 09:48:26]

[Robert Garry]

We should start a center around that concept....

[2020-11-09 15:11:24]

[Eddie Holmes]

Well, this went down well: <https://twitter.com/profvrr/status/1325894919492399109?s=20>

[2020-11-09 15:17:39]

[Kristian Andersen]

Aaaaaaahahahahahaha - why, oh why, would he even suggest him? So dumb.

(I never liked Vince - I think he's a phony).

[2020-11-09 15:19:00]

[Eddie Holmes]

I agree about Vince.

[2020-11-09 15:19:04]

[Andrew Rambaut]

God yes - and his 2 hour podcasts are just soo excruciatingly dull -

[2020-11-09 15:21:58]

[Eddie Holmes]

The funny thing is that Ian has told me on a number of time that he things Vince is a total loser.

[2020-11-09 15:27:19]

[Eddie Holmes]

A bit disappointing that no one has used the phrase 'butt lesion' yet.

[2020-11-09 15:39:19]

[Kristian Andersen]

Leak the phrase “butt lesion” to Grubaugh and I’m sure he’ll happily use it :wink:.

Vince is such an idiot - he’s got an extremely limited understanding of viral spread, epi, phylogenetics, genetics, etc, etc. I’m actually not sure if there’s _anything_ he’s particularly good at. Maybe something about a specific viral protein.

[2020-11-09 15:42:26]

[Eddie Holmes]

Burn.

[2020-11-10 06:38:35]

[Robert Garry]

VR deleted the tweet but here it is in a screenshot. [shared file(s): image.png]

[2020-11-10 12:20:27]

[Eddie Holmes]

I think Vince's tweet can be clearly termed an own goal.

[2020-11-11 22:11:23]

[Eddie Holmes]

<https://www.nature.com/articles/d41586-020-03165-9>

[2020-11-11 22:12:51]

[Eddie Holmes]

Do you know WHO might be on this panel?

[2020-11-12 05:04:30]

[Robert Garry]

No clue Eddie. I guess we know some names not on the list (us, Linfa Wang). Rather strange in more ways than one. Why not list the names? This Nature news piece is notable as a collection of hunches. Ex: My bias has been that humans infected the minks and cats, not visa versa.

[2020-11-12 11:53:47]

[Eddie Holmes]

Weird. I suspect it may be largely WHO 'insiders'. There are some mistakes in the article as well...misnamed animals.

[2020-11-12 13:45:01]

[Robert Garry]

Probably the same WHO 'insiders' who insisted for months that SARS-CoV-2 was mostly spread by fomites [just wash your hands and use a pencil to touch elevator buttons], was NOT airborne, forgot to advise about social distancing/isolating cases and discouraged mask use.

[2020-11-12 20:21:41]

[Eddie Holmes]

Indeed. There was an Australian flag when Tedros announced the team composition, but that's obviously not me. I think it might be Kanta Subbarao who's a WHO flu person. But's clearly not an origins expert.

[2020-11-13 06:11:25]

[Andrew Rambaut]

<https://twitter.com/BillyBostickson/status/1325119629904105476?s=20>

[2020-11-13 06:12:09]

[Andrew Rambaut]

shared file(s): image.png

[2020-11-13 06:12:35]

[Andrew Rambaut]

Oli is chuffed that he has finally been found by the trolls

[2020-11-13 06:24:04]

[Robert Garry]

<https://www.forbes.com/sites/jvchamary/2020/10/30/world-health-organization-coronavirus-airborne/?sh=2d05238d3f1c>

[2020-11-13 06:29:42]

[Robert Garry]

The Trolls are getting pretty hyped up about this whole COVID thing.

[2020-11-13 06:29:48]

[Robert Garry]

Rand Fanshier

@RandFanshier

.

Nov 7

Look, now they have proven the efficacy of the ACE-2 receptor, they can drop any payload they like and our cells will manufacture the hell out of it. The PLA by now has viruses to wipe out specific genotypes, and all humans entirely. All that's remaining is to justify deployment.

[2020-11-13 07:17:40]

[Kristian Andersen]

Haha, glad to see Oli finally getting to a chance to shine in the shitlight.

He should just point Billy to those "I am your motherfucker" tweets though - clearly proves that he's no CCP running dog... (what was that guys name again? Epic stuff).

[2020-11-13 13:24:18]

[Eddie Holmes]

Although I'm not sure routine influenza screening would have picked a small number of cases in rural Hubei province.

[2020-11-13 13:27:19]

[Eddie Holmes]

Bostickson really ought to be done for defamation though.

[2020-11-13 13:37:50]

[Eddie Holmes]

On an unrelated note, I see that in the latest issue of Vince Racinello's TWiV one his guests is Mady Honig...the same Mady Honig who inspected that lesion on Ian Lipkin's butt. Perhaps she was a guilt guest invite?

[2020-11-14 07:06:57]

[Robert Garry]

> As long as we are doing Columbia updates - I got an email from Angie Rasmussen saying she's moving to Georgetown Center for Global Health Science and Security. I wished her well...

[2020-11-14 07:10:38]

[Kristian Andersen]

That's pretty cool - she's been doing one heck of a job feeding the trolls and killing them at night :wink: .

I think Columbia is one toxic place to be.

[2020-11-14 07:11:16]

[Kristian Andersen]

Alex Phelan is there as well - she's good.

[2020-11-14 07:11:22]

[Robert Garry]

BTW - The other guest with the BL inspector was David Tully who VR has been supporting via TWiV in a long-standing but lesser known than the MMR war against Lancet over some chronic fatigue/ME papers.

[2020-11-14 07:16:14]

[Robert Garry]

<https://bush.tamu.edu/scowcroft/senior-fellows-emeritus/> Rebecca Katz is also at Georgetown CGHSS - RK on Biden's COVID panel. "friend" of @covidfaker

[2020-11-14 07:33:31]

[Robert Garry]

And- full disclosure -daughter [REDACTED] is a graduate of the Elliott School at Georgetown. She's a [REDACTED] and led this guy around Eddie's adopted country for the cancer moonshot 5 years back. [REDACTED] is in [REDACTED] now, but going to [REDACTED] to meet [REDACTED] in a few days and hopefully keep him from screwing up. It's fair to say that without "deep staters" like [REDACTED] the soon to be over Trump Administration could have been worse [trust me on this MUCH worse] COVID notwithstanding. [shared file(s): image.png]

[2020-11-14 07:36:37]

[Kristian Andersen]

Yeah, how Curefinder can be a fellow where somebody like Beth (and Rebecca) are also fellows, I don't understand. Takes a Bush school I guess... Both Beth and Rebecca are part of the task force - Beth as an advisor (which I think is good).

[2020-11-14 09:33:04]

[Robert Garry]

Indeed - but I did notice that that Covidfaker [along with enabler Hotez also of MSNBC 'fame'] was relegated to emeritus fellow. I have a feeling that the demotion was not a coincidence after it was revealed that Fair's latest in a series of near death experiences was not what he said it was - aka - Fake News.

[2020-11-14 09:39:31]

[Andrew Rambaut]

Just reviewed a paper for Nature from the Harvard School of Public Health which does a sort of machine-learnly thing to find mutations that cause deadness using GISAID data. They discover 2 mutation with significance. Turns out both are in a clade from Nuno's Science paper and when you look at the data in GISAID there are 131/159 dead people in the clade. 82% fatality rate. Those are some deadly mutations. Or the Sao Paulo was only sequencing severe cases. They even report the 82% dead in the paper. And don't stop to think.

[2020-11-14 10:29:07]

[Kristian Andersen]

Haha, oh boy - I said you accept it, just so we can drown out all the other news. But seriously - how the heck can you write a full paper before stopping for a second and thinking "wait, does that really make sense?"

Amateur 'science' has been a dangerous thing during COVID-19 - I believe Ed has an article coming up about that...

[2020-11-14 11:55:19]

[Andrew Rambaut]

Just discovered it is preprinted. Enjoy: <https://www.researchsquare.com/article/rs-95183/v1>

[2020-11-14 11:57:11]

[Eddie Holmes]

May the Lord save us from machine learning.

[2020-11-14 12:03:59]

[Andrew Rambaut]

I hope this doesn't get picked up by the media before they get the reviews back.

[2020-11-14 12:04:38]

[Andrew Rambaut]

And Nuno just confirmed - the hospital with all the dead patients was only sequencing dead patients.

[2020-11-14 12:07:05]

[Eddie Holmes]

So bloody clueless. Extraordinary.

[2020-11-14 12:14:31]

[Robert Garry]

Had a look at the preprint Andrew - sad actually. The V to F at 1179 of spike is not likely to do much of anything.

[2020-11-14 12:40:10]

[Robert Garry]

"Amateur 'science' has been a dangerous thing during COVID-19 - I believe Ed has an article coming up about that..." Good to hear! Unfortunately some of the amateurs - like Alina and her new buddies - continue to do damage. @Covidfaker and some other "experts" also spread a lot of bad advice very widely. At least 45 and associated clowns are on the way out....

[2020-11-14 14:49:59]

[Eddie Holmes]

Yes, it's amazing that people think they are qualified to hold forth. Look at Relman in PNAS.

[2020-11-14 15:03:10]

[Eddie Holmes]

Just screened and rejected a corker from bioRxiv - "Genomic variants at the Spike regions of SARS-CoV-2 provide insights on the mortality of population: comparative study with higher spice-intake countries". Contains the following:

[2020-11-14 15:03:29]

[Eddie Holmes]

"Data shows that the higher spice-intake countries also have higher recovery rate and lower-mortality than the lower spice-intake individuals, presumably due to the antibody production."

"In contrast, frameshift-type mutation (which tends to have deleterious effect in the protein 3D structure) predominates in the higher spice-intake individuals resulting in higher-recovery / lower-mortality rate, presumably due to attenuated (weaker) coronavirus."

[2020-11-15 06:00:40]

[Robert Garry]

"_Thank you Alina Chan for peer-reviewing this article."_

<https://medium.com/@mygenomix/fearsome-viruses-and-where-to-find-them-4e6b0ac6e602>

[2020-11-15 06:02:27]

[Robert Garry]

I like the picture..the rest not so much

[2020-11-15 07:02:38]

[Robert Garry]

One example of many logical fallacies [<https://thebestschools.org/magazine/15-logical-fallacies-know/>] is the strawman: "Scientists who are convinced of the natural origin base their belief on *Occam's razor*: epidemics from the past have shown that these things do happen in nature, so the simplest explanation is that it happened this time too."

[2020-11-15 09:42:25]

[Robert Garry]

IF it's real this is important: <https://journals.sagepub.com/doi/10.1177/0300891620974755>

[2020-11-15 10:20:40]

[Andrew Rambaut]

Just been tweeting about it... <https://twitter.com/arambaut/status/1327985409331257345>

[2020-11-15 10:38:09]

[Andrew Rambaut]

This is good - someone has hand drawn a growth curve to 'prove' the Italian epidemic could have started in September [shared file(s): image.png]

[2020-11-15 12:17:32]

[Eddie Holmes]

Convincing graph. I'm sold.

[2020-11-15 12:21:34]

[Eddie Holmes]

Bob, that article is dire. I think Alina just dictated it to him over his shoulder.

[2020-11-16 05:20:37]

[Robert Garry]

I dunno - would Italy be considered a "high-spice" country? OTOH -the data in the paper is either 1. just bad serology/virology or 2. low level cross-reactivity. Too much IgM and the low level neutralization not consistent with actual SARS-CoV-2 infections.

[2020-11-16 16:05:36]

[Andrew Rambaut]

<https://www.nature.com/articles/s41586-020-2951-z>

[2020-11-16 16:21:39]

[Kristian Andersen]

Eh? Isn't that a bit of a weird addendum? I mean - what does it add we didn't already know?

[2020-11-16 16:29:33]

[Andrew Rambaut]

It is very odd. I think it is trying to address the tinfoliers who are going on and on about that bloody mine.

[2020-11-16 16:31:26]

[Kristian Andersen]

I think so too - or at least that must have prompted it. But this basically adds nothing - and isn't really an 'addendum' - it's just a bit of extra background information.

[2020-11-16 17:24:54]

[Eddie Holmes]

100% due to the tinfoliers. Both Shi and Nature have likely been inundated with comments about this. And that BBC bloke keeps emailing me. To me, this is just clarifies what they did. I think the Methods bit in the first paper had some suspect English. No doubt Inspector Clouseau is already typing vigorously.

[2020-11-16 18:58:46]

[Kristian Andersen]

Prof. Clouseau is on the case :female-detective:

<https://twitter.com/Ayjchan/status/1328487018679119873?s=20>

[2020-11-16 18:59:15]

[Kristian Andersen]

[don't waste your time]

[2020-11-16 19:19:27]

[Eddie Holmes]

She's such an idiot. Clearly no data will suffice.

[2020-11-17 05:58:53]

[Robert Garry]

Alina: "Does anyone believe me yet that we need to see what exactly were the communications between the authors, journals, and peer reviewers since January?" There are valid arguments for and against open peer review. What Alina is suggesting goes way beyond open peer review however and implies that the journals are corrupt. She would like to set the rules, but she can't and shouldn't.

[2020-11-17 09:05:41]

[Kristian Andersen]

What a dick move from Frankie Bollocks... Good for you calling him out @Andrew Rambaut!

[2020-11-17 09:05:59]

[Kristian Andersen]

One thing from the preprint I agree about though - and mentioned when I testified in front of the Danish parliament yesterday "The rapid acquisition and spread of SARS-CoV-2 mutations in minks suggests that if a similar phenomenon of host adaptation had occurred upon its jump into humans, those human-specific mutations would likely have reached fixation already before the first SARS-CoV-2 genomes were generated". That could very likely be true - ultra fast fixation during the first few rounds of human to human transmission.

[2020-11-17 09:08:37]

[Andrew Rambaut]

Yes. I have been saying that for years. Clear in avian flu too (the same mutations come up). Adaptations to the within-host environment are very rapid. Adaptations to transmission will be much slower. Thus viruses that jump and spread are likely already able to spread but may need some tweaking for within-host growth.

[2020-11-17 09:09:54]

[Andrew Rambaut]

The other thing that virologists struggle with is that better receptor binding does not equal fitter viruses.

[2020-11-17 09:13:23]

[Andrew Rambaut]

But even with the mink, there are lots of lineages in Marion's trees that don't have Y453F.

[2020-11-17 09:13:23]

[Kristian Andersen]

Yup, I have been hearing you saying this for years - for Ebola too. For SARS we actually got to see some of those mutations because we captured the intermediate host - would be very interesting to see for SARS2 as well, but the mink data is definitely interesting in this regard.

[2020-11-17 09:14:03]

[Kristian Andersen]

Yeah, I'm not quite sure what Y453F is about - might just be marginally beneficial.

[2020-11-17 09:15:30]

[Andrew Rambaut]

It appears sufficient times in mink to mean it must be selected for but possibly quite weakly. And possibly as a result of the high density.

[2020-11-17 09:16:31]

[Kristian Andersen]

Yup - plausibly this one becomes fixed when big populations get hit. A lot of diversity in the size of the various farms - especially in Denmark (not sure about NL - but I think they have more 'mega' farms).

[2020-11-17 09:17:32]

[Andrew Rambaut]

Here is a report I wrote for the WHO. To me the most interesting thing is the spike deletion at 69/70 that appears after Y453F and also appears after N469K in humans [shared file(s): Mink-associated_mutations_in_humans.pdf]

[2020-11-17 09:18:19]

[Andrew Rambaut]

Note also the Utah human - also mink related, also 453F (slightly confidentially).

[2020-11-17 09:19:31]

[Robert Garry]

One thing to be a data parasite (which implies some relationship to the host) and a data thug/thief.

[2020-11-17 09:21:34]

[Kristian Andersen]

Thanks Andrew for sharing - very interested to get your insights into this. Will keep confidential - A LOT of disagreement in DK about how to handle that (most of those discussions driven by people that have no background in any of this...).

[2020-11-17 09:26:48]

[Andrew Rambaut]

We (WHO working group) did talk to the SSI but they were very cagy (as you might expect). But they sharing isolates now through the WHO I believe.

[2020-11-17 09:42:08]

[Robert Garry]

FWIW - the 69/70 S deletion comes at a region that is disordered at least in some spike structures (reddish spheres here). It's at the top of the spike but not close by to Y453 (bluish) so not obvious why the might be linked. Not like substructures that interact (for example the 6 helix bundles) where you expect compensatory/complementary mutations. [shared file(s): image.png]

[2020-11-17 09:50:46]

[Kristian Andersen]

> We (WHO working group) did talk to the SSI but they were very cagy (as you might expect). But they sharing isolates now through the WHO I believe.

Yup, no surprise there - unfortunately. And yes - I believe they have shared the isolates widely now (including with US) labs, so hopefully we'll learn more soon. I think they got a little surprised by how strongly the scientific community pushed back at them for not releasing data, so hopefully they have learned a lesson. (unfortunately way too much focus has been put on the mistakes here though - it's really important we remember that the main issue here is a parallel (raging) epidemic in mink).

[2020-11-17 10:03:00]

[Robert Garry]

[thread - ID: 2020-11-17 10:03:00]

Some wild speculation if you want to "connect" 69/70 to 453. MERS-CoV uses both [either?] a protein and a sialic acid receptor. HKU1 uses sialic acid and of course SARS CoVs use ACE2. What's not known [here's the

speculation] is if the NTD of SARS-CoV2 (where the 69/70 deletion is actually part of a receptor binding domain for sialic acid or other molecule. If so a deletion in the NTD affecting binding to this receptor might affect entry driven by the CTD. Receptor swapping is definitely a thing in HIV (chemokine receptors). [shared file(s): image.png]

[2020-11-17 10:03:58]

[Robert Garry]

and now @Kristian Andersen i'll get back to my project1 report

[2020-11-17 13:03:42]

[Eddie Holmes]

Is Frankie going to pull his preprint? It's always the same people isn't it?

[2020-11-17 14:46:46]

[Andrew Rambaut]

Apparently he has it submitted to a journal (not a super high-end one). Going to be interesting...

[2020-11-17 14:50:17]

[Andrew Rambaut]

[thread - ID: 2020-11-17 10:03:00]

@Robert Garry Interesting. Thanks Bob. I will keep looking.

[2020-11-17 15:00:28]

[Eddie Holmes]

Indeed. I just an email from a journo at the MT Technical Review who wants to talk about sequence release. Given they've been giving a Alina a platform I told him to fuck off and gave the reasons for my rejection.

[2020-11-17 15:03:19]

[Eddie Holmes]

Unrelated, but below is arguably the nuttiest email I've ever had: [shared file(s): Nutjob.pdf]

[2020-11-17 15:19:00]

[Andrew Rambaut]

Starts well.

[2020-11-17 15:19:19]

[Eddie Holmes]

The dog does it for me.

[2020-11-17 15:20:47]

[Robert Garry]

And his mother - he had to mention his mother.

[2020-11-17 15:41:53]

[Kristian Andersen]

That is next-level crazy.

[2020-11-18 11:34:15]

[Kristian Andersen]

I DO NOT APPRECIATE THE COMPETITION FROM OTHER DANES. THERE CAN ONLY BE ONE!!!!!!! [shared file(s): Screen Shot 2020-11-18 at 11.33.32.png]

[2020-11-18 12:27:48]

[Eddie Holmes]

Crush them! I just did an interview with a journalist from India and I sent them the proximal origins paper in hope of some extra coverage.

[2020-11-18 12:47:05]

[Kristian Andersen]

Here's what I said to Eddie in a text - it's tricky. "Argh, that's a tricky edge case - send it back with "biologically implausible"? The problem is, it's a reject based on peer review and not a reject because of something fundamentally wrong that can be glanced by quickly screening it"

[2020-11-18 12:51:48]

[Eddie Holmes]

I think we have it resolved now.

[2020-11-18 12:52:05]

[Eddie Holmes]

You can just imagine the headlines...

[2020-11-18 12:53:18]

[Kristian Andersen]

South Africa made quite a splash yesterday with the mutants. Things are going well.

[2020-11-18 12:53:58]

[Eddie Holmes]

South Australia? Yes, that was dumb. No data at all.

[2020-11-18 12:56:30]

[Kristian Andersen]

Oh, that was South Australia - whatever, one of those :wink:. Yes, that was really terrible.

[2020-11-18 12:58:38]

[Eddie Holmes]

Yes, total shit. Will they ever learn?

[2020-11-18 13:01:42]

[Kristian Andersen]

No.

[2020-11-18 13:02:06]

[Kristian Andersen]

Which, silver lining, should keep us in business for a while.

[2020-11-18 13:33:36]

[Robert Garry]

@trishgreenhalgh has done a pretty good job of tearing into the Danish mask study. Would be "ironic" if a poorly done epi projection, an old HCQ paper from VJ and a not-so-well done mask study all beat out Proximal Origins on Altmetric....

[2020-11-18 20:09:21]

[Kristian Andersen]

I quite like this: <https://www.independentsciencenews.org/news/ecohealth-alliance-orchestrated-key-scientists-state-ment-on-natural-origin-of-sars-cov-2/>

:smiling_imp:

[2020-11-18 20:36:01]

[Eddie Holmes]

But that was bloody obvious and they never tried to hide it. I see this shit is now out:
<https://onlinelibrary.wiley.com/doi/10.1002/bies.202000240>

[2020-11-18 20:39:06]

[Eddie Holmes]

Wiley are now on my banned list.

[2020-11-18 20:45:21]

[Kristian Andersen]

Hah, that would never have made it through as a preprint... Yeah, Wiley is junk, junk, junk.

[2020-11-18 20:45:45]

[Kristian Andersen]

Rossana is fucking nuts and just such a giant amateur.

[2020-11-18 20:49:52]

[Eddie Holmes]

[thread - ID: 2020-11-18 20:49:52]

Totally nuts. I can't believe they got away saying that H1N1 of 1977 was a lab escape from China!!! It was actually a shonky vaccination campaign.

[2020-11-18 20:51:08]

[Kristian Andersen]

... I missed that part. I thought it was the Russians - but hey, same thing, right? I can see Alina has gone full-on conspiracy with this too. Good stuff. It'll be hilarious looking back at these tweets in a couple of years.

[2020-11-18 20:53:06]

[Kristian Andersen]

Hah! We have Joel to thank for the China emergence of H1N1 :wink:
<https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0011184>

[2020-11-18 20:53:36]

[Kristian Andersen]

(I know he's been working on SARS-CoV-2 to look at origins - interested to see what he comes up with).

[2020-11-18 20:57:34]

[Eddie Holmes]

Somebody had some Twitter correspondence with Jon Cohen and presented all the evidence that 1977 H1N1 was a dodgy vaccine. There was a pretty convincing paper that Jon seemed to buy. I did. I'll see if I can find it.

[2020-11-18 20:58:10]

[Eddie Holmes]

Plus, that Nature Addendum makes all the miners story totally out-of-date.

[2020-11-18 21:20:30]

[Kristian Andersen]

Yeah, 1977 is definitely an escape - and likely linked to vaccine work. I thought in Russia though.

[2020-11-18 21:35:34]

[Eddie Holmes]

This is what I was thinking of: [shared file(s): mBio-2015-Rozo-e01013-15.full.pdf]

[2020-11-18 21:36:50]

[Eddie Holmes]

Suggests is a dodgy vaccine trial NOT an escape.

[2020-11-18 21:43:25]

[Kristian Andersen]

Yup, I read this one when we wrote our paper - it's good. And yes, likely vaccine work, although I'd argue that that's just one type of 'escape'. Never fully proven though, so given all the weirdness we see with Ebola, who knows.

[2020-11-18 21:46:19]

[Eddie Holmes]

Who knows indeed. Good, reasoned argument though.

[2020-11-18 22:58:52]

[Andrew Rambaut]

[thread - ID: 2020-11-18 20:49:52]

@Eddie Holmes You mentioned that before. Can you point me in the direction of something about that?

[2020-11-18 22:59:48]

[Andrew Rambaut]

[thread - ID: 2020-11-18 20:49:52]

@Eddie Holmes Should have read further down the thread. Ignore me.

[2020-11-19 00:27:06]

[Andrew Rambaut]

Disastrous phylogenetic tree though. UPGMA? Totally distorts the relationships.

[2020-11-19 00:29:16]

[Eddie Holmes]

Yes, that is indeed a shocker. Not seen a UPGMA tree for ages!

[2020-11-19 05:20:48]

[Robert Garry]

The FCS nonsense is starting to piss me off.

[2020-11-19 12:02:53]

[Eddie Holmes]

Time to post something on Virological.org?

[2020-11-19 12:23:39]

[Eddie Holmes]

This is apparently what George Gao said on his online IUMS lecture:

[2020-11-19 12:23:42]

[Eddie Holmes]

"For almost a year we are asking ourselves does Covid-19 have a reservoir or an intermediary host, we worked so hard, [practicing] One Health, we haven't found anything."

"For some other viruses, it's so easy to find the intermediary host." [Mers - dromedary, Ebola - mammals, hendra - horses, nipah - swine, lassa fever - rodent]

"Yet we tried so hard and we haven't found anything for Covid-19. That makes me think about in a one health setting, is HIV really from a monkey? We know HIV is so close to SIV, but HIV has never been SIV, they separated - we don't know how long ago. But they separated a long, long time ago. Maybe the Covid-19 virus also separated from a bat virus a long, long time ago. We might not be able to find the intermediate host. We have to rethink our theory or hypothesis about the [inaudible perhaps Gao says - logic] of viruses. People think it's closely related to those monkeys, but the virus has never been the same. This is why we have more questions than answers on the origins of the Covid-19. For any other virus it's so clear, for the Covid-19 we have so many questions remained. Is Covid-19 so easy to be transmitted through the package of the seafood, long distance package, why is that - we don't know? This is something new. It's a scientific question." (Webinar, part 62)

[2020-11-19 12:24:03]

[Eddie Holmes]

I think he's losing it.

[2020-11-19 12:58:46]

[Robert Garry]

Agree - pretty lost - Should point out that the Ebola reservoir is unknown and new reservoirs of Lassa virus still being uncovered. Point taken about HIV - there's quite a gap. The transmission on seafood seems like a fluke to me.

[2020-11-19 13:00:21]

[Robert Garry]

Here's a figure compiling indels at the S1/S2 and S2' spike junctions of coronaviruses. Indels are the rule not the exception. Yes- virological post.... [shared file(s): image.png]

[2020-11-19 13:07:15]

[Robert Garry]

The pesky predicted O-linked glycan sites, which are otherwise rare [a few notable exceptions], keep popping up at the spike s1/s2 and s2' junctions.

[2020-11-19 13:13:03]

[Eddie Holmes]

Love that figure Bob. Brilliant.

[2020-11-19 14:45:48]

[Andrew Rambaut]

HIV-1 has clear links with Chimps with recombinations that essentially prove the last jump was chimps to humans (and HIV-2 from sooty mangabeys - absolutely clear)

[2020-11-19 14:49:45]

[Andrew Rambaut]

It sounds like ramblings at the end of a long night in a pub. That would be nice.

[2020-11-19 14:56:09]

[Robert Garry]

Oh yeah - I believe the chimp link but of course it's definitely complicated - could be like one of the possible SARS-CoV-2 scenarios - a lot of undetected circulation. And yes I forgot - HIV-2 is indeed a sooty virus! Looking forward to the pub for sure!

[2020-11-19 15:01:18]

[Andrew Rambaut]

There certainly was undetected human circulation of course (about 60-70 years). It is just an odd example to try to compare SC2 to.

[2020-11-19 15:20:04]

[Robert Garry]

Agreed and where did "is HIV really from a monkey?" come from?

[2020-11-19 15:24:46]

[Andrew Rambaut]

I think he is trying to be profound. Or he is being forced to say it to deflect people from the truth.

[2020-11-19 15:50:51]

[Eddie Holmes]

I think it's an attempting to be profound but instead is rambling. That's a George signature.

[2020-11-19 21:30:00]

[Kristian Andersen]

<https://www.nytimes.com/2020/11/20/business/media/covid-misinformation-china.html?action=click&module=Top%20Stories&pgtype=Homepage>

[2020-11-19 21:42:30]

[Eddie Holmes]

Yes, Amy just emailed me. Good story!

[2020-11-19 21:45:43]

[Kristian Andersen]

Yup, it's a good one - you can't make this shit up.

[2020-11-19 21:49:52]

[Eddie Holmes]

You can't!

[2020-11-19 22:00:14]

[Kristian Andersen]

Oh, I so missed the tinfoil hats on Twitter - they have been a little quiet as of late. Swooping in now.

[2020-11-19 22:03:13]

[Eddie Holmes]

Bless.

[2020-11-19 22:04:36]

[Kristian Andersen]

:pray:

[2020-11-20 11:15:22]

[Kristian Andersen]

Ahhhh, just went in and blocked 30 tinfoil hats - felt pretty good actually. I don't think I'll miss them too much - and I'm sure new ones will pop up.

[2020-11-20 12:24:53]

[Andrew Rambaut]

You can just imagine how excited they will be about being blocked. Just proves you can't handle their truths.

[2020-11-20 12:40:10]

[Kristian Andersen]

Exactly! I wouldn't want to deny them the joy of being blocked by CCPs running dog.

[2020-11-20 12:41:38]

[Eddie Holmes]

I love a good blocking session. Warms the heart.

[2020-11-20 12:56:12]

[Kristian Andersen]

Yeah, it gives me a warm feeling inside. I like to think of these people as "Fat Billy from Texas sitting in his underpants on the couch shouting at his monitor" - makes the experience even more pleasant (I remind my wife about this too when she gets a little too spooked by the emails/tweets I receive).

[2020-11-20 13:57:33]

[Robert Garry]

"Fat Billy from Texas sitting in his underpants on the couch shouting at his monitor" or his mother - you decide....

[2020-11-20 19:49:54]

[Kristian Andersen]

@Robert Garry - now the CViSB report is done and the tinfoil hats are roaming, we need they Virological post. Chop, chop :wink:

[2020-11-20 21:50:52]

[Eddie Holmes]

We do! You can almost hear the squelching of the underpants on the couch.

[2020-11-21 04:25:37]

[Andrew Rambaut]

I jotted down some scribbled notes I had been making about why SC2 is likely natural origins:

https://docs.google.com/document/d/1IPzBuXW0BY0okNlJUBjmOSzDvwMsiW_UGMHYcyCWD4E/edit

Basically it comes down to the only lab-escape scenario that could give you SC2 is if SC2 was in the lab and then escaped. And this is a very-very-specific version of all the other (infinitely more numerous) paths from bats->humans.

[2020-11-21 06:22:25]

[Robert Garry]

Thanks for the link Andrew - great list...

[2020-11-21 07:17:54]

[Robert Garry]

I do agree that Proximal Origins 2 should happen sooner than later - just not certain of the best approach or approaches -we seem to have attracted some attention with PO1 so a sequel - given the persistence of the unnatural crowd would likely be noticed. @Andrew Rambaut has made a good start. Virological posts for sure - another correspondence in Nature/Nat Med - And, though it might be considered bad form but I could even see a hard cover book for popular consumption (lot of work, but might be worth it).

[2020-11-21 07:18:33]

[Robert Garry]

Naturally occurring indels in multiple coronavirus spikes

Introduction

Proponents of theories for the unnatural origin of SARS-CoV-2 have asserted that the 12 nucleotide insert in the SARS-CoV-2 spike gene, which results in acquisition of a furin cleavage site, may have arisen by laboratory manipulation (Relman, 2020; Segreto and Deigin, 2020; Seyran et al., 2020; Sirotkin and Sirotkin, 2020). Here, we compile evidence demonstrating that that insertion/deletion (indel) events at the S1/S2 and S2' protease cleavage sites of the spike precursor are commonly occurring natural features of coronavirus evolution. We also identify heretofore undescribed similarities in the S1/S2 and S2' junctions of multiple diverse coronavirus spikes that provide further evidence against a laboratory origin of SARS-CoV-2.

Methods

The Orthocoronaviridae includes four genera, Alpha-, Beta-, Gamma- and the newly described Deltacoronavirus (Taxonomy). The Betacoronavirus genus is further subdivided into six subgenera, including the three subgenera Sarbecoviruses, Merbecoviruses and Embecoviruses with human pathogens. We performed an alignment of the S1/S2 junction of representative alpha-, beta-, and gammacoronaviruses (Fig. 1). To facilitate the identification of insertions we aligned conserved amino acids and other features that flank the S1/S2 junctions, and included viruses that appear to be ancestral to the subgenera where known. O-linked glycosylation sites were predicted by Net-O-Glyc v. 4.0 (Steentoft et al., 2013).

Results

While recent analyses suggest the existence of as yet unsampled sarbecovirus lineages, it is likely that SARS-CoV-2 and recently described coronaviruses isolated from pangolins share common ancestors with the bat sarbecovirus RaTG13 (Boni et al., 2020). As previously discussed (Andersen et al., 2020; Coutard et al., 2020; Gallaher, 2020a), alignment of the spike protein of SARS-CoV-2 with spike proteins of RaTG13 and other sarbecoviruses demonstrates that the 12 base insertion in the SARS-CoV-2 spike gene adds 4 amino acids (PRRA) at the S1/S2 junction and converts a monobasic cleavage site (R) to a minimal furin (polybasic) cleavage site (RRAR) (Fig. 1A). As previously described (Zhou et al., 2020), alignment of the spike of newly detected RmYN02 with other sarbecovirus spikes demonstrates that the S1/S2 junction of sarbecoviruses is variable. The neural network prediction algorithm Net-O-Glyc predicts that the S1/S2 junction of SARS-CoV-2 spike contains 3 O-linked glycans.

The Merbecovirus subgenus of the Betacoronaviridae includes bat coronaviruses HKU4 and HKU5 as well as Middle Eastern Respiratory Syndrome coronavirus (MERS-CoV), which infects camels and humans. Phylogenetic analyses place HKU4 at a basal position leading separately to the HKU5 and MERS-CoV lineages (Lau et al., 2013). Relative to the HKU4 spike, the HKU5 spike has an insertion of 3 amino acids (RFR) at the S1/S2 junction (Fig. 1B). This insertion generates an optimal furin cleavage site (RFRR). The S1/S2 junction of the HKU5 spike is predicted to contain two O-linked glycans. Relative to HKU4, the MERS-CoV spike displays an insertion of 6 amino acids (LTPRSV). The insertion in the MERS-CoV spike produces a minimal furin cleavage site (RSVR), albeit without predicted O-linked glycans.

The Embecovirus subgenus of the Betacoronaviridae includes the seasonal coronaviruses OC43 and HKU1. Of additional importance is Betacoronavirus 1, an embecovirus notable for its spread to a large number of diverse animal species (Corman et al., 2018). Betacoronavirus 1 is represented here by a bovine coronavirus. The rat embecovirus HKU24 is ancestral to each of these viruses (Lau et al., 2015). HKU24, OC43 and Betacoronavirus 1 spikes have optimal furin cleavage sites (Fig. 1A). The junctional sequences in Betacoronavirus 1 and OC43 spikes are predicted to contain 4 and 2 O-linked glycans, respectively. Relative to HKU24 spike some variants of HKU1 spike have an insert of 6 amino acids (PSSSS) near the S1/S2 junction. Other variants have inserts of 2 amino acids (PS). It is unclear whether the HKU1 spike inserts have occurred independently or sequentially. HKU1 S1/S2 junctions are predicted to contain 2 or 3 O-linked glycans.

Mouse hepatitis virus (MHV), a well-studied embecovirus, further illustrates the natural variability in the S1/S2 junction of betacoronavirus spikes, with examples of monobasic, minimal furin and optimal furin cleavage sites existing in spike of various isolates (Fig. 1B). As with certain other betacoronaviruses, various serine and threonine residues at the MHV spike S1/S2 junctions are predicted O-linked glycosylation sites. The MHV spike, like other coronavirus spikes undergoes additional proteolytic cleavages, including cleavage at a site referred to as S2' (Belouzard et al., 2009; Millet and Whittaker, 2014). Cleavage at S2' exposes a fusion peptide that interacts with a host cell membrane permitting fusion with the viral envelope. Compared to the spike of ancestral embecovirus HKU24 the S2' site of MHV spike contains insertions of variable lengths, although deletions may also contribute to variability at the S2' site in spike of different MHV variants.

Furin cleavage sites are present in spikes of other coronaviruses. The S1/S2 junctions of feline alphacoronavirus spikes bear similarities to the corresponding region in sarbeco- and merbecovirus spikes. Feline alphacoronaviruses are divided into two different types (Jaimes et al., 2020). Type I feline coronavirus spikes have an optimal furin cleavage site, whereas Type II feline coronavirus spikes lack either a monobasic or polybasic cleavage site at the S1/S2 junction (Fig. 1C). Relative to Type II feline coronavirus spikes, the optimal furin cleavage sites in Type I spikes are included in 17 or 18 amino acid insertion at the S1/S2 junction. The modification adds 2 or 3 predicted O-linked glycosylation sites. Type I feline coronavirus spikes have a monobasic cleavage site at S2', whereas feline coronaviruses have three amino acid indel at S2'. In some cases (for example strain KUK-HL) the S2' junction contains a minimal furin cleavage site.

Gammacoronavirus spikes, including infectious bursal disease virus contain optimal furin cleavage sites at the S1/S2 junction (Fig. 1D). Some avian gammacoronavirus spikes have predicted O-linked glycans at the S1/S2 cleavage site. Avian gammacoronavirus spikes display sequence variability at the S2' cleavage site; most are monobasic, but infectious bursal disease strain Beaudette spike has acquired an optimal furin cleavage site. The S2' site of Infectious bursal disease virus variant SES_15SK spike provides an example of a predicted O-linked glycosylation site that is associated with a monobasic cleavage site. Because the evolutionary history of gammacoronaviruses is not well-described, it cannot be inferred whether or not evolution of their S1/S2 or S2' spike cleavage sites has involved insertions or deletions.

Discussion

Furin cleavage sites have been generated naturally in the spike proteins of members of at least 3 of 4 orthocoronavirus genera, including three betacoronavirus subgenera, via insertions and/or deletions. Both the S1/S2 and S2' junctions of coronavirus spike genes are hot spots for RNA recombination. Furthermore, deletions, but not insertions, in the S1/S2 junction appear to arise commonly on serial passage of SARS-CoV-2 in cell culture, and have also been detected as quasi-species in infected humans (Lau et al., 2020; Liu et al., 2020). These observations stand in direct contrast to proponents of theories that SARS-CoV-2 has a nonnatural origin. A recent analysis by one of us (WRG) suggests that this variability is facilitated by short oligonucleotide "breakpoint sequences" that direct recombination to certain positions in the genome (Gallaher, 2020b).

Further evidence for the natural origin of the furin cleavage site in the SARS-CoV-2 spike is the observation that the indels in other coronavirus spikes often encode sequences with a propensity for O-linked glycosylation. As noted

previously, computational prediction of O-linked glycosylation sites does not ensure that these sites are utilized by SARS-CoV-2 (Andersen et al., 2020). The sites may be used only in some cell types or under specific conditions or not utilized at all. This caveat also applies to the current analyses. However, the frequency that the O-glycosylation sites are predicted across spike proteins from various genres suggests that their presence is not due to chance. Mucin-like domains which contain O-linked glycans are characterized by an abundance of serines, threonines and prolines. These amino acids form turns in protein structures. Turns potentially contribute to accessibility of furin cleavage sites, and therefore may be under positive selection.

The pattern of proline and serine/threonine residues in or near insertions of the polybasic residues, as noted in SARS-CoV-2, MERS-CoV, HKU1 and Type I feline coronaviruses, has not to our knowledge been previously discussed. With notable exceptions, including a predicted mucin-like patch in the carboxy terminal domain of embecovirus spikes, predicted O-glycans are rare in coronavirus spikes other than near cleavage sites. While computational algorithms such as Net-O-Glyc are capable of determining sites that are likely to be O-glycosylated, this pattern would not have been obvious to anyone constructing SARS-CoV-2 in a laboratory, either for gain-of-function research or nefarious purposes.

Previously one of us (WRG) presented additional strong evidence that the furin cleavage site insertion in SARS-CoV2 was generated via a natural process (Gallaher, 2020c). Although the 12 base insertion preserves the reading frame, the insertion is out-of-frame. It is highly implausible that any scientist attempting to insert a furin cleavage site would do so by making an out-of-frame insertion. Previous studies that introduced furin cleavage sites in SARS-CoV and MERS-CoV spike genes did not introduce insertions (Follis et al., 2006; Yang et al., 2015). Nor is it likely that any laboratorian would have engineered a change in the SARS-CoV-2 spike that purposefully resulted in prediction of O-linked glycan sites.

[2020-11-21 07:38:13]

[Robert Garry]

Slightly different subject, but looking forward to an updated Nidovirus phylogenetic tree with some of Eddie and company's new viruses.

[2020-11-21 07:39:55]

[Kristian Andersen]

Bob, great post - get it on there! Now!

[2020-11-21 07:40:46]

[Kristian Andersen]

Andrew, yes, thanks for sharing - great points in there. "Did the acquisition of the ACE2 RBD make the virus more species-promiscuous and thus facilitated emergence into farmed carnivores like raccoon-dogs/pangolins? High density transmission in carnivores may have evolved the FCS - i.e., like chickens & high-path AIV."

I actually think that's due to the FCS - it's been shown before that FCS increases the hostrange of other coronaviruses, including MERS-like - one reference: <https://pubmed.ncbi.nlm.nih.gov/31801868/>. Key sentence here: "Together, these results indicate that proteolytic cleavage of the spike, not receptor binding, is the primary infection barrier for these two group 2c CoVs".

[2020-11-21 07:40:56]

[Robert Garry]

some of the serpentoviruses and nonCoV nidoviruses have interesting mucin-like domains

[2020-11-21 07:44:05]

[Kristian Andersen]

The O-linked glycans very likely regulate the FCS site - I don't think it's a mucin-like domain

[2020-11-21 07:45:37]

[Robert Garry]

agree - though with some of the other Nidoviruses there are more than a dozen o-linked sites so mucin-like

[2020-11-21 07:48:16]

[Kristian Andersen]

Here's the reference for the FCS control: <https://pubmed.ncbi.nlm.nih.gov/28924042/>

[2020-11-21 07:57:21]

[Robert Garry]

Yes - very pertinent which means I need to add this reference and you as a co-author -you already pointed me to the feline CoVs OK? Also OK to add Andrew and Eddie in acknowledgments for helpful discussions and encouragement? Alternatively I think Andrew and Eddie rise to authorship as well - putting all the PO1 authors on minus Ian but plus Prof Bill in A Virological would certainly garner some attention and stir up the Chan, Yan , Relman and Billy krewe.

[2020-11-21 08:03:46]

[Kristian Andersen]

I think this is a clear Bob Garry investigation, so no need to add me - but yeah, add us all in acknowledgments :wink:

[2020-11-21 08:04:44]

[Kristian Andersen]

[unless you're scared to face the trolls on your own... :wink:]

[2020-11-21 08:04:51]

[Andrew Rambaut]

It would be interesting to test an SC2 with a FCS deletion in ferrets

[2020-11-21 08:06:35]

[Kristian Andersen]

Agreed - Bob and I have discussed these types of experiments previously. Would also be important to do the same in e.g., human lung cells. Don't know if there's an isolate without the FCS though?

[2020-11-21 08:12:13]

[Robert Garry]

The deletion is nonpathogenic in hamsters, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7457603/> but yes ferret a better model. Tulane primate center and other doing monkeys but I don't know latest results.

[2020-11-21 08:13:47]

[Kristian Andersen]

Yeah, ferrets better - and question is - will it pick it up if passaged in ferrets? I bet this whole thing could easily relate to farming of mustelids.

[2020-11-21 09:42:51]

[Robert Garry]

This was Yoshi's H5 flu experiment: "After 24 consecutive passages by air sac inoculation, followed by five passages in chicken brain, the avirulent virus became highly pathogenic in chickens, producing a 100% mortality rate. Sequence analysis at the hemmagglutinin cleavage site of the original isolate revealed a typical avirulence type of sequence, R-E-T-R, which progressed incrementally to a typical virulence type of sequence, R-R-K-K-R, during repeated passages in chickens." That's a lot of ferrets for 29 passages which aren't cheap, but worth the effort.

[2020-11-21 09:48:26]

[Kristian Andersen]

Denmark has a lot of cheap mink up for sale...

[2020-11-21 09:56:14]

[Robert Garry]

Sad but true - you should suggest they put some to a better use than yet another coat for the likes of Melania, Ivanka et al.

[2020-11-21 09:59:20]

[Robert Garry]

Of course with Donny Jr the latest Trump to get infected that crime family doing it's best at "serial passage."

[2020-11-21 10:00:15]

[Kristian Andersen]

Yeah - it seems like a recent mutation in the virus genome might have selected for stupid.

[2020-11-21 11:28:49]

[Andrew Rambaut]

Are there sequences from the beginning and end? Would be interesting to see how many other mutations appear. How many ferrets gets you 1200 mutations?

[2020-11-21 12:05:22]

[Kristian Andersen]

This really is a great tweet... [shared file(s): Screen Shot 2020-11-21 at 12.04.55 PM.png]

[2020-11-21 12:46:44]

[Robert Garry]

Someone should pass that on to Alina, Relman etc....

[2020-11-21 14:37:52]

[Eddie Holmes]

Yes, great doc Bob. Get it out. Kristian and I have been dealing with some alignment trolls this morning.

[2020-11-21 14:38:48]

[Andrew Rambaut]

Alignment trolls? Who'd have thought we would ever have such things.

[2020-11-21 14:40:28]

[Eddie Holmes]

Yuri Deigin and the powers of BLAST as an alignment tool. I finally blocked him as it was getting so tedious. Proximal Origins 2....I still wonder if we need to wait for more new data?

[2020-11-21 14:43:26]

[Andrew Rambaut]

Quite possibly need more to hang it on. But it might be good to bash out some ideas and see where we are.

[2020-11-21 14:45:13]

[Eddie Holmes]

Don't disagree that with. I would certainly like to take the opportunity to respond to some of the nonsense written about the pangolin viruses. I'll check with Tommy where we are on this.

[2020-11-21 14:47:54]

[Andrew Rambaut]

Also the idea that RaTG13 is a 'progenitor'.

[2020-11-21 14:49:49]

[Eddie Holmes]

Yes! That underpins 99% of the conspiracy stuff. So dumb. And how you end up with a pangolin-like RBD with a RaTG13 as a progenitor?

[2020-11-21 14:50:23]

[Andrew Rambaut]

And when you have RM2 as well

[2020-11-21 14:54:06]

[Eddie Holmes]

Perhaps we should ask Nature Medicine if they up for Proximal Origins II? Given that the 1st one has 5 million accesses they might be up for it. I'll just add notes your doc Andrew.

[2020-11-21 14:55:01]

[Eddie Holmes]

I think we can lance the butt lesion for the new version though.

[2020-11-21 14:55:55]

[Andrew Rambaut]

Definitely no BL this time.

[2020-11-22 09:22:28]

[Robert Garry]

Virological post is submitted - thanks all!

[2020-11-22 09:39:05]

[Kristian Andersen]

This is a great post - thanks Bob. Now, let's see how the alignment trolls of yesterday will interpret this one... ("it's just a simple BLAST search, right?").

[2020-11-22 10:03:10]

[Kristian Andersen]

I think we really need to start making _less_ user-friendly software... Here's one of the alignment trolls from yesterday showing that the RmYN02 paper is definitely wrong. Obviously.

The issue is - this kind of uninformed (this guy's an MBA) analyses actually manages to get traction and for this one in particular, even a published paper. [shared file(s): Screen Shot 2020-11-22 at 10.00.18 AM.png]

[2020-11-22 10:52:49]

[Kristian Andersen]

And just to Proximal v2.0 - I'm also keeping a few notes here:
<https://andersen-lab.com/secrets/data/sars-cov-2-origins/>

[2020-11-22 12:04:28]

[Eddie Holmes]

Yes, brilliant job Bob and Kristian! Made my day.

[2020-11-22 12:05:21]

[Eddie Holmes]

Let's hope that sales of tinfoil take a hit.

[2020-11-22 12:19:55]

[Robert Garry]

THANKS - means a lot!

[2020-11-22 13:11:23]

[Kristian Andersen]

One point I added to Bob's great post - that I'm not sure has been mentioned previously - a SARS-like CoV that is able to cause a human pandemic _is much more likely_ to have a FCS than a non-pandemic SARS-like CoV.
<https://virological.org/t/naturally-occurring-indels-in-multiple-coronavirus-spikes/560/2>

[2020-11-22 13:14:27]

[Kristian Andersen]

And I don't know - but I find myself to be particularly witty here:
https://twitter.com/K_G_Andersen/status/1330617703808135168?s=20.

But that might just be me.

[2020-11-22 14:04:55]

[Eddie Holmes]

I liked it. Alina didn't get it.

[2020-11-22 14:06:49]

[Kristian Andersen]

Nope, she didn't get it - there's other stuff she didn't get either...

Sorry, gotta get back to my experiments so I can get the structure of RmYN02 - so I can _prove_ the insertion.

[2020-11-22 17:27:12]

[Robert Garry]

Bring on the trolls...This somehow slipped under my radar:

<https://medicalveritas.org/coronavirus-conspiracy-proven-by-fake-science/> "If the public and scientific community realized the lab virus origin of the COVID-19, and the aforementioned parties' complicity in concealing and aiding-and-abetting the alleged biocriminal enterprise, not only might Dr. Garry and his cohorts be held accountable under 18 U.S. Code § 1002, but civilization might be relieved of these severe infectious disease burdens and future unnatural 'outbreaks.'"

[2020-11-22 19:16:52]

[Kristian Andersen]

Haha, this is amazing - love the photo! Pills and Money - that's amazing! Reminds me of this guy singing about Boots and Pants - Bob, we need to make an ad:

<https://abcnews.go.com/Lifestyle/worst-tv-ad-internet-thinks/story?id=25030084>

[2020-11-22 21:05:45]

[Eddie Holmes]

Oh that's fantastic! You do look shifty though Kristian.

[2020-11-22 21:08:18]

[Eddie Holmes]

You're not going to get much cash in those pill containers though.

[2020-11-22 21:15:14]

[Kristian Andersen]

Talk about shifty....

Plus this dude is counting cards man - don't even think about taking him on for a game of blackjack.

:flower_playing_cards: [shared file(s): image.png]

[2020-11-22 22:08:14]

[Eddie Holmes]

Death stare :skull_and_crossbones:

[2020-11-23 00:55:07]

[Eddie Holmes]

Just got this from a Nature journo:

[2020-11-23 00:55:09]

[Eddie Holmes]

I don't know if you saw this yet, but the WHO has finally released the list of experts on the mission investigating the origins.

<https://www.who.int/health-topics/coronavirus/who-recommendations-to-reduce-risk-of-transmission-of-emerging-pa>

thogens-from-animals-to-humans-in-live-animal-markets

- Prof. Dr. Thea Fisher, MD, DMSc(PhD) (Nordsjællands Hospital, Denmark)
- Prof. John Watson (Public Health England, United Kingdom)
- Prof. Dr. Marion Koopmans, DVM PhD (Erasmus MC, Netherlands)
- Prof. Dr. Dominic Dwyer, MD (Westmead Hospital, Australia)
- Vladimir Dedkov, Ph.D (Institute Pasteur, Russia)
- Dr. Hung Nguyen, PhD (International Livestock Research Institute (ILRI), Vietnam)
- PD. Dr. med vet. Fabian Lendertz (Robert Koch-Institute, Germany)
- Dr. Peter Daszak, Ph.D (EcoHealth Alliance, USA)
- Dr. Farag El Moubasher, Ph.D (Ministry of Public Health, Qatar)
- Prof. Dr. Ken Maeda, PhD, DVM (National Institute of Infectious Diseases, Japan)

[2020-11-23 00:58:24]

[Eddie Holmes]

What a dumb idea to include Daszak! That's nixed the whole thing immediately. Dominic Dwyer is a good mate of mine. I've no idea why he is on this though, I bet he doesn't either (he's a clinical virologist). Marion and Fabian are good calls. Very glad not to be involved.

[2020-11-23 01:00:14]

[Eddie Holmes]

I guess they need to review clinical data which is why Dominic is on.

[2020-11-23 06:57:41]

[Robert Garry]

Including Daszak on both the WHO and Lancet panels is a gift to the conspiracy theorists.

[2020-11-23 09:09:27]

[Kristian Andersen]

Overall a decent list - but most of these people aren't really the types of people hunting down animal reservoirs... I know Thea - she's great, but not the type of person to investigate emergence.

[2020-11-23 11:17:14]

[Robert Garry]

<https://www.ecohealthalliance.org/2020/11/members-of-the-lancet-covid-commission-task-force-on-the-origins-of-sars-cov-2-named>

[2020-11-23 11:21:29]

[Robert Garry]

It's a day for lists....

[2020-11-23 11:50:28]

[Eddie Holmes]

What is now the point of The Lancet task force? I can't help but think this is a massive own goal.

[2020-11-23 13:00:30]

[Robert Garry]

NO point at all. It's a[nother] vanity project for the Grand Wizard and Richard Horton. Plus, they did not appreciate PO1 getting 5M+ hits and a lot of positive press.

[2020-11-23 13:28:58]

[Eddie Holmes]

:100:

[2020-11-23 13:44:04]

[Andrew Rambaut]

The ten priority actions of the Commission are summarised in panel 1.

Ten priority actions

- *1* Origins: track down the origins of the virus in an open, scientific, and unbiased way not influenced by geopolitical agendas
 - *2* Non-pharmaceutical interventions: suppress the epidemic through the proven package of non-pharmaceutical interventions, as accomplished by several countries including several in the Asia–Pacific region
 - *3* Science-based policy making: base policy making on objective scientific evidence and stop politicians and others in positions of power from subverting clinical trials and other scientific protocols
 - *4* Timely and consistent data: collect and publish timely and internationally consistent data on the state of the pandemic, including humanitarian and economic consequences
 - *5* Justice in access to tools to fight COVID-19: ensure universal access to the tools to fight COVID-19, including test kits, therapeutics, and prospective vaccines
 - *6* Emergency financing: secure access of developing countries to financing from international sources, especially from the International Monetary Fund and World Bank
 - *7* Protect vulnerable groups: direct urgent protection towards vulnerable groups, including older people, people in poverty and hunger, women who are vulnerable, children, people with chronic diseases and disabilities, the homeless, migrants, refugees, Indigenous Peoples, and ethnic and racial minorities
 - *8* Long-term financial reform: prepare for a deep restructuring of global finances, including debt relief, new forms of international financing, and reform of monetary arrangements
 - *9* Green and resilient recovery: economic recovery will be based on public-investment-led growth in green, digital, and inclusive technologies, based on the Sustainable Development Goals
 - *10* Global peace and cooperation: support UN institutions and the UN Charter, resisting any attempts at a new cold war
- Is that all?

[2020-11-23 13:59:02]

[Kristian Andersen]

I find #10 to be very important - "Global peace and cooperation".

Get on it Peter.

[2020-11-23 15:12:16]

[Eddie Holmes]

A new cold war sounds fun. I love a good spy film.

[2020-11-23 15:59:09]

[Robert Garry]

Grover Cleveland served twice non-consecutively as the 22nd and 24th president, from 1885-1889 and 1893-1897. Trump is bound to run again unless he ends up in prison (I'd say orange suit for the orange idiot is 100% on merit, but 50/50 in reality). IF he runs again and IF he gets re-elected a cold war will indeed be fun compared to what else will come.

[2020-11-23 16:02:56]

[Eddie Holmes]

Does appear to be plan: poison the well now for Biden and then come back as the saviour in '24. Jesus.

[2020-11-23 16:29:01]

[Kristian Andersen]

IF he runs again, America has bigger issues to deal with than Trump.

[2020-11-23 16:55:42]

[Andrew Rambaut]

https://www.nature.com/articles/d41586-020-03217-0?utm_source=tw_t_nnc&utm_medium=social&utm_campaign=naturenews&sf240333142=1

[2020-11-23 16:58:34]

[Andrew Rambaut]

Ugh. Just a fragment and a press release. Classic PREDICT.

[2020-11-23 17:03:28]

[Kristian Andersen]

Yeah, really a shit article if you ask me.

In other news - humanity is doomed.

[2020-11-23 22:37:02]

[Eddie Holmes]

And typical Nature news for covering a half story. The annoying is that she asked me about the Japanese EID paper and that's what I'm quoted about. She never mentioned this Cambodian thing.

[2020-11-24 06:47:23]

[Robert Garry]

Your quote was good - obviously finding the 99% virus would end the Y-, Ch-, Relm-an nonsense.

[2020-11-24 15:38:46]

[Eddie Holmes]

<https://www.scmp.com/news/china/science/article/3110765/chinas-bat-woman-virologist-rules-out-covid-19-virus-fresh-tests>

[2020-11-24 15:41:35]

[Robert Garry]

As if on cue - this evening - Chan trying and failing to make a point about Yan, "Yan did not have a smoking gun for lab origins. Yet, her 1st Sep 14 preprint about SARS2 being an intentionally released bioweapon went viral. Can someone remind me of Chan's smoking gun?"

[2020-11-24 15:44:07]

[Kristian Andersen]

Chan's smoking gun is in here:

<https://www.bostonmagazine.com/news/2020/09/09/alina-chan-broad-institute-coronavirus/>

[2020-11-24 15:44:17]

[Kristian Andersen]

It's really really really dumb

[2020-11-24 15:44:38]

[Kristian Andersen]

(a restriction site present a million times all across the genome

[2020-11-24 15:48:06]

[Eddie Holmes]

Just had a look at her tweets as my blood pressure readings have been good lately. She's all over the place. I don't see any logic to it. Just seems to be a set of shotgun objections.

[2020-11-24 15:49:55]

[Robert Garry]

Truly idiotic - when is Ed Yong going to let lose his article on amateurs? Beyond the problem with logic [!]that Chan really does need to stop accusing WIV and anyone that's worked with a chinese virologist (Eddie) of genocide. Billy and the Drastic krewe seem to have gotten a second wind as well.

[2020-11-24 15:57:07]

[Eddie Holmes]

Mad. Yan is not a whistle-blower!!!

[2020-11-24 16:21:57]

[Eddie Holmes]

Just wait 'til Alina finds out that Daszak is on the WHO panel....

[2020-11-24 17:22:09]

[Kristian Andersen]

I'm not quite sure what that SCMP article is about, but hey...

One thing though - "In Tuesday's update, Shi said she and her team collected 13 serum samples from four miners who came down with a mystery respiratory disease after clearing bat faeces in a copper mine in Yunnan province in April 2012."

They didn't find SARS-CoV-2 in these samples, but they never would even if they were infected by SARS-CoV-2 - you can't find the virus in the blood/serum/plasma, so this doesn't really tell us much....

[2020-11-24 17:44:51]

[Kristian Andersen]

@Andrew Rambaut - how the fuck did this get through?

<https://www.biorxiv.org/content/10.1101/2020.11.17.386714v1>

[2020-11-24 18:03:25]

[Eddie Holmes]

The clock is ticking for the first set of shit headlines...

[2020-11-24 18:05:13]

[Kristian Andersen]

This one is a little too ridiculous (but look - Harvard!), so I'm not sure it'll get picked up. We'll just point to Andrew's take-down - thanks Andrew!

[2020-11-24 18:06:22]

[Eddie Holmes]

Just seen Andrew's rebuttal. Great!! The journos will love this - Harvard death mutations.

[2020-11-24 18:07:07]

[Eddie Holmes]

I look forward to the first 'how did this shit get through bioRxiv?' comment.

[2020-11-24 18:21:36]

[Kristian Andersen]

Harvard just needs to merge this pile of turds with the "oh look, a lot of cars outside the hospitals" study - the ultimate turd pile.

[2020-11-24 18:45:18]

[Eddie Holmes]

Good point. How was the traffic outside that hospital in Brazil?

[2020-11-24 18:47:21]

[Kristian Andersen]

At a standstill - turns out all the drivers died.

[2020-11-24 18:48:07]

[Kristian Andersen]

I still can't believe these idiots went ahead and wrote a full paper - such a giant waste of time.

[2020-11-24 18:54:14]

[Kristian Andersen]

I found another beautiful study from them: <https://www.biorxiv.org/content/10.1101/2020.06.22.165936v1.full>

I'm glad to see their new-found interest in virus genomes. You sorta just take all the stuff you learned in Human Genetics 101 and apply it - because, why waste time building a tree or whatever?

[2020-11-24 18:59:06]

[Eddie Holmes]

Who is reviewing these? It ain't me.

[2020-11-24 19:06:27]

[Kristian Andersen]

Not me either... Total junk.

[2020-11-24 19:09:05]

[Kristian Andersen]

I wonder if this is what NEJM meant when they talked about "Research Parasites"... Maybe they had a point :wink:.

Actually, no, they didn't - the issue isn't the data here, it's just shit science. Can't totally shield against that.

[2020-11-24 23:13:42]

[Andrew Rambaut]

That twitter thread was literally what I emailed them when their preprint was on Researchsquare. But they still submitted it to biorxiv. It is also pretty much the review they got reject from Nature with. They are suckers for punishment. Next step is Harvard puts out a press release.

[2020-11-24 23:38:11]

[Andrew Rambaut]

So arrogant too - I emailed the first author originally but he sent a really patronising reply, CC'ing in all of his coauthors, that they were 'aware of the issue' but had controlled for it by doing a Sao Paulo only analysis. I replied to explain how that didn't fix the non-independence but certainly revealed it. Then no reply before the BioRxiv came out. Hopefully editors and reviewers will have seen the twitter thread.

[2020-11-25 05:08:13]

[Robert Garry]

Amateurs: 1. Amateur aerobiologists: saRESPIRATORYsv-CoV-2 is NOT airborne [just wash you hands, masks don't work]. 2. amateur epidemiologists: Don't worry about social distancing [just wash your hands]. 3. Amateur molecular biologists: PCR is soooooo easy, just ask the CDC. 4.amateur virologists: just wait it will go away in the summer. 5. amateur evolutionary biologists/detectives: look a unicorn (FCS), look a restriction enzyme site, look a mutation (we are all going to die). 6. Amateur pulmonary doctors: treat/prevent with HQC. etc... where is Ed Yong on this when you need him?

[2020-11-25 05:12:52]

[Andrew Rambaut]

Oli Pybus came up with a nice quote, which I paraphrase: "Virologists look at a mutation and assume it is adaptive, evolutionary biologists assume it isn't. Neither are right all the time"

[2020-11-25 13:05:52]

[Eddie Holmes]

Nice one.

[2020-11-26 06:12:08]

[Robert Garry]

project-wuhan_pangolin

—

Jul 27th

[View in channel](#)

Eddie Holmes [9:50 PM]

I'm not sure what I would conclude except that it is completely inappropriate to discuss the thoughts of the editors at Nature. In addition, they completely fail to note that it was Clare that suggested Nature Medicine!! Clare seems to have rejected the paper largely on the grounds that she thought it would go out of date quickly.

[2020-11-26 06:12:26]

[Robert Garry]

Tommy has 6 SARS-CoV-2 sero-positive pangolins that are currently being metagenomically sequenced. The other news - which is obviously strictly confidential - is that someone in China (Tong?) has apparently obtained a MERS-like virus from a pangolin.

[2020-11-26 06:16:13]

[Robert Garry]

Just revisiting some earlier threads - The one from July 27th vis-a-vis Deep throat. Why Claire "rejected" was obviously incorrect - PO1 has held up well.

[2020-11-26 06:19:31]

[Robert Garry]

11 November 2020 Editor's Note: Readers are alerted that concerns have been raised about the identity of the pangolin samples reported in this paper and their relationship to previously published pangolin samples. Appropriate editorial action will be taken once this matter is resolved. The second Eddie quote also pertinent in light of Xiao et al. editors note *11 November 2020* Editor's Note: Readers are alerted that concerns have been raised about the identity of the pangolin samples reported in this paper and their relationship to previously published pangolin samples. Appropriate editorial action will be taken once this matter is resolved. This is Alina and her Drastic clique it seems, but new pango sequences would be very helpful.

[2020-11-26 06:41:34]

[Robert Garry]

I'm also very interested in the MERS-like virus from the pangos. Long story short: a few weeks ago I mentioned a lot of SARS-CoV-2 nucleoprotein seroreactivity in preCOVID blood from Sierra Leonians. The N rxy has held up [the Spike/RBD mostly did not], but more complicated. We expressed the nucleocapsid of the other human coronaviruses to see if this could be explained by rxy to common cold viruses. HKU1 N gave us a little trouble but turns out that the SARS2 rxy can mostly be explained by rxy to MERS nucleocapsid (they are 50% identical, 79% similar at the amino acid level). Got the folks in Kenema doing PCR of nasal swabs and saliva. Obviously this will be more meaningful if we can - you know - actually find the "MERS-like" virus. May explain why the COVID pandemic seems to be sparing Africa.

[2020-11-26 12:11:34]

[Eddie Holmes]

Totally agree about the pangos Bob. Very important! I'll check with Tommy about where we are at. The Xiao et al. group - who are straight, but naive - have more data but can't publish it because they have dishonoured their institutions. That went well then.

[2020-11-26 14:39:23]

[Robert Garry]

Yes indeed - for me the GD pango RBD is game-over/mic drop for natural origin of SC2, No way the pango RBD was selected in cell culture via passage of a bat cov. No one designed this sequence with a computer based on SARS1. An independent isolate is unnecessary perhaps but would seal the deal except for the most entrenched tinfoil hats.

[2020-11-26 15:17:50]

[Eddie Holmes]

Completely agree, although one presented in the Lam paper is independent. They took from the Li et al. Viruses paper but then assembled another from scales. Also, critical to remember that there is a 2nd pango lineage in Guangxi.

[2020-11-26 17:54:06]

[Robert Garry]

Yes - the ringer was the furin cleavage site which threw everyone off since on first glance it appears so striking. But on the deeper dive there is no way that the FCS is anything but a product of nature. I'm starting to think that a PO2 could be very useful - lot's of pieces to compile actually - no confidence whatsoever that the WHO or Lancet investigations will add much {maybe the opposite}.

[2020-11-26 20:29:27]

[Eddie Holmes]

Yes, I'm also swinging toward a PO2 sooner rather than later.

[2020-11-27 07:47:42]

[Robert Garry]

<https://arxiv.org/pdf/2011.12567.pdf> "The article "The proximal origin of Sars-coV-2" (Andersen et al. 2020) is recurrently put forward as a proof for the natural origin of SARS-CoV-2. However, their reasoning does not rely on an actual positive proof of the zoonotic origin. Indeed, as discussed above, the divergence between RaTG13 and SARS-CoV-2 dates from several decades and we still don't know any suitable candidates for proximal animal hosts and viral strains. Rather, the rationale of this article consists in opposing two mutually exclusive options, which are implicitly considered as exhaustive: either a "natural proximal origin" (i.e. a recent zoonosis), or a virus intentionally designed on the basis of prior knowledge, and constructed by reverse engineering (design hypothesis)." I'm losing track of the article that seek to discredit PO1. This one is particularly disingenuous. We definitely did not set up this dichotomy.

[2020-11-27 08:18:40]

[Kristian Andersen]

Sharing this in case there's any interest/relevance. I obviously have nothing to add... [shared file(s): Re: Wuhan market floorplan]

[2020-11-27 08:51:32]

[Andrew Rambaut]

I just had an interesting phone call from the WHO (Mark Perkin's group). Apparently with the upcoming 'investigation' into the virus origins, the Chinese are pushing the narrative that the virus started in Italy and then spread to Wuhan. Apparently it is based on some phylogenetics (presumably the shit rooting using RaTG13). I told them this was categorically a very unparsimonious explanation of the data because it would need to be an ancestral virus to Wuhan that was then not seen in Italy subsequently. And that we see the sequence of mutations appearing as the virus spreads.

[2020-11-27 08:52:24]

[Andrew Rambaut]

Anyway - Mark and group were quite happy with the explanation I gave I think.

[2020-11-27 08:59:36]

[Kristian Andersen]

Oh boy - if they start pushing crazy theories like that as an official narrative, then they'll lose credibility immediately. I think there's little reason to believe this virus did not come from somewhere in China - sure, could have been neighboring countries, but Europe? No. Yes, I know they got a few hits for the virus in earlier samples from Italy, but I don't buy it.

The rooting IS funky though... I don't think it's unreasonable that we might have had two early emergence events, one of which got massively amplified in Wuhan via early super spreading? I don't think the emergence was in Wuhan - probably somewhere else with large-scale animal farming and bats around.

[2020-11-27 09:03:36]

[Kristian Andersen]

<https://twitter.com/kakape/status/1332369284186726402?s=20>

[2020-11-27 10:35:57]

[Andrew Rambaut]

[thread - ID: 2020-11-27 10:35:57]

Pretty much sure the MRCA of all circulating viruses we have sample so far was one or other of the two original haplotypes. But seems likely to me that it came in to wuhan from somewhere else in China.

[2020-11-27 10:36:09]

[Andrew Rambaut]

shared file(s): Image from iOS.jpg

[2020-11-27 10:38:21]

[Kristian Andersen]

[thread - ID: 2020-11-27 10:35:57]

@Andrew Rambaut But that mid-point rooting though..?

[2020-11-27 10:41:13]

[Kristian Andersen]

[desperately trying to find that old Tweet he sent to Oli... I will persevere!]

[2020-11-27 10:42:08]

[Andrew Rambaut]

[thread - ID: 2020-11-27 10:35:57]

@Andrew Rambaut Could be something to touch on in the PO2. Some of the RBD mutations we have seen recently (eg mink) are actually reversions to the bat residues.

[2020-11-27 10:42:51]

[Kristian Andersen]

Here it is - it's a true piece of beautiful Twitter history. Nice guy. [shared file(s): 61ED1770-AF57-4BE4-B916-1ED34005C3C6.jpg]

[2020-11-27 10:43:27]

[Andrew Rambaut]

[thread - ID: 2020-11-27 10:35:57]

@Andrew Rambaut But of course that is with a non-ACE2 RBD in bats.

[2020-11-27 10:44:00]

[Kristian Andersen]

[thread - ID: 2020-11-27 10:35:57]

@Andrew Rambaut Yeah, I definitely think this is something to touch on - I have been intrigued by this question for a long time, but haven't had time to take a closer look (plus, I'm really not the best to look at this question in any case).

[2020-11-27 10:44:51]

[Kristian Andersen]

[thread - ID: 2020-11-27 10:35:57]

@Andrew Rambaut Let's maybe wait until we get some more pangos and then look a little closer at the root plus what's going on in mink in terms of reversions?

[2020-11-27 12:44:09]

[Andrew Rambaut]

My whole group follow him for the Twitter pearls.

[2020-11-27 13:00:47]

[Eddie Holmes]

Bob, that arxiv thing was published some months ago in some French journal. Nothing new. The SCMP also contacted me. I've not replied yet but I'm going to tell them to fuck-off as they pulled this through the Freedom of Information act which really pisses me off. Clearly the Italian thing is nutso and if this is pushed the whole WHO thing will loose all credibility as you say, not that it has much any way. I think you can bet good money what when

the Chinese find the animal origin George will have in Nature/NEJM without any involvement of WHO. The latter will likely just have to deliver a fairly meaningless report.

[2020-11-27 13:44:41]

[Robert Garry]

Thanks Eddie - hard to keep up with the cheap shots at PO1. I do recall some spurious report of Italian seroreactivity in 2019 <https://www.reuters.com/article/health-coronavirus-italy-timing/researchers-find-coronavirus-was-circulating-in-italy-earlier-than-th-l-> that's cross-reactivity plus hype and another example of amateur hour. Lots of people are finding SARS2 seroreactivity here and there - not a big shock really given that we have had at least 4 CoVs and likely a lot more spreading in humans for a long time.

[2020-11-27 14:08:22]

[Eddie Holmes]

Indeed - lots of cheap shots at PO1. I already complained to the French authors about aspects of that paper and some clear errors. If I remember, the Italians found 14% seropositivity in September 2019. Yeah, right.

[2020-11-27 16:40:57]

[Eddie Holmes]

Confidential from Weifeng: "By the way, we just identified a number of SARS-CoV-2 like CoVs. One is ~93% similar to SARS-CoV-2 and some of them are related to pangolin-derived CoVs. We are still working on this project to validate them. It would likely take approximately 4~5 weeks to finish this project. Anyway, I will keep you updated."

[2020-11-27 17:08:42]

[Eddie Holmes]

These are bat samples.

[2020-11-27 17:16:53]

[Kristian Andersen]

Very interesting!

[2020-11-28 06:20:19]

[Robert Garry]

hmmm [shared file(s): image.png]

[2020-11-28 07:33:43]

[Kristian Andersen]

Interesting...

[2020-11-28 08:36:01]

[Robert Garry]

Drosten has a point - Daszak on both committees - good at hype -lightweight on the science. Baric not on either committee either - actually does CoVGoF (not to be confused with covfefe - maybe trump's 2017 secret signal to the ccp to release the big one?) so at least not a gift to the tinfoils. Big question - was Deep Throat left off of both committees?

[2020-11-28 09:58:56]

[Robert Garry]

@Andrew Rambaut Delta69/70 likely is part of a neutralizing epitope in the NTD [https://www.cell.com/cell/fulltext/S0092-8674\(20\)30757-1?returnURL=https%3A%2F%2Flinkinghub.elsevier.com%2Fretrieve%2Fpii%2FS0092867420307571%3Fshowall%3Dtrue#supplementaryMaterial](https://www.cell.com/cell/fulltext/S0092-8674(20)30757-1?returnURL=https%3A%2F%2Flinkinghub.elsevier.com%2Fretrieve%2Fpii%2FS0092867420307571%3Fshowall%3Dtrue#supplementaryMaterial)

[2020-11-28 10:01:35]

[Robert Garry]

check the COV57 neut Mab

[2020-11-28 13:53:30]

[Eddie Holmes]

Yes, very interesting. I never knew there was a call.

[2020-11-29 16:15:42]

[Eddie Holmes]

This is a corker: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3724275

[2020-11-29 23:10:09]

[Andrew Rambaut]

Utter shit. I like how the top journals have preprint services now so you can see where the authors have submitted to.

[2020-11-29 23:16:30]

[Andrew Rambaut]

Based on the call I had with WHO (and I believe this preprint was part of what instigated that) I had started to get together some data to do a rebuttal. But this is way worse than I imagined. It is just waffle.

[2020-11-29 23:18:43]

[Andrew Rambaut]

Will be interest to see how hard this is pushed into the media - i.e. is it government sponsored.

[2020-11-30 00:24:46]

[Eddie Holmes]

It may not be government sponsored, but the government will be delighted and I assume it's all over their state media. I'll see what [REDACTED] has to say.

[2020-11-30 00:26:25]

[Andrew Rambaut]

They certainly seem to be offering it to the WHO's 'origins investigation committee'.

[2020-11-30 00:31:54]

[Eddie Holmes]

Mad shit.

[2020-11-30 04:37:12]

[Robert Garry]

https://www.theguardian.com/world/2020/nov/29/a-year-after-wuhan-alarm-china-seeks-to-change-covid-origin-story?CMP=Share_iOSApp_Other

[2020-11-30 04:43:03]

[Robert Garry]

Guardian article is OK Andrew's right: "Will be interest to see how hard this is pushed into the media - i.e. is it government sponsored." It will also be interesting to see how Trump supported media (Fox, Newsmax, OAN) handle this.

[2020-11-30 04:46:45]

[Andrew Rambaut]

Yes - I saw the Guardian article. It is good that they make it clear that this is a political angle and doesn't come from the science.

[2020-11-30 04:58:46]

[Robert Garry]

Agree - The whole notion of precirculation is of course something we offered up in PO1 - who knew that would be subverted to Italy and India [or maybe other countries beginning in I]. Perhaps another paragraph or two for PO2?

[2020-11-30 06:59:43]

[Kristian Andersen]

Is the article still up? Eddie's link doesn't work for me...

[2020-11-30 07:04:10]

[Andrew Rambaut]

Seems to have gone. Perhaps it was rejected from Lancet

[2020-11-30 07:46:53]

[Kristian Andersen]

I feel like I'm missing out now...

[2020-11-30 08:00:15]

[Robert Garry]

Maybe Trevor downloaded it since he has commented...

[2020-11-30 08:53:42]

[Andrew Rambaut]

I had a copy downloaded... [shared file(s): SSRN-id3724275.pdf]

[2020-11-30 08:57:52]

[Kristian Andersen]

From the abstract: "we developed a method to search the least mutated strain using SARS-CoV-2 whole genome sequences. By parsimony principle, the least mutated strain should be the phylogenetic root for all SARS-CoV-2s."

-> Desk reject...

[2020-11-30 12:18:16]

[Eddie Holmes]

My colleagues in China confirm that there is an active push to say that the virus originated elsewhere, particularly Italy. Very bad.

[2020-11-30 12:24:07]

[Eddie Holmes]

NY Times are doing a story on the Chinese misinformation as well I believe.

[2020-11-30 12:24:14]

[Kristian Andersen]

Ohhh boy - this'll not help China's standing in the world and will further fuel conspiracies.

[2020-11-30 12:25:13]

[Eddie Holmes]

Very stupid for all the reasons you say. They are really flexing their muscles.

[2020-11-30 12:27:28]

[Kristian Andersen]

I really don't understand this angle. If I was in their shoes I'd focus on "rapid detection", "alerted the world quickly", and "we have shown how to bring it under control". Ample space to tweak key events to fit the CCP agenda...

[2020-11-30 12:28:00]

[Eddie Holmes]

I agree. It's a big error of judgement.

[2020-11-30 12:48:34]

[Robert Garry]

The Guardian did a decent job - hopefully NYTimes does it right as well. Speaking from my narrow perspective the worst part is the amateur serology. Cross-reactivity information is actually quite important, but those studies have to be done very carefully and interpreted even more carefully. No way though the serology tells you that SC2 was in Italy before China.

[2020-11-30 16:37:56]

[Eddie Holmes]

<https://edition.cnn.com/2020/11/30/asia/wuhan-china-covid-intl/index.html>

[2020-11-30 16:45:11]

[Eddie Holmes]

"Similarly, no mention is made by officials of a so-called laboratory leak, or that the virus was man-made, as some critics, including top US officials, have claimed without evidence."

[2020-11-30 17:52:29]

[Robert Garry]

One thing is certain - this keeps the whole CCP cover-up on the front burner.

[2020-11-30 18:24:50]

[Kristian Andersen]

Still reading through it, but I find sentences like this hilarious: "[...] reveal what appears to be an inflexible health care system constrained by top-down bureaucracy and rigid procedures that were ill-equipped to deal with the emerging crisis. At several critical moments in the early phase of the pandemic, the documents show evidence of clear missteps and point to a pattern of institutional failings."

So, are we talking about China in January 2020? Or are we talking the United States January, 2020 through December, 2020? I'm confused...

[2020-11-30 18:34:48]

[Eddie Holmes]

Ha, yes, applies equally. Perhaps China will use that line?

[2020-11-30 18:43:44]

[Kristian Andersen]

They might want to tweak it a little to make it even stronger.

[2020-11-30 18:50:14]

[Eddie Holmes]

They are really having a go at Australia at the moment. Soft target and really stupid. They are losing the plot a bit.

[2020-11-30 18:51:50]

[Kristian Andersen]

Well, Aussies are easy targets because they can take the heat - "Fuck it you nitwit - heading to the beach and then it's out for a pint with me mates"

[2020-11-30 18:53:28]

[Eddie Holmes]

We fucking can! It's been in the 40s here. And here's a bit of fun about that rubella paper published in Nature the other week...we just sequenced some more fish including an electric ray. Sorry the tree is shit but we just did it. And the rooting in that paper is wrong. [shared file(s): rubella.trimmed.fasta.tree.png]

[2020-11-30 19:02:37]

[Kristian Andersen]

Wait, are you telling me that that paper I rejected for Nature but that Nature decided to go ahead with anyway might have rooted their tree incorrectly? I did tell them to be careful with their conclusions...

[2020-11-30 19:04:55]

[Eddie Holmes]

I'm telling you exactly that. Pretty crazy that the ray falls between the bat and the other mammalian samples.

[2020-11-30 19:05:52]

[Eddie Holmes]

Complete RdRp

[2020-11-30 19:06:35]

[Kristian Andersen]

I don't understand evolution - it's so weird...

[2020-11-30 19:07:31]

[Eddie Holmes]

Must be a bat-eating ray. Fuck knows.

[2020-12-01 01:15:45]

[Andrew Rambaut]

Bat rays are a thing: <https://www.youtube.com/watch?v=qlyN4Bp-rvE>

[2020-12-01 01:22:49]

[Eddie Holmes]

There had to be....actually, just found that the ray sequence is in fact from the TSA rather than one of ours so perhaps they fucked up in some way. Trying to resolve it.

[2020-12-01 04:42:15]

[Robert Garry]

Do love those fish viruses! Certain symmetry there Eddie if you can point out THEIR rooting problem.

[2020-12-01 07:09:49]

[Robert Garry]

Some things never change.... [shared file(s): image.png]

[2020-12-01 11:42:23]

[Eddie Holmes]

Wow, Bob, I love that cover!

[2020-12-01 12:56:02]

[Kristian Andersen]

PNAS with another corker... <https://www.pnas.org/content/117/48/30679>

They really need to stop publishing _any_ paper that has the word "sequencing" in it.

[2020-12-01 13:34:40]

[Eddie Holmes]

Total shit. Can't see it was preprinted either. Self-communicated. I've consistently reviewed shit COVID-19 papers for PNAS. Every one. That journal is broken.

[2020-12-01 13:39:12]

[Kristian Andersen]

Totally broken - and again, these PNAS shit papers actually get rejected on the bioRxiv... There's some justice in that.

[2020-12-01 19:32:02]

[Eddie Holmes]

<https://www.scmp.com/news/china/science/article/3112160/american-study-finds-signs-coronavirus-us-china-outbreak>

[2020-12-01 19:36:36]

[Eddie Holmes]

shared file(s): c1aa1785.pdf

[2020-12-01 19:51:49]

[Kristian Andersen]

Yeah, it's just dumb - Trevor did a good job putting this one in the ground

[2020-12-01 20:34:59]

[Eddie Holmes]

Oh, didn't see Trevor's tweets. Yes, unlikely.

[2020-12-01 22:49:04]

[Andrew Rambaut]

[thread - ID: 2020-12-01 22:49:04]

They have 1-2% prevalence in multiple states in Dec - don't these people ever stop to think what the implications of their results are?

[2020-12-02 00:25:24]

[Eddie Holmes]

<https://www.globaltimes.cn/content/1208661.shtml>

[2020-12-02 00:27:54]

[Eddie Holmes]

[thread - ID: 2020-12-01 22:49:04]

@Andrew Rambaut CID is a decent journal as well.

[2020-12-02 01:15:00]

[Andrew Rambaut]

Do preprints on this server automatically get withdrawn if the journal rejects the paper?

[2020-12-02 01:33:19]

[Eddie Holmes]

Not that I know of.

[2020-12-02 01:33:55]

[Andrew Rambaut]

Perhaps it doesn't fit the narrative of out of Europe

[2020-12-02 01:35:09]

[Eddie Holmes]

I'm waiting for 'out of the US' following that CID paper.

[2020-12-02 05:24:37]

[Robert Garry]

Yes - Trevor gets the critique right - it's cross-reactivity. The CDC authors get an solid F for this conclusion: "These findings suggest that SARS-CoV-2 may have been introduced into the United States prior to January 19, 2020." Frankly, they should withdraw this paper because it is so misleading. Yes - not clear how this escaped per review at CID. It's VERY important to sort out the cross-reactivity between SARSr-CoV and other CoVs, including MERS BTW. This was an opportunity for CDC to take their data in that direction and they blew it - big time. There is no Zika antibody ELISA that is 100% (or even 95%) specific due to cross-rxty to other flaviviuses. That's OK. All assays, including PCR assays, are susceptible to false positives/negative. I'm pretty sure the CDC authors know better but

are saying and doing stupid things to get a bit of attention. Reminds me of @Covidfaker who sought out and got 4 days of "teevee glory" as a fake COVID poster child.

[2020-12-02 05:26:49]

[Robert Garry]

If they don't withdraw, then the editors should retract.

[2020-12-02 05:39:40]

[Robert Garry]

Maybe by some stretch of the imagination (calling all trolls) this is partly our "fault." In PO1 we told people to do retrospective serology studies along with some PCR. We just didn't tell them to thread carefully...

[2020-12-02 05:57:13]

[Andrew Rambaut]

Does no one have blood samples from previous winters?

[2020-12-02 08:34:20]

[Robert Garry]

Speaking of Trevor: <https://twitter.com/AlexBerenson/status/1333882354046296064>

[2020-12-02 08:35:34]

[Robert Garry]

He shouldn't be feeding the trolls. However, this caught my eye: [shared file(s): image.png]

[2020-12-02 08:49:27]

[Kristian Andersen]

Haha, that's cute. Why he's surprised that we haven't found the intermediate host, I'm not sure - same for Relman (this whole BS sentence "Beyond these facts, the "origin story" is missing many key details, including a plausible and suitably detailed recent evolutionary history of the virus, the identity and provenance of its most recent ancestors, and surprisingly, the place, time, and mechanism of transmission of the first human infection.").

I agree with Trevor that considering any type of lab scenario a conspiracy theory is incorrect - however, it's clear that most lab theories are indeed conspiracy theories (I think people have a hard time understanding the difference here...).

What's funny here is that Trevor was gung ho that this definitely was a natural virus at the time where I was strongly saying "wait a minute, we need to take a close look at this". After reading The Thesis, I think he's pretty convinced it came from the lab.

[2020-12-02 08:57:00]

[Andrew Rambaut]

I totally agree. Conspiracy theories are about conspiracies.

[2020-12-02 13:20:51]

[Eddie Holmes]

It's like deja vu all over again.

[2020-12-02 14:54:44]

[Kristian Andersen]

I'm glad Eric's on it. Those two are like peas in a pod.

<https://twitter.com/DrEricDing/status/1333945136267583494?s=20>

[2020-12-02 15:00:53]

[Eddie Holmes]

Made in heaven.

[2020-12-02 16:14:56]

[Eddie Holmes]

<https://bylinetimes.com/2020/12/02/ministry-of-defence-funds-man-behind-great-barrington-declaration/>

[2020-12-02 16:17:46]

[Eddie Holmes]

<https://collateralglobal.org/>

[2020-12-02 16:42:03]

[Kristian Andersen]

Haha, nice. Such tools. IF only the GBD nonsense didn't have such devastating consequences...

[2020-12-02 16:45:50]

[Kristian Andersen]

This guy really is an idiot... Perfect example of "I don't understand it, so it can't be true". [shared file(s): Screen Shot 2020-12-02 at 4.45.01 PM.png]

[2020-12-02 16:56:00]

[Eddie Holmes]

Yes, I saw this. He is a prize knob.

[2020-12-02 16:57:29]

[Kristian Andersen]

He's :point_down: whole page, that's for sure. I hope Trevor understands what he's fueling here. [shared file(s): EoHqvaaVKAATi4.png]

[2020-12-02 17:33:53]

[Robert Garry]

I would not dismiss how much damage Trevor, Relman etc can actually do here. I should not do this often [watch Fox], but @Kristian Andersen your nitwit buddy Alex was just on Tucker Carlson's first segment. Alex mentioned Trevor, Relman and others that are pushing back on conventional wisdom and natural origins. Tucker - who is also a nitwit - but also an unscrupulous and effective liar - went through the CDC serology study with Berenson and concluded that that Fauci, CDC, WHO etc have been lying all along and that the truth from Dr. Yan and other brave scientists like Trevor, Relman is finally coming out after the election.

[2020-12-02 17:40:45]

[Kristian Andersen]

Haha, I am SO not surprised. Is this going to be online? I have actually never watched Tuck - I think three beers and I should be okay to watch.

[2020-12-02 17:41:24]

[Eddie Holmes]

We had better start on PO2 then.

[2020-12-02 17:45:08]

[Kristian Andersen]

I think we already did... But I guess actual writing would be required.

[2020-12-02 17:46:50]

[Robert Garry]

Yes - Tuck/Alex will be online - not as entertaining as the Bannon video, but more chilling.

[2020-12-02 17:52:01]

[Eddie Holmes]

Actual writing...will attend to this shortly.

[2020-12-02 17:52:08]

[Robert Garry]

Also keep in mind that a really pissed off narcissist watches this shit and still has 50 days to make things much worse.

[2020-12-02 17:54:41]

[Kristian Andersen]

As long as we don't end up with a war with Iran before the inauguration, I consider that a win.

[2020-12-03 05:07:43]

[Robert Garry]

:beer::beer::beer:<https://www.foxnews.com/opinion/tucker-carlson-on-chinas-global-fraud-coronavirus>

[2020-12-03 05:08:25]

[Robert Garry]

<https://video.foxnews.com/v/6213766434001#sp=show-clips>

[2020-12-03 06:30:58]

[Robert Garry]

The second one - near the end is where Trevor and Relman get name-checked by Berenson.

[2020-12-03 06:39:52]

[Andrew Rambaut]

If Trump tried start a war now I like to imagine the Pentagon would just put him in the bunker and replay footage of the Gulf War. He wouldn't know the difference.

[2020-12-03 13:17:42]

[Robert Garry]

Andrew - this sounds like the plot of a great movie. M. Night Shyamalan, Christopher Nolan or Martin Scorsese who have done some great twist endings could direct.

[2020-12-03 14:15:47]

[Andrew Rambaut]

It was like an idea I had for a short story: that the US and Russia had a pact that if their leaders ever tried to trigger a nuclear war they would be taken down to a bunker and told they can never leave because of radiation. And the world would just get on without knowing. JFK was down there and they staged his assassination with a body double. Sadly I don't write short stories.

[2020-12-03 14:18:53]

[Kristian Andersen]

Just watched Tucker. Holy moly.

[2020-12-03 14:28:04]

[Robert Garry]

Yeah - Berenson comes off as the more "rational" one. And, people still wonder how Trump got 72M votes. Speaking of making money from short stories. Berenson has sold literally 100s of thousands of his three 30 page TRUTH ABOUT COVID wonders. That's a lot of \$\$\$.

[2020-12-03 14:29:16]

[Kristian Andersen]

WE should write a book (31 pages?) TRUTH ABOUT COVID and just make it all up - say we were wrong in our paper and such. We'd make millions!

[2020-12-03 14:29:28]

[Kristian Andersen]

Would supplement those checks from CCP quite well.

[2020-12-03 14:33:43]

[Robert Garry]

Writing a book is the alternative path from PO2 - yes we'd make millions...Eddie's story about his "radical" email [great job by Eric Topol on the twitter today] would drive the price up for the screenplay all by itself.

[2020-12-03 15:41:48]

[Robert Garry]

<https://www.msn.com/en-us/news/politics/trump-s-intelligence-chief-warns-china-is-the-greatest-threat-to-us-since-wwii/ar-BB1bBX0t?c=12548332121724061834%2525253Fmkt>

[2020-12-03 15:44:13]

[Robert Garry]

Recognizing the obvious oxymoron [Trump's intelligence] this is still a relevant issue to deal with.

[2020-12-03 15:50:43]

[Kristian Andersen]

"Greatest threat" - sure - but to what? Greatest threat to the US' position as the main super power? You bet - but I'd argue Trump himself is just as big a threat to that. Also, the US clearly is China's biggest threat...

I don't see China (or Iran) start any wars with the US (or allies), but I can't say I have the same level of confidence in the US not doing the same. No question the US is the biggest "threat" right now.

[2020-12-03 15:57:14]

[Eddie Holmes]

Book is not a bad idea....I'm the only western scientist on these early papers which might be a bit of a selling point. I have some awesome photos of dinners around China. We so need Biden in charge now.

[2020-12-03 16:06:26]

[Kristian Andersen]

Question - if we start a war with Iran, then surely the new administration can't take over, right? Martial law.

[2020-12-03 16:06:45]

[Kristian Andersen]

[I wouldn't put it past him]

[2020-12-03 16:06:53]

[Robert Garry]

I agree - obviously all of us can write. Three book chapters is nothing like writing three scientific papers. $3 \times 4 = 12$ chapters, which is a book.

[2020-12-03 16:08:19]

[Robert Garry]

And, to answer @Kristian Andersen question - you had better believe that he is thinking about this.

[2020-12-03 16:15:01]

[Robert Garry]

He won't do it though - the idea of holding rallies for the next four years - which is the only thing he gets off on anymore - is really all that he wants to do. Also Trump TeeVee. He likely to do some ["minor"] things to screw with Iran and China to make things difficult for Biden, but as @Andrew Rambaut alluded to the generals are not going to let him bomb anybody.

[2020-12-03 16:16:06]

[Kristian Andersen]

I trust you're right Bob... If not, though, that beer in the pub will be on you!

[2020-12-04 05:00:19]

[Robert Garry]

<https://mygenomix.medium.com/the-origin-of-sars-cov-2-is-a-riddle-meet-the-twitter-detectives-who-aim-to-solve-it-50502>"If social media is not your thing and you prefer traditional scientific articles, no worries. Below there's a list of works authored by people mentioned above, as well as others that I didn't mention: for instance, you will find the first peer-reviewed paper speculating on the lab origin of SARS-CoV-2, by Dan Sirotkin (Twitter account @Harvard2H); the fascinating Bayesian analysis by Gilles Demaneuf and Rodolphe de Maistre; the preprint by Daoyu Zhang (Twitter account @flavinkins), who first questioned the data on pangolin coronaviruses; the lab leak hypothesis proposed by Anon, which perfectly fits with this detective saga; last but not least, the memorable Medium article by Yuri Deigin on the gain-of-function experiments that were carried out in Wuhan. So many people were involved, as you may see, but this should not come as a surprise: science is a collective enterprise, even when you do it on Twitter."

[2020-12-04 07:49:30]

[Robert Garry]

<https://www.usatoday.com/story/news/health/2020/12/04/vaccine-ethics-does-continuing-covid-19-trials-put-volunteers-risk/6473436002/> This was one reason I advocated for human challenge trials - those in the placebo arm remain "sitting ducks."

[2020-12-04 08:28:38]

[Andrew Rambaut]

The Wellcome Trust is funding a challenge trial. They have manufactured the virus. I don't which vaccines they intend to use.

[2020-12-04 09:12:05]

[Robert Garry]

GOOD! A major question that randomized "wild" trials will struggle to answer is whether vaccinees still produce enough virus to remain infectious if exposed. Contrary to what I thought would be the case we found at Tulane that virus load had very little impact on whether or not a student was a "spreader." There was not complete sterilizing immunity in the NHP challenge trials AFAIK. So, you could have a situation where vaccinees are protected against serious disease, but are still able to transmit the virus to some degree.

[2020-12-04 09:17:10]

[Kristian Andersen]

Damn IgA vs IgG!

As for sterilizing immunity - the animal trials for both the J&J and RNA vaccines were promising on this aspect - the Oxford vaccine, not at all.

[2020-12-04 09:18:41]

[Andrew Rambaut]

But the RNA vaccines may recombine with your viruses and integrate into your genome and all sorts of things.

[2020-12-04 09:20:26]

[Kristian Andersen]

... and lead to sterilization. Which may not be a bad thing.

[2020-12-04 12:20:42]

[Kristian Andersen]

@Andrew Rambaut I can see you have resorted to only reading The Onion these days. Might not be a bad idea.

[2020-12-04 12:22:01]

[Andrew Rambaut]

Been getting all of my news from the Onion for at least 20 years.

[2020-12-05 06:40:52]

[Robert Garry]

Onion>Fox>Newsmax

[2020-12-05 06:43:25]

[Robert Garry]

Just keeping tabs on the trolls aka Alina's BFFs. They are really like comic book villains - they have to have an expository monologue. Here's the one from Dan Sirotkin (Twitter account @Harvard2H) mentioned in the MEDIUM post from yesterday that was to sent @Kristian Andersen back in March. FromHarvard2The BigHouse <harvard2t

>Subject*Are you aware you're participating in a war crime?*DateMar 21st

So I'm sure your handlers have assured you that the money can't be traced, but one of the most astonishing things I learned at NSA was how incredibly easy it is to trace financial transactions that aren't supposed to be traceable. And the kind of electronic intercepting they can pull off is straight magical, it's really astonishing. Plus all that funny stock movement... I wonder where that originated?

Scripps is in bed with Chinese companies doing vaccine development work, and you might've thought that people were buying your article - but sorry buddy, it turns out someone with a brain and a little background in this stuff can see right through your BS. And being that not only are all my old contacts at NSA already looking into this, but I grew up in the DC area and have loads of contacts in other parts of the government who are all looped in too, and very intently watching who's helping the CPP cover-up their accidental release of what's effectively a bio-weapon.

I'm only contacting you, like I have Peter Daszak and others, so that during your sentencing phrase you won't be able to plead ignorance to your part in this. Your article was laughably vapid, and although it may look like people are buying it now - that won't last long. Anyways, enjoy this time with your loved ones, because if you don't die in prison you'll certainly be spending at least several decades there.

Thousands are dying all across the globe, and millions of more will almost certainly be joining them. You could help save lives, but instead you're choosing to participate in a disinformation campaign organized by the Chinese Communist Party. Enjoy your fate, it'll be well deserved -Dan
Collapse

[1:51 PM] I thought this was one of the more amusing emails I have received - and there are many to choose from... (edited)

Andrew Rambaut [1:54 PM]

I bet Dan is a nice guy to hang out and have a beer with.

[1:54 PM] In the basement of his mum's house.

Kristian Andersen [1:59 PM]

Yeah, I thought about inviting him over. As long as he keeps a distance of 6ft.

[2020-12-05 06:51:59]

[Robert Garry]

<http://zimlil.org/zw/blog/200330-Complaint%20Before%20the%20International%20Criminal%20Court%20.pdf.pdf>

[2020-12-05 06:56:18]

[Robert Garry]

Worth noting: *Larry Elliot Klayman* (born July 20, 1951) is an American right-wing[1][2] activist lawyer[3][4] and former U.S. Justice Department prosecutor.[5] He founded both Judicial Watch[6] and Freedom Watch.[7]

[2020-12-05 14:30:57]

[Eddie Holmes]

Yes, I had some run-ins with as well. What an offensive shit head.

[2020-12-05 16:42:37]

[Kristian Andersen]

Looks like the medium post has been removed...

[2020-12-06 06:14:30]

[Robert Garry]

Yeah - I suspected that the DRASTIC goons might not appreciate getting the friendly doxxing. That's why I "archived" that particular paragraph above. It's OK if they publicly accuse people like Shi Zheng-Li of cover-up and mass murder and us of being running dogs on the take from CCP, but gosh they need their privacy.

[2020-12-06 06:19:12]

[Robert Garry]

And here's Alina feeling "threatened" while engaging in conspiracy theories [not to mention publicly accusing people like Shi Zheng-Li of cover-up and mass murder and us of being running dogs on the take from CCP]. Zero sympathy for her BS. She has crossed many many lines. [shared file(s): image.png]

[2020-12-06 07:14:36]

[Kristian Andersen]

So wait - the Medium post contained that email sent to me? Why would they even include that - it's so dumb....

[2020-12-06 07:20:29]

[Robert Garry]

No - I pulled Dan/Harvard2Big House email to you from last March from here on Slack. Just pulling together the pieces. Dan Sirotkin is a big part of Drastic.

[2020-12-06 07:24:09]

[Robert Garry]

Maybe this guy: <https://www.mymcmedia.org/tag/daniel-sirotkin/>

[2020-12-06 07:25:04]

[Robert Garry]

Not sure how many ex-felons from Maryland go by Dan Sirotkin..

[2020-12-06 07:28:13]

[Robert Garry]

Actually yeah same guy: <https://www.homefacts.com/offender-detail/MD8455358/Daniel-Mandel-Sirotkin.html>

[2020-12-06 07:29:13]

[Robert Garry]

Seems nice. [shared file(s): image.png]

[2020-12-06 07:34:13]

[Kristian Andersen]

Whoa - I missed the part about him being a sex offender. How novel.

[2020-12-06 07:41:44]

[Robert Garry]

So here's his father: <https://www.linkedin.com/in/karl-home-sirotkin-409b597b>

[2020-12-06 07:42:13]

[Robert Garry]

Which explains how this got written: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7435492/>

[2020-12-06 07:45:45]

[Kristian Andersen]

Yup, all that I found too. Interesting couple - I'm sure dad must be proud.

[2020-12-06 08:11:03]

[Robert Garry]

<https://mygenomix.medium.com/the-origin-of-sars-cov-2-is-a-riddle-meet-the-twitter-detectives-who-aim-to-solve-it-5050216fd279>

[2020-12-06 08:11:13]

[Robert Garry]

It's back

[2020-12-06 08:53:07]

[Kristian Andersen]

Perfect example of how a conspiratorial mind works. Fascinating.

It's pretty clear they didn't bring the A-team in for this.

[2020-12-06 09:33:59]

[Kristian Andersen]

[thread - ID: 2020-12-06 09:33:59]

Here's the NYT article about China's cover up - it's a very good one, but nothing new: <https://www.nytimes.com/2020/12/06/world/asia/china-covid-origin-falsehoods.html?action=click&module=News&pgtype=Homepage>

[2020-12-06 09:52:07]

[Andrew Rambaut]

I was just taking a closer look at the rooting of the pandemic. Our lineage A is definitely 2 nucleotides (1 amino acid) closer to RaTG13 than lineage B (Wuhan-Hu-1). But interestingly WA1 is one nucleotide closer still (out of a 1150-odd, of course). It looks like the some of lineage A had a chance reversion (synonymous). But may be the cause of mis-rooting.

[2020-12-06 09:54:46]

[Kristian Andersen]

In what sites? Lemme check the bam file to see how confident those RaTG13 calls are in those positions

[2020-12-06 09:55:21]

[Kristian Andersen]

There are some low-coverage regions in that genome where you have ambiguous calls

[2020-12-06 10:02:33]

[Kristian Andersen]

Just compared WA1 to Hu-1 and RaTG13. Only three differences between the two, all of them ancestral in WA1 - not Hu-1.

[2020-12-06 10:02:56]

[Kristian Andersen]

What do you use as prototypical Lineage A?

[2020-12-06 10:03:03]

[Andrew Rambaut]

WH04

[2020-12-06 10:03:31]

[Kristian Andersen]

Lemme include that too - and I should say, all those calls are fully supported in the RaTG13 assembly, so they're good

[2020-12-06 10:04:32]

[Kristian Andersen]

It's that midpoint root.... Some early emergence funkiness.

[2020-12-06 10:06:46]

[Kristian Andersen]

I have WH04 being identical to Hu-1, except the ends - do you have a different sequence?

[2020-12-06 10:08:31]

[Andrew Rambaut]

Hu-1 should have 2 differences from WH04 (EPI_ISL_406801): T:8781:C, C:28143:T

[2020-12-06 10:11:08]

[Andrew Rambaut]

Wuhan-Hu-1: T:8781:C|T:18059:C|C:28143:T
WH04: T:18059:C
WA1: 0:

[2020-12-06 10:11:10]

[Kristian Andersen]

The version I have of Hu-1 (MN908947) is identical - weird... Lemme check again

[2020-12-06 10:13:17]

[Kristian Andersen]

Yup, identical based on NCBI records (except the ends). Here's the Geneious alignment [shared file(s): 2020.12.06_alignment.geneious]

[2020-12-06 10:13:57]

[Kristian Andersen]

WA1 has three differences to both WH04 and Hu-1 - all three ancestral.

[2020-12-06 10:15:48]

[Kristian Andersen]

Lemme check these human sequences against the larger pango/bat alignment I have - since I have all the assemblies for those too.

[2020-12-06 10:16:32]

[Andrew Rambaut]

Not sure that is the same WH04 - there are some confusing names

[2020-12-06 10:16:55]

[Kristian Andersen]

[and I'll see if I can get the raw data for WA1 so I can check the assembly for that one too - although it's been sequenced multiple times, so I assume it's correct]

[2020-12-06 10:17:11]

[Kristian Andersen]

Lemme get WH04 from GISAID (I have been using MT291829 from NCBI as WH04)

[2020-12-06 10:32:34]

[Kristian Andersen]

Comparing to all the pango/bat sequences here is interesting - in two out of the three positions (8782 (C/T) and (18060 C/T) where WA1 is ancestral compared to RaTG13, all the other pango/bat genomes have the same as RaTG13 - so definitely ancestral. HOWEVER, RmYN01 has the same derived residues in those positions as WA1. (I can't check the third position - RmYN01 has bad sequencing around that position).

Checking SARS...

[2020-12-06 10:42:23]

[Andrew Rambaut]

hCoV-19/Fujian/8/2020 | EPI_ISL_411060 -> seems to be identical to WA1 and sampled around the same time.

[2020-12-06 10:51:40]

[Kristian Andersen]

SARS splits the differences.

[2020-12-06 10:52:18]

[Kristian Andersen]

Compared to all the pango/bat genomes, those positions appear ancestral to me - Hu-1 and RmYN01 have derived residues in those positions.

[2020-12-06 10:53:10]

[Kristian Andersen]

Here's an alignment - it's pretty messy and some duplicates... [shared file(s): 2020.12.06_pango-bat-sars2_alignment.geneious]

[2020-12-06 10:53:41]

[Andrew Rambaut]

Am I going mad - I just downloaded RmYN01 from GISAID and it is coming out as more divergent than RaTG13?

[2020-12-06 10:53:49]

[Kristian Andersen]

Yes

[2020-12-06 10:54:43]

[Andrew Rambaut]

Doh. I was thinking of RmYN02

[2020-12-06 10:55:22]

[Kristian Andersen]

I think it's fair to say that the lineage that led to WA1 > WH04 is probably older than the lineage that led to Hu-1. And yeah - RmYN02.. :wink: That one is ancestral in those positions too

[2020-12-06 10:56:44]

[Andrew Rambaut]

We have always used WH04 as the root -

[2020-12-06 10:57:19]

[Kristian Andersen]

WA1 may be a more appropriate one - firmly placing the start of the pandemic in the United States :wink:

[2020-12-06 10:58:24]

[Andrew Rambaut]

Question is do we consider that WA1 (or more likely a Chinese genome such as hCoV-19/Fujian/8/2020) is basal to WH04?

[2020-12-06 10:59:05]

[Kristian Andersen]

Out of curiosity, I also checked WH1-4 since they had those super funky ENA entries (still do.... SAMEA6507890 - SAMEA6507893) - WA1/WH04 basal to those as well. [shared file(s): 2020.12.06_early-genomes.geneious]

[2020-12-06 10:59:33]

[Kristian Andersen]

I think considering WA1 basal to WH04 is appropriate based on that single difference

[2020-12-06 10:59:51]

[Kristian Andersen]

(and I'd say ancestral here, since we have all the other genomes we can compare to)

[2020-12-06 11:00:29]

[Andrew Rambaut]

I think we know that WA1 travelled from Hubei (need to check) so that places the WA1 haplotype in Hubei

[2020-12-06 11:02:37]

[Kristian Andersen]

Yup.

[2020-12-06 11:03:52]

[Andrew Rambaut]

Sampled in WA on 19-Jan

[2020-12-06 11:04:12]

[Kristian Andersen]

I don't have my annotations right - which one is the non-synonymous change? Position 18060, which is the one that distinguishes WA1 from WH04 is the same in SARS as it is in WA1/RaTG13 (T)

[2020-12-06 11:04:52]

[Andrew Rambaut]

One other possibility - hCoV-19/Malaysia/MKAK-CL-2020-6430/2020|EPI_ISL_416886|2020-02-04 is one SNP from WA1. Pangolin connection?

[2020-12-06 11:07:36]

[Andrew Rambaut]

18060 is synon.

[2020-12-06 11:09:28]

[Kristian Andersen]

How interesting... Yeah, that's a pango mutation

[2020-12-06 11:09:32]

[Andrew Rambaut]

The non-synon one is the one is 28189 in ORF8 S->L

[2020-12-06 11:10:04]

[Andrew Rambaut]

That was the first 'oh my god it is mutating' mutation

[2020-12-06 11:10:26]

[Kristian Andersen]

Haha, historical significance for sure :wink:

[2020-12-06 11:11:44]

[Kristian Andersen]

All of this is very interesting though - isn't this data most consistent with an early divergence (or two emergences) that we didn't capture at the time and that have no connection to the seafood market? In other words - entirely what one might expect?

[2020-12-06 11:11:46]

[Andrew Rambaut]

Oh - I have just seen what you just said - Malaysia is the same as the Pangolin at 6049 where it differs from WA1

[2020-12-06 11:11:56]

[Kristian Andersen]

Yup

[2020-12-06 11:12:21]

[Kristian Andersen]

ALL the pangolins have that one - none of the bats

[2020-12-06 11:12:46]

[Andrew Rambaut]

It is part of the pangolin which is more divergent than RmYN02

[2020-12-06 11:13:15]

[Andrew Rambaut]

But seems a weird coincidence given I pulled it out because of the Malaysian/Pangolin connection

[2020-12-06 11:13:56]

[Andrew Rambaut]

Synonymous though

[2020-12-06 11:13:57]

[Kristian Andersen]

Haha, YES - I thought you had looked at the alignment!

[2020-12-06 11:14:22]

[Andrew Rambaut]

No - was just looking for ones related to WA1 that were from more plausible locations

[2020-12-06 11:14:55]

[Andrew Rambaut]

Given it is synonymous and the pangolin has loads of other mutations in that area it must be coincidence.

[2020-12-06 11:15:00]

[Kristian Andersen]

Oh, but hang on - RmYN02 has 'C' in this position too - so pangos and RmYN02

[2020-12-06 11:15:07]

[Andrew Rambaut]

But spooky none the less

[2020-12-06 11:15:19]

[Kristian Andersen]

Yeah, probably - but, yes, spooky.

[2020-12-06 11:15:42]

[Kristian Andersen]

I think it's safe to say that we're definitely missing some early emergence stuff here

[2020-12-06 11:16:40]

[Kristian Andersen]

... which is very interesting and worth a closer look. Would explain why we can't really root properly as well (I haven't checked recently, but back in the spring, BEAST insisted on a midpoint root when you took away the dates).

[2020-12-06 11:16:47]

[Andrew Rambaut]

Will do some experiments on BEAST dating with enforced WA1 outgrouping

[2020-12-06 11:17:29]

[Kristian Andersen]

Okay, cool - I'll have a chat with Karthik too - we haven't been able to get good estimates of the root TMRCA recently, but that may very well be on us.

[2020-12-06 11:18:28]

[Kristian Andersen]

I'm heading out for an hour, but once I'm back lemme just clean up these alignments a little and share - just so we have them archived here. :beer:

[2020-12-06 11:38:12]

[Andrew Rambaut]

> On January 21, the Centers for Disease Control and Prevention (CDC) confirmed the first U.S. case in a 35-year-old man living in Snohomish County. He had returned from Wuhan, China after visiting his family there, to the U.S., landing at Seattle-Tacoma International Airport on January 15, without any symptoms.

[2020-12-06 11:41:45]

[Andrew Rambaut]

And of course at that time Imperial College estimated Wuhan had 190-4000 cases by 12th Jan based on 3 exported cases.

[2020-12-06 12:00:43]

[Eddie Holmes]

[thread - ID: 2020-12-06 09:33:59]

@Kristian Andersen They also used my quote out of context...I was just referring to some of those shonky studies, particularly the Indian-origin one.

[2020-12-06 12:02:25]

[Kristian Andersen]

Yeah, clearly a lot more cases going around at that time than was appreciated - and obviously not (directly) linked to the seafood market. We don't really see any evidence of other "WA1" lineages in Wuhan, do we? All those early ones were "Hu-1"?

[2020-12-06 12:06:22]

[Kristian Andersen]

Probable scenario - ongoing undetected transmission in Wuhan building up, then a big super spreading event at the seafood market where it gets detected. Cases following are then connected to that event and most genomes are sequenced from the super spreading event, but not the emergence. Makes sense I think

[2020-12-06 12:07:33]

[Kristian Andersen]

The emergence itself could have been anywhere, but transmission probably got going in Wuhan (but not at the seafood market - that's a SSE)

[2020-12-06 12:07:57]

[Kristian Andersen]

"Anywhere [in China]"

[2020-12-06 12:08:43]

[Eddie Holmes]

Total sense and I fully agree. I suspect the emergence event took place elsewhere and was imported into Wuhan.

[2020-12-06 12:09:16]

[Eddie Holmes]

Can you just summarise where the root should fall? I didn't follow all that chain.

[2020-12-06 12:11:07]

[Kristian Andersen]

WA1

[2020-12-06 12:27:59]

[Andrew Rambaut]

And by WA1 we mean a haplotype identical to WA1 that was in Wuhan before the 15th January

[2020-12-06 12:33:35]

[Andrew Rambaut]

Curious though that the Malaysian one is one SNP closer to RmYN02 than all the others. So possibly that one (but the January cases in Malaysia were Chinese nationals visiting)

[2020-12-06 12:35:09]

[Andrew Rambaut]

So I think most parsimonious would be `Malaysia/MKAK-CL-2020-6430|EPI\_ISL\_416886|2020-02-04` -> `WA1` -> `WH04` -> `Wuhan-Hu-1`

[2020-12-06 12:35:22]

[Andrew Rambaut]

(but all in Wuhan)

[2020-12-06 12:36:07]

[Kristian Andersen]

Would it be worth trying to simulate a WA1 with a date in the beginning of December and run beast?

[2020-12-06 12:38:23]

[Andrew Rambaut]

shared file(s): image.png

[2020-12-06 12:39:39]

[Andrew Rambaut]

Given we see identical genomes spaced 6 weeks apart, I don't think we need to use imputed dates - just enforce WA1 to be an outgroup

[2020-12-06 12:40:59]

[Andrew Rambaut]

By the way - the C16T in WH04 is probably wrong, it is the very first nucleotide of that sequence. Should find a better canonical lineage A

[2020-12-06 12:44:25]

[Kristian Andersen]

Ah, yes - could be wrong. Let me see if I can pull the raw data

[2020-12-06 12:52:50]

[Andrew Rambaut]

I will find a better one - it isn't full length.

[2020-12-06 13:16:21]

[Kristian Andersen]

Some cleaner alignments here with better naming, etc. [shared file(s): 2020.12.06_SARS-CoV-2_RaTG13.geneious, 2020.12.06_SARS2_SARS_SARS-like.geneious]

[2020-12-07 04:34:27]

[Robert Garry]

Maybe the NOLa data somewhat relevant? Limited sequence diversity - "clear" timing...

[2020-12-08 09:58:27]

[Robert Garry]

Relman and a few other interesting names. I am not sure that the timing of this article is all that "helpful."
<https://www.nature.com/articles/s41467-020-19149-2#Bib1>

[2020-12-08 10:03:24]

[Robert Garry]

<https://www.dailymail.co.uk/news/article-9024311/China-claims-coronavirus-started-AUSTRALIA.html>

[2020-12-08 10:03:44]

[Andrew Rambaut]

:joy:

[2020-12-08 10:24:53]

[Robert Garry]

I suspect this Australian organization is involved somehow: <https://pangolinassociates.com/>

[2020-12-08 11:49:34]

[Eddie Holmes]

What about Antarctica? Lot of frozen things there.

[2020-12-08 12:53:42]

[Robert Garry]

<https://pursuit.unimelb.edu.au/articles/penguin-viruses-in-the-frozen-continent>

[2020-12-08 13:22:01]

[Eddie Holmes]

Shit, that's me again!

[2020-12-08 13:34:27]

[Robert Garry]

Certainly - all the dots lead to Eddie [or at least one of us] - wait for it on a twitter-troll feed or an Alina "wall of crazy" coming soon!

[2020-12-08 16:15:46]

[Eddie Holmes]

I watched this again today. Is this us: <https://www.youtube.com/watch?v=hn1VxaMEjRU>

[2020-12-08 16:17:28]

[Andrew Rambaut]

Such a good sketch.

[2020-12-08 16:28:44]

[Eddie Holmes]

I was thinking: 'Proximal Origins II: Are We the Baddies?'

[2020-12-08 16:51:04]

[Kristian Andersen]

Haha, that's fantastic.

[2020-12-09 06:23:19]

[Robert Garry]

Speaking of Alina she's calling us (particularly Kristian) again

[2020-12-09 06:23:44]

[Robert Garry]

really really stupid stuff [shared file(s): image.png]

[2020-12-09 06:58:55]

[Kristian Andersen]

Yeah, I wrote a short reply to her last night since she tagged me. Not going to waste additional time on them - they just don't understand the scientific process. https://twitter.com/k_g_andersen/status/1336549567592984576?s=21

[2020-12-09 10:13:33]

[Robert Garry]

Not wasting time is a good plan... [shared file(s): image.png]

[2020-12-09 10:16:23]

[Kristian Andersen]

:rolling_on_the_floor_laughing:

[2020-12-09 12:15:43]

[Eddie Holmes]

Does she not have anything else to do? She's another of those people that have just become obsessed by their Twitter following.

[2020-12-09 12:27:56]

[Kristian Andersen]

We need to get back to the good old days where Nick Loman was the only one with a lot of Twitter followers and was the only one really Tweeting - mostly about bowel movements, drinks, random stuff from an exciting day of being Loman, and, sometimes, good science.

[2020-12-09 12:57:52]

[Andrew Rambaut]

But she only has 9000 followers!

[2020-12-09 13:00:05]

[Kristian Andersen]

Andrew, it's the quality of your followers, not the quantity that counts.

[2020-12-09 13:04:07]

[Andrew Rambaut]

She has many of the finest people following her

[2020-12-09 13:08:34]

[Eddie Holmes]

In her mind it is millions of followers and she is the voice of truth

[2020-12-09 13:09:37]

[Kristian Andersen]

WELL. [shared file(s): Screen Shot 2020-12-09 at 13.08.36.png, Screen Shot 2020-12-09 at 13.09.12.png]

[2020-12-09 13:11:04]

[Eddie Holmes]

Love it! More fake followers than most.

[2020-12-09 13:11:17]

[Andrew Rambaut]

Cool. How many have I got?

[2020-12-09 13:11:45]

[Andrew Rambaut]

You have more fake followers than she has followers

[2020-12-09 13:12:38]

[Kristian Andersen]

shared file(s): Screen Shot 2020-12-09 at 13.12.08.png

[2020-12-09 13:13:20]

[Kristian Andersen]

shared file(s): Screen Shot 2020-12-09 at 13.13.07.png

[2020-12-09 13:13:47]

[Andrew Rambaut]

We are more genuine than Kristian, Eddie

[2020-12-09 13:14:16]

[Andrew Rambaut]

Kristian has paid click farmers for his followers

[2020-12-09 13:14:26]

[Kristian Andersen]

CCP did it

[2020-12-09 13:14:43]

[Kristian Andersen]

I'm a long way away from true greatness though. [shared file(s): Screen Shot 2020-12-09 at 13.14.12.png]

[2020-12-09 13:15:14]

[Andrew Rambaut]

What about Obama?

[2020-12-09 13:15:19]

[Eddie Holmes]

Wow! That's a whole country's worth!

[2020-12-09 13:15:54]

[Kristian Andersen]

shared file(s): Screen Shot 2020-12-09 at 13.15.41.png

[2020-12-09 13:16:03]

[Eddie Holmes]

That's my day gone Kristian

[2020-12-09 13:17:32]

[Kristian Andersen]

Sorry. I have that effect on a lot of people.

[2020-12-09 13:18:12]

[Kristian Andersen]

Despite fake followers, at least Andrew and I are very influential on Twitter... Down with the Tweeps man. [shared file(s): Screen Shot 2020-12-09 at 13.16.36.png, Screen Shot 2020-12-09 at 13.16.47.png, Screen Shot 2020-12-09 at 13.17.03.png]

[2020-12-09 13:19:23]

[Eddie Holmes]

That's heartening

[2020-12-09 13:20:12]

[Kristian Andersen]

Aaaaaahahahahahahah - A+K+B more influential than the Donald. [shared file(s): Screen Shot 2020-12-09 at 13.19.01.png, Screen Shot 2020-12-09 at 13.19.27.png]

[2020-12-09 14:01:14]

[Robert Garry]

I've never tweeted, but I do have 6 followers. I'm guessing 100% fake.

[2020-12-09 14:25:19]

[Robert Garry]

Kate Rubin going to the moon...<https://www.nasa.gov/specials/artemis-team/>

[2020-12-09 14:37:11]

[Kristian Andersen]

No way! So cool.

I want to get a Zoom call with her when she's up there - this'll be my mission in life!

[2020-12-09 15:46:57]

[Kristian Andersen]

Wow - this has got to be one of the most idiotic OpEds of the pandemic.

<https://www.washingtonpost.com/opinions/2020/12/08/election-is-over-can-we-finally-blame-china-pandemic/>

[2020-12-09 19:35:02]

[Eddie Holmes]

Very, very dumb

[2020-12-10 00:53:46]

[Eddie Holmes]

This is from one of the people at the South China Agricultural University who did that pango 99 stuff. They are good guys, and honest, just a bit naive. Anyway, this is interesting snippet: "BTW, this week, I collected some leopard cats in a place near the village where bat RaTG13 was collected. I detected some gene segments that was highly similar with the bat CoV. It's interesting that these cats may capture bats for food, and infected by the bat viruses naturally. This would give us some new knowledge about the circulation of bat CoVs. Can you suggest some conserved primers of β -CoVs? I will try my best to collect more felids in that region."

[2020-12-10 00:59:21]

[Andrew Rambaut]

It seems highly likely that SARS-CoV-2 went through a carnivore to get to us but I would imagine leopard cats (note to self - seems to be a small cat, not a leopard: https://en.wikipedia.org/wiki/Leopard_cat) would not be the one with much human contact. Interesting though if it requires the ACE2 RBD to infect carnivores (i.e., not in RaTG13 but probably in some related bat virus).

[2020-12-10 01:15:44]

[Eddie Holmes]

Agreed. Just great hear about more related viruses. I'll let you know when I hear more. Felids are clearly great hosts.

[2020-12-10 07:11:04]

[Robert Garry]

:scream_cat:<https://www.tandfonline.com/doi/full/10.1080/22221751.2020.1817796#> [shared file(s): image.png]

[2020-12-10 07:15:28]

[Robert Garry]

Gotta love the graphical abstract!

[2020-12-10 07:19:41]

[Kristian Andersen]

Any fur farming around there?

[2020-12-10 07:25:45]

[Andrew Rambaut]

This is not going well...

<https://www.theguardian.com/world/2020/dec/10/decomposing-mink-in-denmark-may-have-contaminated-groundwater>

[2020-12-10 07:26:40]

[Andrew Rambaut]

The response to seeing 12 patients with 4 spike mutations perhaps was a bit rash...

[2020-12-10 07:27:04]

[Andrew Rambaut]

And that is a pretty grim picture

[2020-12-10 07:43:53]

[Kristian Andersen]

Yeah, they really didn't handle that well... That said, the culling was absolutely the right thing to do IMO.

[2020-12-10 07:46:11]

[Andrew Rambaut]

I do agree. But using the 'scary' spike mutation as a reason was not good.

[2020-12-10 07:46:55]

[Andrew Rambaut]

But perhaps it was necessary to get it done politically

[2020-12-10 07:47:01]

[Kristian Andersen]

Yeah, that was really dumb. To be honest though - I think it was the only way they could get the politicians to wake up, so they used it as an excuse.

[2020-12-10 07:47:07]

[Kristian Andersen]

Hah. There you go :wink:

[2020-12-10 07:48:39]

[Andrew Rambaut]

I remember when the UK banned mink farming. There was generally widespread support for getting rid of it.

[2020-12-10 07:48:55]

[Andrew Rambaut]

But just because it was a shit industry supplying posh people

[2020-12-10 07:49:34]

[Kristian Andersen]

Same in Denmark - that's the crazy part. All of a sudden people seem to have forgotten that the mink industry is culling millions of mink every year for fur coats... People are not logical.

[2020-12-10 07:51:00]

[Kristian Andersen]

I suspect this'll be the end of the industry in Denmark though - which is a good thing. The Netherlands already had those plans in place prior to COVID, so that made their culling decision a little easier.

[2020-12-10 08:23:08]

[Robert Garry]

Hopefully this will be used as a teaching moment - that SC2 is mostly a respiratory virus and that masks and social distancing are the best way to prevent spread. Handwashing sure, but fomites are a minor route. That out of my system, I completely support this: <https://www.newsweek.com/white-house-disinfected-after-trump-exit-1553725>

[2020-12-10 12:44:14]

[Robert Garry]

Proximal Origins? <https://thehill.com/homenews/news/529300-israels-ex-space-boss-trump-was-on-the-verge-of-revealing-extraterrestrials>

[2020-12-10 13:13:33]

[Eddie Holmes]

Let's hope that Trump changes his mind and does that announcement.

[2020-12-10 13:28:02]

[Robert Garry]

I'm just hoping for some ET DNA and anticipating the tMCRA calculation...

[2020-12-10 16:50:02]

[Kristian Andersen]

Bob - to your previous point... https://www.washingtonpost.com/national-security/us-military-dispatches-b-52-bombers-to-middle-east-as-show-of-force-against-iran/2020/12/10/b3eb2944-3afd-11eb-8328-a36a109900c2_story.html

[2020-12-10 16:50:17]

[Kristian Andersen]

AND from Louisiana, no less!

[2020-12-10 18:34:32]

[Robert Garry]

Yeah - impressive saber rattling - they literally have been flying over my house for the past week...

[2020-12-13 07:22:43]

[Robert Garry]

It's the question that won't die.

<https://www.theguardian.com/world/2020/dec/12/where-did-coronavirus-come-from-covid>

[2020-12-13 11:11:35]

[Kristian Andersen]

That's a bit of a weird article - a mishmash of things. And of course - not knowing the name of the journal AND the difference between East and West Africa... Well - one gotta wonder how much research went into it.

[2020-12-13 11:41:51]

[Andrew Rambaut]

It is weird - I talked to a different Guardian journalist about the scientists working on Covid. That piece is coming out on Tuesday. Never talked to anyone about this one so she obviously just picked it up 2nd hand.

[2020-12-13 11:48:38]

[Robert Garry]

All true - weird - what's troubling is that it's largely based on the WHO spokesperson- usually the journalist will fact check with a scientist they've talked too [I'll typically get a follow-up or two with the journalist or a fact-checker from the NYTimes etc]. Obviously, did not happen here. What's also obvious is that the DRASTIC krewe,

Bannon/Yan/Chan, the Republican party, the GMO activists, Relman, etc have kept the lab-based origin theory alive and dare I say popular.

[2020-12-13 12:27:12]

[Eddie Holmes]

It feels very 2nd hand. I never talked to them. Was it Ian Sample you talked to Andrew? I spoke to him (via email) as well.

[2020-12-13 13:21:15]

[Andrew Rambaut]

Yes - it was Ian. Talked to him a few times over the year.

[2020-12-13 17:13:13]

[Eddie Holmes]

I just got a FOI request regarding a whole bunch of papers including PO1. From the US Right to Know people. I'm officially on leave so I'm not going to deal with it until Jan. I don't think there's anything in there apart from the use of the phrase 'butt lesion' which I will ask to be redacted. It will take months to resolve all this but would be good to publish PO2 before anything comes out. I will get onto this.

[2020-12-13 20:25:17]

[Eddie Holmes]

I look into this next year. Such a bloody waste of time.

[2020-12-13 20:42:33]

[Robert Garry]

@Covidfaker gets some ragtag "journalist" to file FOIA on me regarding grant funding about ever 6-12 months - it is simply to piss off funding agencies like NIH, who also have to waste a bloody lot of time.

[2020-12-13 20:43:03]

[Robert Garry]

Very much agree about PO2.

[2020-12-14 08:52:24]

[Robert Garry]

Another important article from Ed Yong

[2020-12-14 08:52:57]

[Robert Garry]

"Academia's perverse incentives pushed overconfident poseurs towards sloppy work, which then got international attention. Many people swerved out of their scholarly lanes and plowed into unfamiliar territory, making life harder for actual experts. 6/" Yes Alina, Relman etc he is talking about you...

[2020-12-14 08:56:32]

[Kristian Andersen]

I had a good half hour rant about this when I talked to him :wink:. Haven't had time to read the article yet - but I'm sure it's great...

[2020-12-14 09:01:19]

[Robert Garry]

And don't be mistaken Alina is indeed talking about us here, but mostly you Kristian :sunglasses: [shared file(s): image.png]

[2020-12-14 09:03:41]

[Kristian Andersen]

She _does_ talk a lot about me... :thinking_face:.

I totally agree with her on this tweet though - a lot of high profile folks doing a lot of shit 'science'.

[2020-12-14 09:17:37]

[Robert Garry]

Don't get me started - just out of the COVID review study section - let's just say that I regret not putting in a competitive application...

[2020-12-14 09:24:33]

[Kristian Andersen]

Hah. Next time

[2020-12-14 09:32:02]

[Kristian Andersen]

@Andrew Rambaut - what's this UK SARS2 mutation stuff everybody is talking about today?

[2020-12-14 09:32:17]

[Andrew Rambaut]

Oh my fuck

[2020-12-14 09:33:10]

[Kristian Andersen]

Oh boy.

[2020-12-14 09:33:31]

[Andrew Rambaut]

Here is a summary I have been sending round - is that this variant has spike N501Y (similar to an outbreak in South Africa but apparently independent and unrelated) but it also has 13 other non-synonymous mutations and 3 deletions. There is some evidence that it is spreading quickly in SE England but it is not clear if this just means that R is high in this region and this is just the variant that is involved. There is no evidence that the course of infection is different but data is limited. Lab work is being started urgently.

There is phylogenetic evidence that 3 cases in Denmark and one in New South Wales may have been the result of import from the UK cluster.

[2020-12-14 09:34:50]

[Andrew Rambaut]

Some estimates that Erik Volz and I did independently suggests that this may be spreading at a higher rate than other variants but we can't rule out just the luck virus getting into high R areas.

[2020-12-14 09:35:42]

[Andrew Rambaut]

However - and this is what really interests me is the 14 mutations and 3 deletions in one short (in time) branch. I think this must be the result of transmission from a chronic infection.

[2020-12-14 09:39:05]

[Kristian Andersen]

Thanks Andrew for the background - that's very interesting (and I'll keep this to this channel for now). It's great to hear that the UK now have systems in place to even detect "mutations of potential interest" - what it means is obviously a much longer affair.

I get annoyed with all the communication that's completely dug in - "it's no issue at all" and "OMG it's mutating". Can we just agree that the truth is somewhere in-between and that it always takes time to figure out?

[2020-12-14 09:40:46]

[Kristian Andersen]

As for chronic infection - I can totally believe that. Here's a case we recently picked up - seven month of SARS2 infection with negative PCRs in-between. Sky high titers when picked up in late October (6 months after infection - he remained positive into December). [shared file(s): fake-reinfection.pdf]

[2020-12-14 09:42:07]

[Andrew Rambaut]

I am normally fairly relaxed about RBD mutations - sure they happen and they may have antigenic effects but we can be pretty sure that they are not being antigenically selected for because there isn't enough standing immunity (in most places) or vaccination yet. BUT... this chronic infection scenario worries me because it may well have selected for escape from the immune response raised by the wild type virus (and thus the vaccine). And now it is circulating widely.

[2020-12-14 09:44:03]

[Andrew Rambaut]

This is the set of mutations that are unique to this cluster: [shared file(s): image.png]

[2020-12-14 09:44:10]

[Kristian Andersen]

Yes, agreed. Although reinfections also a concern here - I'm worried about selection in e.g., healthcare settings. Mink transmission also a concern here.

My default is always "probably not an issue", but SARS2 really does appear to be pretty 'adaptable' and there's A LOT of transmission going on.

[2020-12-14 09:44:35]

[Andrew Rambaut]

Here is the tree... [shared file(s): Kent_N501Y_836.ml_annotated_collapsed_tree.pdf]

[2020-12-14 09:44:38]

[Kristian Andersen]

That's A LOT of mutations - all in one 'jump'?

[2020-12-14 09:45:01]

[Andrew Rambaut]

There is one intermediate with some of the mutations... hence thought of a chronic shedder

[2020-12-14 09:46:25]

[Kristian Andersen]

Yeah, the spike mutations would suggest chronic - but a lot of mutations outside spike too, which is a little peculiar to me.

[2020-12-14 09:51:50]

[Robert Garry]

Chronic shedding with immune selection definitely a possibility. N501 is next to a short disordered region in S structures - a clear signal that it's an epitope.

[2020-12-14 09:56:19]

[Robert Garry]

[thread - ID: 2020-12-14 09:56:19]

P681H is also VERY interesting....how common is this?

[2020-12-14 10:06:18]

[Andrew Rambaut]

There is an ORF8 stop at amino acid 27 and then a number appear after that suggesting it has become non functional.

[2020-12-14 10:07:00]

[Andrew Rambaut]

[thread - ID: 2020-12-14 09:56:19]

@Robert Garry Why do you say that?

[2020-12-14 10:09:03]

[Andrew Rambaut]

Any thought if it would likely be an immunocompromised patient - could a weak immune response enhance selection for escape? Or do we know of any asymptomatic shedders - which would allow for the transmission if the person was out and about?

[2020-12-14 10:10:56]

[Robert Garry]

[thread - ID: 2020-12-14 09:56:19]

@Robert Garry It's the insertion P in PRRA

[2020-12-14 10:11:23]

[Robert Garry]

[thread - ID: 2020-12-14 09:56:19]

@Robert Garry Would be surprising if it didn't affect cleavage...

[2020-12-14 10:13:26]

[Kristian Andersen]

It's a little weird in that respect - the patient above essentially has no - or very limited - humoral immunity, but the signatures still look like immune escape - or maybe something else is going on. So yes, even immunocompromised patients can shed viruses that may have signatures of immune escape.

[2020-12-14 10:14:59]

[Andrew Rambaut]

[thread - ID: 2020-12-14 09:56:19]

@Robert Garry Ooh. Missed that.

[2020-12-14 10:16:19]

[Robert Garry]

[thread - ID: 2020-12-14 09:56:19]

@Robert Garry That's the one I'd be concerned about.

[2020-12-14 10:17:36]

[Kristian Andersen]

[thread - ID: 2020-12-14 09:56:19]

@Robert Garry Oh, interesting. It's rare - but parallel evolution? [shared file(s): Screen Shot 2020-12-14 at 10.16.54.png]

[2020-12-14 10:18:08]

[Kristian Andersen]

[thread - ID: 2020-12-14 09:56:19]

@Robert Garry P & H still have FCS, but affects glycans and likely regulation?

[2020-12-14 10:18:25]

[Andrew Rambaut]

Can you send a link to that nextstrain view?

[2020-12-14 10:18:31]

[Robert Garry]

[thread - ID: 2020-12-14 09:56:19]

@Robert Garry Yeah both of those...

[2020-12-14 10:20:16]

[Kristian Andersen]

https://nextstrain.org/ncov/global?c=gt-S_681

[2020-12-14 10:29:53]

[Robert Garry]

"Or do we know of any asymptomatic shedders - which would allow for the transmission if the person was out and about?" This is the question we're going to answer one way or the other if the vaccines are not that good at sterilizing immunity (hopefully most are).

[2020-12-14 10:43:10]

[Kristian Andersen]

My money is on sterilizing immunity - without that, oh boy...

[2020-12-14 10:47:05]

[Robert Garry]

Oh boy is right - this is why I really really wanted to do human challenge studies.

[2020-12-14 10:48:14]

[Kristian Andersen]

Yeah...

[2020-12-14 11:51:29]

[Eddie Holmes]

This does look like the sort of evolution I saw in cases of virus evolution in immunocompromised hosts. I've never quite understood why you see so much evolution in antigenic proteins in patients should not be mounting an immune response. Very striking in the noros.

[2020-12-14 12:31:44]

[Andrew Rambaut]

Yes - noros is a good example. You have very long term shedders with basically no symptoms.

[2020-12-14 12:32:53]

[Andrew Rambaut]

Perhaps it is the weakened immune response rather than an absent one which enhances selection by providing the chance for mutants to arise.

[2020-12-14 12:53:29]

[Kristian Andersen]

Yup, I think "weak, not absent" may be key here.

[2020-12-14 13:20:50]

[Eddie Holmes]

Agreed.

[2020-12-14 14:43:29]

[Robert Garry]

Here's your FOI friends Eddie - they apparently got about a TB of Baric's emails.

<https://usrtk.org/biohazards-blog/new-emails-show-scientists-deliberations-on-how-to-discuss-sars-cov-2-origins/>

[2020-12-14 14:46:36]

[Andrew Rambaut]


```In one email, dated Feb. 4, infectious disease expert Trevor Bedford commented: "I wouldn't mention binding sites here. If you start weighing evidence there's a lot to consider for both scenarios." By "both scenarios," Bedford appears to refer to lab-origin and natural-origin scenarios.```

[2020-12-14 14:50:00]

**[Andrew Rambaut]**

Interesting - the emails seem to be all scanned PDFs - so you can't search them electronically - is that a normal tactic to a FOI?

[2020-12-14 14:56:58]

**[Robert Garry]**

Come to think of it - scanned pdfs are usually how NIH responds to FOIA requests. I haven't looked closely at the motherload of Baric emails, but personal stuff is usually exempt - ie. invasion of privacy. Maybe other countries are different, but I would think that most of the correspondence between members of this Slack channel would be retracted as either personal or a trade secret. I've had FOIA request where most of the pages were redacted in black. For example MOST of my correspondence with NIH program officers. What Can I Obtain with a FOIA Request?

Under the FOIA and the FCC's implementing rules, you are allowed to obtain copies of FCC records unless the records contain information that is exempt under the FOIA from mandatory disclosure. Section 552(b) of the FOIA contains nine types of records which are routinely exempt from disclosure under the FOIA:

- Records classified national defense or foreign policy materials, 5 U.S.C. § 552(b)(1);
- Internal personnel rules and agency practices, 5 U.S.C. § 552(b)(2);
- Information specifically exempted from disclosure by another statute, 5 U.S.C. § 552(b)(3);
- Trade secrets and commercial or financial information obtained from a person and privileged or confidential, 5 U.S.C § 552(b)(4);
- Inter- or intra-agency memoranda or letters which would not be available to a party in litigation with the agency, 5 U.S.C. § 552(b)(5);
- Personnel, medical and similar files, disclosure of which would constitute a clearly unwarranted invasion of personal privacy, 5 U.S.C. § 552(b)(6);
- Records compiled for law enforcement purposes, 5 U.S.C. § 552(b)(7);
- Records relating to the examination, operations, or condition of financial institutions, 5 U.S.C. § 552(b)(8); and
- Oil well data, 5 U.S.C. § 552 (b)(9).

[2020-12-14 15:46:57]

**[Kristian Andersen]**

I love the fact that my email is so prominently displayed.

[https://usrtk.org/wp-content/uploads/2020/12/NASEM\\_Andersen-Email\\_Baric-1.pdf](https://usrtk.org/wp-content/uploads/2020/12/NASEM_Andersen-Email_Baric-1.pdf)

[2020-12-14 15:50:24]

**[Kristian Andersen]**

Oh, but I SO want to search all those emails - I'm CONVINCED Baric has been saying shit about us and it all gotta be in there somewhere. I'm sure the DRASTIC folks will transcribe these.

[2020-12-14 15:51:25]

**[Kristian Andersen]**

I LOVE this bit from Trevor... :wink: [shared file(s): Screen Shot 2020-12-14 at 15.51.03.png]

[2020-12-14 16:00:57]

**[Andrew Rambaut]**

You came out of it well with that email. Pretty much lays out what said in PO.

[2020-12-14 16:01:21]

**[Andrew Rambaut]**

Why don't you download the lot and run it through some OCR

[2020-12-14 16:02:07]

**[Kristian Andersen]**

.... already doing it. I want to nail Deep Throat.

[2020-12-14 16:24:56]

**[Eddie Holmes]**

That's just between Andrew and I and because it does not discuss the paper per se I think I don't have to include it.

[2020-12-14 16:26:01]

**[Kristian Andersen]**

Hahaha, can't WAIT to see those emails on the internet - and it's fair - it shows that we too think he's an arse.

[2020-12-14 16:26:02]

**[Andrew Rambaut]**

Also discuss personal medical history of a person.

[2020-12-14 16:26:25]

**[Kristian Andersen]**

Ohhhh - HIPAA

[2020-12-14 16:29:16]

**[Eddie Holmes]**

Yes, no way the lawyers will allow those to go up. I not quite sure how I'm going to explain it all them though.?

[2020-12-14 16:29:51]

**[Andrew Rambaut]**

Out of interest what is the situation with Slack? Presumably that is private communication?

[2020-12-14 16:30:12]

**[Eddie Holmes]**

Great quote for Bob which we should definitely put out "I think the approach for the paper should be totally agnostic." Slack is private.

[2020-12-14 16:44:42]

**[Kristian Andersen]**

Oh boy. :clown\_face:

[2020-12-14 16:51:31]

**[Eddie Holmes]**

Aside from the crudity, what the emails show I think is that we took lab escape very seriously and that we genuinely worried about it. They do show that Jeremy was involved though and I can see that causing a stir....but there's zero smoking guns. Absolutely nothing.

[2020-12-14 16:52:48]

**[Kristian Andersen]**

I'm pretty sure we'll come out better by people seeing those emails - it should be clear that this is a thorough investigation.

[2020-12-14 16:55:42]

**[Kristian Andersen]**

Eddie, what's the language in the FOIA request? Can they even request this - I mean, US organization and you're in Australia

[2020-12-14 17:02:19]

**[Kristian Andersen]**

Okie dokie - all good. Reading through our old emails, it's all good stuff + terrible jokes - I'm totally ok with that :wink:

[2020-12-14 17:09:20]

**[Eddie Holmes]**

Yes, it's just shitty jokes. I can't see usrtk.org going much better than "Emails reveal proximal origins authors' lamentable use of puns".

[2020-12-14 17:12:08]

**[Andrew Rambaut]**

"I have to say that I am disappointed that he has not threatened to fuck my mother after our trashing of snake flu." - Eddie

[2020-12-14 17:16:26]

**[Eddie Holmes]**

I stand by that statement.

[2020-12-14 17:50:18]

**[Kristian Andersen]**

Boys, I win the day - this too I predicted. Apparently... [shared file(s): Screen Shot 2020-12-14 at 5.49.32 PM.png]

[2020-12-14 17:51:30]

**[Kristian Andersen]**

Although, Andrew gets some points for his response to my email too... :wink: [shared file(s): Screen Shot 2020-12-14 at 5.50.59 PM.png]

[2020-12-14 18:02:34]

**[Eddie Holmes]**

That one is definitely in.

[2020-12-14 18:16:07]

**[Robert Garry]**

The most likely emails of ours that could \*possibly\* be FOIAed are the ones with .gov email recipients. I don't think any of those are harmful - on the contrary.

[2020-12-14 18:17:45]

**[Robert Garry]**

I do want our suggested name of Wuhan Turtle Flu virus to show up somewhere.

[2020-12-15 06:01:02]

**[Robert Garry]**

Alina's friends are so nice:

[2020-12-15 06:01:08]

**[Robert Garry]**

shared file(s): image.png

[2020-12-15 06:52:24]

**[Kristian Andersen]**

Haha, love 'em.

[2020-12-15 11:25:58]

**[Robert Garry]**

So - here are Daszak's emails including those to Baric.

[https://usrtk.org/wp-content/uploads/2020/11/Biohazard\\_FOIA\\_Maryland\\_Emails\\_11.6.20.pdf](https://usrtk.org/wp-content/uploads/2020/11/Biohazard_FOIA_Maryland_Emails_11.6.20.pdf) Most interesting part to me was that at some point Baric dropped out as one of the signatories.

[2020-12-15 12:27:33]

**[Eddie Holmes]**

I'm not looking at the usrtk.org stuff on principle. It's no better than phone hacking.

[2020-12-15 12:47:16]

**[Eddie Holmes]**

P.S. I think Billy's post is defamation.

[2020-12-15 12:49:43]

**[Robert Garry]**

Indeed it is actionable - the whole DRASTIC krewe including Alina crossed that line a long time ago. Using an alias and a one-eyed monkey avatar is not a defense.

[2020-12-15 13:06:46]

**[Andrew Rambaut]**

Billy is from London it seems -

<https://www.lostlaowai.com/blog/ae/humour/stealing-umbrellas-just-for-laughs-in-chengdu/> :

```Billy Bostickson says: November 17, 2013 at 9:35 pm

What a stupid foreigner you are, Andrew Hales. Try doing this in London, mate, and it doesn't matter what a big lump of dead meat you are, you would be on the floor in seconds. Go back to your own country and try this shit and see what happens, why don't you?```

[2020-12-15 13:47:56]

[Kristian Andersen]

Seems like a nice guy - I'll invite him out for a beer in the pub the next time I get to London.

[2020-12-15 14:21:02]

[Robert Garry]

I'm guessing this is Billy - <https://www.youtube.com/watch?v=-XbtuJeelLg> [shared file(s): image.png]

[2020-12-15 14:23:43]

[Kristian Andersen]

Aaaaaahahaha, nice one

[2020-12-15 14:32:36]

[Andrew Rambaut]

Another t-shirt?

[2020-12-15 14:35:34]

[Robert Garry]

Oh my - Billy is a bit obsessed... [shared file(s): image.png]

[2020-12-15 14:39:33]

[Kristian Andersen]

I think Billy's a little obsessed with us... He mentions me quite often on Twitter (apparently) and the tweets really are super insightful.... https://twitter.com/search?q=from%3A%40BillyBostickson%20kristian%20andersen&src=typed_query&f=live

[2020-12-15 14:47:37]

[Robert Garry]

It's a fairly recent youtube video -post Bill G and Bob G virological post...pretty incredible...

[2020-12-15 15:58:21]

[Eddie Holmes]

Jesus. It's like a toilet door in Kings Cross station.

[2020-12-15 17:34:57]

[Robert Garry]

Now we know whose been posting their "art" at Kings Cross!

[2020-12-15 23:48:57]

[Kristian Andersen]

Andrew any neut data on that UK lineage? I wouldn't be surprised if this thing is highly resistant. Would also be interesting to map epitopes from people infected with this lineage vs earlier lineages.

A lot of concern at the state/county level about these reports, so please keep us posted.

[2020-12-15 23:55:07]

[Andrew Rambaut]

Obviously a massive effort to look at this with Wendy Barclay leading it. Also to pull out reinfections.

[2020-12-15 23:58:33]

[Andrew Rambaut]

The interesting thing is the new lineage has started to take off in South Wales (who have an amazing surveillance and sequencing team). South Wales already has (a growing) lineage of N501Y so it will be interesting to see how the new lineage competes.

[2020-12-15 23:59:57]

[Andrew Rambaut]

Also it seems curious how N501Y has suddenly come up 3 times independently this Autumn (the other one being in South Africa).

[2020-12-16 04:12:25]

[Robert Garry]

If the change in the FCS makes it somehow better able to infect the upper airways this could impact spread. Might be reflected in lower Ct values in nasal swabs.

[2020-12-16 04:33:55]

[Robert Garry]

Doug's (D614G) daughter Nancy (N501Y) is certainly interesting - the deletion in the NTD along with the change near/in the RBD plus the rare FCS mutation are very likely driving some phenotype.

[2020-12-16 04:41:19]

[Andrew Rambaut]

Yes - I am really convinced it is spreading because of these mutations not despite. And I am usually very cautious. I am keeping my eye on a lineage with N501Y and none of the other mutations that is also spreading in the UK.

[2020-12-16 06:57:12]

[Andrew Rambaut]

We are calling it Nelly

[2020-12-16 06:57:48]

[Andrew Rambaut]

[thread - ID: 2020-12-16 06:57:48]

@Robert Garry What would your thoughts about V701A be?

[2020-12-16 06:57:48]

[Robert Garry]

<https://science.sciencemag.org/content/369/6511/1603.full>

[2020-12-16 06:58:37]

[Andrew Rambaut]

Yes! We briefly considered whether it had emerged from the rat infested sewers of London Town.

[2020-12-16 07:00:53]

[Andrew Rambaut]

[thread - ID: 2020-12-16 06:57:48]

@Andrew Rambaut Is it too far away from the FCS to be related to that?

I ask because the South African outbreak with 501Y has a mutation at 701 apparently.

[2020-12-16 07:01:17]

[Andrew Rambaut]

[thread - ID: 2020-12-16 06:57:48]

@Andrew Rambaut Although now looking, it seems the ancestral amino acid is A

[2020-12-16 07:22:36]

[Robert Garry]

[thread - ID: 2020-12-16 06:57:48]

@Andrew Rambaut Yeah the A in the ancestral threw me off a bit, but - that region between the FCS and the S2' cleavage site it generally thought to be clipped out - the S2' cleavage exposes what is likely the fusion peptide (there may be other FPs). There is some thought in some of the other CoVs that that clipped out peptide between the FCS and the S2' site might have some biological activity, but I haven't seen anything convincing.

[2020-12-16 07:25:44]

[Robert Garry]

[thread - ID: 2020-12-16 06:57:48]

@Andrew Rambaut Is 701 too far away to affect the FCS? Yeah probably...

[2020-12-16 07:36:07]

[Andrew Rambaut]

[thread - ID: 2020-12-16 06:57:48]

@Andrew Rambaut :+1:

[2020-12-16 09:08:38]

[Kristian Andersen]

I wouldn't rule it out - straight from Boris Johnson's chronic infection to the infested sewers of London.

[2020-12-16 09:13:09]

[Robert Garry]

Also the Kings Cross "artist" Billy - his whole DRASTIC operation could well be a false flag. Just sayin'.

[2020-12-16 13:29:24]

[Robert Garry]

Not too helpful IMO: [shared file(s): image.png]

[2020-12-16 13:31:22]

[Kristian Andersen]

Let me chime in - that's idiotic

[2020-12-16 13:31:42]

[Andrew Rambaut]

Go for it. :popcorn:

[2020-12-16 13:50:58]

[Eddie Holmes]

Oh me too!

[2020-12-16 13:54:53]

[Kristian Andersen]

Let's go for it Eddie - intellectual gangbang. Or something.

[2020-12-16 13:57:17]

[Eddie Holmes]

Let's see how he replies to yours. He's such a total arse.

[2020-12-16 14:19:52]

[Kristian Andersen]

He never replies to me... Go in and back me up man - can't do this alone!!! :wink:

[2020-12-16 14:20:30]

[Andrew Rambaut]

He replied [shared file(s): image.png]

[2020-12-16 14:21:10]

[Andrew Rambaut]

Dumb ass. Bad SNP calling is not why it is a crap outgroup

[2020-12-16 14:25:00]

[Kristian Andersen]

I'm glad he looked into this so deeply. Important.

[2020-12-16 14:33:14]

[Robert Garry]

Good job - I think he deleted the appalling tweet.

[2020-12-16 14:41:21]

[Robert Garry]

Dan is on it too - I expect that Billy is going to roll out another 2 hour youtube in the next week or so... [shared file(s): image.png]

[2020-12-16 15:07:51]

[Eddie Holmes]

Only fair that I get some cocks drawn on my head.

[2020-12-16 16:31:56]

[Robert Garry]

Yes Indeed - I'd place the odds of Eddie getting the head-cock treatment at greater than 90%. Andersen and Holmes call out FB for saying stupid crap and THEN FB collapses like a cheap umbrella and deletes the crap tweet. Alina was quick to jump on FB's crap as well, so the whole DRASTIC team must be - as we used to say - having cows.

[2020-12-16 22:08:59]

[Eddie Holmes]

As long as it's a bigger cock that is.

[2020-12-16 22:13:14]

[Kristian Andersen]

Well, there's more real estate on your forehead....

[2020-12-17 05:15:07]

[Robert Garry]

[thread - ID: 2020-12-17 05:15:07]

Odds up to >95% [shared file(s): image.png]

[2020-12-17 05:23:30]

[Robert Garry]

source: <https://twitter.com/emmecola/status/1339330740606078976>

[2020-12-17 05:32:32]

[Andrew Rambaut]

[thread - ID: 2020-12-17 05:32:32]

@Eddie Holmes Are you involved in this: <https://www.theguardian.com/world/2020/dec/17/coronavirus-nsw-two-new-covid-cases-brings-local-transmission-total-to-five>

We found one case of our new B.1.1.7 lineage in GISAID from Australia. [shared file(s): image.png]

[2020-12-17 05:32:46]

[Andrew Rambaut]

shared file(s): image.png

[2020-12-17 05:33:05]

[Andrew Rambaut]

Apparently the Aussies got back to say it was a traveller from the UK.

[2020-12-17 05:33:19]

[Andrew Rambaut]

But it was back at the end of November. Could this have taken off?

[2020-12-17 05:34:04]

[Andrew Rambaut]

Actually I am guessing not - there are lots of new NSW genomes in GISAID and they are not N501Y

[2020-12-17 05:34:10]

[Andrew Rambaut]

Stand down.

[2020-12-17 07:09:12]

[Robert Garry]

Hmmm...<https://www.biorxiv.org/content/10.1101/2020.12.12.422516v1> - this is pretty out there, but these ppl are pretty solid...

[2020-12-17 07:22:23]

[Andrew Rambaut]

That is being pulled apart on Twitter...

[2020-12-17 07:44:37]

[Robert Garry]

It's pretty bad actually - disappointing - however, it does have a good collection of SC2 "reactivation" references that might be useful.

[2020-12-17 12:50:36]

[Eddie Holmes]

[thread - ID: 2020-12-17 05:32:32]

@Andrew Rambaut Nothing to do with me. But I know who it is and can find out more.

[2020-12-17 12:53:03]

[Andrew Rambaut]

[thread - ID: 2020-12-17 05:32:32]

@Andrew Rambaut Leave it for now. I don't think it is our lineage

[2020-12-17 12:55:20]

[Eddie Holmes]

[thread - ID: 2020-12-17 05:15:07]

@Robert Garry The French comment afterward talked about my 'enormous influence'. Shucks, I'm blushing.

[2020-12-17 17:39:32]

[Kristian Andersen]

Pretty cool, this. - from <https://vis.sciencemag.org/breakthrough2020/#/finalists/a-divisive-disease> [shared file(s): Screen Shot 2020-12-17 at 5.39.12 PM.png]

[2020-12-17 18:01:21]

[Eddie Holmes]

It is!

[2020-12-17 18:08:06]

[Eddie Holmes]

One for the history books.

[2020-12-18 01:41:56]

[Andrew Rambaut]

https://twitter.com/sai_suryan/status/1339859716613287937

[2020-12-18 01:42:10]

[Andrew Rambaut]

I am guessing the reviews will come out in the FOI, Eddie?

[2020-12-18 01:42:31]

[Andrew Rambaut]

```@k\_g\_andersen @arambaut @edwardcholmes #IanLipkin #RobertGarry: according to @nature, "correspondence submissions are only rarely peer-reviewed." <https://go.nature.com/37w0Crb> Was "The proximal origin of SARS-CoV-2" peer-reviewed by experts before its publication? #originsofsarscov2```

[2020-12-18 02:17:20]

**[Eddie Holmes]**

I just blocked him. Total low-life. No, I don't we need to show the reviews as these are correspondence with the journal and my University lawyers say that is not included. But it will have us talking about the reviews a guess. Of course, the irony is that the reviewers thought we gave the lab escape theory too much credence...I'm not going to make life easy for them.

[2020-12-18 02:19:24]

**[Eddie Holmes]**

Just been talking (off the record) to this guy from CNN who has been delving deep into the early outbreak. He's also talked to all the intelligence folk. He's says there's absolutely zero evidence for lab escape. Intelligence agrees. Nothing in the early records from China.

[2020-12-18 06:38:22]

**[Robert Garry]**

Couple of thoughts: 1. Yes - virological post was indeed historic and very important!

[2020-12-18 06:50:39]

**[Robert Garry]**

2. The UK variant is important on many levels, but I believe relates directly to the PO of SC2. I don't fathom the mechanisms, [maybe there's a precedent in noros or elsewhere] but it looks like the mutations in RBD and the FCS and elsewhere are "coordinated" in some way. The closest correlate I can think of is when you get a mutation in one part of protein you often get a compensatory mutation in another part of the protein - sometimes these compensatory mutations interact in the secondary or tertiary structure, but often not so much.

<https://pubmed.ncbi.nlm.nih.gov/17507468/> or better here: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1599768/> [check out the editor].

[2020-12-18 07:01:41]

**[Robert Garry]**

3. As for the FOI from the USRTK group, which I believe has its roots in the antiGMO cabal - along with right wingers (Bannon/Yan/FOX news) and the out-of-their-lane amateur detectives/DRASTIC. we are up against a lot of people trying [and failing] to tear us down.

[2020-12-18 07:05:30]

**[Andrew Rambaut]**

@Robert Garry 2) - I am now utterly convinced it is transmitting faster (I may still be wrong but all the data is pointing that way - and I am super cautious about these things). I think the RBD + furin site must be a top combination. Possibly the 69-70 & 144 deletions just to tune things a bit.

[2020-12-18 07:06:08]

**[Andrew Rambaut]**

But I think it probably got selected for higher infectivity within the chronic patient and then got out and took off.

[2020-12-18 07:08:35]

**[Kristian Andersen]**

If it's from a chronic patient, probably also highly resistant to neuts. Any early data on that? Anything clinical?

[2020-12-18 07:16:58]

**[Kristian Andersen]**

Speaking of which - this is good. [https://twitter.com/jbloom\\_lab/status/1339939720558563328?s=21](https://twitter.com/jbloom_lab/status/1339939720558563328?s=21)

[2020-12-18 07:19:27]

**[Robert Garry]**

My follow-up on 3. It seems to me that one of the major hang-ups is: "you can't rule out lab escape." The problem is that lab escape has several levels of crazy. Level 1a. full-blown sc2 was brought into the lab from someone not practicing good ppe. s/he got infected in the cave. We all agree that this is possible but compared to all the other bat-human exposures the odds of this are very low. It also assumes that 100%SC2 is already in a bat. Also assumes either that the nonPPE wearing pstdoc never got sick and or that the virus was isolated and covered- up, which is obviously ridiculous. However, the RaTG13 is "fake: crowd which apparently included Frankie/Alina believes that RaTG13 SRA were contrived to cover this up. Total Bullcocks. Level 1b. SC2 exists in some other species and by luck a laboratorian caught one of these animals and started the transmission to other humans. This has even lower odds compared to all the other animal-human interactions. Level 2a. presc2 [99%] brought into the lab and modified by seamless engineering. Level 2b presc2 [99%] brought into the lab and modified by cell culture or animal passage. Level 2 assumes a very close relative to SC2, which would have obviously been a big story, but then held up for GOF research. Again, the conspiracy theorist thing that Eddie and other made up the pangolin viruses and RaTG13 to cover this up. Levels 3. sc2 stitched together by combining parts of unreported sarbecoviruses and modified by seamless engineering. This assumes that WIV had the GD pangolin virus sequences or something similar from another animal (bat or other) and that they combined these viruses to create SC2 - this is the Yan/Bannon/Fox nonsense, but in reality it is not that different to what Alina/Drastic etc are proposing. Yan just made the mistake of putting a flowchart on paper which is obviously loonie.

[2020-12-18 07:22:25]

**[Robert Garry]**

*[thread - ID: 2020-12-18 07:22:25]*

Agree Andrew that the NTD deletions tune things up. I do suspect as I wrote before that the NTD is likely involved at least in some early cell interactions, if not interaction with a full-blown receptor.

[2020-12-18 07:27:16]

**[Robert Garry]**

Yes - beautiful and important work out of the Bloom lab - very relevant. Agree that the chronic patients are an unanticipated wild card. Selecting for higher infectivity: it's the whole macrophage tropic HIV get replaced by T-cell

tropic HIV story again. Immunocompromised patient makes the story even more symmetrical.

[2020-12-18 14:23:19]

**[Eddie Holmes]**

Good summary Bob. We just need some of these newly described viruses to come out soon. I'm pushing.

[2020-12-18 14:40:21]

**[Andrew Rambaut]**

*[thread - ID: 2020-12-18 07:22:25]*

@Robert Garry Wendy Barclay who I am working with came up with the co-receptor idea as well. I think she is looking into that.

[2020-12-18 14:42:36]

**[Andrew Rambaut]**

Yes, good summary. The point is you get down to just the SC2 virus was in the lab just as it was and someone got infected and then it spread. But that is just basically the same as a natural zoonosis in the country but with a very small numerator.

[2020-12-18 15:09:52]

**[Robert Garry]**

Absolutely! What's dangerous is that the Lab origin crowd will make it difficult to actually going out and do the field work find/characterize the wild covs that we must characterize to prevent SC3 [or a pandemic nonsarbecovirus] from doing what SC2 is doing. The DRASTIC/Ebright crowd has latched onto some passages in the Quammen books to suggests that the Chinese bat-people aren't too careful with PPE - may be true, but then do it right - don't shut it down. Another point is that I've seen a lot of pics of the WIV krewe and others climbing down in the caves. That's unnecessary - the best way to trap bats is with mist nets as they fly out at night. No need for spelunking.

[2020-12-18 15:23:58]

**[Robert Garry]**

Human challenge trials - Fred Hutch buys in:

<https://www.fredhutch.org/en/news/center-news/2020/12/covid-19-vaccines-transmission.html>

[2020-12-18 15:38:14]

**[Kristian Andersen]**

Yeah, good summary Bob - I have spent a fair bit of time explaining the Level 1 issues with journalists - it just massively favors natural scenarios, but people just don't get it...

For PO2, I don't even think we want to consider lab explanations - just fully focus on natural evolution and not give it any more consideration. Sure, if some relevant data comes up I'm all for it - but without specific "lab" data, there's no need IMO. It'd also MASSIVELY piss off the DRASTIC crew, which I'd enjoy.

Need more pango / bat viruses to look at.

[2020-12-18 15:49:25]

**[Robert Garry]**

"It'd also MASSIVELY piss off the DRASTIC crew, which I'd enjoy.":rolling\_on\_the\_floor\_laughing:

[2020-12-18 15:50:00]

**[Kristian Andersen]**

It'll big a giant :middle\_finger:

[2020-12-18 16:51:28]

**[Eddie Holmes]**

Love it. Ignore lab origin completely. Don't cite a single of their works. Ignored as entirely irrelevant.

[2020-12-18 17:14:30]

**[Kristian Andersen]**

Yup - honestly, I think this is the way forward. As soon as we start giving it attention, well, it'll get more attention and it's not like they'll ever be happy unless we go visit some old mines... Essentially the argument is "we have considered it, and we don't find lab origins plausible" - but without even saying that.

[2020-12-19 00:42:44]

**[Eddie Holmes]**

@Andrew Rambaut There are two B.1.1.7 cases from New South Wales. Both on GISAID. The first (EPI\_ISL\_678386) was collected from hotel quarantine on 30/11/2020, while the second (EPI\_ISL\_717711) was collected from hotel quarantine on 9/12/2020. Luckily it's not in the community.

[2020-12-19 01:52:11]

**[Andrew Rambaut]**

*[thread - ID: 2020-12-19 01:52:11]*

Thanks Eddie. A 12 year old and a 6 year old apparently so both with families. Was it the same family I wonder?

[2020-12-19 08:04:57]

**[Andrew Rambaut]**

South African N501Y lineage also has E484K but not much else I think. It has a very long unsampled branch with some USA ones as an outgroup. So no real evidence of a big bunch of mutations happening together.

[2020-12-19 08:50:00]

**[Kristian Andersen]**

Andrew, what's the best representative sequence for the UK lineage? All on GISAID?

[2020-12-19 09:20:18]

**[Andrew Rambaut]**

Actually the earliest one is a pretty good one:  
`England/MILK-9E05B3/2020|2020-09-20`

[2020-12-19 09:55:39]

**[Kristian Andersen]**

That additional mutation in the South African lineage is quite interesting - E484K is a flip of charge and K is novel in this position across all the CoVs. @Robert Garry - any chance you can please take a look at that mutation to see if you might have any insights? The mutation has popped up a few times independently across the tree.

[2020-12-19 10:45:24]

**[Andrew Rambaut]**

486 is a contact residue, right? Crops up in the Dutch mink.

[2020-12-19 10:52:39]

**[Kristian Andersen]**

Yup - it's F in SC2, but L in SC1 and many of the bat viruses (I believe also L in the mink?)

[2020-12-19 10:58:09]

**[Andrew Rambaut]**

yup

[2020-12-19 11:01:14]

**[Kristian Andersen]**

I pinged Andrew Ward this morning to see if he could get one of his structural guys to take a close look at all of this - I'm sure you're already doing it too, but good to get a bunch of eyes on this.

What's interesting about the SA link is that if we're really seeing this explosive growth, then it's down to N501Y and not all the other mutations. Which seems a little strange to me.

[2020-12-19 11:02:15]

**[Kristian Andersen]**

(as in - probably not N501Y alone, but N501Y with some other 'contextual' mutations)

[2020-12-19 11:06:15]

**[Kristian Andersen]**

@Andrew Rambaut - is this true? In Emma's build, yes, but if you include basal lineages, does this still hold? I was trying to look at this on Nextstrain, but it's a mess trying to identify individual events on their tree and I can't move stuff around.

Also trying to look at the alignment, but I don't have all the relevant sequence. Lord, do I hate GISAID. [shared file(s): Screen Shot 2020-12-19 at 11.04.37 AM.png]

[2020-12-19 14:21:24]

**[Eddie Holmes]**

*[thread - ID: 2020-12-19 01:52:11]*

@Andrew Rambaut They're in quarantine for 2 weeks so the is just about plausible although it seems a bit long to me. I'll ask.

[2020-12-19 14:27:49]

**[Andrew Rambaut]**

I don't see it. I think it is just unsampled

[2020-12-19 14:29:26]

**[Andrew Rambaut]**

It is really hard to do anything at the moment with this data. Our big tree is OK for local stuff but I am not sure how much I trust some of the deeper nodes anymore. We are working hard to improve the tree building.

[2020-12-19 14:34:05]

**[Eddie Holmes]**

> Through the grape vine I've heard that the South Africans are claiming their lineage is "associated with disease in younger persons". Do you know anything about this?

[2020-12-19 14:37:39]

**[Andrew Rambaut]**

No - not heard that. I can't imagine that can be anything other than anecdote surely?

[2020-12-19 14:38:17]

**[Andrew Rambaut]**

They only have a few hundred genomes so they can't have enough power to discern that

[2020-12-19 14:39:13]

**[Andrew Rambaut]**

I guess they could be seeing an increase in hospitalisation of young and then sequencing those ones.

[2020-12-19 14:42:43]

**[Andrew Rambaut]**

I thought you should know that we call the N501Y mutation 'Nelly' (under the Doug naming scheme) and thus the new UK lineage is now being referred to internally as 'the elephant'.

[2020-12-19 14:44:50]

**[Andrew Rambaut]**

*[thread - ID: 2020-12-19 01:52:11]*

@Andrew Rambaut Given Australia sequences everything and Denmark has gone from bottom to 4th place in the sequencing league it seems that the new variant must be in many other countries now.

[2020-12-19 14:58:43]

[Eddie Holmes]

Was sent this - you may have seen it already: [shared file(s): KRISP\_Minister\_President\_Briefing\_Media.pdf]

[2020-12-19 15:24:02]

[Eddie Holmes]

[thread - ID: 2020-12-19 01:52:11]

@Andrew Rambaut Agreed. Seems the 2 NSW cases are likely from different families as they have different surnames. Also, they are not in the community here. We have a new outbreak in NSW which we think is linked to flight crew and that is lineage B.1. Phew.

[2020-12-19 17:14:10]

[Robert Garry]

Off channel most of the day - Jeanette had a minor procedure yesterday and I had a few home items. Yes I can take a look. Both E484K and N501Y are pretty dramatic. One think for sure is that there is considerable plasticity in the RBD-ACE2 interactons.

[2020-12-19 17:36:37]

[Eddie Holmes]

Vince is such a plonker.

[2020-12-19 18:02:41]

[Kristian Andersen]

Does he \_ever\_ get it right?

[2020-12-19 19:53:31]

[Eddie Holmes]

Not that I've seen.

[2020-12-20 07:28:32]

[Robert Garry]

[thread - ID: 2020-12-20 07:28:32]

<https://www.biorxiv.org/content/10.1101/2020.11.16.384743v1.full.pdf> A couple of initial thoughts on the RBD changes. First, just to reiterate the dirty little "secret" of structural biologists - everything including cryoEM and X-ray crystallography are models - the resolutions are average and locally there is a lot of "fitting." That being said this figure from the Bullocks mink paper shows the residues in question E484 not to far from f486 obviously. Remarkable that N501 shows up in both the mink and the mouse. [shared file(s): image.png]

[2020-12-20 07:28:36]

[Robert Garry]

<https://www.nature.com/articles/s41586-020-2772-0>

[2020-12-20 07:54:02]

[Robert Garry]

Benton et al. is going to be the key to interpreting the NTD deletions and probably the other elephant mutations as well. A pretty good interpretation of D614G therein. More importantly it clear that \*both\* NTD and the RBD need to undergo dramatic shifts that are driven by ACE2 binding to accommodate the S1/S2 and S2' cleavages and ultimately the large scale rearrangement of S2 into the 6 helix bundle. This doesn't rule out an NTD "receptor." I need to get to the office to look at the structures in Benton in a bit more detail to see what del69-70 etc do to the Benton structures, but it won't surprise me if they don't "destabilize" the trimer ala Doug.

[2020-12-20 07:59:39]

[Andrew Rambaut]

[thread - ID: 2020-12-20 07:28:32]

@Robert Garry I don't think 501Y turns up in mink.

[2020-12-20 08:12:29]



**[Robert Garry]**

[thread - ID: 2020-12-20 07:28:32]

@Robert Garry It's N501T

[2020-12-20 08:15:46]

**[Robert Garry]**

[thread - ID: 2020-12-20 07:28:32]

@Robert Garry Same residue changes to two diff amino acids when SC2 "adapts" to two diff animals.

[2020-12-20 08:27:39]

**[Robert Garry]**

[thread - ID: 2020-12-20 07:28:32]

@Robert Garry In SC1 it's T501 fwiw.

[2020-12-20 08:33:25]

**[Robert Garry]**

Note to self that the Benton structures are "stabilized" with two proline substitutions - this is what we did to ultimately get the Lassa GP structure.

[2020-12-20 12:31:18]

**[Eddie Holmes]**

Thanks Bob, a lot to think about.

[2020-12-20 13:10:00]

**[Kristian Andersen]**

Thanks Bob - this is very helpful. One nagging question I have is that it doesn't seem to me that N501Y \_alone\_ can explain the 'spreader' phenotype, yet, the lineages in the UK and SA are quite distinct - and as far as I can tell, only share N501Y. However, it's entirely plausible that different mutations can lead to similar conformational changes, that might give the virus a 'spreader' phenotype if N501Y pops up on that genetic backbone.

We have seen N501Y before (e.g., Australia), but I don't know that any of those are associated with increased spread? With that said, Australia isn't exactly representative when it comes to the question of spread, and I don't believe N501Y has been observed in that many places (I think just random stray sequences here and there)

[2020-12-20 13:16:45]

**[Andrew Rambaut]**

There are actually 2 501Y lineages in the UK - the other one in South Wales (now up to about 500 genomes but associated with a hospital outbreak as well). Again only N501Y in common. As you say - there was a cluster in Australia - 37 genomes from beginning of June to beginning of July.

[2020-12-20 13:18:32]

**[Kristian Andersen]**

I missed that - I thought same lineage, but two separate emergence events (from a common source, I assumed). But I see the differences on Emma's Nextstrain build - very interesting.

[2020-12-20 13:19:10]

**[Andrew Rambaut]**

There are 5 from Massachusetts with a shit load of mutations

[2020-12-20 13:19:20]

**[Andrew Rambaut]**

Spike A1020S, Spike C15del, Spike D614G, Spike G142del, Spike I870V, Spike L18del, Spike L141del, Spike N17del, Spike N440D, Spike N501Y, Spike Q14del, Spike Q183H, Spike Q493K, Spike S12del, Spike S13del, Spike S494P, Spike T478K, Spike V16del, Spike V143del, Spike Y144F, E T30I, M A2V, N A208S, NS3 Q57H, NS7a S83L, NSP2 I21V, NSP2 T85I, NSP4 A307V, NSP12 P323L, NSP13 T115I

[2020-12-20 13:19:38]

**[Andrew Rambaut]**

I bet that is a chronic patient

[2020-12-20 13:20:12]

**[Andrew Rambaut]**

Yes all from the same dead 45 year old man

[2020-12-20 13:20:17]

**[Kristian Andersen]**

Holy moly - a lot of mutations there...

[2020-12-20 13:20:22]

**[Andrew Rambaut]**

Is that the NEJM case?

[2020-12-20 13:20:35]

**[Andrew Rambaut]**

Seems to be an increasing number over time.

[2020-12-20 13:20:38]

**[Kristian Andersen]**

Lemme check - don't think so

[2020-12-20 13:21:41]

**[Kristian Andersen]**

Actually, probably is... <https://www.nejm.org/doi/full/10.1056/NEJMc2031364>

[2020-12-20 13:22:01]

**[Kristian Andersen]**

We don't see N501Y in our chronic patient - big difference, no treatment in that person.

[2020-12-20 13:24:57]

**[Kristian Andersen]**

@Andrew Rambaut - question here, as I see this coming up in many many news articles. Do folks understand that there are two separate concerns here? (1) Increased transmission, possibly due to N501Y, and (2) Concerns about 'immunity' due to the mutations and deletions on the same haplotype?

I see many people commenting that "we shouldn't expect SARS-CoV-2 to evolve towards immune evasion", but the problem here is that what we're seeing here isn't 'normal' SARS-CoV-2 evolution - it's a different process and it may \_specifically\_ be related to immune evasion. Can't assume our normal priors are appropriate here.

[2020-12-20 13:26:42]

**[Andrew Rambaut]**

I have brought this up a few times but I still don't think people get it.

[2020-12-20 13:26:58]

**[Andrew Rambaut]**

I am leaving it until the lab work is done.

[2020-12-20 13:27:23]

**[Kristian Andersen]**

Yeah, same here - until I see data, no point in speculating, however, let's not trust our priors 100%

[2020-12-20 13:28:24]

**[Kristian Andersen]**

*[thread - ID: 2020-12-20 13:28:24]*

Do you know if Wendy is going to be able to test neutralization from vaccinees in addition to convalescent patients?

[2020-12-20 13:29:28]

**[Andrew Rambaut]**

Worse case would if it had selected for immune evasion, and was more transmissible, and ended up at high frequency, which could make vaccines less efficient and require a higher coverage for the higher R.

[2020-12-20 13:30:17]

**[Andrew Rambaut]**

*[thread - ID: 2020-12-20 13:28:24]*

@Kristian Andersen Yes. Convalescent plasma from natural infections and vaccinees will be tested.

[2020-12-20 13:30:25]

**[Kristian Andersen]**

Yup - exactly. Under a 'normal' evolution scenario I'd say that would be extremely unlikely - however, in this particular case, I'm not so sure.

[2020-12-20 13:31:19]

**[Andrew Rambaut]**

Exactly. Basically it would be best to knock it out but that is likely too late.

[2020-12-20 13:31:36]

**[Kristian Andersen]**

Australia managed to do it :wink:

[2020-12-20 13:32:40]

**[Kristian Andersen]**

But yeah - we're not going to be able to completely stop this now - sure, put the brakes on, but we'll likely see this become the dominant lineage over the next few months.

[2020-12-20 13:32:50]

**[Andrew Rambaut]**

Best we can hope for is that it isn't more transmissible and gets eliminated by the new lock down measures. A worse case is that the measures knock every thing else out.

[2020-12-20 13:33:13]

**[Kristian Andersen]**

Yup!

[2020-12-20 13:33:43]

**[Andrew Rambaut]**

I hope it turns out we are wrong and it is not transmissible - it is the right decision not to wait to find out I think.

[2020-12-20 13:35:16]

**[Kristian Andersen]**

Agreed - this is a perfect example where we can't wait for scientific certainty, but need to react immediately and decisively. No pussyfooting around.

Also, I find it hilarious that we find ourselves in 1/"Virologists look at a mutation and assume it is adaptive, evolutionary biologists assume it isn't. Neither are right all the time" :wink:

[2020-12-20 14:11:06]

**[Eddie Holmes]**

That is weird. The Australian (from Victoria) cluster didn't take off but the circumstances here are not like US/Europe because there is strong intervention. The lineage that did take off in Victoria a little later did so because it was associated with a super-spreading event.

[2020-12-20 14:12:37]

**[Eddie Holmes]**

As if by magic: [shared file(s): Victoria\_trends.pdf]

[2020-12-20 14:23:56]

**[Kristian Andersen]**

Yeah, I don't think we can compare - Australia has this under control, we don't - I'm sure that with Aussie like control measures in place, N501Y wouldn't have had a chance to take off either.

[2020-12-20 14:33:01]

**[Kristian Andersen]**

From all of this, I had the most concise question from Biden TF members this morning "should we ban travel from the UK".

I guess when it comes down to it, we all need to be able to take all the science and distill it down into a simple yes/no answer. Easy.

[2020-12-20 17:47:09]

**[Robert Garry]**

I think the people who have been doing the monoclonal antibody work need to start sharing their epitope data. What we don't know is how many epitopes there are and which are protective. My guess based on the other class I viral gps (hiv, ebv, lasv) is there aren't that many protective epitopes. Knock out a few and you might not kill vaccine effectiveness altogether but effectiveness could take a pretty big hit. A 50% vaccine doesn't sound nearly as good as the 90+ we're expecting at the moment.

[2020-12-20 17:56:59]

**[Robert Garry]**

Another problem is that in vitro studies might rapidly identify a problem if the vaccinee plasma has reduced ability to neutralize. If vaccinee serum still neutralizes that's hopeful but still not out of the woods. At the point you won't really know if vaccinees are protected from the elephant until you fail to see infections in vaccinees.

[2020-12-20 18:43:10]

**[Robert Garry]**

To Andrew's key point "Do folks understand that there are two separate concerns?" From what I gather the answer - at least at the moment - is no.

[2020-12-20 18:58:48]

**[Kristian Andersen]**

Totally agree Bob - we have no idea which epitopes are protective and we don't know if e.g., the different vaccines cover the same epitopes. Given that the Oxford/AZN vaccine doesn't use stabilized spike (so stupid!) I assume that probably provides protection via only a handful of epitopes.

Let's see what the experiments show - will be critical.

[2020-12-20 19:20:46]

**[Robert Garry]**

Reading the Kai K article in Science and I think he gets it right. I agree with Sir Jeremy and comments above that this is an high alert event. With both 69/70 del and N501Y looking like neutralizing epitopes in domains important enough that the SAME mutations could plausibly also cause increased transmissibility [not to mention the P in the FCS] there is no reason to blow this off ala VR.

[2020-12-20 19:26:02]

**[Robert Garry]**

Knocking out two neutralizing epitope would not likely be a good thing for vaccine efficacy. Agree about Oxford/AZN - just begging for escape.

[2020-12-20 19:47:26]

**[Kristian Andersen]**

I really hope it isn't that easy... We'll know soon enough.

Massive-scale epitope mapping really needed.

[2020-12-21 04:49:58]

**[Robert Garry]**

Indeed - like hiv, ebov and lasv gps cov spike has an impressive glycan shield (>20 per monomer). The chinks (ie. epitopes) are not going to be numerous.

[2020-12-21 05:04:02]

**[Robert Garry]**

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5818208/> So, here's a look at the possibilities for a strong interaction of ACE2 Y41 and the Y of N501Y via aromatic stacking.

[2020-12-21 08:41:27]

**[Robert Garry]**

Preaching to the choir, but need to get away from treating with single monoclonals or combinations that target the same domain.

[2020-12-21 10:03:54]

**[Kristian Andersen]**

@Andrew Rambaut - thanks for taking down the post from Nigeria. I flagged it immediately this morning too with the team, so they need to get this updated and correct - Paul is working on it.

[2020-12-21 10:57:54]

**[Andrew Rambaut]**

I made it a private message.

[2020-12-21 11:05:40]

**[Kristian Andersen]**

He's working on a new version - need to get the basics right...

[2020-12-21 11:08:17]

**[Andrew Rambaut]**

Do you know if pangolin assigned it B.1.1.7 or if it was just the presence the mutation that suggested it to them? We are putting a special bit for pangolin to require 3 of the mutations and no wildtype at these sites to make sure there are no mis-classifications. To risky otherwise.

[2020-12-21 11:15:26]

**[Kristian Andersen]**

I can't quite figure out if pangolin actually assigned it to that lineage - the question was asked earlier, but no reply yet

[2020-12-21 11:21:59]

**[Andrew Rambaut]**

It didn't - or rather the latest version doesn't.

[2020-12-21 11:25:34]

**[Kristian Andersen]**

OK, thought so. Not really sure what he did...

[2020-12-21 13:06:09]

[Robert Garry]

The Starr ref from Andrew's \*brilliant\* virological post [destined to be in the top 2 or 3 in importance] has this figure. As noted therein N501Y one of \*very\* few including the mink N501T that increase ACE2 binding. Kudos to Starr et al. who also picked up Y453F (a mink mutation that appears to be another monoclonal antibody resistant mutation) as a change that enhances ACE2 binding. [shared file(s): image.png]

[2020-12-21 13:10:45]

[Eddie Holmes]

What was the Nigeria post?

[2020-12-21 13:15:42]

[Robert Garry]

Just to revisit Baric <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7081895/> "Second, residue 501 in 2019-nCoV RBD (corresponding to residue 487 in SARS-CoV) is an asparagine. Based on our previous structural analysis, residue 487 in SARS-CoV is located near virus-binding hot spot Lys353 (i.e., hot spot 353) on human ACE2 Fig.1C. Hot spot 353 consists of a salt bridge between Lys353 and Asp38 also buried in a hydrophobic environment. In civet SARS-CoV RBD (year 2002), residue 487 is a serine, which cannot provide favorable support for hot spot 353. In human SARS-CoV isolated in year 2002, residue 487 is a threonine, which strengthens the structural stability of hot spot 353. The S487T mutation adds the favorable interaction at the RBD-human ACE2 interface, enhances viral binding to human ACE2, and plays a critical role in the human-to-human transmission of SARS-CoV. In human SARS-CoV isolated in year 2003, residue 487 is a serine and there was no human-to-human transmission for this SARS-CoV strain. Asn501 in 2019-nCoV RBD provides more support to hot spot 353 than Ser487 but less than Thr487. This analysis suggests that 2019-nCoV recognizes human ACE2 less efficiently than human SARS-CoV (year 2002) but more efficiently than human SARS-CoV (year 2003). Hence, at least when considering the ACE2-RBD interactions, 2019-nCoV has gained some capability to transmit from human to human." It's not held up too well.

[2020-12-21 13:49:41]

[Robert Garry]

Next up: the DRASTIC krewe advances their theory that the UK variant is a lab escape. Don't bother, but this from one of the DRASTIC stars: "Both the S1, the RBM and the FCS of the UK variant show obvious sign of adaptation in mice." Will Alina, Relman Ebright jump on the bandwagon?:exploding\_head:

[2020-12-21 13:52:04]

[Andrew Rambaut]

It is a way more likely hypothesis than the Wuhan lab in that there is provably SARS-CoV-2 in hundreds of labs doing a thousand different experiments.

[2020-12-21 13:52:22]

[Eddie Holmes]

SO3

[2020-12-21 13:52:32]

[Andrew Rambaut]

We even considered it for a bit

[2020-12-21 13:54:25]

[Eddie Holmes]

Porton Down does have that bad rap after all

[2020-12-21 13:54:29]

[Andrew Rambaut]

But given the South African outbreak has a very similar pattern I am still going for chronic immunocompromised human (and there are obviously lots in South Africa).

[2020-12-21 13:56:37]

[Eddie Holmes]

Totally agree. Might be good if DRASTIC were distracted for a while.

[2020-12-21 14:04:42]

**[Kristian Andersen]**

Chronic infection seems more likely to me - however, I don't think we can rule out potential epizootic spilling back into humans. But all these mutations certainly look consistent with chronic infection

[2020-12-21 14:05:23]

**[Kristian Andersen]**

Bob, from the paper above - really does seem 501 is a key 'transmission' residue. Of course, 501T has also been observed.

[2020-12-21 14:05:31]

**[Andrew Rambaut]**

It wouldn't be a simple epizootic - extensive transmission in mink didn't produce more than a few mutations

[2020-12-21 14:06:13]

**[Kristian Andersen]**

Mink &gt; rodents &gt; humans - or some weird shit. But yeah, I agree - not consistent with what has been observed in mink and fully consistent with what has been observed in chronic infections.

[2020-12-21 14:06:41]

**[Andrew Rambaut]**

South Africa are really worried about E484K (in conjunction with 501Y)

[2020-12-21 14:06:43]

**[Robert Garry]**

Actually might be good to ask about for others that are adapting SC2 to mice - we've got a few groups here as well. Baric got Q493K by passing SC2 in mice. [https://www.cell.com/cell/fulltext/S0092-8674\(20\)31247-2?rss=yes](https://www.cell.com/cell/fulltext/S0092-8674(20)31247-2?rss=yes) It was Sun et al. got N501Y, Q493H, and K417N. <https://www.biorxiv.org/content/10.1101/2020.11.10.377333v1>

[2020-12-21 14:08:00]

**[Kristian Andersen]**

E484K - yeah, I \_do\_ wonder if there's some weird synergy going on between mutations here - I have a hard time believing all of this is down to 501 alone. But hey :man-shrugging:

[2020-12-21 14:08:42]

**[Andrew Rambaut]**

They also have K417N in ZA

[2020-12-21 14:09:00]

**[Kristian Andersen]**

Heh. Ooooookay.

[2020-12-21 14:09:19]

**[Kristian Andersen]**

2/3 mutations associated with rodents?

[2020-12-21 14:11:52]

**[Kristian Andersen]**

Yeah, so SA is K417N and N501Y - SA/UK both Q493

[2020-12-21 14:12:43]

**[Kristian Andersen]**

So really major amino acid changes in the few they have - flipping around charges, etc.



[2020-12-21 14:13:22]

**[Kristian Andersen]**

That E484K gotta be making some major differences in the structure

[2020-12-21 14:19:34]

**[Robert Garry]**

Going full in: the FCS of some strains of mouse hepatitis virus is \*H\*RARRS.

[2020-12-21 14:23:38]

**[Kristian Andersen]**

There you go. It's time we go back to Andrew's London sewage theory.

[2020-12-21 14:26:02]

**[Kristian Andersen]**

@Andrew Rambaut - do you have a good reference for the best "Wales" lineages?

[2020-12-21 14:26:34]

**[Andrew Rambaut]**

You mean what muts it has?

[2020-12-21 14:27:25]

**[Kristian Andersen]**

A GISAI ID? Creating an alignment for Andrew Ward so he can get a cryo guy on it and he wanted a prioritized list of sequences

[2020-12-21 14:29:49]

**[Robert Garry]**

<https://www.propublica.org/article/here-are-six-accidents-unc-researchers-had-with-lab-created-coronaviruses>"\*April 2020\*: A UNC scientist underwent 14 days of self-quarantine at home after a mouse bite caused potential exposure to a strain of SARS-CoV-2, the virus that causes COVID-19, that had been adapted for growth in mice. The incident in a biosafety level 3 lab happened when a researcher attempted to read the ID number on a tag on a mouse's ear. The mouse flipped over in the researcher's hand and bit an index finger through two layers of gloves. It did not appear to break the researcher's skin, but UNC told NIH in its reports that "given the uncertainty surrounding the exposure, we are treating this as a medium/high risk exposure." The researcher was instructed to self-quarantine and do twice-daily temperature checks. UNC also notified the local Health Department. No further information about the worker's health was included in the incident reports."

[2020-12-21 14:30:09]

**[Andrew Rambaut]**

Very confusingly (and coincidentally) it is lineage B.1.1.70

[2020-12-21 14:30:24]

**[Andrew Rambaut]**

Here are all the mutations from Wuhan:

Spike D614G, Spike N501Y, N G204R, N Q9H, N R203K, NS3 Y156C, NS7a T14I, NSP3 H1539Y, NSP3 S126L, NSP5 G71S, NSP5 P132L, NSP12 P323L, NSP15 A217V, NSP15 M271I, NSP15 T33I

[2020-12-21 14:30:36]

**[Andrew Rambaut]**

EPI\_ISL\_710967

[2020-12-21 14:30:46]

**[Kristian Andersen]**

Awesome - thanks

[2020-12-21 14:31:01]

**[Andrew Rambaut]**

(most 501Y from Wales are this lineage at the moment but it is changing)

[2020-12-21 14:31:30]

**[Andrew Rambaut]**

So no other spikes apart from 614G but everyone has one of those these days

[2020-12-21 14:36:35]

**[Kristian Andersen]**

That's interesting about the Wales lineage - so if that's really spreading fast too and we believe there's a causal relationship, then it's down to N501Y - potentially with D614G, but as you say, they all have that one (including that earlier cluster in Australia that didn't go anywhere).

[2020-12-21 14:42:23]

**[Robert Garry]**

guess not - color blind

[2020-12-21 14:57:41]

**[Andrew Rambaut]**

My feeling is the Welsh cluster isn't growing at the same rate. It is at least as old but hasn't taken over or spread to other places. Also may have been amplified by some hospital outbreaks.

[2020-12-21 14:59:54]

**[Kristian Andersen]**

Makes sense.

[2020-12-21 15:14:32]

**[Andrew Rambaut]**

Just found a genome from mid July that has N501Y and the ORF8 stop Possibly part of the precursor lineage.

[2020-12-21 15:57:36]

**[Robert Garry]**

From Sun: "In our previous study, we generated a mouse-adapted strain of SARS-CoV-2 (MASCp6) by 6 serial passages of a SARS-CoV-2 in the lung of \*aged\* BALB/c mice, which caused moderate lung damage and no fatality in mice. Herein, we further serially passaged for additional 30 times to generate a more virulent SARS-CoV-2, and the resulting virus at passage 36 ( named as MASCp36) was used for stock preparation and titration." And a little deeper dive into the supplement reveals that N501Y came up early - by 6 passages [and it wasn't pathogenic] the other 2 muts took more passages [and tjhose mutations - probably Q493K actually made the virus pathogenic for mice. . Aged mice are definitely immunosuppressed. So, evidence for the immunocompromised theory.

[2020-12-21 16:07:54]

**[Eddie Holmes]**

<https://www.bbc.com/news/world-asia-china-55364445>

[2020-12-21 16:13:41]

**[Andrew Rambaut]**

We should offer to go do it.

[2020-12-21 16:13:58]

**[Kristian Andersen]**

YES - we can collect our fat checks at the same time!

[2020-12-21 16:14:57]

**[Kristian Andersen]**

One question I'd ask - "Since you faked RaTG13, why haven't you faked a closely related ancestral strain from a random intermediate host?"

[2020-12-21 16:17:59]

**[Andrew Rambaut]**

Has anyone tried translating it out of frame? Perhaps it says "MADEINCHINA"?

[2020-12-21 16:20:31]

**[Eddie Holmes]**

*[thread - ID: 2020-12-21 16:20:31]*

"FUNGFLUPATENTPENDING"

[2020-12-21 16:20:39]

**[Andrew Rambaut]**

```Sars-Cov-2, the authors concluded, was likely to have gained its unique efficiency through a long, undetected period of circulation in humans or animals of a natural and milder precursor virus that eventually evolved into the potent, deadly form first detected in Wuhan in 2019.```\nEh?

[2020-12-21 16:21:22]

[Andrew Rambaut]

5.1 million reads though

[2020-12-21 16:49:23]

[Eddie Holmes]

Vince is losing the plot: <http://www.microbe.tv/twiv/>

[2020-12-21 16:54:41]

[Kristian Andersen]

I can't stand to listen to him - he's disqualified from all further discussions (the worst thing is - he NEVER listens to ANYBODY. It's all about him and only about him - and only he knows). He got Ebola wrong, he got Zika wrong, and he's now once again getting another virus wrong.

I have no idea what he actually knows about - because even his virology knowledge (let alone genomics/epi/immunology, etc) is shockingly poor.

[2020-12-21 17:18:59]

[Kristian Andersen]

Well, at least Butt Lesion actually knows what he's talking about - at least sometimes.

[2020-12-21 17:51:11]

[Eddie Holmes]

He definitely know a thing or two about arseholes.

[2020-12-21 19:42:49]

[Robert Garry]

Yeah - 8+ years later this exchange involving VR, and Martin Enserink didn't cover either of them in a lot of glory. Ron Fouchier via second hand quotes [who was most vocal that PO1 should not even mention lab origins] doesn't come off all that great either. <https://www.virology.ws/2012/07/10/origin-of-the-h5n1-storm/>

[2020-12-21 20:30:16]

[Robert Garry]

[thread - ID: 2020-12-21 16:20:31]

@Eddie Holmes "RALPHSDESIGNSLTD"

[2020-12-22 01:06:54]

[Eddie Holmes]

<https://www.krisp.org.za/publications.php?pubid=315>

[2020-12-22 01:50:54]

[Andrew Rambaut]

Yeah. Was on a call last night with Tulio. They don't really have any epi that it is spreading faster but it is spreading very fast.

[2020-12-22 05:54:06]

[Robert Garry]

The development of monoclonal antibody resistant mutants (MARMs) is an important clue that immune escape might be driving the emergence of the various Nellys and the elephant. K417, E484 and Q493 make the list of MARMs to various Regeneron MABs (see Table 2). The presence of Q493K on the list of MARMs suggests that in the Baric and Sun mouse passage experiments immune selection could have played a role in the emergence of the mouse pathogenic variant. <https://science.sciencemag.org/content/369/6506/1014>

[2020-12-22 06:10:51]

[Robert Garry]

Just noting that Q493K made the list of mutations discussed in channel above in the NEJM immunosuppressed patient who got the Regeneron MABs.

[2020-12-22 07:29:48]

[Robert Garry]

From Sun - Fig S8 Shows that N501Y comes up quick followed by Q493H. then K417N. [shared file(s): image.png]

[2020-12-22 07:40:53]

[Kristian Andersen]

Probably more 'immune' related than 'mouse' related?

[2020-12-22 07:48:13]

[Robert Garry]

Yeah - the fact these are epitopes to me strongly suggests immune selection - mouse or human. But I think that the particular substitution may depend on the species. Analysis coming...:sunglasses:

[2020-12-22 08:11:37]

[Robert Garry]

<https://jvi.asm.org/content/82/14/6984> Relevant paper: "They show that the major species barriers are determined by interactions between four ACE2 residues (residues 31, 35, 38, and 353) and two RBD residues (residues 479 and 487), that early civet SARS-CoV isolates were prevented from infecting human cells due to imbalanced salt bridges at the hydrophobic virus/receptor interface, and that SARS-CoV has evolved to gain sustained infectivity for human cells by eliminating unfavorable free charges at the interface through stepwise mutations at positions 479 and 487."

[2020-12-22 08:28:27]

[Robert Garry]

The equivalent amino acids to SC1 479 and 487 in terms of alignment to RBD appear to me to be 493 and 501, but I need to really take a closer look at ALL the structures.

[2020-12-22 08:52:09]

[Robert Garry]

Those are the same and it's the alignment in PO1.

[2020-12-22 08:54:51]

[Robert Garry]

SC1 479 and SC2 493 interact with ACE2 similarly - however SC1 487 and SC2 501 interactions with ACE2 are completely different... *Correction - not completely different - just different*

[2020-12-22 09:21:55]

[Robert Garry]

The pattern of prolines in SC1 and SC2 RBDs are distinct - look at PO1 - which creates a very different interaction with ACE2 - but we're seeing in real time the adaptation of SC2 to receptors in humans, minks and mice pretty much as you'd draw it up. The twist that it may be immune selection driving better receptor binding is not expected at least by me. Tuning up receptor binding affinity happened in SARS1 per the JVI paper above, but more subtle and [probably?] not an immune component there in 2002 and 2005.

[2020-12-22 09:38:33]

[Kristian Andersen]

Interesting difference between SC1 and SC2 is that it was pretty darn quick in the former - essentially happened right after the jump from intermediate hosts. Slower for SC2, but it's probably because it was pretty darn good at binding already.

[2020-12-22 10:33:47]

[Kristian Andersen]

[thread - ID: 2020-12-22 10:33:47]

Yeah, so this "We present evidence that the Spike H69/V70 is a fitness enhancing change that may be stabilising other S gene mutations" from Gupta's recent preprint is what worries me the most and I'm wondering if E484K (or N417K) could play a similar role in the SA lineage that H69/V70 is playing in the UK lineage. Add Nelly on top of that, and you might end up with what we're observing now.

[2020-12-22 10:33:57]

[Kristian Andersen]

<https://www.biorxiv.org/content/10.1101/2020.12.14.422555v3.full.pdf>

[2020-12-22 12:32:34]

[Robert Garry]

Compiling some of the RBD mutations in the mice, minks and humans and comparing to the "contact" residues in ACE2 of the three species. I need to double-check that I have all the mutations -there is also some disagreement or maybe it's just confusion I need to resolve on my part on the contact residues. For example: N501Y/T could interact with Y41 or K/H353 or both. Does not seem likely that the species adaptations falling onto the analogous residues is by chance, particularly when you superimpose the SARS1 civet to human story detailed in the JVI paper above. Bottom line is most but not all of the mutations are in residues that contact ACE2 and all are likely in epitopes, most but maybe not all neutralizing.

[2020-12-22 12:39:43]

[Robert Garry]

[thread - ID: 2020-12-22 10:33:47]

@Kristian Andersen I think that the P681H mutation potentially could also be "fitness enhancing" for the reasons discussed above. I'm thinking that E417N, E484K and perhaps S494P (but proline) are probably pure immune escape.

[2020-12-22 12:43:28]

[Kristian Andersen]

[thread - ID: 2020-12-22 10:33:47]

@Kristian Andersen But how the heck does the SA lineage get its 'transmission' phenotype then? If it has it, that is... It's N501Y, E484K, N417K

[2020-12-22 14:12:15]

[Robert Garry]

[thread - ID: 2020-12-22 10:33:47]

@Kristian Andersen D614G and N501Y may be enough?

[2020-12-22 14:14:12]

[Robert Garry]

N417K

[2020-12-22 14:18:26]

[Robert Garry]

[thread - ID: 2020-12-22 10:33:47]

@Kristian Andersen And since you corrected me -thx - the N417K could contribute to enhanced receptor binding. K binding better to D.

[2020-12-22 14:18:28]

[Robert Garry]

Actually it is K417N - so not likely to help with receptor binding.

[2020-12-22 14:40:26]

[Robert Garry]

[thread - ID: 2020-12-22 10:33:47]

@Kristian Andersen Wait - take the beer back it is actually K417N.

[2020-12-22 14:44:27]

[Robert Garry]

shared file(s): image.png

[2020-12-22 15:21:19]

[Robert Garry]

[thread - ID: 2020-12-22 10:33:47]

@Kristian Andersen Here making a big deal about K417 salt bridge to D30:
<https://www.pnas.org/content/117/25/13967>

[2020-12-22 17:55:37]

[Robert Garry]

However , Starr2020 says K417N actually increases binding so maybe a positive.

[2020-12-22 18:28:28]

[Eddie Holmes]

Thanks for doing all this chaps. I'll need to see if I can get my head around it all.

[2020-12-23 03:46:00]

[Robert Garry]

Cliff Notes version:

[2020-12-23 03:51:44]

[Robert Garry]

Two RBD residues (residues 479 and 487) had to mutate to enable civet SC1 (the 99+% virus) to jump to humans. These changes allow interaction with contact residues on human ACE2. JVI paper sums it nicely. This happened more than once with SC1.

[2020-12-23 03:53:32]

[Robert Garry]

The two SC1 residues are equivalent in how they interact with ACE2 to to SC2 RBD residues Q493 and N501.

[2020-12-23 03:58:37]

[Robert Garry]

Two interspecies transfers of SC2 have occurred. Human to mouse in the lab. Human to mink and back on the fur farms. Residues Q493 and N501 are also involved. N501Y enables replication of SC2 in mice; Q493H makes the mouse adapted SC2 pathogenic prob by increasing replication. A SC2 Q493K change can increase both replication and pathogenesis in mice.

[2020-12-23 04:04:37]

[Robert Garry]

Several different changes in SC2 to enable replication in mink. All involve changing the contact residues in RBD to enable better interaction with mink ACE2. One of the changes is N501T. I don't think mink NEED to change Q493 because their contact residues K33/Y34 are similar to human K33/H34.

[2020-12-23 04:08:31]

[Robert Garry]

Kristian asked why the change in SC1 was so fast - I think the answer is that civets are probably already sampling the mutational space of SC1 RBD residues 479 and 487 because these are important epitopes. If there are the right quasispecies with immune escape mutants in the civet that you picked for dinner these would be selected on your human ACE2.

[2020-12-23 04:14:36]

[Robert Garry]

This brings us to Nelly and her cousins. Humans with long term infections are also generating SC2 immune escape mutants. N501Y is likely one of those. It also has the selective advantage that it increases binding to ACE2. I think this is a strong aromatic:aromatic interaction between Spike 501Y and ACE2 41Y, but yeah would like to see that in a cryo structure from Andrew Ward.

[2020-12-23 04:15:50]

[Robert Garry]

In Andrew's virological post you see the selection of 501Y - it goes from partial (a quasi-species) to a fixed variant.

[2020-12-23 04:20:17]

[Robert Garry]

There are other mutations in the elephants that also involve RBD residues, including a Q493K mutant on the Mass patient SC2 that may be due to the fact that he was treated with Regeneron Mabs. The other RBD residues are either immune escape/enhanced ACE2 binders or both.

[2020-12-23 04:22:34]

[Robert Garry]

The other elephant mutations outside RBD including the dels in the NTD and the P681H near the FCS could indeed be enabling, enhancing replication in their own right or perhaps they are also immune escapes.

[2020-12-23 04:35:58]

[Robert Garry]

I think this is all relevant to PO2 - it's pretty clear that the changes in SC2 493 and 501 or SC1 479 and 487 enabled species jumps - per PO1 there are bat sarbecovs that have an SC2 N501 and we know these infect human cells. We know enough about the epitopes and MAb binding and escape to back up Andrew's point on virological that immune escape is driving the changes in the elephants - the problem happens when immune escape creates variants that are more transmissible or heaven forbid are vaccine resistant.

[2020-12-23 04:40:29]

[Robert Garry]

Finally to end my rant - let's not give Baric or Fouchier the idea of making SC1 N493Q + T487Y. That to me would be scary with the possibility of SC2 transmissibility and SC1 CFR.

[2020-12-23 04:46:04]

[Andrew Rambaut]

One more interesting observation:

Some of the South African variant viruses (possibly all of them - it seems their bioinformatics pipeline doesn't call deletions very well) have a deletion at sites 11288-11296 (amino acid 3675-3677 in ORF1ab - thus the in nsp6).

Exactly the same deletion is seen in the UK B.1.1.7 lineage. I don't know the significance of this. Any thoughts?

[2020-12-23 05:05:52]

[Robert Garry]

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7195303/> From this modeling NSP6 looks like a viroporin to me - would have to look at the exact deletion, but most viroporins are involved in virion entry and cytopathogenesis. Same wheelhouse as the RBD and FCS mutations.

[2020-12-23 05:21:04]

[Robert Garry]

Covs have other viroporins (E protein) that are virion associated, but NSP6 is likely remodeling cell membranes in some way to benefit virus replication.

[2020-12-23 05:22:06]

[Andrew Rambaut]

Mmm. So definitely could be associated with a change in virus behaviour. Cool

[2020-12-23 05:41:48]

[Robert Garry]

I'll map the deletion on the model, which is prob pretty accurate, when I get to the office after dropping off the dog. If it's in one of the loops would likely affect regulation and yes change virus behavior.

[2020-12-23 05:45:05]

[Andrew Rambaut]

Seems to crop up with a small bunch in Australia with spike S477N, and a few others here and there.

[2020-12-23 07:24:04]

[Kristian Andersen]

A lot of good stuff here Bob - thanks!

And for Nelly, maybe we're too focused on spike alone...

[2020-12-23 07:27:56]

[Robert Garry]

Right on cue - nonSpike protein nsp6 @Andrew Rambaut as predicted - the deletion is in a large external loop - very likely to impact nsp6 function or regulation!

[2020-12-23 07:28:58]

[Robert Garry]

shared file(s): image.png

[2020-12-23 07:36:34]

[Robert Garry]

TM domain 4 has the seemingly odd arginine. This is a sign of dimerization. That and the fact that the loop connects to this TM domain raises the suspicion these are part of the business/regulatory bits of the protein.

[2020-12-23 07:48:48]

[Robert Garry]

AS for S477N - it would not surprise me to find that it's a contact residue with ACE2 - the ACE2 structures lack the n terminus (blue arrow) so plenty of opportunity for interactions.

[2020-12-23 07:54:08]

[Robert Garry]

S477 [shared file(s): image.png]

[2020-12-23 14:32:40]

[Eddie Holmes]

Brilliant work Bob! @Andrew Rambaut let we know about the Australian ones and I'll see what I can find out.

[2020-12-23 16:32:31]

[Robert Garry]

Thanks Eddie - appreciated much...

[2020-12-23 16:39:58]

[Robert Garry]

Another point to throw out - "Baric or Fouchier making SC1 N493Q + T487Y is not my most serious concern. Perhaps even they would draw the line at that. However, nature is not so kind and I do believe that we need to act preemptively with additional CoV vaccines. IMO we need to follow-up the SC2 vaccine program with SC1 and MERS-CoV vaccines much sooner than later.

[2020-12-24 06:44:33]

[Robert Garry]

<https://www.nature.com/articles/s41576-018-0055-5> Great article from @Eddie Holmes - this is the figure that has me a bit concerned. [shared file(s): image.png]

[2020-12-24 08:21:01]

[Robert Garry]

Knowing what we know about the NEJM patent who was treated with Regeneron would you treat an immunocompromised SC2 shedding patient with Regeneron? Asking for a friend.

[2020-12-24 14:30:11]

[Andrew Rambaut]

Merry Christmas to the Idiot Pangoliars

[2020-12-25 10:12:33]

[Robert Garry]

<https://www.nature.com/articles/s41467-020-17367-2> Gentlemen - a third example of human SC2 adaptation to another species. "Two substitutions were detected in the consensus sequence of viruses collected from all ferrets as compared to the sequence of the original virus isolate: N501T and S686G, both in the spike protein." So WoW, the mink N501T plus the residue AFTER the FCS. More grist for PO2.

[2020-12-25 10:17:11]

[Robert Garry]

There may be a ferret N501Y mutations somewhere - looking...

[2020-12-26 09:44:50]

[Robert Garry]

<https://www.cnn.com/2020/12/24/us/acfc-virologist-nathan-wolfe/index.html> 2008 - something with Wolfe went terribly wrong right around this time...

[2020-12-26 09:54:29]

[Kristian Andersen]

Heh... Alternative title - "Former celebrity scientists said what everybody knew was true in 2008".

[2020-12-26 09:54:39]

[Kristian Andersen]

Speaking of scientists who lost the plot -

<https://www.youtube.com/watch?v=wC8ObD2W4Rk&feature=youtu.be>

[2020-12-26 14:49:23]

[Eddie Holmes]

I enjoyed this one though Kristian: [shared file(s): Screen Shot 2020-12-27 at 9.48.50 am.png]

[2020-12-26 14:49:41]

[Eddie Holmes]

Oh, it's time for prayer.

[2020-12-26 15:22:08]

[Kristian Andersen]

Oh man, that IS good. Eddie, we finally made it! (even if he misspelled my name - but I'm sure it must be me).

[2020-12-28 09:52:28]

[Robert Garry]

@Andrew Rambaut Another interesting addendum re the ferret transmission paper linked in channel above. Besides the N501T and FCS mutation from the aerosol transmission study was also L260F in nsp6 - yes, it's in the other large external loop so potentially regulatory. [shared file(s): image.png]

[2020-12-28 11:10:03]

[Robert Garry]

I guess the question of "epistasis" between RBD and FCS and/or nsp6 mutations arises, but in my mind is more likely that all enhance replication independently.

[2020-12-28 11:22:08]

[Robert Garry]

In addition the the three human SC2 to animal transfers noted (mice, mink, ferrets) there have also been well-documented human to cat :scream_cat: transfers and as well as it seems humans to dogs.

<https://www.nature.com/articles/s41421-020-00210-9> This has apparently been more newsworthy in China and there is this nice publication from G Gao of a crystal structure of SC2 spike with catACE2. The nucleotide and protein database in PubMed is not working well today :rage: for whatever reason, but of the few cat SC2 sequences it is said that there are not changes in the RBD of the SC2 in cats. This makes VERY good sense. The main contact residues for S: Q493 and N501, which seem to mediate species transfers, are identical in human and cat ACE2, H34, Y41/K353.

[2020-12-28 12:30:00]

[Robert Garry]

FWIW - the same story in dogs <https://www.nature.com/articles/s41586-020-2334-5> [not sure how I missed this one]. Both the cat and dog S sequences are 99% similar to Wu-1 S. The dog seq is identical except for D614G.

[2020-12-28 13:25:04]

[Robert Garry]

<https://www.biorxiv.org/content/10.1101/2020.11.16.384917v1.full.pdf> A little more about cats. Serial passage does select for a few variants: The ones that get fixed are S H655Y and E S67S. According to the authors: "S H655Y is near the polybasic cleavage site, residin between the receptor binding domain and the fusion peptide, and is thought to modulate Spike glycoprotein fusion efficiency 55,56,59 262 . E S67S has not been documented elsewhere." It's not that near the FCS, but I take the point...

[2020-12-28 14:05:59]

[Robert Garry]

Continuing my learning exercise for today. <https://academic.oup.com/cid/article/71/9/2428/5811871> Infection of hamsters occurs effectively, and there are moderate symptoms. I haven't found much sequence data except Spike in this paper. There was only one mutation in one "serial" [contact] animal. S H655Y just like in the serial cats in the previous example, which is probably not a coincidence. Hamsters have Q34 instead of H34, but have Y41/K353 like humans.

[2020-12-28 14:41:21]

[Robert Garry]

Tiger: <https://mra.asm.org/content/9/22/e00468-20> Identical in S to Wu-1 except D614G.

[2020-12-28 14:41:46]

[Eddie Holmes]

Tigers keep getting infected. Very interesting.

[2020-12-28 14:44:55]

[Eddie Holmes]

[thread - ID: 2020-12-28 14:44:55]

And here is a new data point for your consumption only - that Cambodian bat virus that mentioned in that Nature news piece without any info...closer than I expected: [shared file(s): data_fullgenome_aligned.fas.tree.pdf]

[2020-12-28 14:46:22]

[Eddie Holmes]

Bob - I was also involved in a cat study: [shared file(s): A household case evidences shorter shedding of SARS CoV 2 in naturally infected cats compared to their human owners.pdf]

[2020-12-28 14:46:40]

[Robert Garry]

Indeed - several zoos and various cats including leopards and lions.

[2020-12-28 14:50:27]

[Eddie Holmes]

I don't have the sequence for that Cambodian virus and I'll see I can get hold of the key bits of the spike protein. I was told it was 'quite divergent'.

[2020-12-28 14:50:52]

[Robert Garry]

[thread - ID: 2020-12-28 14:44:55]

@Eddie Holmes Oh that's very interesting! Will be interested to see Spike.

[2020-12-28 14:53:13]

[Eddie Holmes]

[thread - ID: 2020-12-28 14:44:55]

@Eddie Holmes I'll see what I can do...complex politics.

[2020-12-28 14:56:22]

[Robert Garry]

Thanks Eddie - @Kristian Andersen It suddenly occurs to me that the monkey passaged virus data might be interesting - weren't there changes in the spike?

[2020-12-28 15:14:52]

[Robert Garry]

The cats are very interesting as previously discussed here. Surely seems like they are getting infected pretty easily. In the zoos the cats are probably getting infected by the airborne route. People coughing and breathing into open cages? I suppose that the zookeepers could infecting them somehow, but there are not too many instances of people and these big cats together in very close quarters except under very controlled conditions [like a vet doing an exam]. As for origins, it does put a heavy spotlight back on the Feliforms.

[2020-12-28 16:00:53]

[Eddie Holmes]

If it is moving around zoos in an airborne manner then the infections in felids are even more striking as you would expect supposedly high risk animals like great apes also to be infected. Yet, it is consistently not apes and consistently is tigers.

[2020-12-28 16:41:57]

[Kristian Andersen]

[thread - ID: 2020-12-28 14:44:55]

@Eddie Holmes That `_is_` close - interesting...

[2020-12-28 16:43:14]

[Kristian Andersen]

@Robert Garry - not sure if there were changes in the passaged viruses - something to ask Mark when he's back (1/4 - same for the rest of the lab).

[2020-12-28 17:28:59]

[Eddie Holmes]

[thread - ID: 2020-12-28 14:44:55]

@Eddie Holmes And here's a simplot. There's clearly a region from ~8-18 Kb where it is about as close to SARS-CoV-2 as RaTG13... [shared file(s): SimPlot.bmp]

[2020-12-28 17:35:03]

[Kristian Andersen]

[thread - ID: 2020-12-28 14:44:55]

@Eddie Holmes Interesting stuff going on in ORF1 too

[2020-12-28 17:35:20]

[Eddie Holmes]

[thread - ID: 2020-12-28 14:44:55]

@Eddie Holmes Indeed.

[2020-12-28 17:36:09]

[Kristian Andersen]

[thread - ID: 2020-12-28 14:44:55]

@Eddie Holmes I hate coronaviruses - so many trees across different parts of the genome - clearly they're just shuffling shit around like they were bacteria. Pretty concerning.

[2020-12-28 17:47:21]

[Eddie Holmes]

[thread - ID: 2020-12-28 14:44:55]

@Eddie Holmes Yes, and trying to work out the exact history of recombination events is bloody difficult.

[2020-12-28 20:26:02]

[Robert Garry]

[thread - ID: 2020-12-28 14:44:55]

@Eddie Holmes Super interesting. Yeah 8-18K - Both similar to SC2, so PH and RatG13 must be very similar to each other in this region. Stick another nail in the coffin containing that rotting corpse alleging that RaTG13 is a made-up virus.

[2020-12-29 07:09:27]

[Kristian Andersen]

Frankie Bollocks is going all epi on the new variant with some great basic insights.

<https://twitter.com/ballouxfrancois/status/1343846180116193280?s=21>

[2020-12-29 07:11:43]

[Andrew Rambaut]

Along with: <https://twitter.com/BallouxFrancois/status/1343878143925493766?s=20>

[2020-12-29 07:12:00]

[Andrew Rambaut]

"Low powered test fails to discover something once again, shock"

[2020-12-29 07:17:37]

[Kristian Andersen]

I think maybe he's not very good with numbers.

[2020-12-29 09:23:35]

[Robert Garry]

More fun with cats.

[2020-12-29 09:24:17]

[Robert Garry]

```Denmark cats: 69-70 deletion plus Y454F RBD mutation seen in some mink. Do not know the relationship of the cats – maybe all the same cat or cat house.

Cat from Greece V1104L

Lion 3 and 4 Y505H RBD mutation, not present in Lion 2. Lion 2 Q616R mutation not seen in Lions 3, 4 A626I, Lion 2 A626T```

[2020-12-29 09:31:31]

**[Robert Garry]**

SC2 mostly makes the jump to house cats with no changes. However there are some interesting RDB mutations in some lions (Y505H) and the cat or cats from Denmark (Y454F). The lions also have mutations associated with Doug,

[2020-12-29 09:34:51]

**[Robert Garry]**

Alignments: [shared file(s): image.png]

[2020-12-29 09:35:39]

**[Kristian Andersen]**

Very little onward transmission in cats (presumably), so I wouldn't expect much evolution to happen. Compare that to a mink farm where the virus gets a chance to spread through a whole population of thousands of animals very quickly.

[2020-12-29 10:05:16]

**[Robert Garry]**

In uptown NOLA there are a lot of wild/street cats. Hundreds of cats hang out around the French quarter and the wharf. I think similar situations in some other countries as well. Certainly not the same intense situation as a mink farm, but I could see an opportunity for spread amongst the feral cats in NOLA - elsewhere dunno. That being said I agree that in the Danish cat [looking at the GSAID metadata seems that there is only one - all the same sequence] the 69/70 deletion and Y454F mutations were probably in this cat's human already - just not clear to me if as minor or major species. The alternative is selection after the species jump, but this seems less likely, but maybe that's just my bias. Lions in a zoo yes no onward transmission except to other lions. Clearly two different sequences in the three lions, which makes me think there might be some selection during the species jump or two independent transmissions. The latter seems less likely. Lions 3 and 4 sharing their virus.

[2020-12-29 10:24:17]

**[Robert Garry]**

It's a \*very\* important distinction you're making. SC1 from eating a civet - basically one step for the adaptor mutations. The dog and the house cats mostly no changes, with the exception of the Danish cat [go figure]. The serially passaged cats had some mutations fixed. The lab mice forced passage and it took several steps to get the adaptive mutations. However, not so much with the ferret transmission in the aerosol study above - this looks basically one step for get the RBD and FCS adaption. Maybe this is a good case of selection after limited replication in the animal. The Erasmus group is pretty sound so they probably would have sequenced their virus stock to a pretty good depth I would hope.

[2020-12-29 12:12:59]

**[Robert Garry]**

WELL - there's a dog with P681H hCoV-19/dog/USA/TX-TAMU-077/2020|EPI\_ISL\_699508|2020-07-28 and another with Q675H hCoV-19/dog/Italy/Dog399-20BA/2020|EPI\_ISL\_730652|2020-11-04.

[2020-12-29 14:26:16]

**[Robert Garry]**

[https://www.statnews.com/2020/12/29/public-health-experts-grow-frustrated-with-pace-o\[...\]&utm\\_medium=email&utm\\_term=0\\_8cab1d7961-ed09f05acc-151385277](https://www.statnews.com/2020/12/29/public-health-experts-grow-frustrated-with-pace-o[...]&utm_medium=email&utm_term=0_8cab1d7961-ed09f05acc-151385277)

[2020-12-29 23:00:55]

**[Eddie Holmes]**

<https://apnews.com/article/united-nations-coronavirus-pandemic-china-only-on-ap-bats-24fbadc58cee3a40bca2ddf7a14d2955>

[2020-12-30 00:48:22]

**[Andrew Rambaut]**

Best name ever for a scientist: `Dr. Supaporn Wacharapluesadee, a coronavirus expert`

[2020-12-30 03:25:44]

**[Eddie Holmes]**

<https://www.nytimes.com/2020/12/30/world/asia/china-coronavirus.html?action=click&module=Top%20Stories&pgtype=Homepage>

[2020-12-30 05:11:24]

**[Robert Garry]**

""There's so much speculation around the origins of this virus," Mazet said. "We need to step back...and let scientists get the real answer without the finger-pointing." I guess I must be freaking biased, but this strikes me the wrong way. The release of the Cambodian CoV is important for "origins." With long stretches of local high similarity to RaTG13 should put the Mojiang mine story on the back burner. Still think that the WHO and Lancet "investigations" are going to do more harm than good. This AP article is not changing my mind.

[2020-12-30 05:26:26]

**[Robert Garry]**

@Eddie Holmes I think the NYTimes story is good and it has one great part - talking about the release of the sequence on virological :+1::skin-tone-2: also for @Andrew Rambaut as well for heading the world's most influential virology "blog." What's "confusing" me is that Eddie is supposed to be a CCP running dog at least according to DRASTIC/Alina et al. I know that there has been other discussion about the seq release, but hope the NYT article further chips away at that notion that we're somehow under the influence of the CCP.

[2020-12-30 06:00:12]

**[Robert Garry]**

*[thread - ID: 2020-12-28 14:44:55]*

@Eddie Holmes Is the Simplot a GD pangolin? Seems like it should score higher than RaTG13 in part of the RBD.

[2020-12-30 06:36:31]

**[Robert Garry]**

Important paper IMO <https://www.biorxiv.org/content/10.1101/2020.12.28.424565v1>

[2020-12-30 12:24:54]

**[Eddie Holmes]**

@Robert Garry Completely agree with your comments about the AP article. The focus on Yunnan could be very misguided. And I don't know what Linfa was talking about - total nonsense.

[2020-12-30 14:56:56]

**[Robert Garry]**

I took the information from the channel on the SC2 spike mutations that arise on human-to-human passage and human-to-animal passage including serial passage in lab animals and put together this figure. First step was to make a Swiss model that fills in the gaps of the cryo structure. This is the complete sequence sans any disordered regions or FCS mutations. It's striking that there are so many examples of the very same mutations in the UK/South Africa variants showing up during transfers to different species. Seems to me that the mutations fall into FIVE



general classes, The ones that get the most attention and are likely key for interspecies transfer are of course the RBD mutations. There is strong evidence for immune selection in the RBD and in the N-terminal domain epitopes. The third hotspot for mutation is in and around the FCS. Whether or not this region is under immune selection is anyone's guess, but there is no doubt the region contributes to transmissibility. A fourth mutant class that is also likely to be under immune selection are what I've labeled the membrane proximal region [MPER]. There are some important MPER antibodies in HIV field, so these mutations could also be from immune selection. Finally, are the S2 mutations, which group naturally with Doug. I suspect that these S2 mutations are likely not epitopes (but it's possible). Rather I think that Doug and A82V before it from EBOV are teaching that the adjacent mutation in two of the lions Q613R, plus other mutations that look to be mostly in the metastable regions of S2 could influence refolding to the 6-helix bundle possibly affecting infection efficiency. Note - I'll change the human eventually to someone unlike @Covidfaker who actually was infected with SC2. [shared file(s): image.png]

[2020-12-30 15:09:28]

**[Robert Garry]**

Red spheres: the UK variant, Blue spheres: ZA variant, Magenta: both UK/ZA, Yellow spheres: animals.

[2020-12-30 15:30:58]

**[Andrew Rambaut]**

Now if you had just produced that in time to be your Christmas card

[2020-12-30 15:51:25]

**[Eddie Holmes]**

Fantastic.

[2020-12-30 15:52:41]

**[Eddie Holmes]**

For the Christmas card I would replace the alpha helices with strings of face masks.

[2020-12-30 15:53:58]

**[Robert Garry]**

And, change the color scheme to more reds and greens!

[2020-12-31 05:28:23]

**[Robert Garry]**

@Kristian Andersen seems to be all excited about a SC2 he sequenced from a San Diego patient. Still shocking for me to see the HRRARS variation. Seems it only knocks out 1/3 of the predicted O-linked sites: [shared file(s): image.png]

[2020-12-31 06:29:21]

**[Robert Garry]**

[thread - ID: 2020-12-28 14:44:55]

@Eddie Holmes It's the GD pangolin - there's that little bit in the RBD where the pangolin blue line is above the green RaTG13 line in Spike. Not as well resolved as in Lam2020, which threw me off, but I guess that's a window thing. Will be fascinating to see which bat CoV spike the new Cambodian CoV spike lines up with. Biggest deal still to me similarity with the RaTG13 in orf1b.

[2020-12-31 07:10:05]

**[Kristian Andersen]**

I'm not sure "excited" is the right word - "exhausted" might be more fitting :stuck\_out\_tongue\_winking\_eye:. I'm sure all the UK folks must be rolling their eyes - "seriously, the US goes nuts over A SINGLE SEQUENCE?! Really".

But yeah P681H is very interesting indeed - and yes, only knocks out one predicted site.

Separately, I don't know what to do about B.1.1.7. Surges in the US typically have  $R_t \sim 1.2$ , while declines are  $R_t \sim 0.8$ . It seems pretty clear that  $R_t$  for B.1.1.7 may be increased by roughly 50% (at least in whatever context it finds itself in in the UK) soooo :chart\_with\_upwards\_trend:

**[Andrew Rambaut]**

**[Andrew Rambaut]**

**[Kristian Andersen]**

**[Kristian Andersen]**

**[Robert Garry]**

**[Robert Garry]**

**[Kristian Andersen]**

**[Robert Garry]**

**[Eddie Holmes]**

**[Kristian Andersen]**

Eddie - you're not allowed to complain about 2020. Us in the crazy part of the world, however..... :face\_with\_symbol  
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[2020-12-31 15:54:49]

**[Eddie Holmes]**

What do you mean? We've really suffered:

[2020-12-31 15:55:58]

**[Eddie Holmes]**

shared file(s): Screen Shot 2021-01-01 at 10.55.40 am.png

[2020-12-31 15:57:37]

**[Kristian Andersen]**

I feel for you brother, I feel for you.

My deep sympathies. Truly.

[2020-12-31 15:58:21]

**[Eddie Holmes]**

It's been shit. You just can't get decent pesto.

[2021-01-02 09:06:26]

**[Kristian Andersen]**

What IS Frankie Bollocks talking about?

<https://twitter.com/BallouxFrancois/status/1345395237666119680?s=20>

[2021-01-02 09:55:16]

**[Kristian Andersen]**

I just don't understand this guy - <https://twitter.com/BallouxFrancois/status/1345425263702798336?s=20>. Or am I totally getting the basic phylogenetics wrong here? Because one of us are...

[2021-01-02 12:25:11]

**[Andrew Rambaut]**

He is just trying to squirm out of the hole he dug himself.

[2021-01-02 12:26:31]

**[Andrew Rambaut]**

Both lineages clearly do stand out. Sure there are a handful of individual sequences that stick out as much but I suspect most of these are from those immunocompromised patient papers like the one in NEJM

[2021-01-02 12:35:44]

**[Kristian Andersen]**

Sometimes it's so much easier to just say "shit, I was wrong", instead of proving that you're ignorant to basic phylogenetics and epi. It's a little shocking to be honest - I mean, the guy's been writing papers on this stuff...

[2021-01-02 12:37:00]

**[Kristian Andersen]**

Spoke to the Danes this morning and saw some additional data not yet public - essentially the same picture as the UK, so this looks to be real-real.

@Andrew Rambaut - they mentioned that the UK had tested the virus against convalescent plasma and there was \_no\_ effect on neutralization? I'm not quite sure that has actually been done yet - do you know?

[2021-01-02 12:41:06]

**[Andrew Rambaut]**

I have not heard the neutralization information yet - but I have been off the daily calls. I guess this was done in PHE Colindale so they may have talked to Denmark directly.

[2021-01-02 12:41:56]

**[Andrew Rambaut]**

Just been chatting with Mads and have offered to help them set up a simple BEAST run to estimate the growth rate for the initial stages. Might be a bit too little data just now.

[2021-01-02 12:42:47]

**[Andrew Rambaut]**

They clearly have one main lineage that is growing (and a handful of other introductions that are probably going nowhere).

[2021-01-02 12:57:56]

**[Kristian Andersen]**

Thanks Andrew - I suspect they might have talked to them directly, or they're just going with what Twitter is saying since people are confused...

It'd be great if the DK folks could get a little help setting up BEAST. I enquired this morning about their ability to use the genomics directly to estimate growth rates and they seemed very confused - I honestly don't think there's a single person in DK who knows how to run it. Amazing dataset though! Separately, I'm talking to Mads' boss, so I'll mention the need to use the genomics data more directly as well.

[2021-01-02 13:25:45]

**[Kristian Andersen]**

Btw - that NYT article is really really good! Haven't read the AP one...

[2021-01-02 13:38:49]

**[Eddie Holmes]**

Frankie is indeed a total twat. I can't stand to even think about him. Agree about the NYT article. I spent a lot of time talking to them. They've got loads of data from December and earlier. Clearly zero evidence for a lab escape and there was zero chat about it in China at the time. The WHO team are leaving this week. Seems to me it is going to be a complete waste of time because they are not going to talk to the key people. China is just going to push the 'it's not China' line.

[2021-01-02 13:47:38]

**[Kristian Andersen]**

Yeah, I think people who keep insisting that all this weirdness from China MUST be because it came from a lab just don't understand outbreak response - it's not, it's just politics and power play. We see this every damn time there's an outbreak - I'm sure @Robert Garry remember when he got his visa pulled for sniffing around too much... :wink:

[2021-01-02 13:48:30]

**[Kristian Andersen]**

Not ideal, by no means, but it's not exactly 'weird' or 'unusual' - it's just the typical bullshit.

[2021-01-02 14:02:24]

**[Eddie Holmes]**

Yes, in this case it is Xi Jinping pushing the 'it's not from China' line in an attempt to restore some domestic pride in China. I'm sure he's saying this to bolster his own popularity at home rather than for international politics.

[2021-01-02 17:50:46]

**[Robert Garry]**

The visa thing was pure @covidfaker/Nathan Wolfe bullshit. But yes it's difficult to understand the "outbreak culture."

[2021-01-02 17:51:40]

**[Robert Garry]**

Then there's this rehash of the DRASTIC/alina shit in the London tabloid: <https://www.dailymail.co.uk/news/article-9106985/amp/The-world-investigate-mounting-evidence-Covid-leaked-Wuhan-lab-writes-IAN-BIRRELL.html>

[2021-01-02 17:53:19]

**[Robert Garry]**

And, not sure how it will turn out but I think most of you know that David Quammen is writing some type of book...

[2021-01-02 17:55:08]

**[Robert Garry]**

One thing for sure an outbreak will make or break a lot of people. Count Alina, Frankie and Covidfaker in the broke category...

[2021-01-02 18:25:13]

**[Eddie Holmes]**

Jesus, will they ever shut up about the miners? Fuck me. Yes, I've spoked to David a few times. He's a good guy: his book will be all zoonoses. There are going to be a lot of books...

[2021-01-02 18:37:59]

**[Robert Garry]**

*[thread - ID: 2021-01-02 18:37:59]*

Hopefully, when the Cambobab CoV paper comes out it will provide an opportunity to driven another stake thru the heart of the miner/RaTG13 BS. Ed Yong is apparently on break, but there are a few other reporters with the chops to get that story correct.

[2021-01-02 18:38:00]

**[Eddie Holmes]**

@Robert Garry Eric Topol just tweeted about your Virological.org post so expect a lot of coverage! Outstanding piece of work.

[2021-01-02 18:38:31]

**[Eddie Holmes]**

*[thread - ID: 2021-01-02 18:37:59]*

@Robert Garry I'm pushing on this. A little tricky...

[2021-01-02 18:45:28]

**[Robert Garry]**

Thanks! @Kristian Andersen was right thou - just the kind of nerd "work" that makes me happy.

[2021-01-03 06:41:54]

**[Robert Garry]**

It's still not clear to me what the WHO team hopes to "investigate." Are they going to seize lab notebooks, go into hospitals and examine patient records, recover deleted files from computers? Not happening. They also not going to collect any samples or do any experiments. Are they going to simply try [and fail] to write a "better" version of PO1? It's no wonder the general public is confused, especially with politicians like Trump and reporting like The Mail. Another more mainstream example of reporting on the WHO team's Mission Impossible: [https://www.theaustralian.com.au/world/the-times/coronavirus-scientists-cast-doubt-on-who\[...\]gin-in-wuhan/news-story/973a5f1a0b0c460535ea012a254740c2](https://www.theaustralian.com.au/world/the-times/coronavirus-scientists-cast-doubt-on-who[...]gin-in-wuhan/news-story/973a5f1a0b0c460535ea012a254740c2)

[2021-01-03 08:36:11]

**[Robert Garry]**



:clown\_face::clown\_face::clown\_face::clown\_face: [shared file(s): image.png]

[2021-01-03 12:07:22]

**[Eddie Holmes]**

*[thread - ID: 2021-01-03 12:07:22]*

Send in the clowns!

[2021-01-03 14:18:17]

**[Kristian Andersen]**

Better.

<https://twitter.com/JeremyFarrar/status/1345821036709896196?s=20>

[2021-01-03 15:58:29]

**[Eddie Holmes]**

It's a never-ending amazement to see how completely bonkers some people are. This was the link in one of the replies to Jeremy's tweet: <https://www.fluoridefreepeel.ca/fois-reveal-that-health-science-institutions-around-the-world-have-no-record-of-sars-cov-2-isolation-purification/>

[2021-01-03 16:23:11]

**[Kristian Andersen]**

Why is it that the dumber people are, the more time they have to spend on the internet?

[2021-01-03 16:25:06]

**[Kristian Andersen]**

Also, more of this kind of bs. [shared file(s): Screen Shot 2021-01-03 at 4.23.33 PM.png]

[2021-01-03 16:46:19]

**[Eddie Holmes]**

Yes, I saw this in the Daily Mail: <https://www.dailymail.co.uk/news/article-9106951/Lab-leak-credible-source-corona-virus-outbreak-says-government-official.html> I wonder who this whistle blower is? Had better be more convincing than the last one.

[2021-01-03 16:55:51]

**[Eddie Holmes]**

Is this timed for the Georgia vote?

[2021-01-03 17:12:33]

**[Eddie Holmes]**

@Kristian Andersen I'd reply to that journo saying that you'd love to hear what this alleged whistleblower has to say and will comment afterwards.

[2021-01-03 17:17:07]

**[Robert Garry]**

*[thread - ID: 2021-01-03 12:07:22]*

@Eddie Holmes Also, please send the cock-heads and pangolying idiots!

[2021-01-03 17:37:16]

**[Eddie Holmes]**

*[thread - ID: 2021-01-03 12:07:22]*

@Eddie Holmes Can't beat those cock heads!

[2021-01-03 18:11:10]

**[Kristian Andersen]**

I forwarded to our comms office - I highly doubt there's an actual whistleblower. Just the typical bs



[2021-01-03 19:31:22]

**[Eddie Holmes]**

I completely agree. That's why I suggesting saying that we should comment after we've head the whistleblower's comments...could be a very long wait.

[2021-01-04 05:08:24]

**[Robert Garry]**

Slew of these articles are newly out there. Alina/DRASTIC have found a receptive audience. Now they are whining about not getting enough credit. Eddie is spot on that the Trumpers, Bannon, Fox AND the antiGMO news crowds are going to keep pushing this narrative. I'd say it's about 50-50 in the general public believing that CCP made the virus in the WIV lab. China's own clumsy pushback pours gas on the fire. Time for PO2? Perhaps with a timely perspective on "continuing" evolution.

[2021-01-04 05:17:54]

**[Robert Garry]**

<https://archive.is/SPPee#selection-827.0-827.171>

[2021-01-04 05:18:29]

**[Robert Garry]**

Frankie and Alina...

[2021-01-04 07:10:42]

**[Kristian Andersen]**

.... another one - haven't read it. <https://nymag.com/intelligencer/article/coronavirus-lab-escape-theory.html>

[2021-01-04 09:00:23]

**[Andrew Rambaut]**

Just sent to Bob and me (plus Christian Drosten, Trevor and Guy Hoelzer).

```Gentlemen,

It appears that the mutations in the spike protein that causes PCR failure for that part of the Taqpath assay will be found to have induced a PCR selection bias, and thus contributed to the spread of the virus without increased pathogenicity.

Specifically, there will be more false negatives in tests of people with any variant with new variation in the primer target sequences, especially the 8 variants Andrew reported in the spike protein coding region. The reported PCR probe failure in the S gene assures biased transmission of the virus since testing results in self-quarantine.

This seems necessarily so given the diagnostic interpretive algorithm in use with Taqpath, the '2 or greater' algorithm, any single probe failure due to mistargeting will increase the probability of a failed PCR test overall given the sum baseline rate of failure of both of the other two probes.

See p 104. <https://www.fda.gov/media/136112/download>

It should be straightforward and therefore I propose modeling and simulation to calculate the expected rate of test escape and selection due to mutations in any of the primer sites to distinguish pathogenic variants from those being selected by testing bias.

I expect the results will show that test kits will have to be updated to keep up with RNA virus evolution.

Free free to and please send any related material or draft analyses for friendly-fire review.

I'm also of course interested in any variation associated with severe COVID19 or long-haul COVID19.

I encourage working immunogenicity predictions into analyses interpretive of genetic variants as well. We can of course expect evolution away from the vaccine type and from the more immunogenic types, which likely will cause more severe COVID19 as well as evolution away from human aa sequences due to increased risk of pathogenic priming due to autoreactive antibody production. Given these vectors, a path of SARS-CoV-2 evolution might be mapped.

Please reply-all for the favor of broad illumination.

Also, should any of you care to discuss SARS-CoV-2 evolution on Unbreaking Science, contact

Sincerely,

James Lyons-Weiler

PS Re: origins: Check out HKU-3-3 - it appears to have SARS-CoV-2 -like functional motifs, but was published in 2005/ Baric downloaded it in 2008. Both the original report and his people thought it was SARS. See second report here HKU-3-3 is a SARS-CoV-2 precursor, at least from the perspective of the spike protein.
<http://ipaknowledge.org/covid-19-and-sars-cov-2-research.php>

Also available here

https://www.researchgate.net/publication/340769150_Motif_Pathogenicity_Typing_SARS-CoV-2_Coronavirus_May_Contain_a_Unique_Likely_Pathogenic_Protein_Motif_Signature_Also_Found_in_a_Natural_Isolate_from_2005

[2021-01-04 09:08:56]

[Robert Garry]

First Alina et al. The main problem is that this is antiscience. Stop don't do it? Really dangerous and ill informed. Crawling to caves is not the best way to trap bats. They need to fly out at dusk and feed. Mist nets near the entrance are a "safe" and effective way to catch the animals. [shared file(s): image.png]

[2021-01-04 09:14:44]

[Robert Garry]

JL-W makes an interesting hypothesis. However, PCR failures are prob not enough to account for whatever increased transmission is being seen, but potentially a factor. Modeling would probably be a good thing to do.

[2021-01-04 10:13:08]

[Kristian Andersen]

Ehm, James looks like an idiot to me, but maybe I'm missing something :wink: .

I assume none of these new origin articles actually present anything new? Just the same all speculation circulated - give me some _specific_ data or _specific_ testable hypotheses, and I'm happy to consider... Without that - fuck off.

[2021-01-04 10:38:03]

[Robert Garry]

I think James is mainly commenting about the need for new PCRs based on some pairs missing some of the variants - yes that's obvious - at some point the PCRs need to be updated and obviously there is a need to keep monitoring. Does missing one primer out of three account for increased transmissibility? - likely not at all, but pretty simple to disprove. I don't think James is in the Lab Origins camp. He thinks he's found a "motif" that might signal pathogenicity. That is indeed a goofball notion [pathogenicity of a virus is something no one really understands], but he does write in his missive that "None of the other coronaviruses analyzed had the pathogenic motif, making it potentially useful as a forensic fingerprint. The pathogenic motif was not found in any constructed or modified coronavirus associated with Dr. Shi; she is, in my scientific view, exonerated as far as available and trustworthy data can inform us."

[2021-01-04 10:45:00]

[Robert Garry]

"new origin articles actually present anything new" No not a thing - the "big" news is that NBC journalist that contacted you. One of Trump's minion's says he has a whistleblower? Bannon/Dr Yan copy cat or evidence for a limited Bannon playbook. Alina likes to criticize, but she carefully doesn't put out anything like "_specific_ data or _specific_ testable hypotheses." She is good at getting fringe reporters to work as her stenographer. At least Dr. Yan tried to do something scientific, which though laughable, was at least some data/hypothesis to be exposed for the pathetic nonsense that it is.

[2021-01-04 12:57:41]

[Eddie Holmes]

Yes, zero new here. Same old stuff. It's bunch of starving hyenas fighting over a few shitty bones. I think Linfa Wang is losing the plot. In that Times article he suggests that the serology results from Italy might be true - that's 14% seropositive in Rome in September 2019. Bonkers.

[2021-01-04 13:54:55]

[Robert Garry]

BTW - Pottinger has been the lead antiChina hawk from day one in the Trump Administration. He lived in China for many years and is married to a Chinese physician. As for the serology the positives are meaningless - you get cross-reactivity with seasonal coronaviruses, so %seropositive is simply a matter of where you place the cutoff. *Until you have sequence* from a sample anywhere before late 2019 you don't have anything except an opportunity to be foolish.

[2021-01-04 14:51:15]

[Eddie Holmes]

Totally agree Bob.

[2021-01-04 14:59:04]

[Robert Garry]

thanks Eddie - I'm getting very concerned where all this is going. For example the Lab leak hypothesis paper starts out: "Nevertheless, I think it's worth offering some historical context for our yearlong medical nightmare. We need to hear from the people who for years have contended that certain types of virus experimentation might lead to a disastrous pandemic like this one. And we need to stop hunting for new exotic diseases in the wild, shipping them back to laboratories, and hot-wiring their genomes to prove how dangerous to human life they might become."

[2021-01-04 15:00:28]

[Robert Garry]

This is very different than the message from a paper you'll all recognize: "So far, researchers have sampled little of the viral universe. Surveys of animals will undoubtedly result in the discovery of many thousands of new viruses. These data will benefit studies of diversity and evolution, and could tell us whether and why some pathogens might jump species boundaries more frequently than others. But, given the rarity of outbreaks and the complexity of host-pathogen interactions, it is arrogant to imagine that we could use such surveys to predict and mitigate the emergence of disease.

New viruses will continue to emerge unexpectedly. There is a lot we can and must do to be better prepared."

[2021-01-04 15:03:13]

[Robert Garry]

Seems to me it's really important to parse "Just STOP" from "do it better and smarter."

[2021-01-04 16:51:05]

[Kristian Andersen]

I'm glad Alina is such a great expert on so many important topics - whether it be lab leak detection or whether people should sample from bats or not. She literally has decades of highly relevant experience in this space.

[2021-01-04 16:52:31]

[Kristian Andersen]

A different start to that article could be "We're getting into contact with SARS-like coronaviruses all the time, and as we're encroaching on animal habitat, the risks of spillovers will continue to increase, SARS-CoV-1, SARS-CoV-2, and MERS-CoV being early warning signs of what to expect in future".

There, much better.

[2021-01-04 16:54:36]

[Andrew Rambaut]

Need to be especially careful about bat colliders

[2021-01-04 17:29:35]

[Robert Garry]

"We're getting into contact with SARS-like coronaviruses all the time, and as we're encroaching on animal habitat, the risks of spillovers will continue to increase, SARS-CoV-1, SARS-CoV-2, and MERS-CoV being early warning signs of what to expect in future". Seems right to me, but unfortunately we have the Daziaks and Wolfes of the world on one side saying just give us billions for GVP and we'll solve ALL this and the Ebirights, Relmans and other saying just STOP all this dangerous work. I am not hearing so much the sane third way and that's a problem since we live in a political world.

[2021-01-04 19:18:12]

[Kristian Andersen]

@Robert Garry - if I may - stole this from your email...

"Turns out that the 12 base pair insert that was selected after 6 Vero cell passages happens at the exact spot as one of the "lineage" defining mutations in the South African variant D215G."

Hmmmmm indeed. That is pretty interesting indeed. I mean, the risk of somebody infecting themselves with SC2 in culture is pretty darn huge. Would any of the other South Africa mutations be consistent with this? While the SA lineage has excess mutations, they don't really look "chronic intrahost" to me. Could this actually be a lab leak? Certainly wouldn't be the first time.

[2021-01-04 20:18:59]

[Eddie Holmes]

Can you imagine....

[2021-01-04 20:20:43]

[Kristian Andersen]

I'd love to be the one breaking _that_ news. But honestly - that is a very real possibility and I'm sure it must already have happened that somebody infected themselves with SARS-CoV-2 - just too much COVID going around (and it's about to get a lot worse).

[2021-01-04 21:04:29]

[Eddie Holmes]

Fuckity fuck indeed. Actually, would be great if you did it because it would show we are not biased against lab escape.

[2021-01-04 23:54:10]

[Andrew Rambaut]

If I got infected at work would that count as a lab escape?

[2021-01-05 01:03:42]

[Andrew Rambaut]

James thinks he is on to something that explains everything:
```Evolutionists in the know:

Australia, S Korea, China all use the Beijing test - no spike protein per their protocol?  
<https://www.health.gov.au/sites/default/files/documents/2020/06/post-market-validation-of-the-beijing-genomics-institute-bgi-sars-cov-2-real-time-pcr-platform.pdf>

If so, that might explain the discrepancies... concluding that "we never could have gotten our arms around this because variants" will not fly.

"Not knowing enough to exclude primer sites that are evolutionarily labile" - yes, I'd buy that.

IF Oz, S. Korea & China all used conserved primer target sites and other nations did not, it's a disgrace.

CDC boasts on their website that they controlled SARS w/accurate testing and contact tracing.

We still have no viable reliable testing program???"

[2021-01-05 01:07:35]

**[Andrew Rambaut]**

The UK uses lots of tests with different targets. No sign of any issues other than the S gene dropout due to 69-70

[2021-01-05 01:08:42]

**[Andrew Rambaut]**

And the positive rate has been rising as the S drop-out rate has been rising

[2021-01-05 03:39:35]

**[Robert Garry]**

"I'd love to be the one breaking \_that\_ news." I agree with Eddie and Andrew, I think you should be breaking the news, too. We need to report the 12 base insertion in cell culture - need to look to see if it's in or - like the PRRA - out of frame. The cell culture indels have all been deletions around the FCS afaik and Brandon's vero passage did some of those as well.

[2021-01-05 03:58:25]

**[Robert Garry]**

Oh James - only took two emails to go from "maybe a point" to off the deep end. Simply reveals - yet again - that my idiot-radar is not so good. It's how I ended up with @Covidfaker and "A Lina" in my lab.

[2021-01-05 04:11:41]

**[Robert Garry]**

Had to go back and reread PO1. "3. Selection during passage" IS actually the third choice. Just sayin'.

[2021-01-05 04:29:03]

**[Robert Garry]**

*[thread - ID: 2021-01-05 04:29:03]*

And, Baker's article is dangerous not fantastic. Calling for a halt in bat trapping as Baker and Alina have done is really really stupid. We definitely must figure out the range of natural diversity in betacoronaviruses and that is going to have to involve scientists going out and trapping bats. [shared file(s): image.png]

[2021-01-05 05:01:22]

**[Robert Garry]**

Bloom lab killing it: <https://www.biorxiv.org/content/10.1101/2020.12.31.425021v1.full.pdf>

[2021-01-05 07:13:45]

**[Kristian Andersen]**

I was waiting for something like this - great stuff.

That said, since Jesse has obviously had this data for a while I'm a little surprised he's come out so hard saying that none of the lineage mutations should affect immunity / vaccines and that escape would take years. I wouldn't say his data is very reassuring in that regard. (although I fully agree it isn't like they're not going to work at all - but pretty minimal hits to effectiveness can have big consequences).

[2021-01-05 08:19:34]

**[Robert Garry]**

Yes - will be important to repeat what Jesse has done with plasma from vaccinees and to put some of the mutations in the RBD in combination.

[2021-01-05 08:33:37]

**[Robert Garry]**

BTW the 12 base pair insert in passage 6 appears to be in-frame.

[2021-01-05 15:24:39]

**[Eddie Holmes]**

I agree Kristian - great work, but I'm not hugely reassured at all. I suspect there will be more data coming from the UK soon.

[2021-01-05 15:24:56]

**[Eddie Holmes]**

*[thread - ID: 2021-01-05 04:29:03]*

@Robert Garry Really, really stupid...

[2021-01-05 16:13:34]

**[Robert Garry]**

I know it's obvious but the problem comes when you start stacking up the mutations. 1. This is a pathogen that puts >20 glycans per monomer. There aren't going to be that many protective epitopes. So knock out 1, 2 or 3 and yeah the efficacy of any vaccine is going to take a hit. Knock efficacy below 50% and herd immunity is a long slow crawl. 2. I also agree with @Kristian Andersen that looking at the Christmas card several of the mutations maybe are just kicking up fitness. The fact that the same site in a ZA variant was targeted for an insertion *\_in vitro\_* [e.g. no immune selection] D215G is bothersome. The FCS is already there.

[2021-01-05 16:18:39]

**[Robert Garry]**

I been looking but can find any examples of insertions in cell culture or in humans. Maybe I don't know how to look. Several in-frame deletions of course. I think this justifies putting out the insertion at 215 at least in a virological post....

[2021-01-05 17:44:08]

**[Kristian Andersen]**

@Robert Garry - Karthik and AI are looking at all the T/C data from GISAID right now and comparing to the SA lineage. They might ping you...

[2021-01-05 22:52:49]

**[Kristian Andersen]**

<https://twitter.com/Rossana38510044/status/1346687589647081473?s=20>

[2021-01-05 23:08:40]

**[Eddie Holmes]**

I saw. No idea what subsequent work he is talking about.

[2021-01-05 23:43:17]

**[Eddie Holmes]**

Glad Jessie agrees that RaTG13 is not the direct ancestor. That's a very important point that rules out most of the conspiracy theories. He suggests there's another unsequenced virus that's the source of SARS-CoV-2. Obviously impossible to rule that out, but Shi sequenced RaTG13 years ago in the guise of RaTG13 in the guise of BtCoV/4991. Why wouldn't Shi have published the sequences of any viruses from that cave at that earlier time? Why only BtCoV/4991 which then later turns out to be the closest relative? And if these unsequenced viruses that are true of cause SARS-CoV-2 exist in the WIV then they also exist in far less regulated environments in caves in Yunnan province.

[2021-01-06 07:23:21]

**[Robert Garry]**

*[thread - ID: 2021-01-06 07:23:21]*

This sums it up perfectly Eddie. You really have to go full-on into the DRASTIC bizarro scenario that WIV in fact did have the 99+% virus and somehow they knew that it was or could become an ideal human pathogen. What possible reason could Shi have for covering up the existence of a closer SARS-CoV than RaTG13? You have to believe that they were tuning this particular virus up by passaging in cell culture and/or inserting the FCS, when they inadvertently released it on the world through a lab accident. To cover this up Shi then fabricated RaTG13 (96%)

virus as a distraction from their ill-considered GOF research on the 99+% virus. Maybe Pottinger's whistleblower will confirm this theory, but I look forward to Trump introducing us to the space aliens prior to that. Instead what Shi did when she sequenced SARS-CoV-2 was to find that yes the lab had sequenced RaTG13 in 2018 and it was the closest match so she put it in the Nature paper, which was a perfectly reasonable thing to do. I think you could come up with a lot of reasons other than Shi was covering up the greatest lab release in history by not publishing the RaTG13 sequence in 2018-19.

[2021-01-06 07:34:52]

**[Kristian Andersen]**

I like this guy... [shared file(s): Screen Shot 2021-01-06 at 7.34.29 AM.png]

[2021-01-06 12:01:05]

**[Eddie Holmes]**

*[thread - ID: 2021-01-06 07:23:21]*

@Robert Garry Exactly. You just need to think it through a bit and then it collapses.

[2021-01-06 17:51:40]

**[Eddie Holmes]**

US news is small fry. This is the real stuff: <https://www.theguardian.com/australia-news/2021/jan/06/naked-fugitive-found-in-crocodile-infested-waters-near-darwin-charged-with-fresh-offences>

[2021-01-06 19:37:00]

**[Robert Garry]**

It's going to take years to overcome the damage Trump has wrought. We can come back, but it's going to be long haul.

[2021-01-06 19:51:21]

**[Eddie Holmes]**

Appalling and predictable at the same time.

[2021-01-06 20:35:37]

**[Kristian Andersen]**

Eddie, what the heck did I just read? :no\_mouth:

Then again, my people aren't doing much better. [https://www.theguardian.com/world/2021/jan/06/john-dillermann-d-enmark-launches-children-AR3gad7PZErGbxoD1q\\_BPcDxZXhj-JdRiql4rqvdXRopyzRjV8iwYtcEJcU](https://www.theguardian.com/world/2021/jan/06/john-dillermann-d-enmark-launches-children-AR3gad7PZErGbxoD1q_BPcDxZXhj-JdRiql4rqvdXRopyzRjV8iwYtcEJcU)

[2021-01-06 21:18:26]

**[Eddie Holmes]**

Wow. That is one useful member.

[2021-01-07 05:00:03]

**[Robert Garry]**

I think they are ripping off Love Sausage of "The Boys," but what the heck. Anything for the kids. <https://www.digitalspy.com/tv/ustv/a34111138/the-boys-penis-nudity-season-2/>

[2021-01-07 08:11:33]

**[Robert Garry]**

<https://www.reuters.com/article/us-usa-election-resignations-idUSKBN29C0C9>

[2021-01-07 08:35:07]

**[Kristian Andersen]**

Hah

[2021-01-07 10:07:00]

**[Robert Garry]**



Kristian was calling for this long ago - time has come.

<https://www.nytimes.com/2021/01/07/opinion/trump-25th-amendment-impeachment.html>. Impeachment and a lifetime ban from office also a good idea <https://metro.co.uk/2021/01/06/us-representatives-draw-up-plans-to-impeach-and-oust-donald-trump-after-us-capitol-riots-13861561/>

[2021-01-07 10:39:41]

**[Kristian Andersen]**

Reassuring to know he's got the nuclear codes.

[2021-01-07 11:23:25]

**[Andrew Rambaut]**

I bet Pence is not adverse to the idea of being Prez for a couple of weeks. Come out looking a little bit sane. Make a graceful handover.

[2021-01-07 11:24:12]

**[Andrew Rambaut]**

When do the new Senators take their seats?

[2021-01-07 11:26:24]

**[Kristian Andersen]**

Imagine that - Pence being the sane guy...

I suspect he might already be in charge - I'm somewhat hopeful that they have made it clear to Trump that if he makes any of his crazy moves, they'll immediately invoke the 25th. We'll see - I don't exactly have a lot of trust in the system...

[2021-01-07 11:33:09]

**[Andrew Rambaut]**

He could get to be President 46 and be called Mr President for the rest of his life

[2021-01-07 11:34:05]

**[Andrew Rambaut]**

He doesn't need the support of trump nutters for any future presidential bid (he must realise he is not going to get anywhere with that).

[2021-01-07 11:34:09]

**[Kristian Andersen]**

I'd take it

[2021-01-07 11:34:17]

**[Andrew Rambaut]**

I would do it in a shot.

[2021-01-07 11:34:21]

**[Robert Garry]**

Harris has to be sworn in on Jan 20 before Dems will have the majority. Just heard that Elaine Cho, who is Mitch's wife just resigned. That's either a sign they are going to go with the 25th or a sign against depending on which way you think Cho might have weighed in. Trust me Trump is weighing some even more crazy shit.

[2021-01-07 11:34:26]

**[Kristian Andersen]**

(actually, I wouldn't)

[2021-01-07 11:36:27]

**[Kristian Andersen]**

“Trust me Trump is weighing some even more crazy shit”. Great, thanks Bob - not only am I completely freaked out by B.1.1.7, now I’m worried about a war with Iran... :wink: (and I trust you have sources to make that statement...).

There’s no question he’s gotta go - 100%.

[2021-01-07 11:37:45]

**[Andrew Rambaut]**

*[thread - ID: 2021-01-07 11:37:45]*

Off the record (although you can find them on GISAID) we now have two independent instances of E484K on top of the B.1.1.7 constellation

[2021-01-07 11:38:46]

**[Robert Garry]**

This is trumps cabinet. It takes 8 to invoke the 25th unless another one resigns. Not sure that I see 8 sane names on the list. Secretary of Agriculture Sonny Perdue  
Acting Attorney General Jeffrey Rosen  
Director of the Central Intelligence Agency Gina Haspel  
Secretary of Commerce Wilbur L. Ross, Jr.  
Acting Secretary of Defense Christopher C. Miller  
Secretary of Education Elisabeth Prince DeVos  
Secretary of Energy Dan Brouillette  
Administrator of the Environmental Protection Agency Andrew Wheeler  
Secretary of Health and Human Services Alex Azar  
Acting Secretary of Homeland Security Chad Wolf  
Secretary of Housing and Urban Development Benjamin S. Carson, Sr.  
Secretary of the Interior David Bernhardt  
Secretary of Labor Eugene Scalia  
Director of the Office of Management and Budget Russ Vought  
Director of National Intelligence John Ratcliffe  
Administrator of the Small Business Administration Jovita Carranza  
Secretary of State Mike Pompeo  
Secretary of Transportation Elaine L. Chao  
Secretary of the Treasury Steven T. Mnuchin  
U.S. Trade Representative Robert Lighthizer  
Secretary of Veterans Affairs Robert Wilkie  
Vice President Michael R. Pence  
White House Chief of Staff Mark Meadows

[2021-01-07 11:39:31]

**[Kristian Andersen]**

Congress can do as well, right?

[2021-01-07 11:40:03]

**[Robert Garry]**

*[thread - ID: 2021-01-07 11:37:45]*

@Andrew Rambaut That's not good for all the reasons discussed...

[2021-01-07 11:40:14]

**[Andrew Rambaut]**

Pence could then give them all pardons

[2021-01-07 11:40:23]

**[Kristian Andersen]**

*[thread - ID: 2021-01-07 11:37:45]*

@Andrew Rambaut Shit. Good to know. I don’t know what the heck is happening with this virus at the moment - it was pretty quiet evolutionarily speaking for a while...

ANY data from neut studies?

[2021-01-07 11:40:38]

**[Andrew Rambaut]**

Obviously Trump could offer them that not to too

[2021-01-07 11:40:59]

**[Andrew Rambaut]**

Mad

[2021-01-07 11:41:09]

**[Kristian Andersen]**

:100:

[2021-01-07 11:41:27]

**[Andrew Rambaut]**

*[thread - ID: 2021-01-07 11:37:45]*

@Andrew Rambaut Not yet but close.

[2021-01-07 11:42:13]

**[Kristian Andersen]**

*[thread - ID: 2021-01-07 11:37:45]*

@Andrew Rambaut Okay, good - I really would like to see that data. I'm freaked out enough as it is, just wondering if I need to take that and 2x...

[2021-01-07 11:42:37]

**[Andrew Rambaut]**

*[thread - ID: 2021-01-07 11:37:45]*

@Andrew Rambaut There have been quite a few spontaneous E484Ks over the months so it may just be coincidence. I have heard a bit about the cases and there is nothing particular about them.

[2021-01-07 11:43:10]

**[Kristian Andersen]**

*[thread - ID: 2021-01-07 11:37:45]*

@Andrew Rambaut I doubt it'll add to the transmission phenotype - but I'm certainly not reassured by Jesse's study yesterday

[2021-01-07 11:43:20]

**[Andrew Rambaut]**

*[thread - ID: 2021-01-07 11:37:45]*

@Andrew Rambaut By the way - E484K is called 'Erik' in our terminology but I think it probably should be 'Eeek'

[2021-01-07 11:43:44]

**[Kristian Andersen]**

*[thread - ID: 2021-01-07 11:37:45]*

@Andrew Rambaut Haha, I like Eeek - definitely has to be Eeek!

[2021-01-07 11:44:30]

**[Robert Garry]**

Yes Congress could do it, but Mitch would have to agree.

[2021-01-07 11:45:47]

**[Andrew Rambaut]**

Interesting to speculate what his move would be - would he imagine another republican in the trump mould for 2024? In which case he would want to keep the nutters on side

[2021-01-07 11:46:39]

**[Andrew Rambaut]**

If he agrees to impeach then it would signal the trump project is dead

[2021-01-07 11:47:15]

**[Andrew Rambaut]**

My money would be on keeping the options open and not doing anything for 2 weeks

[2021-01-07 11:48:36]

**[Robert Garry]**

*[thread - ID: 2021-01-07 11:48:36]*

Hawley and Cruz are making the big try the Trump base.

[2021-01-07 11:49:12]

**[Kristian Andersen]**

"My money would be on keeping the options open and not doing anything for 2 weeks" - I'm worried this is how it's going to go as well - American Inaction. It's a thing.

I think Mitch would sign on.

[2021-01-07 11:50:31]

**[Andrew Rambaut]**

*[thread - ID: 2021-01-07 11:48:36]*

@Robert Garry Yes so it depends if Mitch thinks they are viable

[2021-01-07 11:57:52]

**[Robert Garry]**

Meanwhile - Mission Impossible to China still lacking it's Tom Cruise [https://www.washingtonpost.com/world/asia\\_pacific/coronavirus-china-wuhan-who-visit/2021/01/06/f880d41c-48bf-11eb-97b6-4eb9f72ff46b\\_story.html](https://www.washingtonpost.com/world/asia_pacific/coronavirus-china-wuhan-who-visit/2021/01/06/f880d41c-48bf-11eb-97b6-4eb9f72ff46b_story.html)

[2021-01-07 12:00:41]

**[Kristian Andersen]**

Wait - they haven't already found the answers to all their questions? I thought this mission would be easy peasy.

[2021-01-07 12:02:16]

**[Andrew Rambaut]**

*[thread - ID: 2021-01-07 11:48:36]*

@Robert Garry Amazing how much power resides in one person and how the power is mainly through control of a diary.

[2021-01-07 12:41:28]

**[Robert Garry]**

*[thread - ID: 2021-01-07 11:37:45]*

@Andrew Rambaut Someone needs to take some combo of Doug, Nelly and Erik and probably a few other siblings and make vaccines and monoclonals that work against them.

[2021-01-07 12:48:28]

**[Kristian Andersen]**

*[thread - ID: 2021-01-07 11:37:45]*

@Andrew Rambaut I assume - bloody hope! - Pfizer and Moderna already have these cloned and in animals...

[2021-01-07 12:59:09]

**[Robert Garry]**

*[thread - ID: 2021-01-07 11:37:45]*

@Andrew Rambaut I know, but current consensus [Bloom, Rasmussen, even Fauci but he's always cagey] is that the existing vaccines will induce "polyclonal" immunity that will protect against viruses with just a few mutations. I would say that was true, BUT Nelly and Erik sure look like immune escape variants not to mention K417N and the NTD mutants. IMO not too soon to start tuning up v2 of those vaccines. I would not assume this has started.

[2021-01-07 13:02:42]

**[Kristian Andersen]**

[thread - ID: 2021-01-07 11:37:45]

@Andrew Rambaut I hope they're correct that the vaccines will work just fine - I'm certainly less confident making such statements and unwilling to speculate until I have seen some of the UK neut data.

[2021-01-07 14:14:28]

**[Andrew Rambaut]**

[thread - ID: 2021-01-07 11:37:45]

@Andrew Rambaut I just hope the regulatory frameworks are in place to change the source spike sequences quickly and easily.

[2021-01-07 14:16:57]

**[Robert Garry]**

[thread - ID: 2021-01-07 11:37:45]

@Andrew Rambaut That's the sound of the hammer hitting the nail on the head.

[2021-01-07 15:51:10]

**[Eddie Holmes]**

[thread - ID: 2021-01-07 11:37:45]

@Andrew Rambaut Evolution is a pain in the arse.

[2021-01-07 16:16:27]

**[Robert Garry]**

[thread - ID: 2021-01-07 11:37:45]

@Andrew Rambaut Yeah - truly. At this point it's literally a guess as to what to change the spike to in v2.0 vaccines. Does E484K induce a good immune response against E484 viruses or is Erik a total escape from the human repertoire[s]? I doubt it, but who knows. Need to get some plasma from people that have been infected with the UK and ZA variants to see if they actually recognize the putative epitopes are not.

[2021-01-07 16:29:54]

**[Andrew Rambaut]**

[thread - ID: 2021-01-07 11:37:45]

@Andrew Rambaut Plenty of that plasma around at the moment in the UK

[2021-01-07 17:05:53]

**[Kristian Andersen]**

[thread - ID: 2021-01-07 11:37:45]

@Andrew Rambaut "Does E484K induce a good immune response against E484 viruses or is Erik a total escape from the human repertoire[s]? I doubt it, but who knows". I was wondering about this very same question yesterday... I assume an updated spike protein should likely do it, but as you say, who knows (if it's not, I'm going to shoot myself).

[2021-01-07 18:23:35]

**[Robert Garry]**

Some good points - other points [?] <https://science.sciencemag.org/content/371/6525/120>

[2021-01-07 18:27:56]

**[Robert Garry]**

If the 99% SC2 is a fish virus that came in to Wuhan on packaged seafood, I'll be rather shocked. But, what do I know? Eddie is the undisputed master of fish viruses.

[2021-01-07 18:32:13]

**[Kristian Andersen]**

Yeah, I found the article a little strange and unclear

[2021-01-07 19:01:48]

**[Eddie Holmes]**

Oh dear. Mammalian coronaviruses are respiratory transmitted. That must be the greatest risk. The fish coronaviruses are phylogenetically distinct. So, this effectively suggests that there was some frozen mammal meat at the market. Surely BS. I think that Shi is being made to tow the party line here. Useless.

[2021-01-07 19:14:05]

**[Eddie Holmes]**

Also, didn't they detect the virus on lots of environmental samples from surfaces in the market? I don't think you'd expect this from an imported packet of frozen pangolin.

[2021-01-07 19:39:48]

**[Robert Garry]**

Agree! Lot's of the rest of the diagram make my head hurt as well...

[2021-01-08 00:42:38]

**[Eddie Holmes]**

Gotta love Denmark: [shared file(s): IMG\_2328.jpeg]

[2021-01-08 04:45:25]

**[Robert Garry]**

This will be the defining event\* of the trump presidency, unless he figures out something even more stupid in the next 12 days. Each of the Lego clowns should be ided, arrested, convicted and locked up for decades or longer. Big question is what happens legally to the ring leaders of the insurrection trump jr, rudie, hawley, cruz and of course trump himself. 5 people died, 14 other police officers injured, bombs were set. Denmark and the rest of the world is watching - adults in charge need to act. \*though some will argue that the mishandling of COVID with the death toll in the 100Ks might edge this out.

[2021-01-08 05:00:14]

**[Robert Garry]**

Not too surprising a response from Alina and the DRASTIC krewe. I too doubt Shi actually believes this nonsense and it's troubling to see her used either as a willing or unwilling tool. OTOH I would like to see Alina actually write her hypothesis [as mentioned she's good at flinging shit at PO and it's authors and getting PR]- my prediction is that the Chan Report will be a 9 on the loony scale where the Yan reports are a 10. [shared file(s): image.png]

[2021-01-08 07:34:12]

**[Robert Garry]**

[https://www.globenewswire.com/news-release/2021/01/08/2155442/0/en/An-In-Vitro-Study-Sh\[...\]-ation-Associated-with-Rapid-Transmission.html?source=email](https://www.globenewswire.com/news-release/2021/01/08/2155442/0/en/An-In-Vitro-Study-Sh[...]-ation-Associated-with-Rapid-Transmission.html?source=email) Good to see but unfortunately Nelly is not the most concerning....

[2021-01-08 07:41:01]

**[Kristian Andersen]**

Pretty much a useless study IMO - I don't think anybody had concerns about Nelly when it comes to immunity. It's all the other mutations...

[2021-01-08 07:57:04]

**[Robert Garry]**

Yeah - very disappointing. When I see a good response to all of the B.1.1.7 mutations and plus the B.351 [including Erik] mutations then I'll say no need for a v2.0.

[2021-01-08 08:05:03]

**[Kristian Andersen]**

Gotta say though - I called it on Nelly a while back... :man\_in\_business\_suit\_levitating:(although I'm still very surprised by the magnitude of the effect seen in B.1.1.7). [shared file(s): Screen Shot 2021-01-08 at 8.03.38 AM.png]

[2021-01-08 12:59:19]

**[Eddie Holmes]**

You did. I think the message of the article holds up - mutations are gonna happen, get over it - but I think the title might need some revision ("we shouldn't worry about most mutations, but some will be a fucking pain"). At least virulence hasn't changed.

[2021-01-08 13:02:34]

**[Eddie Holmes]**

John Sudworth from the BBC wrote to me about that crap Science paper...I agreed that it was just CCP propaganda.

[2021-01-08 13:14:39]

**[Andrew Rambaut]**

<https://edition.cnn.com/2021/01/08/politics/white-house-coronavirus-task-force-reports/index.html>

Is this bollocks?

[2021-01-08 13:20:18]

**[Eddie Holmes]**

My thoughts exactly. Avert blame by saying it's a super-spreading strain and there's nothing you can do.

[2021-01-08 13:42:19]

**[Kristian Andersen]**

Wild discussions about this currently - I think it's bollocks. I can't see any single lineage (in the tree) driving enough transmission in the US to explain current surges. Then again, we don't exactly have COG-US...

[2021-01-08 14:03:37]

**[Robert Garry]**

Probably good to point out that SC2 is damn good at super-spreading already. Plus the fact that air travel within the us over thanksgiving and christmas was still about half what it was last year - plenty of fuel for the surge.

<https://www.foxbusiness.com/lifestyle/us-air-travel-highest-level-since-march>

[2021-01-09 04:52:10]

**[Andrew Rambaut]**

A few genomes just went up on GISAID: [shared file(s): image.png]

[2021-01-09 04:52:23]

**[Andrew Rambaut]**

This one has both Eek and Pooh

[2021-01-09 04:52:35]

**[Andrew Rambaut]**

(E484K, P681H)

[2021-01-09 06:35:27]

**[Robert Garry]**

Interesting (from Hopkins -sidenote daughter ██████ whose finishing up her doctorate there just got the second dose of Pfizer - fever muscle aches not pleasant).

[2021-01-09 07:02:38]

**[Robert Garry]**



Just a reminder [to self] that in terms of Eeek and Pooh :clap: E484K is very likely a product of immune escape at some point in the transmission chain - one if not the dominant neutralizing epitope. It does not appear to interact with ACE2 directly [but all protein structures are models and all models are wrong]. Pooh - deserves a second:wave: round - appears to be an upgrade at the FCS. As the paper cited below summarizes the FCS is actually influenced a lot by the flanking residues on either side. H being a positive charge in the P5 position is an upgrade to the furin site from P. <https://journals.sagepub.com/doi/full/10.4137/BCI.S2049>

[2021-01-09 07:06:55]

**[Robert Garry]**

Also worth noting that the upstream residues QTQTN that Andrew et al and others have shown are often deleted in cell culture (SC2 doesn't need a FCS in culture apparently) are pretty much a PERFECT upstream context sequence for optimal FCS cleavage being small and hydrophilic amino acids. @Kristian Andersen maybe Karthik could look but I think this deletion or something like it showed up as a minor species showed up in the Vero passage that Brandon did. QTQTN is present in GD pangolin and RaTG13, but not SC1.

[2021-01-09 07:25:56]

**[Andrew Rambaut]**

We have also seen an odd import (possibly from Uganda - but quite possibly with an intermediate location) that has P681R so making the FCS RRRK - any thoughts on that? Interestingly it also has V367F & Q613H (but not 614G - it is in lineage A). A small cluster, possibly growing.

[2021-01-09 07:39:57]

**[Robert Garry]**

Interesting - P681R would make the FCS RRRAR right? which is predicted to be a much better site than PRRAR but not as good as RRAR/KR. Q613H is pretty analogous to the lion mutation (from my virological christmas card) Q613R, both to a positive charge at pH >6.

[2021-01-09 07:42:04]

**[Andrew Rambaut]**

There are lions in Uganda.

[2021-01-09 07:42:23]

**[Andrew Rambaut]**

(so I have heard - I was supposed to be going there last year, sigh)

[2021-01-09 07:52:11]

**[Robert Garry]**

Ahhh yes - the Queen Victoria hotel is pretty special and you can take a side trip to the Ziika forest. Curious about Pooh, showing up in NIgeria (Christian Happi) and now Poor in Uganda. Not that many sequences from Africa, Something usual in Africans going on which I suspect relates to prior exposure to some yet uncharacterized betacoronaviruses.

[2021-01-09 07:54:30]

**[Robert Garry]**

Lot of immunosuppressed Africans, HIV and other causes, as well. So having the P681 changes may fit that meme.

[2021-01-09 08:00:28]

**[Andrew Rambaut]**

This is the new USA cluster with Eeek and Pooh: [shared file(s): image.png]

[2021-01-09 08:11:00]

**[Robert Garry]**

*[thread - ID: 2021-01-09 08:11:00]*

All in Maryland? Worth keeping an eye on it for sure...

[2021-01-09 08:12:37]

**[Andrew Rambaut]**

This one only has 484K but spans 4 months and 4 states: [shared file(s): image.png]

[2021-01-09 08:14:12]

**[Andrew Rambaut]**

[thread - ID: 2021-01-09 08:11:00]

@Robert Garry Perhaps it was around the Capitol on Tuesday

[2021-01-09 08:17:22]

**[Robert Garry]**

[thread - ID: 2021-01-09 08:11:00]

@Robert Garry That would be ironic if that likely super-spreader event spreads a new "super" variant.

[2021-01-09 08:21:40]

**[Robert Garry]**

Eaak and Pooh are the ones that worry me the most. I think we're in for a wild ride

[2021-01-09 08:36:13]

**[Andrew Rambaut]**

I am trying to decide if this is a 'phase-change' in the evolution of the virus (i.e., driven by standing immunity) or is it just that now there are simple enough cases that these combinations (of previously individual mutations) are starting to appear together and so the synergies are apparent.

[2021-01-09 08:56:54]

**[Robert Garry]**

I would not rule out that some of the Pooh-related mutations are immune driven as well - some of the christmas card mutations near the FCS could well be epitopes.

<https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0238089>

[2021-01-09 09:14:41]

**[Robert Garry]**

I wouldn't rule-out a phase change. The UK and ZA variants feel like some nonlinear processes occurring. Epistasis is a real thing. Did Doug somehow open the floodgates enabling Nelly, Eeek and Pooh and multiple combinations? On the "up" side it seems to me that at least that a pattern of hotspots for mutations (Xmas card) are starting to emerge. New sampling of the combos as you document above does seem like an ongoing and perhaps accelerating process. Looking ahead I worry about the fertile ground of Africa which has been largely spared being more susceptible to a Phase II variant.

[2021-01-09 10:11:17]

**[Kristian Andersen]**

> I am trying to decide if this is a 'phase-change' in the evolution of the virus (i.e., driven by standing immunity) I have been wondering about this myself - definitely feels like it. The areas where we have seen these popping up have had a lot of COVID-19 going around, so a fair bit of standing immunity. I absolutely hope not though - it's a pretty scary thought and I have no idea how driving vaccines into a raging pandemic will change that landscape.

> Pooh - love it :wink:. Bob, how does the RRRAR affect the predicted O-Glyc? Presumably knock out one of the predicted sites?

And just to get back to a question we talked about a couple of days ago - (a) might E484K just be overall better at evading immunity or is it just that it (b) changes an important epitope? I have been thinking about this a lot... I had been leaning towards the former, but now I'm getting increasingly concerned it's the latter. Mostly based on this paper: <https://www.biorxiv.org/content/10.1101/2021.01.06.425392v2.full.pdf>. Is it possible that the combo of Doug, Eeek, and Nelly simply leads to a virus that have such a high affinity for ACE2 that the spike-ACE2 interaction more effectively outcompetes spike-NAb binding? Not inconceivable - I mean, take a look at the difference in binding affinity here: [shared file(s): Screen Shot 2021-01-09 at 10.01.04 AM.png]

[2021-01-09 10:12:10]

**[Kristian Andersen]**

We're talking orders of magnitude difference in binding affinity - that's not nothing....

[2021-01-09 10:21:41]

**[Robert Garry]**

Looks like Eeek even though it doesn't seem to contact ACE2 nevertheless can enhance binding when coupled with Nelly. Surprising but perhaps not shocking.

[2021-01-09 10:23:11]

**[Kristian Andersen]**

Yup - enhances it by quite a bit

[2021-01-09 10:29:42]

**[Robert Garry]**

Poor preserved 2/3 predicted O-glycans just like Pooh.

[2021-01-09 10:32:04]

**[Robert Garry]**

Immune escape plus enhanced fitness is .....worrisome.

[2021-01-09 10:32:44]

**[Kristian Andersen]**

That's to put it mildly...

[2021-01-09 10:34:08]

**[Kristian Andersen]**

Also, this is basically the final confirmation that @Andrew Rambaut was absolutely correct in ringing the big red alarm bell:

<https://twitter.com/LindorffLarsen/status/1347916349704646656?s=20>

Looks like the doubling rate might be a little less in DK than UK, but clearly same trajectory.

[2021-01-09 10:37:58]

**[Kristian Andersen]**

And I have mentioned this several times, but worth repeating - it's unclear to me we'll be able to control COVID in the US in a couple of months. Just too much inaction and lack of coordination, coupled with pandemic fatigue. I would not be surprised if we reach 1m fatalities by summer.

I hope I'm wrong. Very wrong.

[2021-01-09 10:38:41]

**[Robert Garry]**

False reports of a new 'U.S. variant' originated from Dr. Deborah Birx on the task force.

[2021-01-09 10:42:32]

**[Robert Garry]**

Birx needs to retire - I got into more than one scientific disagreement with her back in the day on AIDS study sections - doesn't really think things thru - overtly political - perfect for trump, but hopefully we do better going forward.

[2021-01-09 10:59:07]

**[Robert Garry]**

"it's unclear to me we'll be able to control COVID in the US in a couple of months." Actually no way. The only thing that is going to stop this in the US is vaccine for the reasons you mention. One has to hope that despite the variants the vaccines retain enough efficacy to blunt the spread [i'm hopeful but not convinced] and that somehow all stops pulled out they can be manufactured in sufficient quantity and distributed to enough people who agree to be vaccinated. It's going to be more than a few months before case numbers come down to "control" in the best case. Need to start on v2.0 of the vaccines right now.

[2021-01-09 11:02:00]

**[Kristian Andersen]**

The vaccines are not going to be distributed in time - not by a long shot

[2021-01-09 11:03:38]

**[Kristian Andersen]**

Here's a very simple analysis illustrating the issue - we're currently  $R_t \sim 1$  [shared file(s): SEIR.jpg]

[2021-01-09 11:04:20]

**[Kristian Andersen]**

[this is for San Diego -  $\sim 1\%$  current frequency].

[2021-01-09 11:09:10]

**[Robert Garry]**

Yes - totally - the new variants or if ET is correct strains are coming just like in the UK. And I agree they are going to dominate before the vaccines will even start to have any effect on spread.

[2021-01-09 14:55:55]

**[Eddie Holmes]**

I'm not sure it's a 'phase change' driven by immune selection. If that were the case wouldn't we see more reinfection than we are seeing? I wonder if it's just that there is more diversity because there are more cases than there have ever been. The virus population is growing rapidly.

[2021-01-09 15:54:46]

**[Andrew Rambaut]**

I agree, Eddie (except possibly for parts of Brazil where infection rates from previous peaks were already high). But it just feels like something is going on.

[2021-01-09 15:56:07]

**[Andrew Rambaut]**

But there is not one of these mutations that haven't cropped up numerous times before (and that is just the times we saw it in the sequences). I think what is new is the combinations. And as you say, that is just a numbers game.

[2021-01-10 06:25:35]

**[Robert Garry]**

<https://www.medrxiv.org/content/10.1101/2020.12.24.20248834v1.full.pdf> Phase change may be too strong a term. SC2 is still SC2. But it is adapting - evolution is indeed a pain in the arse. When you allow a pathogen that came from an animal to spread unchecked in humans like this one (thank you Donald Trump et al), it will find ways to get better at spreading in humans. The plots of Ct values from nasal swabs suggest that the UK variant is a heck of a lot better at replicating in the URT (I'm guessing if you did G614 vs D614 you see something similar maybe not as dramatic). Coupled with what we can infer from the immune escape studies from Bloom lab and Zahradnik [at Kristian Andersen above] we can see that the SC2 is getting fitter and more evasive. [shared file(s): image.png]

[2021-01-10 06:31:19]

**[Robert Garry]**

*[thread - ID: 2021-01-10 06:31:19]*

I'm gonna break reviewer privacy because it's relevant to share an title of an article I just this minute was asked to review: "Hypothesis of Potential Evolution of SARS-CoV-2 through Hybridization of SARS-CoV-1 with *Saccharomyces cerevisiae* and *Mycobacterium avium* naturally inside an immunocompromised Pangolin" Incredible.

[2021-01-10 06:45:02]

**[Robert Garry]**

The next data point that's going to be super critical is IF we start to see vaccine breakthrough with the UK variant. I think enough people have been vaccinated in the UK to perhaps start to see a trend.

[2021-01-10 07:04:10]

**[Kristian Andersen]**

I'm not so sure immune selection isn't showing an appreciable selection pressure - "phase change" might be a little too strong, however, I think it could already be one of the most selective forces. We'll see.

Bob - yeah, Doug had higher viral loads too, but much less of a dramatic difference than Nelly. Of course, the plot we're looking at here is Doug vs Nelly - Nelly vs Hugo (Hu-1..) would be even more dramatic.

[2021-01-10 07:19:06]

**[Robert Garry]**

Indeed -here's one of many Hugo vs Doug (Genome copies not Ct) ~1 log whereas Nelly vs Doug is ~2 Logs on average it seems: [shared file(s): image.png]

[2021-01-10 07:21:54]

**[Robert Garry]**

This is just the URT (nasal) I think data in the lung not as dramatic if any change at all (need lung data for Nelly, Eek and Pooh) - worth noting Doug alone is easier to neutralize.

[2021-01-10 07:32:42]

**[Andrew Rambaut]**

My prediction is that B.1.1.7 will turn out to be more transmissible because of the 501Y with the other stuff (FCS, deletions etc) - and it arose because of an extraordinary circumstances. But the Brazilian and RSA variants will turn out to be doing well because they are fitter in the very high (and underestimated) existing seroprevalence in those places. So they will pop up every where but are unlikely to really take off in places with lower seroprevalence (or at least no more likely than anything else).

[2021-01-10 07:33:36]

**[Andrew Rambaut]**

But that means they will soon be fitter in other places like USA and Europe unless things improve quickly.

[2021-01-10 07:53:40]

**[Kristian Andersen]**

Yeah, very reasonable. It's unclear to me if B.1.1.7 might also have an "immunity" phenotype - a lot is said about the RSA variant in that regard, but that's because we have \_data\_ on E484K, but for B.1.1.7 we don't have anything yet. Also, Eek is already in B.1.1.7 as you say....

[2021-01-10 07:56:03]

**[Kristian Andersen]**

Oh, and to the last part - things over here won't improve quickly, unfortunately. It's rapidly deteriorating - without the effect of the new lineages.

[2021-01-10 08:09:52]

**[Robert Garry]**

Students are coming back to Tulane campus - there is an almost desperate attempt to get one of the vaccine manufacturers to vaccinate all or at least part of the undergraduate students for the purposes of doing an vaccine efficacy study. It'ds almost as good as a challenge trial because the undergrads will be tested 2-3 times per week. So far pushback, because corporate think. I don't think they want to know or are afraid to even raise the question hence the Nelly study above. Most of the medical faculty and some of the med students and residents have already gotten the first doses. Faculty, staff, med students, residents and grad students are getting the Pfizer vaccine next week.

[2021-01-10 08:21:11]

**[Andrew Rambaut]**

*[thread - ID: 2021-01-10 08:21:11]*

Eddie, you don't look too happy at the prospect of lunch, I think:

[2021-01-10 08:21:19]

[Andrew Rambaut]

<https://www.bbc.co.uk/news/science-environment-55565284>

[2021-01-10 08:32:20]

[Robert Garry]

It's like when Jeneba our cook in Sierra Leone kills the chickens [at least I think it's chicken] for dinner. At least it solves the cold storage problem and it's fresh.

[2021-01-10 08:35:46]

[Kristian Andersen]

Nom nom, pumpkin chicken :drooling\_face::hatched\_chick:. I miss Jeneba's cooking (although, not the leafy green and fishy stuff!)

[2021-01-10 10:02:26]

[Robert Garry]

To the point that the same mutations keep popping all over and @Andrew Rambaut "I think what is new is the combinations." EPI\_ISL\_792683 Airport Quarantine Station in Japan. COVID-19 positive case who entered from Brazil. Spike D138Y, Spike D614G, Spike E484K, Spike H655Y, Spike K417T, Spike L18F, Spike N501Y, Spike P26S, Spike R190S, Spike T20N, Spike T1027I, Spike V1176F, N G204R, N P80R, N R203K, NS3 S253P, NS8 E92K, NSP3 K977Q, NSP3 S370L, NSP6 F108del, NSP6 G107del, NSP6 S106del, NSP12 P323L, NSP13 E341D

[2021-01-10 11:17:21]

[Andrew Rambaut]

Yes. Confidentially this has come from Manaus - i.e., super high seroprevalence.

[2021-01-10 11:27:36]

[Robert Garry]

Oh my - that's concerning if this is what emerges out of close to "herd immunity."

[2021-01-10 11:32:21]

[Andrew Rambaut]

That is the main point - close to herd immunity is the worst for selecting for escape. Why vaccination needs to be fast and comprehensive. Its also why I am going more in favour of delaying second dose if you can get universal coverage quickly but the worse would be slow and delayed.

[2021-01-10 11:39:15]

[Robert Garry]

How about splitting up the doses? Like they have done for smallpox...

[2021-01-10 11:41:27]

[Robert Garry]

"Slow and delayed" is definitely the Trump approach.

[2021-01-10 12:07:28]

[Robert Garry]

This might be worth considering and based on the above there is not a minor chance of this making it worse. Nevertheless - Looking back at least at the Pfizer vaccine they got very similar immunological/neut results with 10, 20 and 30 ug doses - yet they went with the 30 ug dose in the phase 2/3. Don't know why. The pfizer vaccine is diluted to about 2 ml per vial. 0.3ml dose. 5-6 doses per vial. I bet based on the Phase I you could double the volume of the diluent and inject 0.2 mls instead of 0.3 mls and get similar immunity. That's 15-18 doses per vial instead of 5-6.

[2021-01-10 12:12:30]

[Robert Garry]

Yes - risky!

[2021-01-10 12:28:15]

**[Eddie Holmes]**

*[thread - ID: 2021-01-10 06:31:19]*

@Robert Garry He sent me that to comment on.

[2021-01-10 12:30:01]

**[Eddie Holmes]**

*[thread - ID: 2021-01-10 08:21:11]*

@Andrew Rambaut Tasted fine in the stir fry.

[2021-01-10 12:44:47]

**[Eddie Holmes]**

"That is the main point - close to herd immunity is the worst for selecting for escape. Why vaccination needs to be fast and comprehensive. Its also why I am going more in favour of delaying second dose if you can get universal coverage quickly but the worse would be slow and delayed." I can't agree because we don't know how good protection is going to be for 12 weeks. May be fine, but may also be that one dose maximises selection pressures. BUT it's also clear that it's Sophie's Choice in UK...in fact, they have no choice but to delay the 2nd dose. Very hard to balance theoretical evolution against hard deaths. It's also absolutely clear that plus of supply issues no country is going to be able to employ the perfect vaccination schedule. The virus is going to evolve and we'll just have to live with it.

[2021-01-10 12:47:40]

**[Andrew Rambaut]**

I agree we don't know but if we drive the emergence of escapes then all of the people we have vaccinated will then be vulnerable gain whether they have the 2nd dose or not

[2021-01-10 12:48:08]

**[Andrew Rambaut]**

I guess the point is we don't know much and I wouldn't want to have to make the call on this.

[2021-01-10 12:48:34]

**[Robert Garry]**

If I had to chose between delaying doses and splitting doses I'd pick splitting doses and keeping to the 2 dose regiment.

[2021-01-10 12:48:35]

**[Eddie Holmes]**

Agree! Sophie's Choice as I say.

[2021-01-10 12:48:55]

**[Andrew Rambaut]**

But the other issue is that this has got to be a global effort.

[2021-01-10 12:50:38]

**[Eddie Holmes]**

Exactly! It's not just about the UK. Personally, I don't think what the UK does is going to have a huge impact on top of the global evolutionary soup. So, while I don't like the delayed 2nd dose, I'm ok with it because I think their hands are tied.

[2021-01-10 12:53:53]

**[Andrew Rambaut]**

It is a gamble. But may save lives in the short term. Or may be a disaster.

[2021-01-10 12:58:06]

**[Robert Garry]**



Need to get to work on the v2.0 vaccine as well... the good news is the main variants that pop are now evident.

[2021-01-10 15:34:13]

**[Kristian Andersen]**

*[thread - ID: 2021-01-10 15:34:13]*

> delaying second dose if you can get universal coverage

I very much disagree - this could be the perfect breeding ground for immune escape. The neut titers are pretty terrible post the first dose and I highly doubt sufficient to protect against infection - maybe against disease (for a while), but not against infection. That really strong neut response only develops after the second dose, so you're now have people run around with pretty lackluster immunity for 12 weeks (and you have twice as many) instead of just two weeks (with half the people). It's a potential disaster in waiting and I certainly wouldn't recommend it. (separately, I'm not concerned about people not developing good strong immunity after the second dose if it's delayed - may even be better. It's that interim period).

If you gotta make the vaccines reach more people quickly, much better to half the dose(s).

[2021-01-10 15:36:58]

**[Kristian Andersen]**

> EPI\_ISL\_792683

Holy shit... I actually DM'd Oli a couple of days ago asking for his take on reinfections in Manaus now they're surging again. Didn't get a reply, but I wouldn't be surprised if they're observing a lot. I guess we'll learn from Nuno and him.

It's gonna take years to get this bug to a near-normal level...

[2021-01-10 15:41:01]

**[Andrew Rambaut]**

Nuno's virological post is going to drop very soon. They are just polishing up the coverage on the genomes.

[2021-01-10 15:47:40]

**[Andrew Rambaut]**

*[thread - ID: 2021-01-10 15:34:13]*

But having lackluster immunity doesn't really matter - you get infected and then you clear it (unless you are saying that having lackluster immunity will stop you generating your own immunity?). I.e., no worse off than before. You may encourage escapes to come up but they are not particularly advantageous for transmitting to the next person. What will really select for escape is if there are lots of properly immune people (in the absence of escape) but not at the herd immunity threshold. At that point an escape mutant has a significant advantage over the wildtype.

[2021-01-10 15:48:25]

**[Andrew Rambaut]**

But I feel that we need some serious modelling done here.

[2021-01-10 16:01:46]

**[Kristian Andersen]**

I'm hopeful that the mRNA vaccines with two doses will provide (near) sterilizing immunity. The issue with one dose is that you still have immunity, but you can't stop infection so the virus gets a chance to evolve in that milieu and the viruses that can escape will propagate. Sure, having full immunity will create a much stronger selection pressure (if you can't infect, you can't live), but if the virus can escape full immunity, then we have a much bigger problem on our hands.

[2021-01-10 16:10:05]

**[Andrew Rambaut]**

So that is what the Manaus experiment will be about. Did 501Y, 484K and 417T appear in combination because it is reinfecting people.

[2021-01-10 16:10:47]

**[Kristian Andersen]**

Yeah - Manaus (and Israel) will be really really important.

[2021-01-10 16:15:57]

**[Kristian Andersen]**

If we start seeing reinfections (or vaccine failures) in Manaus / Israel driven by escape, then we might have to rethink our entire vaccination strategy. Stockpiling enough supply to vaccinate most of the population while (massively) driving down infections via NPIs - then go out and vaccinate as many people as possible as quickly as possible.

I don't think humans have the ability to do that. In fact, I'm getting increasingly pessimistic that we have the ability to even control the first few years of the "Reign of COVID-19". I'm seeing too many indicators currently that are making me very uncomfortable.

[2021-01-10 16:17:45]

**[Kristian Andersen]**

(coupled with too much wishful thinking - we so desperately yearn for positive news that we forget that things don't just automatically get better).

[2021-01-10 16:58:27]

**[Robert Garry]**

*[thread - ID: 2021-01-10 15:34:13]*

@Kristian Andersen I am now starting to think that the delayed dosing is vastly inferior to going with a half or one third dose followed by a second half or third dose.

[2021-01-10 18:03:22]

**[Kristian Andersen]**

*[thread - ID: 2021-01-10 15:34:13]*

@Kristian Andersen Absolutely. (But I'm very aware that this is an extremely complex question - a lot of people have good reason to disagree - but from my perspective, agreed!)

[2021-01-10 18:21:06]

**[Robert Garry]**

*[thread - ID: 2021-01-10 15:34:13]*

@Kristian Andersen You could also consider a schedule where people over 70 got the full doses and ppl under 70 get half or third doses. Similar to some flu vaccines - older ppl get higher doses.

[2021-01-11 12:33:16]

**[Kristian Andersen]**

Heh - was just talking to Joel and he pointed me to this clip. Listen to the first 45 seconds - you might remember the scene... I admit I always hated this particular scene and thought it was stupid, but now I have to heat my hat and give Butt Lesion some credit...

<https://www.youtube.com/watch?v=wVri50TXUqU>

[2021-01-11 13:05:52]

**[Andrew Rambaut]**

Remember that cluster possibly from Uganda with 681R and 613H? Now spreading in UK and has some with 484K. What is happening?

[2021-01-11 13:06:36]

**[Kristian Andersen]**

You tell me - you're the expert

[2021-01-11 13:08:43]

**[Kristian Andersen]**

And I'd add - probably reinfections, possibly asymptomatic driving E484K.

[2021-01-11 13:46:45]

**[Eddie Holmes]**

There's this as well - from Bahia: <https://www.preprints.org/manuscript/202101.0132/v1>

[2021-01-11 13:48:06]

**[Eddie Holmes]**

@Andrew Rambaut I have to say that if immune selection has driven the appearance of Erik in Amazonia that does make me a bit more worried about the UK dosing strategy.

[2021-01-11 13:51:28]

**[Eddie Holmes]**

Although I guess it also shows that these mutations are going to appear all over the place.

[2021-01-11 13:51:43]

**[Kristian Andersen]**

Great... I guess that's probably separate to the study on Virological. I'm leaning towards E484K being able to escape immunity by now - maybe not in all cases, but at least in some.

[2021-01-11 13:52:09]

**[Eddie Holmes]**

Yes, I think you may be right.

[2021-01-11 13:52:16]

**[Kristian Andersen]**

Are any of you going to be on the WHO call tomorrow focused on this mutation stuff? Wondering if I should go, but it starts at 3am for me....

[2021-01-11 13:55:23]

**[Eddie Holmes]**

I'm going to have to pass because I have a very late meeting the following night that I'll need to rested for. Looking forward to a debrief from Andrew!

[2021-01-11 13:57:04]

**[Andrew Rambaut]**

We have 5 cases of Erik on top of the B117 but they are spontaneous and I doubt driven by antigenic evasion.

[2021-01-11 13:57:20]

**[Eddie Holmes]**

Bum.

[2021-01-11 13:58:04]

**[Andrew Rambaut]**

I can't make the WHO thing but they have Tulio, Trevor and Marion on the evolution panel. I couldn't do it so I got Oli instead.

[2021-01-11 13:58:49]

**[Andrew Rambaut]**

Really struggling to work out what is going on.

[2021-01-11 13:59:09]

**[Andrew Rambaut]**

It seems like all of these lineages are converging to the same set of mutations

[2021-01-11 13:59:14]

**[Eddie Holmes]**

I hope Tulio gets talking combining classification schemes - that will make a fun 7 hours.

[2021-01-11 13:59:32]

**[Andrew Rambaut]**

Oli will keep him right

[2021-01-11 13:59:49]

**[Robert Garry]**

<https://www.fox10phoenix.com/news/fda-to-weigh-half-dosing-moderna-covid-19-vaccines-operation-warp-speed-of-ficial-says> "These are all reasonable questions to consider and evaluate in clinical trials," the FDA said in a statement on Monday." I agree that the UK dosing strategy is wrong - half dosing makes much more sense with both the prime and the boost. The half and third dosing was already considered in a clinical trial - Moderna's Phase I trial. Two doses of 10 ug gave essentially the same neut and binding as two doses of 30 ug dose. One dose of 100 was terrible and caused a lot more adverse reactions so they stopped it. Hate to be cynical, but I think Moderna is protecting its newly hatched golden goose.

[2021-01-11 13:59:50]

**[Eddie Holmes]**

:bomb:

[2021-01-11 14:07:42]

**[Robert Garry]**

"It seems like all of these lineages are converging to the same set of mutations." Agree - Spike is covered with glycan - there are only a few places where antibodies can slip in - Eek and the NTD mutations are in those spots. Once this virus got a furin cleavage site it opened up the possibility for Doug and its 613 twins to destabilized the trimers so you could get surface entry. The furin cleavage site is continuing to optimize itself possibly in epistasis with Doug.

[2021-01-11 14:41:22]

**[Andrew Rambaut]**

The Japanese/Manaus cluster has the same nsp6 deletion that the UK and South African lineages have

[2021-01-11 14:43:37]

**[Eddie Holmes]**

Wowser. That's not chance.

[2021-01-11 14:51:59]

**[Robert Garry]**

Places where the polymerase has tendency to slip and skip?

[2021-01-11 15:05:54]

**[Andrew Rambaut]**

The Manaus/Japanese cluster has a very long branch (too long) - possibly another 'chronic infection' event?

[2021-01-11 15:06:02]

**[Kristian Andersen]**

What does nsp6 do again? Is it possible it's directly interacting with the spike protein to determine e.g., binding?

[2021-01-11 15:06:14]

**[Andrew Rambaut]**

```ORF1ab  
synT733C
F681L
I760T
synC2749T
S1188L
K1795Q

del11288-11296 (3675-3677 SGF)
synC12778T
synC13860T
E5662D

spike
L18F
T20N
P26S
D138Y
R190S
K417T
E484K
N501Y
H655Y
T1027I

ORF3a:
C174G

ORF8:
E92K

N:
P80R
synA28881T
synG28882C``

[2021-01-11 15:06:36]

[Kristian Andersen]

Bloody hell

[2021-01-11 15:07:41]

[Eddie Holmes]

WTF.

[2021-01-11 15:08:06]

[Andrew Rambaut]

Just bonkers

[2021-01-11 15:08:17]

[Kristian Andersen]

Where did they do the AZN trials again?

[2021-01-11 15:08:57]

[Andrew Rambaut]

Johnson and Johnson in Brazil as well - didn't they suspend it because of mystery illness?

[2021-01-11 15:09:04]

[Kristian Andersen]

Yup

[2021-01-11 15:09:05]

[Eddie Holmes]

I'm really not sure I believe the chronic theory any more...once may be, but three times? Chronic infections are a tiny fraction of the overall population.

[2021-01-11 15:10:19]

[Kristian Andersen]

Epizootic? Chronic infections? Immune escape? I think all in play.

[2021-01-11 15:11:14]

[Kristian Andersen]

> It seems like all of these lineages are converging to the same set of mutations And just to this part - it's strongly suggestive of some very pervasive selections pressure that's in common in all these places. Or, alternatively (but I think less likely) something like this: [https://www.cell.com/cell/fulltext/S0092-8674\(17\)30292-1?_returnURL=https%3A%2F%2Fpubmed.ncbi.nlm.nih.gov/pubmed/2867417302921%3Fshowall%3Dtrue](https://www.cell.com/cell/fulltext/S0092-8674(17)30292-1?_returnURL=https%3A%2F%2Fpubmed.ncbi.nlm.nih.gov/pubmed/2867417302921%3Fshowall%3Dtrue)

[2021-01-11 15:12:38]

[Andrew Rambaut]

Except that these 3 cases have a shit load of other stuff. Masses of spike mutations (and no synonymous in spike). Orf8 mutations and that nsp6 deletion

[2021-01-11 15:12:47]

[Kristian Andersen]

Why're we seeing it now and not earlier? More widespread transmission, vaccines being deployed in some places, more standing immunity. But I do feel something's up here - doesn't seem normal to find so many clearly unrelated lineages ending up with a subset of the same mutations. That's just weird.

[2021-01-11 15:13:11]

[Andrew Rambaut]

3 very strange events with similar sets of mutations come up.

[2021-01-11 15:13:30]

[Kristian Andersen]

Yeah.

[2021-01-11 15:13:53]

[Kristian Andersen]

And in different parts of the world - with different climates, so not e.g., a "cold" adaptation.

[2021-01-11 15:14:17]

[Andrew Rambaut]

Yup. Manaus is not chilly this time of year!

[2021-01-11 15:15:39]

[Kristian Andersen]

They DID have a fuck ton of infections in the spring though. Same for UK. Same for RSA.

[2021-01-11 15:15:50]

[Andrew Rambaut]

Rare chronic infections could just be a ready source of these mutations in combination (because they can all be selected for in the very large population sizes). When you get the combination it takes off

[2021-01-11 15:16:13]

[Andrew Rambaut]

You just don't get them step by step in normal transmission with bottle necks

[2021-01-11 15:16:26]

[Kristian Andersen]

Does Oli/Nuno have any data on reinfections? You mentioned a Virological study yesterday, but not sure if they're looking at that?

[2021-01-11 15:16:56]

[Andrew Rambaut]

Not yet. Fiacruz has one case of reinfection (not this lineage - but another with 484K)

[2021-01-11 15:17:36]

[Andrew Rambaut]

Latest UK estimate is a total number of infections as 20% of population.

[2021-01-11 15:17:41]

[Kristian Andersen]

Okie dokie - will be important/interesting to know. Also very curious to see what's going to happen in Israel after the vax campaign.

[2021-01-11 15:17:50]

[Andrew Rambaut]

Manaus estimated at 60-70% from first wave

[2021-01-11 15:18:20]

[Kristian Andersen]

Yeah - high... (although I saw quite a number of people disagreeing with that number and the IFR seemed too low to me)

[2021-01-11 15:18:36]

[Andrew Rambaut]

South Africa high but the area where the variant took off is really high - urban, dense, deprived.

[2021-01-11 15:21:43]

[Kristian Andersen]

Yup - seems plausible that immune escape might be the most likely explanation here - whether linked to natural immunity or vaccine induced. Why that would lead to increased transmission, I'm not quite sure I understand - except if e.g., high ACE2 binding is associated with both escape and transmission (not implausible).

[2021-01-11 15:24:54]

[Kristian Andersen]

It's all very interesting - although to be honest, I don't need any additional excitement at the moment. I just want to get back to being a totally anonymous scientist (with 323 followers on Twitter) looking at Ebola and Lassa genomes. SARS-CoV-2 is a little too exciting for my liking.

[2021-01-11 15:30:01]

[Andrew Rambaut]

It could be that the UK one is the only one that is inherently more transmissible (perhaps because of the 681H?). The other two are only taking off in hi-prevalence areas. We will see as more of those arrive in much lower prevalence areas

[2021-01-11 15:32:29]

[Kristian Andersen]

Yup, I talked to Helen Branswell earlier today and I mentioned this exact point too - I'm not sure we have good data suggesting that e.g., the RSA variant is indeed more transmissible (even the data showing it's displacing other lineages is a little lacking - at least what I have seen).

[2021-01-11 15:32:47]

[Kristian Andersen]

(No question about the UK lineage though).

[2021-01-11 15:33:07]

[Andrew Rambaut]

Agree. No comparative rates for RSA. It is just fast growing.

[2021-01-11 15:33:50]

[Andrew Rambaut]

Although... there is a Finnish import of the RSA variant that has 681H.

[2021-01-11 15:34:17]

[Andrew Rambaut]

(convergence to the same set of mutations)

[2021-01-11 15:34:40]

[Kristian Andersen]

Didn't they mention a couple of months ago that they had a really fast moving lineage that didn't lead to symptoms? I'm wondering if any of that might actually be true - not really "fast" moving, but expanding rapidly and if in a lot of people with previously immunity, maybe leading to less symptoms. That wouldn't be too bad.

[2021-01-11 15:34:52]

[Kristian Andersen]

"They" being RSA

[2021-01-11 15:35:12]

[Kristian Andersen]

(oh - wait, maybe that was Australia... Somewhere South :wink:)

[2021-01-11 15:41:24]

[Kristian Andersen]

So just to conclude to see if I got this right:

- One lineage rapidly expanding because it's inherently more transmissible - B.1.1.7.
- Several other independent lineages - carrying mutations at 417 and 484 - expanding rapidly in areas of high standing immunity, probably due to escape.

Possibly, Nelly is innocent - at least partially and she probably isn't alone responsible for the expansion of both the UK and RSA lineages.

[2021-01-11 15:42:29]

[Kristian Andersen]

B.1.1.7 might also have an 'immunity' phenotype in addition to the transmission phenotype.

We'll know soon enough.

[2021-01-11 15:42:59]

[Andrew Rambaut]

And Nelly on its own (in Wales) is not doing that much

[2021-01-11 15:44:52]

[Kristian Andersen]

Yup. We have seen Nelly a couple of times in the US too and never associated with increased transmission (although all of that might just be down to chance). It's very plausible that when Nelly is hanging with her friends she might be naughty, but not when she's alone...

[2021-01-11 15:50:17]

[Eddie Holmes]

"Nelly is innocent" - we should start a campaign.

[2021-01-11 15:51:50]

[Kristian Andersen]

I wanna be sure before we declare her innocent though. Eeek and Pooh though... Fucking bastards.

[2021-01-11 15:52:07]

[Kristian Andersen]

Maybe together with Doug and Nelly they're up to no good.

[2021-01-11 15:52:28]

[Robert Garry]

I think Doug did it...or at least maybe started the process -that is of course after the FCS inserted itself.

[2021-01-11 15:52:57]

[Kristian Andersen]

Let's call that initial event Furio

[2021-01-11 15:53:32]

[Kristian Andersen]

Furio > Hugo > Doug > Nelly > Eeek, Pooh. I see a pattern emerging.

[2021-01-11 15:59:46]

[Robert Garry]

Yeah - it's all going to shit...

[2021-01-11 16:01:36]

[Eddie Holmes]

I don't think we have any info from previous immunocompromised cases (noros, flu) for such large-scale convergent evolution. Indeed, while I can see immunocompromised cases leading to lots of mutations, lots of the SAME mutations appearing multiple times does smell of very strong and directed selection.

[2021-01-11 16:09:50]

[Andrew Rambaut]

Just don't know - so much other stuff presumably hitchhiking - I just don't think that likely happens via a progression of individual mutations with bottlenecking transmission.

[2021-01-11 16:11:21]

[Andrew Rambaut]

We are seeing all these mutations cropping up individually many times. But when they appear in combination now we also get 15 other mutations along side

[2021-01-11 16:14:59]

[Eddie Holmes]

I assume there's no recombination involved?

[2021-01-11 16:17:47]

[Eddie Holmes]

Also, "immunocompromised" covers a huge range of contexts...

[2021-01-11 16:18:37]

[Andrew Rambaut]

Can't see anything obvious (recombination)

[2021-01-11 16:18:50]

[Andrew Rambaut]

But need to keep an eye on that.

[2021-01-11 16:19:22]

[Andrew Rambaut]

I have been careful not to say immunocompromised - only chronically infected

[2021-01-11 16:19:33]

[Robert Garry]

The NSP6 deletion is downstream of a crazy T rich region.

[2021-01-12 05:06:35]

[Robert Garry]

One thing to consider about SC2 is that in some patients we see extremely low Ct values - 8-9 not that unusual. That converts to 2 logs higher virus load than we see with Ebola, Lassa etc. Couple that with the not well-characterized editing/proofreading functions, tendency to generate short deletions seen with MHV and others, etc and the you maybe - just maybe - start to see why a mechanism of progression of individual mutations might not be the only pathway for evolution of CoVs.

[2021-01-12 05:17:34]

[Robert Garry]

<https://jvi.asm.org/content/jvi/71/4/2959.full.pdf>

[2021-01-12 05:20:22]

[Kristian Andersen]

That's pretty interesting - same signature

[2021-01-12 05:22:42]

[Robert Garry]

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC191424/>

[2021-01-12 05:26:50]

[Robert Garry]

also interesting [shared file(s): image.png]

[2021-01-12 05:38:42]

[Robert Garry]

I have to give a lecture at 8;30 but there is more gold to mine down this shaft...

[2021-01-12 07:31:02]

[Kristian Andersen]

If we weigh being 'successful' in a population due to inherently being (a) inherently more transmissible vs (b) being able to escape immunity, an important consideration is what the immune selection pressure is. Is it the one experienced within a single (chronically) infected individual or is it standing immunity as a virus is spreading through a population? Given that we're seeing the same sets of mutations in independent lineages in different areas, clearly there must be a strong and directed selection pressure (immune or otherwise).

I'm starting to think that it's probably the former - rare events happening in individual people (or a zoonotic host - probably not likely, but has to be considered) that may or may not be immunocompromised and may and may not have received treatments. The increased transmission effects (probably high for UK lineage) and population immune evasion (probably higher in RSA/Brazil lineages) are just side-effects of the intrahost selection pressures that fixed the mutations in the first place - I don't necessarily think they are the selection pressures. The transmission phenotype may be a side-effect of "better binding" and population immune evasion a side-effect of intrahost immune evasion.

The reason why we're (a) observing these now, and (b) they pop up in areas of high previous attack rates, might be more down to chance than selection. Chronic infections are probably rare events, take time to fix a large number of (onwards successfully) mutations, and therefore more likely to pop up in areas of high previous attack rates. If they're then able to escape some immunity in the population, they're also more likely to successfully propagate in such a population.

[2021-01-12 12:04:47]

[Kristian Andersen]

Some helpful structural slides from Ian Wilson this morning - I think he'll share the whole deck.

417/484/501 - definitely looks like immune selection to me. [shared file(s): Screen Shot 2021-01-12 at 10.23.30.png, Screen Shot 2021-01-12 at 10.25.13.png, Screen Shot 2021-01-12 at 10.29.14.png, Screen Shot 2021-01-12 at 10.31.10.png, Screen Shot 2021-01-12 at 10.32.47.png, Screen Shot 2021-01-12 at 10.34.08.png]

[2021-01-12 12:36:02]

[Robert Garry]

Nice slides - Nelly, Erik and I guess Karen (K417N). Yeah - they are all going to affect neutralization (slide 2) they question is by how much. BTW - dose 1 of Pfizer in my arm.

[2021-01-12 13:03:20]

[Kristian Andersen]

Yeah, I saw those slides and there was no doubt in my mind.

Very glad to hear you got the shot!!!!!! I'm worried about always seeing you in your office Bob :wink:

[2021-01-12 13:06:11]

[Robert Garry]

<https://news.cgtn.com/news/2021-01-11/CGTN-Exclusive-Interview-with-WHO-expert-to-China-on-COVID-19-origin-s-WXVDU1kL6/index.html> Koopsman who is a rather strong personality will likely have a large impact on the WHO panel. That being said, it's hard to draw out much about her thinking here. This interview does not change my mind that this is going to be very superficial. NOT much is coming out the the WHO or Lancet origins panels.

[2021-01-12 13:09:42]

[Robert Garry]

I

[2021-01-12 13:10:31]

[Robert Garry]

You can bet I'll be using my plasma for some vaccine escape studies....

[2021-01-12 14:11:19]

[Eddie Holmes]

Yes, I saw that. Waste of time. About 3-4 weeks I emailed GG to see if could meet up with Dominic Dwyer - my mate from Sydney who is on the WHOO commission. TODAY he replies saying that he will try and find a time-slot. She also implied that they would be looking at the early European data which is ridiculous.

[2021-01-12 14:17:49]

[Eddie Holmes]

Ok, some CONFIDENTIAL pango news: UHK have animals confiscated in 2013 and 2018 in Hong Kong. Direct from Malaysia we think. Of those 9 are seropositive (using the Wantai ELISA SARS-CoV-2 assay) and 5 are PCR positive using HybriBio SARS-CoV-2 RT-PCR kit, although 4 of these have high CT values. Enrichment, meta-transcriptomics and luciferase immunosorbent assays (to rule out cross-reaction) ongoing. At face value suggests that SARS-like CoVs have been in Malayan pangos for a while but this needs to be confirmed. I'll update when I have more news. Obviously keep to yourself.

[2021-01-12 14:33:31]

[Robert Garry]

Thank you Eddie - very important!

[2021-01-12 14:35:08]

[Robert Garry]

I think this is an important clue: [shared file(s): image.png]

[2021-01-12 14:37:27]

[Andrew Rambaut]

That is interesting, Bob!

[2021-01-12 14:38:06]

[Robert Garry]

Yeah Align SC1 with SC2 (and RatG13) just for completeness. The deletions that you see in the UK and ZA variants are EXACT deletions comparing SC1 to the others. Also note the deletion near 484 - these are hotspots!

[2021-01-12 14:38:59]

[Andrew Rambaut]

Are they in the civet versions of SC1?

[2021-01-12 14:39:28]

[Andrew Rambaut]

Or the closest bats to SC1 (could check this myself of course).

[2021-01-12 14:39:52]

[Robert Garry]

Good question - that would be interesting...

[2021-01-12 14:42:42]

[Andrew Rambaut]

[thread - ID: 2021-01-12 14:42:42]

It is a bit tricky - my alignment is a bit different (I did a nucleotide alignment)

[2021-01-12 14:44:00]

[Robert Garry]

They are the same in the civet..

[2021-01-12 14:44:08]

[Andrew Rambaut]

Yes.

[2021-01-12 14:44:21]

[Andrew Rambaut]

And in some of the bats it looks

[2021-01-12 14:49:59]

[Robert Garry]

Yes - lots of possibilities, but it looks like SC2 and RaTG13 spikes mostly diverging from SC1 by insertions - including the obvious PRRA.

[2021-01-12 14:52:25]

[Robert Garry]

The insertions not needed so put SC2 under the right situation and it starts to delete. Just like in cell culture the FCS and the QTQTN can be deleted.

[2021-01-12 14:56:15]

[Robert Garry]

[thread - ID: 2021-01-12 14:42:42]

@Andrew Rambaut yes indeed - may get a somewhat different alignment with the nucleotides but the point remains that these are hotspots for deletions. Mechanism TBD but could be swapping out a shorter sequence with end homologies via copy-choice.

[2021-01-12 15:02:05]

[Eddie Holmes]

Wow Bob, that's amazing.

[2021-01-12 15:14:55]

[Robert Garry]

[thread - ID: 2021-01-12 15:14:55]

Important for the origins argument as well - if these indels between SC1 and SC2 are natural and in play for variation, then the PRRA insert is natural as well.

[2021-01-12 15:26:06]

[Andrew Rambaut]

Of course the nefarious supervillain making this virus spent all that time putting those insertions in (from HIV or fish presumably) and all it does is delete them.

[2021-01-12 15:29:37]

[Robert Garry]

PERFECT comment @Andrew Rambaut @Kristian Andersen will know that I appreciate it very much!

[2021-01-12 15:30:08]

[Eddie Holmes]

[thread - ID: 2021-01-12 15:14:55]

@Robert Garry My thoughts exactly Bob...quick Virological post?

[2021-01-12 15:30:55]

[Robert Garry]

[thread - ID: 2021-01-12 15:14:55]

@Robert Garry Certainly - it's important - whose with me?

[2021-01-12 15:32:20]

[Eddie Holmes]

[thread - ID: 2021-01-12 15:14:55]

I'm in!

[2021-01-12 15:38:59]

[Eddie Holmes]

I think AI has perfectly summed up my COVID feelings: https://www.youtube.com/watch?v=UPw-3e_pzqU

[2021-01-12 15:45:32]

[Kristian Andersen]

All this science while I took a nap??!! Seriously - I need to take another nap.

[2021-01-12 15:55:11]

[Kristian Andersen]

And btw - one day I want to write using prose like this: <https://virological.org/t/mutations-arising-in-sars-cov-2-spike-on-sustained-human-to-human-transmission-and-human-to-animal-passage/578/2>

[2021-01-12 15:57:25]

[Eddie Holmes]

Yes, very nicely done.

[2021-01-12 17:42:08]

[Kristian Andersen]

Very good podcast Eddie!

<https://www.abc.net.au/radio/programs/coronacast/13051978>

[2021-01-12 17:42:37]

[Kristian Andersen]

Kinda nice the journalists actually understand evolution too - makes for better questions :wink:

[2021-01-12 18:14:09]

[Eddie Holmes]

Cheers...95% of that I got from this Slack channel!

[2021-01-12 18:14:41]

[Eddie Holmes]

In other news, here is that GIPA request:

[2021-01-12 18:14:44]

[Eddie Holmes]

Dear Eddie

I hope you have had a restful and very well deserved Christmas break.

While you were on leave, I left a message to let you know that we had received another application under the NSW freedom of information legislation, the NSW Government Information (Public Access) Act (the GIPA Act), for information about your work.

This is quite an extensive application by a public health research organisation based in the United States, US Right to Know. It is asking for the following:

“We are requesting records of correspondence specifically in relation to following research projects of Professor Holmes:

1. Kristian Andersen, Andrew Rambaut, W. Ian Lipkin, *Edward C. Holmes*, and Robert F. Garry. The proximal origin of SARS-CoV-2. *Nature Medicine* 26, 450–452 (2020). doi: <https://doi.org/10.1038/s41591-020-0820-9>

2. Hong Zhou, Xing Chen, Tao Hu, Juan Li, Hao Song, Yanran Liu, Peihan Wang, Di Liu, Jing Yang, *Edward C. Holmes*, Alice C. Hughes, Yuhai Bi, and Weifeng Shi. A novel bat coronavirus closely related to SARS-CoV-2 contains natural insertions at the S1/S2 cleavage site of the spike protein*. *Current Biology* 30: 2196-2203 (2020). doi: <https://doi.org/10.1016/j.cub.2020.05.023>

3. Tommy Tsan-Yuk Lam, Na Jia, Ya-Wei Zhang, Marcus Ho-Hin Shum, Jia-Fu Jiang, Hua-Chen Zhu, Yi-Gang Tong, Yong-Xia Shi, Xue-Bing Ni, Yun-Shi Liao, Wen-Juan Li, Bao-Gui Jiang, Wei Wei, Ting-Ting Yuan, Kui Zheng, Xiao-Ming Cui, Jie Li, Guang-Qian Pei, Xin Qiang, William Yiu-Man Cheung, Lian-Feng Li, Fang-Fang Sun, Si Qin, Ji-Cheng Huang, Gabriel M. Leung, *Edward C. Holmes*, Yan-Ling Hu, Yi Guan & Wu-Chun Cao. Identifying SARS-CoV-2-related coronaviruses in Malayan pangolins. *Nature* 583, 282–285 (2020). doi: <https://doi.org/10.1038/s41586-020-2169-0>

4. Fan Wu, Su Zhao, Bin Yu, Yan-Mei Chen, Wen Wang, Zhi-Gang Song, Yi Hu, Zhao-Wu Tao, Jun-Hua Tian, Yuan-Yuan Pei, Ming-Li Yuan, Yu-Ling Zhang, Fa-Hui Dai, Yi Liu, Qi-Min Wang, Jiao-Jiao Zheng, Lin Xu, *Edward C. Holmes* and Yong-Zhen Zhang. A new coronavirus associated with human respiratory disease in China. *Nature* 579, 265–269 (2020). <https://doi.org/10.1038/s41586-020-2008-3>

We request all correspondence about the above projects, *with the exception of correspondence of peer-reviewers and editors of the above-named scientific journals*, held by The University of Sydney that reflect communications – to or from Professor Holmes – including written correspondence, emails, email attachments, CC and BCC. The time period covered by this request is from March 1, 2019 to December 2, 2020. Please narrow the search results to exclude any published papers, organizational newsletters or other widely available published materials.”

I know it is a very busy time for you as you return from your month of leave, but to help the University meet its tight legal obligations under the NSW GIPA Act, I would appreciate it very much if you could conduct comprehensive searches for the requested information and provide any relevant correspondence to me by *Friday 22 January*. However, please do let me know if this timeframe will be problematic for you.

Please note that under the GIPA Act, we are required to locate all relevant information and have this information provided to and assessed by the GIPA team. The GIPA team then assesses the information against the public interest test outlined in the GIPA Act, to determine whether some or all of the information should be released to the applicant, or to determine whether some or all of the information should be withheld from the applicant. (Under the terminology in the Act, we assess whether the public interest considerations against disclosure outweigh the public interest considerations in favour of disclosure.)

To help us make these decisions, we really welcome your advice. When you provide the information to us, you may want to draw attention to any considerations for or against disclosure which you think should be taken into account when the documents are examined by the GIPA team.

If you have a large amount of information that is relevant to this request, please let me know as it may be easier for you to share this with us via a secure Cloudstor environment. Alternatively, if you don't have a significant amount of relevant correspondence, it may be easier for you to include the correspondence you identify as attachments to one or more emails that you send back to me.

I want to thank you again in advance for supporting the GIPA process at the University and for helping us with the tight legal obligations it places on us to locate and assess information in response to all requests. I know you have had an incredibly challenging year and I do apologise for the additional work we have imposed on you with its associated tight timeframes, but we are very grateful for your support.

If there is anything we can do to assist your information searches, such as coordinating a Cyber Security search of email environments for specific keywords or search terms, please do let me know.

And if you have any questions or concerns about the GIPA process or this application, please don't hesitate to contact me at any time.

Thanks so much and all the best,

Kate

[2021-01-12 18:16:51]

[Eddie Holmes]

Laughable that they claim to be a "public health research organisation". I've warned Kate about "butt lesion". I'm going to fight the release of this as much as I can: not because I anything to hide, but because they are total shit heads. If/when you asked whether you agree to your emails being included I think "no" would be an appropriate answers.

[2021-01-12 18:18:10]

[Eddie Holmes]

P.S. They say that, technically, if the email concerns work done at your University then it's in *irrespective* if you use a private email address (i.e. gmail) or not.

[2021-01-12 19:16:10]

[Kristian Andersen]

How fun... I'd say our personal banter about Butt Lesion should be left out - based on "Under the terminology in the Act, we assess whether the public interest considerations against disclosure outweigh the public interest considerations in favour of disclosure".

Don't mind any of the other stuff going public. In fact, once you have some of this gathered, let's consider whether we want to start 'leaking' it via Twitter to "give more perspective on our earlier investigations". I don't mind any of that becoming public knowledge.

[2021-01-12 21:07:53]

[Kristian Andersen]

Yeah, let's see what you actually dig out of your email and then decide if we should 'leak' some of them or not. I suspect yes, as we know they will go public and they will be quoted out of context. Much better to lighthearted steal the thunder from all the buffoons.

Btw all this recent evolution observed in SARS-CoV-2 really is a giant :middle_finger: to all the tinfoil hats out there.

[2021-01-12 21:09:16]

[Robert Garry]

[thread - ID: 2021-01-12 15:14:55]

@Robert Garry *@channel Ruff draft:Introduction*

SAR-CoV-2 variants carrying multiple mutations have emerged around the world. B.1.1.7 in the United Kingdom acquired 17 mutations, including 8 in spike (Rambaut et al., 2020). B.1.351 in South Africa (Pond et al., 2020) and P.1 in Brazil [ref] represent additional emerging variants with multiple mutations. Among other mutations, B.1.1.7 and B.1.351 have deletions in spike.

Methods

The following sequences were included in this analysis:

YP_009724390.1 surface glycoprotein [Severe acute respiratory syndrome coronavirus AAP13441.1 S protein [SARS coronavirus Urbani]

AAU04646.1 spike glycoprotein [Civet SARS CoV 007/2004]

``QHR63300.2 spike glycoprotein [Bat coronavirus RaTG13]``

Spike amino acid sequences were aligned using Clustal Omega (Sievers et al., 2011).

Figure 1. Amino acid alignment of SARS-CoV, SARS-CoV-2, RatG13 BatCoV spikes. Only part of S2 is shown. The remainder of the alignment does not have additional insertions or deletions.

Results

Divergence of the SARS-CoV and SARS-CoV2 appears to involve insertion of several short sequences in spike (Fig. 1). Except for the insertion that generated the furin cleavage site, the RatG13 BatCoV spike has each of the SARS-CoV2 spike insertions. This suggests that a common ancestor of SARS-CoV2 and RatG13 BatCoV had already obtained these insertions. The spike of SARS-CoV of civets does not have any insertions or deletions relative to spike of human SARS-CoV (not shown).

The spikes of B.1.1.7 variants have deletions of amino acids H69 and V70. The spikes of B.1.351 variants have a deletion at amino acid Y145 and consecutive deletions at amino acids L241, L242 and A243. The deletions in these variants correspond to the apparent insertions that have occurred in the SARS-CoV-2 spike relative to the SARS-CoV spike. Thus, deletions in these emerging variants are in or near sequences that were inserted after the divergence of the embecovirus lineage that produced SARS-CoV-2 from the lineage that produced SARS-CoV. An insertion in or near the coding sequence for amino acid E484 of SARS-CoV-2 spike can also be inferred by the alignment of SARS-CoV, SARS-CoV2 and RatG13-Bat CoV spikes. E484K is one of several mutations of known biological importance that is present in the B.1.351 and P1 lineages of emerging SARS-CoV2 variants.

Discussion

The generation of insertions or deletions (indels) in or near the furin cleavage site is a frequent occurrence during coronavirus evolution (Gallaher and Garry, 2020). Passage of SARS-CoV-2 in Vero cells can result in deletion of either the furin cleavage site or a sequence immediately adjacent to it [ref]. Deletions in the spike genes of recent emerging SARS-CoV-2 variants occur preferentially in mutational hotspots that have generated insertions during embecovirus evolution. Another insertion adds amino acid E484 that is subject to further mutation during extended human-to-human passage, and which may impart enhanced fitness and/or immune escape.

A caveat of the current analysis is that the amino acid alignments are not intended to precisely represent the underlying nucleotide alignments. A previous analysis suggested that the insertion generating the furin cleavage site in SARS-CoV-2 spike is out-of-frame. The molecular mechanism(s) that generated the insertions present in SARS-CoV-2 spike cannot be determined by sequence analysis. Although coronaviruses have a proof-reading apparatus, their genomes remain subject to recombination as well as copy-choice transcriptional errors [refs].

Conclusions

It will be important to elucidate genomic features that favor indel formation and to define molecular processes occurring during coronavirus genome replication that produce indels.

[2021-01-12 21:13:14]

[Robert Garry]

@Kristian Andersen the ruff draft I just posted might be a good place for you to insert a few sentences of some pointed language for the tinfoil hats.

[2021-01-12 21:16:09]

[Kristian Andersen]

I'll take a look Bob - I assume on the GDoc?

@Eddie Holmes - I forgot to mention - very interesting about the pangos! Looking forward to seeing some of that data (that'll be another :middle_finger:)

[2021-01-12 21:19:44]

[Robert Garry]

Yes - that would be good if you want to post a Gdoc. Please use the edited version - the paste didn't go well the first time.

[2021-01-12 21:22:36]

[Robert Garry]

Suffered a deletion - go figure...

[2021-01-12 21:22:59]

[Kristian Andersen]

Hang on Bob - which "ruff draft" are you referring to?

[2021-01-12 21:24:08]

[Robert Garry]

This one in the thread Introduction

SAR-CoV-2 variants carrying multiple mutations have emerged around the world. B.1.1.7 in the United Kingdom acquired 17 mutations, including 8 in spike (Rambaut et al., 2020). B.1.351 in South Africa (Pond et al., 2020) and P.1 in Brazil [ref] represent additional emerging variants with multiple mutations. Among other mutations, B.1.1.7 and B.1.351 have deletions in spike.

Methods

The following sequences were included in this analysis:

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Divergence of the SARS-CoV and SARS-CoV2 appears to involve insertion of several short sequences in spike (Fig. 1). Except for the insertion that generated the furin cleavage site, the RatG13 BatCoV spike has each of the SARS-CoV2 spike insertions. This suggests that a common ancestor of SARS-CoV2 and RatG13 BatCoV had already obtained these insertions. The spike of SARS-CoV of civets does not have any insertions or deletions relative to spike of human SARS-CoV (not shown).

The spikes of B.1.1.7 variants have deletions of amino acids H69 and V70. The spikes of B.1.351 variants have a deletion at amino acid Y145 and consecutive deletions at amino acids L241, L242 and A243. The deletions in these variants correspond to the apparent insertions that have occurred in the SARS-CoV-2 spike relative to the SARS-CoV spike. Thus, deletions in these emerging variants are in or near sequences that were inserted after the divergence of the embecovirus lineage that produced SARS-CoV-2 from the lineage that produced SARS-CoV. An insertion in or near the coding sequence for amino acid E484 of SARS-CoV-2 spike can also be inferred by the alignment of SARS-CoV, SARS-CoV2 and RatG13-Bat CoV spikes. E484K is one of several mutations of known biological importance that is present in the B.1.351 and P1 lineages of emerging SARS-CoV2 variants.

Discussion

The generation of insertions or deletions (indels) in or near the furin cleavage site is a frequent occurrence during coronavirus evolution (Gallaher and Garry, 2020). Passage of SARS-CoV-2 in Vero cells can result in deletion of either the furin cleavage site or a sequence immediately adjacent to it [ref]. Deletions in the spike genes of recent emerging SARS-CoV-2 variants occur preferentially in mutational hotspots that have generated insertions during embecovirus evolution. Another insertion adds amino acid E484 that is subject to further mutation during extended human-to-human passage, and which may impart enhanced fitness and/or immune escape.

A caveat of the current analysis is that the amino acid alignments are not intended to precisely represent the underlying nucleotide alignments. A previous analysis suggested that the insertion generating the furin cleavage site in SARS-CoV-2 spike is out-of-frame. The molecular mechanism(s) that generated the insertions present in SASR-CoV-2 spike cannot be determined by sequence analysis. Although coronaviruses have a proof-reading apparatus, their genomes remain subject to recombination as well as copy-choice transcriptional errors [refs].

Conclusions

It will be important to elucidate genomic features that favor indel formation and to define molecular processes occuring during coronavirus genome replication that produce indels.

[2021-01-12 21:25:41]

[Kristian Andersen]

Bob - you and technology... :face_with_rolling_eyes:

[2021-01-12 21:27:03]

[Kristian Andersen]

Alright...

https://docs.google.com/document/d/1UMQokOz_gDqE0s9keyl7ES8bC7-55EOFuA4UiznEP08/edit?usp=sharing

[2021-01-12 21:27:14]

[Kristian Andersen]

Welcome to 2021 - it's awesome :wink:

[2021-01-12 21:27:37]

[Robert Garry]

I know - :rolling_on_the_floor_laughing:

[2021-01-12 21:27:53]

[Robert Garry]

Thanks

[2021-01-12 21:28:53]

[Kristian Andersen]

I only know one person who's worse than you :computer: - Eric Topol. Mr. Technology himself...

[2021-01-12 21:44:06]

[Robert Garry]

Yes indeed the new pangos are important. When the Cambobab CoV confirming RaTG13 comes --- also very important. Speaking of Pangos/RatG13 the more I look at the SC2/RatG13 alignment the more I realize Boni/Rambaut were totally spot on, No need to evoke Pango recombination to generate the RBD of SC2. Can get to SC2 spike pretty easily from a RatG13 related SC2 progenitor.

[2021-01-12 23:08:35]

[Eddie Holmes]

Thanks for the draft Bob, I'll take a look as soon as I can. Great this is moving. Cambobab CoV is also on it's way I understand. Looking forward to at least two :middle_finger::middle_finger: to the tinfoil hats. I am SO looking forward to that.

[2021-01-13 07:39:58]

[Robert Garry]

Ok - Ichannel this is getting a bit freaky. At @Andrew Rambaut prompt I did the alignment with RmYN02. More on this later but it is very consistent with short insertions occurring between SC1 and SC2 - in fact some the overall "deletions" are larger in RmYN02. There is only one exception to the rule. Relative to SC1, SC2 and RatG13 RmYN02 has a four amino acid insertion at or around D215. @Kristian Andersen will note that insertions in SC2 are quite rare. There are however a couple of natural 4 amino acids insertions in SC2 isolates before and after D215. And just to round out the freakiness After passage in Vero we observed an 4 amino acid insert at - you guessed it - D215 Of course D215G is one of the B.1.351 defining variants. Here's the alignment: [shared file(s): image.png]

[2021-01-13 07:43:29]

[Robert Garry]

It does look like - despite the supervillain's best efforts - SC2 keeps clawing its way back to something approaching its bat ancestor.

[2021-01-13 08:21:46]

[Kristian Andersen]

This is interesting Bob. I do wonder if these are "transmission" adaptations - I believe N501Y is also often fixed after passage and we see it intrahost.

As for insertions - yes, those _do_ tend to be four amino acids when we see them in SC2 - typically after culture. Why it's four, and not one, two, or three, I don't understand - probably has to do with the recombination machinery preferring 12bp lenght.

[2021-01-13 08:35:43]

[Kristian Andersen]

[thread - ID: 2021-01-13 08:35:43]

@Andrew Rambaut - do you have a good sense of where AZN ran some of their earlier trials? Just to go back to our early crackpot theory, the emergence of these lineages also now out of Brazil makes me wonder a little... E.g., [https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(20\)32661-1/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(20)32661-1/fulltext)

[2021-01-13 17:39:28]

[Eddie Holmes]

[https://wexnermedical.osu.edu/mediaroom/pressreleaselisting/new-sars-cov2-variant#:~:text=COLUMBUS%2C%20Ohio%20%E\[...\]ent%20in%20the%20United%20States](https://wexnermedical.osu.edu/mediaroom/pressreleaselisting/new-sars-cov2-variant#:~:text=COLUMBUS%2C%20Ohio%20%E[...]ent%20in%20the%20United%20States)

[2021-01-13 17:41:20]

[Eddie Holmes]

Bollocks?

[2021-01-13 17:41:25]

[Kristian Andersen]

Imagine that - every time theres a mutation in the SARS-CoV-2 genome we need a press conference...

[2021-01-13 17:47:04]

[Eddie Holmes]

And there's nothing at the preprint link either. Useless.

[2021-01-13 23:39:26]

[Andrew Rambaut]

[thread - ID: 2021-01-13 08:35:43]

@Kristian Andersen <https://clinicaltrials.gov/ct2/show/NCT04444674>

Locations
South Africa
PHRU Kliptown

Johannesburg, Gauteng, South Africa, 1811
Soweto Clinical Trials Centre
Johannesburg, Gauteng, South Africa, 1818
Wits RHI Shandukani Research Centre
Johannesburg, Gauteng, South Africa, 2001
Setshaba Research Centre (SRC)
Soshanguve, Gauteng, South Africa, 0152
Chris Hani Baragwanath Academic Hospital - DST/NRF VPD RMPRU
Soweto, Gauteng, South Africa, 2013
FAMCRU
Cape Town, Western Cape, South Africa, 7505
Groote Schuur hospital, Lung infection and immunity unit, UCT
Cape Town, Western Cape, South Africa, 7925

<https://clinicaltrials.gov/ct2/show/NCT04536051>

Locations

Brazil

Instituto D'Or de Pesquisa e Ensino - I'Dor Recruiting
Salvador, Bahia, Brazil, 41253-190
Principal Investigator: Ana Verena Mendes
Centro de Pesquisas Clinicas de Natal (CPCLIN) Recruiting
Natal, Rio Grande Do Norte, Brazil, 59025-050
Principal Investigator: Eveline Pipolo Milan
Hospital das Clinicas de Porto Alegre Recruiting
Porto Alegre, Rio Grande Do Sul, Brazil, 90035-903
Principal Investigator: Eduardo Sprinz
Universidade Federal de Santa Maria (UFSM) Recruiting
Santa Maria, Rio Grande Do Sul, Brazil, 97105-900
Principal Investigator: Alexandre Vargas Schwarzbold
Instituto D'Or de Pesquisa e Ensino - I'Dor Recruiting
Rio de Janeiro, Brazil, 22281-100
Principal Investigator: Ana Maria Pitella de Souza Leite
CRIE, Universidade Federal de São Paulo Recruiting
São Paulo, Brazil, 04038-001
Principal Investigator: Lily Weckx

[2021-01-13 23:41:47]

[Andrew Rambaut]

[thread - ID: 2021-01-13 08:35:43]

@Kristian Andersen It amazes me that no one has attempted to make a link yet (as far as I know).

[2021-01-14 08:58:19]

[Robert Garry]

Here's an updated figure. Yes - probably too complicated, but it makes the points that many of new lineage defining mutations including all the deletions are in or near sites that have been subject to indels from bats to humans.

[2021-01-14 10:12:49]

[Robert Garry]

better: [shared file(s): image.png]

[2021-01-14 10:29:30]

[Kristian Andersen]

[thread - ID: 2021-01-13 08:35:43]

@Kristian Andersen The overlap is uncanny... Probably just totally random, but when we first discussed it we did say "let's see what happens in Brazil"... Probably nothing, but worth keeping this in the back of our minds - it is a little peculiar.

[2021-01-14 10:43:15]

[Kristian Andersen]

This is very cool - thanks Bob I need to take a closer look at this - the broader implication would suggest that these are very evolutionary active regions. Joel mentioned that SC2 has a lot of reversions back to "bat", which is quite peculiar.

Totally unrelated, but can I just mention one gripe here - Apoorva Mandavilli at NYTimes is doing a friggin' terrible job with her reporting. Really frustrating she's now the main SC2 reporter at NYTimes - they used to do so well. The Atlantic it is (which is totally fine with me!).

[2021-01-14 10:57:25]

[Robert Garry]

Yes indeed thank you -someone needs to look closely - I seem to have missed L18F and picked the wrong B1.1.351 without it, but corrected here. L18F still very much fits the pattern. Indeed, these are the evolutionarily active regions. [shared file(s): image.png]

[2021-01-14 11:03:17]

[Robert Garry]

Yes, the deletions at 69/70 and 145 as well as the cell culture insertions at 214/5 and around the FCS and do bring the sequences back closer to bat.

[2021-01-14 13:11:52]

[Andrew Rambaut]

Jeez:

""We report the presence of a viral isolate from late December 2020 in Columbus Ohio that has acquired the S N501Y variant. This amino acid change was first described in a clinical sample in the United Kingdom in association with other novel S variants and a clade 20B backbone (ECDC, 2020; Davies et al, 2020), with the combination named as the B.1.1.7 strain and a Next Strain designation as 20I/501Y.V1 (Bedford et al, 2021). The same N501Y mutation was subsequently found in a clade 20C strain in South Africa, where it was associated with a different set of additional S variants (Tegally et al, 2020), with Next Strain designation as 20H/501Y.V3. ""
What a fucking mess Trevor has created. "It has acquired the N501Y variant".

[2021-01-14 13:19:55]

[Andrew Rambaut]

On that note, I am sure I read this hypothesis somewhere before:
<https://twitter.com/trvrbr/status/1349774308202094594>

[2021-01-14 13:23:06]

[Eddie Holmes]

Aye on both counts. Fucking Trevor!

[2021-01-14 13:25:23]

[Andrew Rambaut]

That Ohio paper is well out of order. They say - UK■B.1.1.7 (clade 20I/501Y.V1) strain. This is not on - you can't label stuff geographically.

[2021-01-14 13:26:57]

[Andrew Rambaut]

`containing several likely pathogenic but distinct mutations in the Spike (S) gene, particularly N501Y.` - what? 'likely pathogenic'? Garbage

[2021-01-14 13:30:51]

[Eddie Holmes]

I think you can give this one a kicking on Twitter. Unfortunately, given the discussion about it yesterday I think I had to post it. The reviewers can resolve all that stuff.

[2021-01-14 14:00:07]

[Kristian Andersen]

[thread - ID: 2021-01-13 08:35:43]

@Kristian Andersen <https://twitter.com/Cornedbeefpyatt/status/1349776702239633409?s=20>

[2021-01-14 14:08:38]

[Kristian Andersen]

Human geneticists love to use the term “pathogenic mutation”. I wonder if that’s where it’s coming from... Real garbage.

I’m glad Trevor supports our hypothesis... :wink:

[2021-01-14 14:09:41]

[Eddie Holmes]

I even discussed it with Eric Topol on his podcast!

[2021-01-14 14:09:58]

[Kristian Andersen]

REALLY????

[2021-01-14 14:10:03]

[Kristian Andersen]

:zany_face:

[2021-01-14 14:10:15]

[Eddie Holmes]

Yes!!

[2021-01-14 14:10:19]

[Kristian Andersen]

WOW

[2021-01-14 14:11:25]

[Kristian Andersen]

I still consider it MY (highly speculative!) hypothesis! MINE. MY HYPOTHESIS.

[2021-01-14 14:18:09]

[Eddie Holmes]

It's also in that ABC Australian podcast I did the other the day. But you can have it - I'm not 100% convinced yet. I'm not sure why evolution in individual chronic hosts will lead to convergent evolution for increased transmissibility at the population scale. A few years ago we did a norovirus modelling study that said this sort of thing was unlikely, but that could easily be bollocks. <https://academic.oup.com/ve/article/3/2/vex018/4055728>

[2021-01-14 14:27:29]

[Andrew Rambaut]

There is no evidence that there is increased transmissibility in either the Brazilian or South African strain.

[2021-01-14 14:28:28]

[Andrew Rambaut]

It is clearly fit in the populations it is spreading in.

[2021-01-14 14:38:00]

[Andrew Rambaut]

The convergence is possibly for cellular infectivity and immune evasion - all things that will be selected for in a chronic infection without sterilising immunity. Strong competition between viruses for cells. However, my assumption has always been that this can only be likely to degrade transmissibility (given it was already transmissible at the beginning). But perhaps there is just a fortunate (for the virus) alignment of a within-host fitness peak and a between host one. And the latter involves too many intermediate steps with negative epistatic effects to reach in a stepwise

fashion.

[2021-01-14 14:39:08]

[Andrew Rambaut]

Within host (and with the additional benefit of recombination) these combinations are readily obtainable.

[2021-01-14 15:20:39]

[Eddie Holmes]

Given the low frequency of chronic infections compared to the huge number with 'normal' durations of infection, doesn't the fact that we are seeing the same sort of constellation of mutations evolve and spread 3 times independently suggest that they have a major advantage at the population level?

[2021-01-14 15:46:38]

[Andrew Rambaut]

Yes - they do. But I think they can't get there by progressive steps in sequential infections - there are troughs (we see all of these mutations appear individually many times).

[2021-01-14 15:47:30]

[Andrew Rambaut]

So the chronic infections offer an opportunity for these to arise in combination. Chronic infections are rare as a proportion of infections but there are shed loads of infections now.

[2021-01-14 15:47:54]

[Eddie Holmes]

Indeed. Not saying the theory is wrong, just that there are some loose ends. I can only imagine how Alina and gang have reacted to this: [shared file(s): s41591-020-01205-5.pdf]

[2021-01-14 15:54:07]

[Andrew Rambaut]

Nice piece. Angie is a true hero. I can't imagine what she must put up with (you probably can more than me, Eddie, but women get it so much worse).

[2021-01-14 15:58:08]

[Eddie Holmes]

She's a 1000X times tougher than me. I find it very difficult and have to get off social media as much as I can. I also hate dealing with the mainstream media. She must get endless shit. No idea how she manages it.

[2021-01-14 16:03:40]

[Kristian Andersen]

Angie is indeed tough as nails - true hero! I *do* wonder if she has a hard time dealing with all the shit she must be getting - she is moving to Canada after all. Can't blame for leaving this dumpster fire - I'd do the same in a heartbeat if anybody up north wanted me.

[2021-01-14 16:04:32]

[Eddie Holmes]

There's an opening at the Wuhan Institute of Virology. Labs were recently renovated and cleaned.

[2021-01-14 16:06:50]

[Kristian Andersen]

> Yes - they do. But I think they can't get there by progressive steps in sequential infections - there are troughs (we see all of these mutations appear individually many times).

Agreed. The way I'm thinking about this is that there must be an initial selection pressure that drives the fixation of those mutations - almost certainly, that selection pressure is intrahost. Once that variant is out - and it's more transmissible / able to evade immunity - then it's a different selection pressure driving its fixation in the population. I too just think there's a really unfortunate relationship between really fit intrahost, means you're really fit in the larger population.

Separately, two vaccine failures en route to our lab - I sure as shit hope these are not B117! (they're epidemiologically connected...).

[2021-01-14 16:14:25]

[Andrew Rambaut]

How long after vaccination?

[2021-01-14 16:17:22]

[Kristian Andersen]

I believe this was just after receiving second shots - but importantly, in the presence of strong IgG anti-S titers.

[2021-01-14 16:18:08]

[Kristian Andersen]

Don't know if these titers are neuts though - something we need to test. We have a bunch inbound from Jordan too, but those are failures from one of the Chinese vaccines.

[2021-01-14 16:23:12]

[Andrew Rambaut]

All vaccine failures in the UK will automatically go for sequencing - I am hopeful we will be told which ones they are but who knows.

[2021-01-14 16:24:30]

[Kristian Andersen]

Yeah, going to be really important over the next couple of months to understand what's going on here. The immunologists seem very (VERY!) sure there is no problem with the UK/RSA/Brazil lineages when it comes to immunity. I'm less certain.

[2021-01-14 16:26:40]

[Andrew Rambaut]

I agree. If these constellations have no effect on vaccine elicited immunity then boy will we have dodged a bullet.

[2021-01-14 16:27:26]

[Kristian Andersen]

I'm almost certain they'll have _some_ effect on efficacy, but just not sure how much. Let's hope very little (say, 95% > 92%...)

[2021-01-14 16:27:58]

[Kristian Andersen]

Lord knows what the effectiveness is going to be anyway. We'll see...

[2021-01-14 16:31:57]

[Kristian Andersen]

Tangential to this, but important to fully understand just how tolerant SARS-CoV-2 is to mutations in immunologically key sites - HCoV-NL63 uses ACE2 as a receptor too and is very diverged from SC2. @Robert Garry - I don't know if you have looked more closely at that virus going through your alignments / structures?

[2021-01-14 16:56:55]

[Robert Garry]

YeaH do think there will be failures for the vaccines that don't use a stabilized spike. Erica Saphire and others have been preaching this, some folks don't listen. Same with Lassa vaccine, but that's an entirely different story. BTW - I was on call yesterday with Erica/NIH so I missed several Zooms.

[2021-01-14 17:02:15]

[Kristian Andersen]

Why they did not stabilize that spike I don't know - so simple, people! If we follow this crackpot theory a little bit, knowing that animals that received the OxAZN vaccine were not protected against infection (at all - vaccinated animals had as much virus as unvaccinated animals in the upper airways after challenge). Could the non-stabilized spike lead to a very narrow immune response with very few epitopes exposed, some of which might be suboptimal? If yes, then presumably the virus might be able to escape immunity quite easily by changing a limited set of amino acids - and, presumably, the same/similar set of AAs.

We wouldn't see the same happen in natural infections - more complex to escape. We also wouldn't see the same from other vaccines - because, again, more complex.

I don't know if this holds up... Seems like a reach to me - albeit, maybe not impossible?

[2021-01-14 18:23:14]

[Robert Garry]

Fortunately the NIH people were on to this for Moderna and Pfizer. Yes - natural infections more likely more polyclonal - not to mention T cell immunity to other viral proteins besides spike. People (even Tony sorta) have said expect better immunity from the vaccines. I can't really get my head around that although natural infection (no stabilized spike) maybe not the right antibodies. We are doing the grand experiments right now with the different vaccines - we.

[2021-01-14 18:23:23]

[Robert Garry]

will see.

[2021-01-14 18:53:16]

[Kristian Andersen]

[thread - ID: 2021-01-14 18:53:16]

Bloody hell - retweeted this earlier, but just got a chance to read the whole thread. She is _such_ a hard hitter. :boxing_glove:

https://twitter.com/angie_rasmussen/status/1349754581702508544?s=20

[2021-01-14 20:14:00]

[Robert Garry]

NL63 - some similar in the RBD which I did not expect - will take a further look -

[2021-01-14 23:54:29]

[Andrew Rambaut]

[thread - ID: 2021-01-14 18:53:16]

@Kristian Andersen This reply though: [shared file(s): image.png]

[2021-01-14 23:54:56]

[Andrew Rambaut]

I think Gilles has really nailed it. That's Angela told.

[2021-01-15 00:35:07]

[Eddie Holmes]

I didn't understand the concept either. No idea how I've gotten by so long.

[2021-01-15 01:10:30]

[Andrew Rambaut]

I haven't even bothered to look it up. The umlaut put me off.

[2021-01-15 06:27:17]

[Robert Garry]

Me to! Umlaut, also known as diaeresis, i-umlaut or - wait for it - i-mutation, is a mark that consists of two dots (¨) placed over a letter, usually a vowel, to indicate a different quality. Only one word I believe in Webster's American English [I know other English out there] that still allows the use of the mark as a variant: *naïveté.* Ironically, the root *naïve* is a French adjective meaning “natural, just born” just like SARS-CoV-2.

[2021-01-15 06:40:52]

[Robert Garry]

Use *naïveté* in a sentence: It is the height of *naïveté* to claim that one can infer the evolutionary origins of the RmYN02 S1/S2 cleavage site by performing a simple nucleotide alignment as advanced by some proponents of the lab origin hypothesis [1]. 1. The genetic structure of SARS-CoV-2 does not rule out a laboratory origin SARS-CoV-2 chimeric structure and furin cleavage site might be the result of genetic manipulation
Rossana Segreto Yuri Deigin

[2021-01-15 10:14:02]

[Kristian Andersen]

@Andrew Rambaut - do you guys have any concerns about L452R?

[2021-01-15 10:30:19]

[Andrew Rambaut]

I wasn't until you just asked me.

[2021-01-15 10:51:43]

[Kristian Andersen]

Oh boy. What did I do - anything in your data? We saw it yesterday here in San Diego, but Charles Chiu just told me it's at 25% in LA

[2021-01-15 10:56:06]

[Kristian Andersen]

What the hell is going on with this binding affinity thingamajig. <https://arxiv.org/pdf/2005.14669.pdf>

[2021-01-15 11:10:02]

[Andrew Rambaut]

86 with L452R in England.

[2021-01-15 11:11:14]

[Kristian Andersen]

Recent and on B.1.1.7 background?

[2021-01-15 11:11:27]

[Kristian Andersen]

(and I said LA - it's actually Northern California)

[2021-01-15 11:12:10]

[Andrew Rambaut]

A few from lineage A with N501Y too:

Denmark/DCGC-22492/2020,2020-12-14,A,synSNP:A361G|orf1ab:P286L|synSNP:C2509T|synSNP:C8782T|orf1a b:D2980G|orf1ab:N3651S|synSNP:A11326G|synSNP:C16293T|orf1ab:P5401L|synSNP:A18366G|synSNP:A20262 G|S:L18F|synSNP:G22468T|S:L452R|S:*N501Y*|S:A653V|S:H655Y|S:D796Y|S:G1219V|ORF3a:V50A|synSNP:C2 7247T|ORF8:L84S|N:S202N|synSNP:T29344A|N:D358N

England/PHEC-150B87/2020,2020-12-23,A,synSNP:A361G|orf1ab:P286L|synSNP:C2509T|synSNP:C8782T|orf1a b:D2980G|orf1ab:N3651S|orf1ab:T4265I|orf1ab:Q4392H|synSNP:C16293T|orf1ab:P5401L|synSNP:A18366G|orf1a b:L6082F|orf1ab:A6544V|synSNP:A20262G|S:L18F|synSNP:C21658T|synSNP:G22468T|S:L452R|S:*N501Y*|S:A6 53V|S:H655Y|S:D796Y|S:G1219V|ORF3a:V50A|synSNP:A26154G|synSNP:C27247T|ORF8:L84S|N:S202N

England/PHEC-150B96/2020,2020-12-23,A,synSNP:A361G|orf1ab:P286L|synSNP:C2509T|synSNP:C8782T|orf1a b:D2980G|orf1ab:N3651S|orf1ab:Q4392H|synSNP:C16293T|orf1ab:P5401L|orf1ab:K5542R|synSNP:A18366G|orf1 ab:L6082F|orf1ab:A6544V|synSNP:A20262G|S:L18F|synSNP:C21658T|synSNP:G22468T|S:L452R|S:*N501Y*|S:A 653V|S:H655Y|S:D796Y|S:G1219V|ORF3a:V50A|synSNP:A26154G|synSNP:C27247T|ORF8:L84S|N:S202N

[2021-01-15 11:12:29]

[Andrew Rambaut]

Danish one seems related too

[2021-01-15 11:13:15]

[Andrew Rambaut]

One in combo with E484K:

England/MILK-D74161/2020,2020-12-26,B.1.1.10,orf1ab:L446F|synSNP:C3037T|orf1ab:M1378I|synSNP:C4543T|synSNP:G8179T|orf1ab:P2739L|orf1ab:Y3063S|orf1ab:P3767L|synSNP:C12406T|orf1ab:P4715L|synSNP:C14805T|orf1ab:T5131I|synSNP:C19170T|synSNP:C19269T|synSNP:G19509A|synSNP:C21811T|S:L452R|S:*E484K*|S:D614G|S:Y1155F|S:V1228L|synSNP:A26927G|synSNP:G28079T|N:R203K|N:G204R

[2021-01-15 11:13:27]

[Kristian Andersen]

Hmmm. Also L18F

[2021-01-15 11:13:41]

[Robert Garry]

Yeah just looking at the structure L452R could definitely affect ACE2 binding.

[2021-01-15 11:15:51]

[Kristian Andersen]

[thread - ID: 2021-01-15 11:15:51]

All are recent too. I'll put that on the list of "ones to watch".

I don't want to do this every time a g'damn mutation comes up! We also need somebody to gather all the information we have on the various SNPs - binding, Ab escape, structures, etc. - so we can have a simple SNP table... I'll put that on the list.

[2021-01-15 11:18:35]

[Kristian Andersen]

shared file(s): L452R variant

[2021-01-15 11:19:33]

[Kristian Andersen]

Very fitting. [shared file(s): Screen Shot 2021-01-15 at 11.19.03.png]

[2021-01-15 11:49:02]

[Robert Garry]

just tell me when i can update my christmas card

[2021-01-15 11:49:24]

[Robert Garry]

shared file(s): image.png

[2021-01-15 11:50:46]

[Kristian Andersen]

Yeah, please keep that confidential for now - the zoo is freaking out... That genome is identical to a zookeeper, so no change of the virus going to the gorilla. We're getting additional samples.

[2021-01-15 12:23:10]

[Robert Garry]

Will do - test some monkeys too. Maybe the tamarins. They are my favorites.

[2021-01-15 12:33:45]

[Kristian Andersen]

It'll be interesting to see if the whole zoo goes down with covid....

[2021-01-15 12:41:46]

[Andrew Rambaut]

[thread - ID: 2021-01-15 11:15:51]

@Kristian Andersen We are building a website that will track 'constellations' rather than variants. Combinations of mutations of known or predicted importance. Where you can cross cut the data to see where those combinations have arisen and in what contexts (independent of the phylogenetic history).

[2021-01-15 12:44:31]

[Kristian Andersen]

[thread - ID: 2021-01-15 11:15:51]

@Kristian Andersen Yeah, that'll be important to have, however, I'd love to have a way to "look up" particular mutations - e.g., E484K telling me it increases affinity and is involved in immune escape - so more on the functional side to make sense of the phylogenetic data. Would be similar to Jesse's 'maps', but with much more information. Not an easy task at all though...

[2021-01-15 12:48:00]

[Robert Garry]

Would be sad - my three favorite zoos happen to be in NOLA, San Diego and Sydney.

[2021-01-15 12:49:16]

[Kristian Andersen]

Separately - can I just point out that it's 85 degrees in San Diego today. I thought it was winter..?!
:beach_with_umbrella:

[2021-01-15 13:37:08]

[Eddie Holmes]

I'm particularly partial to gibbons.

[2021-01-15 13:51:08]

[Kristian Andersen]

Possibly the second best thing on Twitter today (after Andrew's Variant Rant)

<https://twitter.com/mbeisen/status/1350181257313882112?s=20>

[2021-01-15 13:54:38]

[Eddie Holmes]

Wow.

[2021-01-15 13:58:41]

[Kristian Andersen]

I guess Mike won't be invited to comment on the microbial programs...

[2021-01-15 14:25:19]

[Eddie Holmes]

Pass the sick bag: <https://www.nytimes.com/2021/01/14/theater/lauren-gunderson-the-catastrophist-nathan-wolfe.html?action=click&module=Features&pgtype=Homepage>

[2021-01-15 14:37:53]

[Robert Garry]

I can't look - ok I'm going to look, but please have look at the "quick" virological post on indels. It's fleshed out A LOT but needs input. Proposed author list is a reverse of PO1 with delBL and addition of ProfBill [for fun] and a couple of students who contributed to the Vero passage. THOUGHTS PLEASE

https://docs.google.com/document/d/1UMQokOz_gDqE0s9keyl7ES8bC7-55EOFuA4UiznEP08/edit?usp=sharing

[2021-01-15 15:30:23]

[Andrew Rambaut]

What do we reckon - a fishing attempt to hack my account?

I am sure [REDACTED] is a legit email: [shared file(s): image.png]

[2021-01-15 15:36:55]

[Robert Garry]

It seems more specific than random phishing. They are definitely targeting you in particular. My guess: someone wearing a tinfoil hat looking to entrap you into some sort of response that will look like you're open to a bribe from the CCP. Maybe you should inquire if the offer includes a "honeypot?"

[2021-01-15 15:37:20]

[Robert Garry]

Maybe 2.

[2021-01-15 15:38:08]

[Andrew Rambaut]

I hadn't thought of that - I was thinking more of the one I heard about where they give you a fake zoom or teams link which ends up giving them access to your system.

[2021-01-15 15:39:42]

[Andrew Rambaut]

But actually the trying to get an incriminating email is an interesting thought. @Eddie Holmes, @Kristian Andersen did you get this?

[2021-01-15 15:39:47]

[Kristian Andersen]

I don't know man - enquire about the excellent honorarium first...

[2021-01-15 15:40:28]

[Kristian Andersen]

... I didn't receive it.

[2021-01-15 15:40:38]

[Andrew Rambaut]

Perhaps say they have to pay the honorarium first into my paypal and then I have some excellent dirt about Holmes and Andersen

[2021-01-15 15:41:01]

[Kristian Andersen]

That's worth at least a hundred grand!

[2021-01-15 15:49:14]

[Robert Garry]

Maybe more \$\$\$

[2021-01-15 15:50:00]

[Robert Garry]

\$100K - can't buy a decent boat for that.

[2021-01-15 15:50:10]

[Eddie Holmes]

I got this a few weeks ago. Deleted it. It's an attempt to trap us.

[2021-01-15 15:53:04]

[Kristian Andersen]

Full slide deck from Ian Wilson's recent talk - quite useful for looking at some of these mutations: <https://www.dropbox.com/s/jrxhtnndvf2fdd8/Wilson%20DiscoBio%20Retreat%202021%20for%20DiscoBio%20.pptx?dl=0>

[2021-01-15 15:54:37]

[Eddie Holmes]

@Robert Garry I'll take a look the Virological post today. Apologies! It's the summer hols here and I am chilling in the Blue Mountains.

[2021-01-15 15:56:03]

[Robert Garry]

Not a problem - chilling in the mountains does sound incredibly wonderful! Any feedback welcome gents!

[2021-01-15 15:58:30]

[Robert Garry]

Some of the stuff about the conspiracy crowd should be toned down a bit, but - inspired by Angie R - I put some of it in for now.

[2021-01-15 16:00:55]

[Andrew Rambaut]

Will try to take a look over the weekend but it may not be until Monday

[2021-01-15 16:07:15]

[Eddie Holmes]

Not a bad spot [shared file(s): Image from iOS.jpg]

[2021-01-15 16:16:12]

[Robert Garry]

AWESOME - Enjoy Eddie - you deserve it!

[2021-01-15 16:19:26]

[Robert Garry]

Latest version of the figure [shared file(s): image.png]

[2021-01-15 16:56:13]

[Eddie Holmes]

Got it Bob!

[2021-01-15 17:06:57]

[Eddie Holmes]

""The Catastrophist"" tells the story of Wolfe's upbringing by a father who, along with other relatives, shares a particular medical vulnerability. It follows his quest as a virus hunter whose early career was spent in Africa and Asia looking for clues to the next major pandemic". Surely it should be "The Bullshitter"?

[2021-01-15 17:16:15]

[Eddie Holmes]

[thread - ID: 2021-01-15 17:16:15]

Do you know why GISAID are claiming that they releasing the first genome on January 10th? This is a complete fabrication. A journalist pointed me to it: [shared file(s): Screen Shot 2021-01-16 at 12.14.27 pm.png]

[2021-01-15 17:19:17]

[Eddie Holmes]

@Robert Garry @Andrew Rambaut @Kristian Andersen Massive shit is about to hit the fan.... [shared file(s): Fwd FACT SHEET Activity at the Wuhan Institute of Virology.pdf]

[2021-01-15 17:31:21]

[Eddie Holmes]

Reading it carefully, I see a rather vague set of accusations with no smoking gun. The idea that the WIV were working on pangolins seems totally bizarre. "With symptoms consistent with both COVID-19 and common seasonal illnesses"? Could mean anything. The timing speaks volumes from me...passing shot from Pompeo?

[2021-01-15 17:44:01]

[Robert Garry]

Bannon, Pompeo, etc laying the groundwork for the next push.

[2021-01-15 17:44:56]

[Eddie Holmes]

I agree. The statement about pangolins is ridiculous...and then they throw in the military links....

[2021-01-15 18:01:46]

[Eddie Holmes]

From my NYT journo friend "Pompeo is getting ready to join the presidential race in four years, so he's laying all kinds of markers and booby traps to show he's tough on China."

[2021-01-15 18:05:55]

[Kristian Andersen]

That so called "Fact Sheet" seems completely bogus to me - there's no _actual_ information in there other than they did lab work... No specific allegations, no specific data - pure bs.

[2021-01-15 18:08:03]

[Eddie Holmes]

Yup, pure BS. On the subject of BS...why are GISAID claiming that they released the sequence on the 10th?? Their data were uploaded on the 12th.

[2021-01-15 18:17:48]

[Kristian Andersen]

Yeah, I was really confused about that too - I talked to Peter on the phone and he mentioned it. I don't remember that at all, but then again, I wouldn't have checked GISAID on that day. I'm sure it's pure BS - everybody got that fucking sequencing from Virological and your post! I mean, that post has more views than our Proximal Origin post....

[2021-01-15 18:21:39]

[Eddie Holmes]

Plus, WHO say it was the 12th. I remember the chain of events well. [shared file(s): Screen Shot 2021-01-01 at 12.00.41 pm.png]

[2021-01-15 18:27:22]

[Eddie Holmes]

Better evidence is this: [shared file(s): Screen Shot 2021-01-16 at 1.26.54 pm.png]

[2021-01-15 18:28:07]

[Robert Garry]

Rewriting history during/following a pandemic - it's the standard playbook. Gotta push back!

[2021-01-15 18:29:28]

[Eddie Holmes]

This Tweet came out and I remember looking on GISAID and I couldn't see them. Then the WHO tweeted the 2nd tweet (above) and they were there. Standard pandemic history rewrite as you say. I'll leave it. Just weird.

[2021-01-15 19:07:33]

[Robert Garry]

Speaking of PO1 - we are back to #2 [shared file(s): image.png]

[2021-01-15 19:08:27]

[Robert Garry]

I think it's the citations that keep coming....

[2021-01-15 19:08:31]

[Eddie Holmes]

:beer:

[2021-01-15 19:10:37]

[Kristian Andersen]

We were #4 last week!

[2021-01-15 19:14:51]

[Eddie Holmes]

Might owe Mike Pompeo a beer.

[2021-01-15 21:28:11]

[Kristian Andersen]

Can't access the whole article, but I'm pretty sure I know what it says...

<https://www.wsj.com/articles/the-world-needs-a-real-investigation-into-the-origins-of-covid-19-11610728316> [shared file(s): Screen Shot 2021-01-15 at 9.26.27 PM.png]

[2021-01-15 21:33:18]

[Kristian Andersen]

He's a complete idiot - just low energy and low intelligence.

[2021-01-15 21:33:32]

[Eddie Holmes]

Yup.

[2021-01-16 02:21:46]

[Andrew Rambaut]

[thread - ID: 2021-01-15 17:16:15]

@Eddie Holmes I have emailed Sebastian and Peter to tell them it is incorrect. I will probably get a phone call from Peter as a result.

[2021-01-16 02:24:38]

[Andrew Rambaut]

[thread - ID: 2021-01-15 17:16:15]

@Eddie Holmes My guess is they are using the submission date/time (which is listed as 10th) but the GISAID site didn't go live until the 12th.

[2021-01-16 02:26:24]

[Andrew Rambaut]

[thread - ID: 2021-01-15 17:16:15]

@Eddie Holmes I think they must have been quickly developing the database for a while before then (they would have had to have known what the virus was to create it).

[2021-01-16 02:27:26]

[Andrew Rambaut]

[thread - ID: 2021-01-15 17:16:15]

@Eddie Holmes I am guessing it was planned to be timed with a press conference at the WHO or something but your virological post forced their hand.

[2021-01-16 02:28:32]

[Andrew Rambaut]

[thread - ID: 2021-01-15 17:16:15]

@Eddie Holmes Hence the back channel thing I heard from Trevor that the WHO was saying it had been 'leaked'.

[2021-01-16 02:40:44]

[Eddie Holmes]

[thread - ID: 2021-01-15 17:16:15]

Makes sense and explains why the China CDC got so angry...and still are. But the China CDC should have released the data when they had it. Instead, they put down a gag order and shut people up....including the commercial companies that had sequenced it December. That delay probably allowed the virus to really get going.

[2021-01-16 02:44:06]

[Eddie Holmes]

Also does not excuse GISAID trying to rewrite history.

[2021-01-16 05:39:39]

[Andrew Rambaut]

We will see what happens...

[2021-01-16 05:40:51]

[Andrew Rambaut]

I followed it up with an email offering them the chance to add our constellation scheme (would be pretty handy) to GISAID. So a bit of a carrot to be straight as well.

[2021-01-16 06:31:43]

[Robert Garry]

As for Alina yes an odd combination with Matt Ridley, who thinks human intelligence arose because men like to look at large breasts and big butts on women - then built a huge land sculpture apparently so space aliens can see with their telescopes that yes we have women here with large breasts and big butts. If you want to keep your credibility as an scientific expert then you need to keep in your lane of expertise when commenting in public. She's clearly out of her depth in evolutionary biology of viruses, and despite the fact she is Chinese has no special expertise in international politics involving China. What she is good at is getting media attention, a trait she shares with Nathan Wolfe and @Covidfaker.

[2021-01-16 07:36:15]

[Robert Garry]

Don't hold your breath for a Dr Yan-like blueprint from Dr Chan - my major problem with her bullshit. Eddie was right about the shit-fanning however. I just hope that Biden's new WH science advisor has not slipped over into the tinfoil hat crowd. [shared file(s): image.png]

[2021-01-16 07:42:38]

[Robert Garry]

Nice of you to say this Alina - except that your f'ing wall of crazy pointed the finger at all of us running dogs and your DRASTIC buddies post content with cocks drawn on our heads and much worse: [shared file(s): image.png]

[2021-01-16 08:39:39]

[Robert Garry]

Not to mention the FOIA ~requests~ harassment from your antiGMO buddies.

[2021-01-16 08:54:29]

[Robert Garry]

Just came in to look at the pango sequence EPI_ISL_610156 Manis pentadactyla mentioned in the new virological post - important that it's there for the reasons mentioned in the excellence post from Lytras et al. unfortunately a lot of missing sequence so not much use for comparison at least in spike. "The key, and urgent question to minimise future spillovers, is thus *not*, how did SARS-CoV-2 get from Yunnan to Hubei, but rather which bat or other Chinese animal species are harbouring nCoV _Sarbecoviruses_"

[2021-01-16 10:01:51]

[Robert Garry]

Here's the article FWIW. Really fair and balanced in a Fox news kinda way... [shared file(s): The World Needs a Real Investigation Into the Origins of Covid-19 - WSJ.pdf]

[2021-01-16 11:01:00]

[Robert Garry]

Oh Jesse... [shared file(s): image.png]

[2021-01-16 11:06:10]

[Kristian Andersen]

It's a hopelessly naive statement.

[2021-01-16 11:07:20]

[Robert Garry]

<https://mbio.asm.org/content/6/4/e01013-15> The types of lab release scenarios that Chan is describing aren't close to what happened in 1977 H1N1.

[2021-01-16 11:10:44]

[Kristian Andersen]

Correct. But what's most important here - and I have mentioned this to Jesse - you can't just look at flu pandemics - you need to look at emergence events. How many natural emergence events are there vs those linked to the lab?

[2021-01-16 11:12:51]

[Kristian Andersen]

It's misleading and inappropriate for people like Jesse to make these statements - it makes it sound as if our prior probability of lab escape would be 0.2. It's many orders of magnitude lower than that. Sure, the fact that WIV was/is doing work on SARS-like CoVs elevates that prior probability (but a lot), but it still gets it nowhere near the "50/50" scenario Jesse is talking about. He of all people should know that.

[2021-01-16 11:15:15]

[Kristian Andersen]

All these folks are stuck in their inappropriate priors and not updating them based on data. It's rather sad, really.

[2021-01-16 11:22:57]

[Robert Garry]

If Shi would have had a virus closer to RaTG13 she damn well would have reported it in her Nature paper. That simple fact precludes any nefarious engineering BS. All that's left for "lab escape," which we have all acknowledged is a remote possibility is that some Dingleberry (?) working on samples in lab brought in from the wild the inadvertently infected herself with the 99+% progenitor to SC2 that they then didn't bother to characterize.

[2021-01-16 11:31:52]

[Kristian Andersen]

Yup, that's it. Not impossible, just not very likely given the other possible scenarios.

[2021-01-16 13:04:59]

[Robert Garry]

<https://www.myarklamiss.com/lifestyle/health/coronavirus/ldh-confirms-first-covid-19-variant-in-louisiana/>

[2021-01-16 13:17:41]

[Eddie Holmes]

Very interesting to hear about that pangolin with a virus from 2017. That there were two lineages of pango viruses always suggested a more long-standing infection to me.

[2021-01-16 13:24:38]

[Eddie Holmes]

So much of the lab origin stuff is predicted on the idea that RaTG13 is the direct ancestor of SC2, which is obviously nonsense. I still can't get past the coincidence that RaTG13 was the one virus they had published before the outbreak and that it turns out to be closest relative. If they had other closer viruses there was nothing to prevent them publishing some years back. And then you have the pangolin RBD.

[2021-01-16 14:53:33]

[Robert Garry]

Agree with the idea that these actually are pango viruses and not just repeated spillovers.

[2021-01-16 14:58:48]

[Andrew Rambaut]

77 H1N1 had sat in a freezer for 25 years. Was bleeding obvious from the phylogenetics. It was demonstrated in 1978 through hybridization methods

<https://www.sciencedirect.com/science/article/abs/pii/S0042682278902039?via%3Dihub>

[2021-01-16 15:00:51]

[Kristian Andersen]

I explained this to Jesse previously....

I do not believe there's a single documented emergence event of a novel virus to a human from the lab, let alone one starting an outbreak/epidemic/pandemic. Yes, plenty of lab leaks, but all of the known kind and all easily identifiable.

[2021-01-16 15:03:21]

[Eddie Holmes]

Yes, all correct.

[2021-01-16 15:04:39]

[Eddie Holmes]

Can't see any real point in entering into a debate on this. We just need new data.

[2021-01-16 15:05:09]

[Kristian Andersen]

New data... Hah - I'm sure that'll convince 'em :wink:

[2021-01-16 15:07:18]

[Robert Garry]

All good points. I'm surprised at all the love and comfort given to the conspiracy theorists. Jesse, Relman obviously, now ME. [shared file(s): image.png]

[2021-01-16 15:07:48]

[Eddie Holmes]

Of course not, but it's not about convincing them - it's about producing the most complete scientific picture possible.

[2021-01-16 15:09:10]

[Eddie Holmes]

He forgot 'scientific reasons'.

[2021-01-16 15:10:56]

[Kristian Andersen]

Hah

[2021-01-16 15:12:00]

[Robert Garry]

Not surprising ME a wannabe politician [briefly ran for Senate] and likely pissed of that Biden picked EL for the WH post.

[2021-01-16 15:20:23]

[Robert Garry]

But, the more I look at RmYN02 and RaTG13 s1/s2 cleavage sites the more I'm convinced that there's a bat CoV out there with at least a very close homolg to SARS FCS already there. QTQTNS plus NSPAAR. Put'em together and what'a you got?

[2021-01-16 15:40:01]

[Robert Garry]

I do keep messing with this. [shared file(s): image.png]

[2021-01-16 15:41:05]

[Eddie Holmes]

You should get a job at the WIV Bob.

[2021-01-16 15:44:35]

[Robert Garry]

I'm told they love me (us) over there.

[2021-01-16 16:10:49]

[Eddie Holmes]

Hi Bob, I've gone over the Google Docs text and it looks good! The only that I don't quite follow is the logic the comparisons to RmYN02 as I don't see this virus as being 'ancestral' or falling particularly deep in the phylogeny. We could probably determine the ancestral sequence for all these positions but it will take a bit of work.

[2021-01-16 18:29:55]

[Robert Garry]

Many thanks Eddie! I will keep messing...

[2021-01-16 21:48:28]

[Eddie Holmes]

Nature recovers amazing quickly - huge fires here last year. We have a PO3 writing retreat here: [shared file(s): IMG_1530.JPG]

[2021-01-16 21:57:27]

[Kristian Andersen]

That looks amazing!

[2021-01-16 22:01:52]

[Eddie Holmes]

I was looking for the blue plaque saying "The Darkness once made a preposterous video here":
https://www.youtube.com/watch?v=QSGa1dW_KoE&list=FLAGyM2260ABc9ePbs6WEaLA&index=30

[2021-01-17 00:52:11]

[Eddie Holmes]

> Got this from my mate Dominic on the WHO team in Wuhan "All good, if weird, in quarantine. I've already had 3 swabs, 3 blood tests, 12 temperature checks, 3 oxygen measures and two blood pressure checks!". Carefully controlled I think.

[2021-01-17 01:01:00]

[Andrew Rambaut]

Marion tweeted about it -
<https://twitter.com/MarionKoopmans/status/1350623362662457347>

[2021-01-17 01:11:05]

[Eddie Holmes]

I hope Peter Daszak is getting rectal temp checks.

[2021-01-17 05:55:50]

[Robert Garry]

Really nice job on the edits Eddie! As for the WHO team I do hope they enjoy their visit. I've not changed my mind about prospects that this will turn out counter-productive. The most likely outcome a bunch of negative "data." 1. no epi links of early cases to WIV; 2. no smoking guns of closer relative than RaTG13 [bats, pangos, whatever]; 3. no records of forced cell culture or animal passage of bat CoVs; 4. no record of accidents that could be spillovers. The straw man of a cover-up that Alina et al have been constructing will be immediately "confirmed," thus "adding" to their evidence of lab escape.

[2021-01-17 07:27:56]

[Robert Garry]

Fish viruses! WuSEIV (pronounced wussy virus). Eddie is keeping the field of virology busy for the next century... Interesting:<https://www.biorxiv.org/content/10.1101/2021.01.04.425274v1>

[2021-01-17 07:37:23]

[Robert Garry]

This is getting complicated [shared file(s): image.png]

[2021-01-17 13:16:37]

[Eddie Holmes]

I agree to an extent, but to say this when the WHO team are on site is well out of order:
<https://twitter.com/mbeisen/status/1350495904629809154?s=12>

[2021-01-17 13:19:08]

[Eddie Holmes]

Love the spiny eel flu work by Florian! Made my day.

[2021-01-17 15:12:39]

[Kristian Andersen]

Mike's an idiot - I kinda thought he was okay, but now I realize he's a twat. Interestingly, he also doesn't know the scientific method, which is a little surprising: <https://twitter.com/mbeisen/status/1350586615702323200?s=20>.

[2021-01-17 15:37:13]

[Eddie Holmes]

Agreed. I've lost all respect for him.

[2021-01-17 15:46:16]

[Kristian Andersen]

His Lander Tweet was still pretty epic though - I give him that...

[2021-01-17 18:36:36]

[Kristian Andersen]

Let's hope this isn't an omen of what is to come:
<https://virological.org/t/sars-cov-2-reinfection-by-the-new-variant-of-concern-voc-p-1-in-amazonas-brazil/596>

[2021-01-17 18:36:53]

[Kristian Andersen]

[but I suspect it is...]

[2021-01-17 19:19:22]

[Robert Garry]

They pretty much nailed the conclusions: "Urgent studies are necessary to determine whether reinfection with newly emerging lineages harboring the mutation S:E484K is a widespread phenomenon or is limited to a few sporadic cases. It will also be crucial to understand the extent to which reinfection contributes to the forward transmission of SARS-CoV-2 in previously exposed populations and the rising number of SARS-CoV-2 cases observed in Amazonas and other Brazilian states during December 2020 - January 2021."

[2021-01-17 21:08:20]

[Kristian Andersen]

I had nothing to do with that press release... just saying.

[2021-01-17 21:19:42]

[Eddie Holmes]

I enjoyed this one Kristian - I like 'The Godfather' puppet hands: [shared file(s): Er8lx6aXAAArjog.jpg]

[2021-01-17 21:41:32]

[Kristian Andersen]

Yeah, the hand is a really nice touch. I assume we fall in the "enables" category?

[2021-01-17 21:48:20]

[Eddie Holmes]

We do. We are being controlled. I think 'chilling accusations' should be a subheading in PO2.

[2021-01-18 01:04:46]

[Andrew Rambaut]

OK - L452R - what do we think? Just chasing variants?
<https://twitter.com/cychiu98/status/1350985418628587520?s=20>

[2021-01-18 01:18:32]

[Eddie Holmes]

On the watch list but no more at this point

[2021-01-18 01:50:49]

[Robert Garry]

Yes, hand is very good - maybe Alina can borrow it for her next wall of crazy/WSJ article. "I assume we fall in the "enables" category?" Maybe more like super-elite? Both? Dunno. Have to say that "monitoring mutation areas for projected lethality" does describe the coming virological post pretty well.

[2021-01-18 04:20:23]

[Robert Garry]

I'm pretty sure L452R is no LuthoR or LucifeR. I suppose it could be a LesteR.

[2021-01-18 07:15:52]

[Kristian Andersen]

Definitely too early with L452R and I'm annoyed that they put out a press release with no data and before we could actually get a close look at what's going on.

The concern I have is that they mentioned this was found in three skilled nursing facility outbreaks with 100% attack rates - if true, then absolutely concerning, but I don't know how good the data is. I should know tomorrow.

To the UK variant - this is not great... https://twitter.com/guptar_lab/status/1351181784776634370?s=21

[2021-01-18 07:20:39]

[Kristian Andersen]

Now I'm getting concerned. [shared file(s): Image from iOS.jpg]

[2021-01-18 07:44:11]

[Robert Garry]

Actually the Gupta data fell about where I expected. 3-6 fold reduction is not fantastic for B117, but actually could have been worse. EekK will likely result in a bigger drop I suspect.

[2021-01-18 08:00:51]

[Kristian Andersen]

Yeah, I agree Bob. - right where you might expect it to land. Quite a number of folks with no neuts to either virus as well. EekK will for sure be worse and cross the 4x threshold (I believe) is being used in the flu field to trigger a vaccine update.

[2021-01-18 08:14:17]

[Robert Garry]

That's a good analogy to flu - and you're right vaccine update will be needed. Just hoping that most humans can mount a good response to K484.

[2021-01-18 08:15:40]

[Andrew Rambaut]

Eek + Pooh:

```
```Accession ID Collection date Submission date Location
EPI_ISL_778908 2020-11-30 2021-01-07 North America / USA / Maryland
EPI_ISL_791414 2020-11-21 2021-01-08 North America / USA / Maryland
EPI_ISL_791426 2020-12-30 2021-01-08 North America / USA / Maryland
EPI_ISL_791427 2021-01-01 2021-01-08 North America / USA / Maryland```
```

[2021-01-18 08:18:11]

**[Kristian Andersen]**

Are they hanging with Nelly too?

[2021-01-18 08:19:13]

**[Andrew Rambaut]**

No. Unrelated

[2021-01-18 08:22:40]

**[Kristian Andersen]**

Interesting. I expect we'll see N501Y pop up on that background shortly.

[2021-01-18 08:24:40]

**[Kristian Andersen]**

Bob, to your point about vaccine updates - yes, absolutely going to be needed. However, what's going to be very different here is that we're going to have a gazillion different (partially) vaccine 'resistant' lineages floating around at the same time because we have sooooo many infections. Are we going to make an updated vaccine for each? Stick 'em all together in a single vaccine? How are we going to prioritize?

Until we use NPIs to massively drop infections down, I don't think we'll be successful in this game of whack-a-mole.

[2021-01-18 08:26:46]

**[Kristian Andersen]**

I may be extremely pessimistic here, but by the time we have vaccinated enough people to reach herd immunity thresholds, I'm pretty sure we'll be dealing with almost completely resistant SARS-CoV-2 - and multiple different lineages.

[2021-01-18 08:32:11]

**[Robert Garry]**

Maybe true - and it may be time to \*start lowering expectations\*. It's very possible we'll be in a situation [maybe already there] where the vaccines do not prevent infection or spread but offer some protection from severe disease. AKA flu vaccine. This means getting you ~flu~ CoV vaccine each year or maybe even every 6 months.

[2021-01-18 09:06:18]

**[Robert Garry]**

In some ways thou the fact that we're seem the same mutations popping up repeatedly is "reassuring" in the sense that it may not take a gazillion.

[2021-01-18 09:10:58]

**[Robert Garry]**

Alina was clearly wrong on many levels when she stated "SARS-CoV-2 is well adapted for humans." It's what lead her down the path that SC2 must be engineered or GOF. It's not that well adapted apparently because it keeps mutating. <https://www.biorxiv.org/content/10.1101/2020.05.01.073262v1.full.pdf>

[2021-01-18 09:56:07]

**[Kristian Andersen]**

Yeah, we'll have to wait and see - maybe SC2 only has a narrow window for escaping (some level of) immunity, but I'm not convinced that's the case - we only need to look to all the ccCoVs.

I warned Alina about her "well adapted to human" comments, making it clear that compared to SARS, yes, that might look to be the case, but there's a whole world of viruses out there where what we're seeing (dN/dS) in SC2 is nothing special. We're definitely seeing that play out now.

[2021-01-18 10:14:31]

**[Kristian Andersen]**

<https://twitter.com/AdamJKucharski/status/1351228542143651840?s=20>

[2021-01-18 10:16:22]

**[Kristian Andersen]**

Starts ~40 mins: [https://www.youtube.com/watch?v=Ja\\_tLG8CLAc](https://www.youtube.com/watch?v=Ja_tLG8CLAc)

[2021-01-18 10:17:49]

**[Robert Garry]**

That's worse than expected. Much worse.

[2021-01-18 10:26:32]

**[Kristian Andersen]**

*[thread - ID: 2021-01-18 10:26:32]*

It's bad indeed - very bad. To me it's not unexpected though - the RSA lineage has multiple mutations that had already been shown to affect immunity, so I can't say I'm surprised (this is unlike b117 - that one has less mutations that seem related to escape). It's much worse than I could have hoped for though. Add to this that I'm getting increasingly concerned that this is because Eek leads to general immune escape and isn't just linked to changing a simple B cell epitope.

[2021-01-18 10:30:33]

**[Kristian Andersen]**

I like this Salim guy though - very very good.

[2021-01-18 10:39:31]

**[Kristian Andersen]**

Salim Abdool Karim - holy smokes, such a good scientific communicator. Probably the best I have seen during the entire pandemic - I feel like an idiot I didn't know about him before watching this presentation.

[https://en.wikipedia.org/wiki/Salim\\_Abdool\\_Karim](https://en.wikipedia.org/wiki/Salim_Abdool_Karim)

[2021-01-18 10:42:26]

**[Robert Garry]**

Yes good - I chaired the study section that reviewed the last round of AIDS clinical trials groups grants a few months back. Karim and his wife clearly had the best application of the bunch. Not close.

[2021-01-18 10:50:24]

**[Kristian Andersen]**

I'm impressed.

[2021-01-18 10:55:26]

**[Robert Garry]**

Doug, Nelly, Eek and N417T fit - binds to ace2 like hell - and very immune evasive.

[2021-01-18 11:00:14]

**[Kristian Andersen]**

Exactly - Nelly and her bad friends. "In about 50% of cases there was no recognition of the new virus by preexisting antibodies". Some of the most chilling words of the pandemic. Let's not fool ourselves that T cells will come and save the day - this is fucking serious (and is what a good proportion of us have been warning about for months - many months before even seeing these new variants). This is one sly fucker.

[2021-01-18 11:10:01]

**[Robert Garry]**

No way to sugar coat it. My expectations are lowered a lot.

[2021-01-18 11:13:34]

**[Kristian Andersen]**

I was unfortunately already there - I hate the fact that my most pessimistic viewpoints tend to be confirmed by this virus over and over again.

[2021-01-18 11:24:03]

**[Robert Garry]**

I updated the Christmas Card figure on virological to include P.1. I'm also "done" messing with the new post/figure - Karthik offered no changes [but generated some interesting data on indels that'll be useful later on] and Bill Gallaher suggested several additions which I cut down - incorporating a few. Please let me know if there are any edits that are needed. This whole VoC situation is a rapidly changing mess. Probably be a dozen extra facts that should have been added in a few hours...

[2021-01-18 11:28:16]

**[Kristian Andersen]**

I'll take a look now.

[2021-01-18 11:49:16]

**[Eddie Holmes]**

Fuck

[2021-01-18 12:05:21]

**[Kristian Andersen]**

That's basically the perfect summary.

[2021-01-18 12:07:17]

**[Kristian Andersen]**

If we all dig deep and for a moment forget that we are humans that like other people live in part denial, are we truly surprised by these results? It's a general question, because I have observed this in myself since the very beginning of the pandemic - e.g., in the beginning of it communicating that "maybe it isn't going to be so bad" because at the end of the day that's really what I wanted, but deep down my training was telling me I was a wishful idiot.

[2021-01-18 12:11:22]

**[Eddie Holmes]**

Not surprised it has happened, but surprised it has happened so quickly.

[2021-01-18 12:12:08]

**[Eddie Holmes]**

We do need a spicy Phe to Lys mutation

[2021-01-18 12:13:46]

**[Kristian Andersen]**

&gt; Not surprised it has happened, but surprised it has happened so quickly.  
One jump. One single jump.

[2021-01-18 12:15:47]

**[Eddie Holmes]**

Bloody glad I live in Australia - NO community cases here yesterday and all the tennis players are locked up

[2021-01-18 12:20:22]

**[Kristian Andersen]**

I know - I'm so bloody jealous. And the model still has to be to drive down transmissions as low as possible - primarily with NPIs, with vaccines also coming in helpful (but the current view is that the vaccines will come in and do it all - I doubt it).

[2021-01-18 12:20:57]

**[Eddie Holmes]**

I agree. No other way.

[2021-01-18 12:23:53]

**[Robert Garry]**

YES - the key message now has to be that the vaccines are NOT going to do it all.

[2021-01-18 12:27:01]

**[Eddie Holmes]**

Totally

[2021-01-18 12:28:15]

**[Kristian Andersen]**

I think most of us have been pushing the "vaccines are not going to be a silver bullet" message for a while - I wonder if people will listen now... Probably not :wink: .

[2021-01-18 12:28:49]

**[Kristian Andersen]**

Bob - I went through the Ruff Draft and made a few edits (all in edit mode) / comments. Looks great!

[2021-01-18 12:32:33]

**[Eddie Holmes]**

I'll have another look today.

[2021-01-18 13:05:37]

**[Kristian Andersen]**

At least this is some encouraging news from Ireland and UK - the emergency break is still there, but we need to pull it harder (I was afraid somebody had cut the cord). [shared file(s):  
outbreakinfo\_epidemiology\_data\_2021-01-18.png]

[2021-01-18 13:09:46]

**[Eddie Holmes]**

Mad number in the UK though. Jesus.

[2021-01-18 13:11:47]

**[Kristian Andersen]**



Totally bonkers. But I'll take a declining trend over an increasing trend or a plateau (the US favorite) any day.

[2021-01-18 13:36:25]

**[Eddie Holmes]**

True

[2021-01-18 13:39:40]

**[Andrew Rambaut]**

*[thread - ID: 2021-01-18 10:26:32]*

@Kristian Andersen Although we have had 4 or 5 cases of spontaneous addition of Eek to B.1.1.7 - none seem like they are spreading but they are ready to go.

[2021-01-18 13:39:53]

**[Eddie Holmes]**

"Djokovic is a tool," Kyrgios, ranked 47th in the world, said on Twitter after the latest reports.

[2021-01-18 13:40:21]

**[Eddie Holmes]**

I'm loving this tennis thing.

[2021-01-18 13:41:13]

**[Robert Garry]**

I channel I suspect that the pending little virological post, which brings most of the PO1 band back together, on such a hot topic will attract attention...an opportunity perhaps for a bit of public service messaging that "vaccines are not going to be a silver bullet."

[2021-01-18 13:41:49]

**[Eddie Holmes]**

Yes, excellent point.

[2021-01-18 13:42:13]

**[Kristian Andersen]**

*[thread - ID: 2021-01-18 10:26:32]*

@Kristian Andersen @Andrew Rambaut - have you seen any data from the UK about neutralization studies from these variants? It's unclear to me why the data is taking this long, so surely some must have been produced?

[2021-01-18 13:42:16]

**[Andrew Rambaut]**

*[thread - ID: 2021-01-18 10:26:32]*

@Kristian Andersen Need to very rapidly get the numbers down as we vaccinate. The point is that NPI do get R<1 so with vaccine as well it should be possible to avoid escape..

[2021-01-18 13:43:25]

**[Kristian Andersen]**

*[thread - ID: 2021-01-18 10:26:32]*

@Kristian Andersen Yes - although I prefer the initial drop of R<1 is done by NPIs first, followed by vaccination - not attempt to do the other way around. We'll learn A LOT from Israel.

[2021-01-18 17:31:44]

**[Robert Garry]**

I'm starting to see a sort of theme re Alina's buddies. Here's another "work" by the author of the NYMag article quoted in the indels paper: *"House of Holes: A Book of Raunch"* is a 2011 novel by American writer Nicholson Baker. It consists of a series of chapters that are more or less connected (some more, some less) which tell of the sexual and emotional experiences of a variety of characters in a kind of sexual fantasy land, the titular "House of Holes". [1] The third "dirty novel" by Baker after *"Vox"* and *"The Fermata"*, [2] it is praised by many reviewers for the

inventiveness of its language.[3][4][5]

[2021-01-18 17:50:42]

**[Robert Garry]**

Seems like it might be a good source for VoC names though.

[2021-01-18 18:05:38]

**[Eddie Holmes]**

Excellent idea! I remember trying to read Vox years ago and giving up.

[2021-01-18 19:11:57]

**[Robert Garry]**

You may have picked the wrong book of the trilogy

<https://www.gq.com/story/nicholson-baker-house-holes-book-review> "The dirtiest mind in American lit, Nicholson Baker, overshoots with his Seussian smutfest \_House of Holes\_ How has the English language done without \_fuckwizard, manslurp,\_and \_thundertube?...\_"

[2021-01-18 19:15:34]

**[Robert Garry]**

Thanks for the hard work on the post Eddie -looking great and will be happy to move you anywhere on the list per @Kristian Andersen...

[2021-01-18 19:18:59]

**[Kristian Andersen]**

Let's move Eddie to the back - makes much more sense, plus I'm an amateur when it comes to this type of stuff - let's make sure you have the bonafide expert to back you up... :wink:

[2021-01-18 20:13:49]

**[Eddie Holmes]**

On the deletions delH69 and delV70. I've cut been chatting with Tommy Lam and he says that for the Guangxi pangos they have two viruses: the original sample from the lung has a deletion of these two amino acids. However, the vero cell isolate does not (i.e. has the insertion). Make sense?

[2021-01-18 21:17:14]

**[Kristian Andersen]**

That seems strange... Random insertion in T/C or what you'd see in e.g., SC2? It's not the other way around?

[2021-01-18 21:30:00]

**[Eddie Holmes]**

I'm pretty sure that's what he said and I was also surprised. I'll double check.

[2021-01-18 21:33:28]

**[Kristian Andersen]**

That seems really weird - I have a hard time seeing how it could gain an ancestral insert via passage. HOWEVER, it's possible you have both viruses in the isolate - one major without the insert and one minor with. Then once you passage, the one with the insert rapidly outcompetes the other. If what you're saying is indeed correct, then I think this is the most likely explanation

[2021-01-18 21:52:33]

**[Eddie Holmes]**

Yes, I had the same thought.

[2021-01-19 00:24:28]

**[Eddie Holmes]**

From Tommy:

[2021-01-19 00:25:13]

**[Eddie Holmes]**

shared file(s): Pangos.pptx

[2021-01-19 00:25:31]

**[Eddie Holmes]**

"1. Yes, deletion at 69,70.

2. Yes. no deletion but HL at 69,70. Note human WH1 is HV at 69,70.

3. GD pangolin-CoV one is actually more genetic distant to human WH1 than than GX pangolin-CoV does. It is not deletion but with TK at 69,70. 4. For the existence of two copies in either GX-P2V (isolate) or GX-P4L (lung original sample), I have checked the read assembly, none of them contain both copies."

[2021-01-19 00:26:40]

**[Eddie Holmes]**

Of note, he did this completely independently of Bob...he just observed the same thing (but he's only looked at this site)

[2021-01-19 00:43:08]

**[Andrew Rambaut]**

Email from Bogner after I queried the 10th Jan release of data on GISAID:

[2021-01-19 00:43:08]

**[Andrew Rambaut]**

""GISAID did indeed acknowledge a) the anniversary of learning that the respiratory illnesses reported in Wuhan were not caused by an influenza virus, but by a previously unknown human coronavirus, and b) the anniversary of GISAID releasing the first whole-genome sequences and metadata. The January 10th date is not a "mistake". Rather, reports that those genomes were first made available on GISAID on a later date are wrong.

Ever since GISAID went live in May 2008, whenever there is word of a noteworthy event in which influenza-like symptoms are noted, GISAID goes into "first-responder-mode" and awaits feedback from its colleagues involved in the investigations. Last January was no exception. On January 8th 2020 at 3:38am PST, we received a message from George Gao, who I copy here, saying: "It's a novel coronavirus". As you know, it is typical that GISAID receives such an alert when a novel strain appears, as in 2009, when GISAID was advised by the US CDC of H1N1p, and in 2013, when the China CDC gave GISAID a heads up on the HPAI H7N9, and on numerous other occasions when it seemed an outbreak could occur. In almost all cases when we are alerted, GISAID receives the first data generated between 36-48 hours later, well prepared to process these data.

George's alert gave us a chance to prepare, and gave our technical team time to set up an HTML area. We received the first 3x genomes and metadata in the afternoon of January 9th at 3:29 pm PST (2020-01-09 23:29 UTC). Two of these genomes, HB-01 and HB-05, were released on GISAID after processing, a little more than an hour later, at 4:41 pm PST and 4:44 pm PST (2020-01-10 0:41 UTC and 2020-01-10 0:44 UTC), respectively.

GISAID understood at that time that it would be dealing with only a few hundred cases, yet by the time you and I spoke on January 17th, it was apparent to us both that this outbreak would likely see significantly more cases. Our GISAID technical team was immensely grateful for the technical advice you provided over the next several days, which helped them scale up and steadily improve the platform.

You and I had subsequent interactions over the next few months. For example: on March 10th, when we discussed the inclusion of genomes with low coverage; on March 13th, when we debated which reference sequence from the early Wuhan cluster would be most suitable for use by GISAID, and on April 23rd, when you introduced your lineage naming system (which GISAID subsequently integrated).

During all of our interactions, you never questioned that the first genomes were made available on GISAID on January 10th, even though that date was prominently displayed on the website and in the database, the entire time that our discussions were taking place. Wouldn't you have said something if our date was wrong? Not even Prof. Holmes, who wrote to my colleague on January 20th, passing on an update request of metadata for BetaCoV/Wuhan-Hu-1/2019, took issue with the dates of the first genomes, clearly visible in the database.

To be clear Andrew; it is certainly not my intention to challenge your statement about the date and time, that Prof.

Holmes posted to your discussion forum on January 11th. I have the utmost respect for your scientific knowledge.

The accuracy of reporting on GISAID during 2020 left much to be desired, to put it mildly. Some of what was published, even by reputable outlets, was a disservice to science. Just look at what the South China Morning Post (SCMP) wrote on January 11th, 2020: "The relevant institutions have also uploaded the genetic sequence onto one online GenBank (GISAID). GISAID is cross-checking the information and will publish it upon completion." When their article was published, the first genomes were already available on GISAID - which the SCMP should have known, because the article used the first image of the coronavirus from the GISAID homepage, the caption of which stated "China releases genetic sequence of the newly discovered coronavirus from Wuhan."

It is disheartening that, nearly a year later, inaccurate — and conflicting — statements regarding when and where the first genomes were made available are still being disseminated. Two well-known outfits recently published conflicting accounts. Science News stated: "10 January Genetic sequence posted to virological.org", while Nature News states that the first sequence was posted on the website virological.org on 11 January 2020. Neither news organization had done even the most basic research, and did not realize that there were discrepancies in reports of when and where the first coronavirus sequences were released to the world.

I am sure we both agree this is not a competition. GISAID was not established for fame or compliments. What matters, is that we aid public health by incentivizing and encouraging data sharing in crises like the one we are currently experiencing, so that those developing medical interventions — whether vaccine or diagnostics to mention a few — can proceed with confidence in the quality of the data they rely on.``

[2021-01-19 00:43:08]

**[Andrew Rambaut]**

This suggests the genomes were already publicly available for 24 hours when you posted to virological, Eddie.

[2021-01-19 01:14:07]

**[Eddie Holmes]**

Can he prove this: "George's alert gave us a chance to prepare, and gave our technical team time to set up an HTML area. We received the first 3x genomes and metadata in the afternoon of January 9th at 3:29 pm PST (2020-01-09 23:29 UTC). Two of these genomes, HB-01 and HB-05, were released on GISAID after processing, a little more than an hour later, at 4:41 pm PST and 4:44 pm PST (2020-01-10 0:41 UTC and 2020-01-10 0:44 UTC), respectively."

[2021-01-19 01:19:22]

**[Eddie Holmes]**

This is wrong: "Science News stated: "10 January Genetic sequence posted to virological.org", while Nature News states that the first sequence was posted on the website virological.org on 11 January 2020. Neither news organization had done even the most basic research, and did not realize that there were discrepancies in reports of when and where the first coronavirus sequences were released to the world." That's just the time zone difference between Australia and elsewhere.

[2021-01-19 01:24:12]

**[Eddie Holmes]**

This note from HK also says the 12th as does the stuff from the WHO. [shared file(s): Screen Shot 2021-01-19 at 8.22.42 pm.png]

[2021-01-19 01:25:04]

**[Eddie Holmes]**

*[thread - ID: 2021-01-19 01:25:04]*

Why did not a single person in the world see the sequences on the 10th? Something does not make sense here at all.

[2021-01-19 01:25:35]

**[Andrew Rambaut]**

The post was on the 11th at about 1am GMT - the posting has at the top the 10th because that is when we started to write it (of course it was already the 11th in Australia and China then). So that is probably the confusion about your post.

[2021-01-19 01:26:35]

**[Andrew Rambaut]**

*[thread - ID: 2021-01-19 01:25:04]*

I know. And no one at GISAID, CCDC, WHO made any announcement until the 12th. Plus they hounded Zhang for it?

[2021-01-19 01:26:58]

**[Eddie Holmes]**

I think he is bullshitting.

[2021-01-19 01:27:13]

**[Andrew Rambaut]**

I posted a follow up to your post at 12pm on the 12th saying some genomes were up on GISAID.

[2021-01-19 01:29:06]

**[Eddie Holmes]**

Correct. I'm sure I remember looking on GISAID initially and not seeing anything and then looking again and they were there. That HK press release is very informative. I'm sorry, but I just don't believe him.

[2021-01-19 02:20:32]

**[Eddie Holmes]**

Very good to the minute timeline on FluTrackers - see pages 10-12: [https://flutrackers.com/forum/forum/-2019-ncov-new-coronavirus/china-2019-ncov/82183\[...\].news-thread-weeks-1-4-december-30-2019-january-25-2020/page10](https://flutrackers.com/forum/forum/-2019-ncov-new-coronavirus/china-2019-ncov/82183[...].news-thread-weeks-1-4-december-30-2019-january-25-2020/page10)

[2021-01-19 03:30:46]

**[Robert Garry]**

*[thread - ID: 2021-01-19 03:30:46]*

The post about the PangoGD HV indel is VERY interesting [smart guy that Tommy] - not sure whether the vero cell passage sequence was posted or not [????]. This is VERY similar to SC2 backfilling indel region 4 after Vero passage (Karthik et al). There are different "evolutionary/selective" pressures in these indels when you take them out of humans/animals and put them in cell culture. Tommy should make his post ASAP - it's quite important and anticipate/back up what we're saying. Meanwhile @Andrew Rambaut there's a bit in the Ruff draft that's almost done regarding our friend Yuri of blast alignment fame - can you check for appropriateness?

[2021-01-19 03:32:46]

**[Robert Garry]**

Yes indeed the stench of BS from the GSAID guy is vomit-inducing.

[2021-01-19 03:36:36]

**[Eddie Holmes]**

I'm not sure I've seen the vero cell sequences either. I'll ask Tommy what his plans for it are.

[2021-01-19 03:41:31]

**[Andrew Rambaut]**

*[thread - ID: 2021-01-19 03:30:46]*

@Robert Garry I will take a look at the ruff today.

[2021-01-19 03:54:04]

**[Robert Garry]**

*[thread - ID: 2021-01-19 03:30:46]*

@Robert Garry Great thanks! - few housekeeping tasks with seq ids and refs but otherwise pretty clean.

[2021-01-19 04:43:01]

**[Robert Garry]**

The Vero cell pango is indeed posted - interesting it backfills BOTH indel 3 and 6! [shared file(s): image.png]

[2021-01-19 04:44:50]

**[Andrew Rambaut]**

*[thread - ID: 2021-01-19 04:44:50]*

What is the nucleotide sequence? Is there a repeat? Could it be a slippage (forwards for deletion, backwards to insert).

[2021-01-19 05:30:28]

**[Robert Garry]**

Have to be on a CEPI call at 7:30, but we'll get more info shortly..

[2021-01-19 06:37:52]

**[Robert Garry]**

Still sorting this out - these are the pango sequences on GenBank - clearly something going on with indel regions. [shared file(s): image.png]

[2021-01-19 06:46:23]

**[Robert Garry]**

QHR63300 is of course RatG13

[2021-01-19 07:59:43]

**[Robert Garry]**

Ichannel This alignment boils it down: Cell culture passage of a GX virus backfills the B1.1.7 like delH69V70. PangoGD has a single aa deletion in indel region 2. GD pango has a deletion in IR3 close to de145Y in B1.1.7. GD pango also has an Indel region 5 deletion and one of the pango Gxs has a IR6 deletion. As Tommy notes the cell culture backfill in IR2 by the vero passed Gx virus is important. He should write this up or we should bring him on to the virological post.

[2021-01-19 08:00:44]

**[Robert Garry]**

Ichannel This alignment boils it down: Cell culture passage of a GX virus backfills the B1.1.7 like delH69V70. PangoGD has a single aa deletion in indel region 2. GD pango has a deletion in IR3 close to de145Y in B1.1.7. GD pango also has an Indel region 5 deletion and one of the pango Gxs has a IR6 deletion. As Tommy notes the cell culture backfill in IR2 by the vero passed Gx virus is important. He should write this up or we should bring him on to the virological post. [shared file(s): image.png]

[2021-01-19 09:45:06]

**[Robert Garry]**

>QIG55945.1 surface glycoprotein [Pangolin coronavirus GD2019];  
 ``>QIQ54048.1 spike protein [Pangolin coronavirus GX-P2Vcell culture]

>QIA48623.1 spike protein [Pangolin coronavirus GX2017 GX-P1E]

>QIA48614.1 spike protein [Pangolin coronavirus GX-P4L]``  
 GD2019 aka isolate MP789: QIG55945.1, MT121216.1; GX-P2Vcell culture: QIQ54048.1, MT072864.1; GX-P1E: QIA48623.1, MT040334.1; GX-P4L: QIA48614.1, MT040333.1

[2021-01-19 09:50:24]

**[Robert Garry]**

*[thread - ID: 2021-01-19 04:44:50]*

@Andrew Rambaut Nucleotide sequences IDs below agree this could be slippage/copy choice error ...

[2021-01-19 10:05:40]

**[Robert Garry]**

In the figure as drawn I used Pango GD QIG55945.1 and for Pango GX I used QIA48623.1, which happens to have the 2 aa del in IR6. If Tommy wants to write up his own post maybe we could just refer to this data and not modify the figure. If Tommy wants to come on to the Ruff post I'd add the Vero passed GX virus to the figure.

[2021-01-19 12:01:02]

**[Robert Garry]**

shared file(s): image.png

[2021-01-19 12:26:39]

**[Eddie Holmes]**

Thanks Bob! I'll contact Tommy shortly and ask what his plans are. Would be great if we could get him into our post with this.

[2021-01-19 14:22:14]

**[Eddie Holmes]**

Ok, uber-confidential...they are planning to submit to Nature later this week (and preprint). Figure 2 is interesting. [shared file(s): 2021-01-12\_BatCoV\_draft.N.docx]

[2021-01-19 14:27:04]

**[Andrew Rambaut]**

Nature - Really? Doesn't seem interesting or useful enough. Just another sarbecovirus.

[2021-01-19 14:28:06]

**[Eddie Holmes]**

I told them Nature Micro was a better choice

[2021-01-19 15:01:14]

**[Robert Garry]**

Agree Nat Micro likely landing spot - I also agree Fig 2 is interesting and appreciate the long region of similarity to RmYN02 and RaTG13 plus the variation on the indel theme Fig 3c.

[2021-01-19 16:37:07]

**[Eddie Holmes]**

At the very least it's a nice counter to the 'RaTG13 ain't real' brigade.

[2021-01-19 16:46:43]

**[Eddie Holmes]**

Tommy is in for our post! Can someone give him access to the Google doc to edit? I doubt I have the skills to do this. His email address is: [REDACTED]

[2021-01-19 17:05:39]

**[Robert Garry]**

Great! Will modify the figure. I think not a lot of changes to text are needed - will keep those minimal...

[2021-01-19 17:34:42]

**[Kristian Andersen]**

Not a great day for confident immunologists. <https://www.biorxiv.org/content/10.1101/2021.01.18.427166v1>

[2021-01-19 17:35:06]

**[Kristian Andersen]**

A little better. <https://www.biorxiv.org/content/10.1101/2021.01.15.426911v1>

[2021-01-19 17:51:27]

**[Eddie Holmes]**

Thanks Kristian, this is really doing wonders for my mental health.

[2021-01-19 18:06:02]

**[Kristian Andersen]**

You live in Australia. No sympathy.



[2021-01-19 18:14:35]

**[Eddie Holmes]**

Fair point.

[2021-01-19 18:20:36]

**[Kristian Andersen]**

Looking at that bat virus I'm honestly surprised we haven't all died of coronavirus infections already. Such a wild family. Interesting to see a partial 'human' RBD

[2021-01-19 18:25:50]

**[Eddie Holmes]**

I'm mainly looking forward to Alina and crowd trying to take it down

[2021-01-19 18:32:47]

**[Robert Garry]**

All the building blocks are in bats. But, I'm with Eddie in thinking that Pangos have a couple of related Pango virus lineages they are carrying - that's despite Daszak and Alina musing that the pangos get infected after they are captured by humans or some other captured animal. The pango that get caught are the sick ones - just like the monkeys/apes with Ebola virus are sick and get captured. The third pango cov from China pretty much seals it for me.

[2021-01-19 18:35:56]

**[Eddie Holmes]**

Looking foward to Tommy's pango data...being sequenced now I think.

[2021-01-19 18:36:40]

**[Eddie Holmes]**

Weifeng has written this review paper and stuck my name on it. It contains the following paragraphs: "On June 11, 2020, a COVID-19 resurgence was reported in Beijing after 56 consecutive days without confirmed local cases in Beijing. By mid-June, a total of 368 cases were confirmed and epidemiological investigation linked all the confirmed cases to the Xinfadi market, suggesting a single infection source. Genomic surveillance and epidemiological investigation identified the same SARS-CoV-2 virus from the frozen salmon internationally imported in the cold storage which sold salmon to a booth in the Xinfadi market. This outbreak highlights that cold-chain food contamination may be responsible for the resurgence in Beijing. After that China began to perform routine surveillance of SARS-CoV-2 for cold-chain related occupational population. Similarly, the source for the COVID-19 outbreak in Qingdao Municipal Chest hospital was identified to be two stevedores responsible for internationally imported seafood who tested positive for SARS-CoV-2 in a routine test on September 24, 2020. SARS-CoV-2 nucleic was detected in cold-chain food and environmental samples and live SARS-CoV-2 was also successfully isolated from xx [Zhangyong EID], which provided direct evidence that SARS-CoV-2 contaminated seafood is able to trigger human infections. It is worth mentioning that there were internationally and domestically imported seafood on sale in the Huanan seafood market before it was closed on January 1, 2020. Whether contaminated cold-chain food initiated the infections at the Huanan seafood market remains elusive."

[2021-01-19 18:37:00]

**[Robert Garry]**

Author list? Opt 1 - switch Eddie and Kristian and make Eddie corresponding. Opt 2 leave Eddie at second and make him co-first. Not sure where to put Tommy in either case.

[2021-01-19 18:37:17]

**[Eddie Holmes]**

"In addition, nucleic fragments of SARS-CoV-2 were also detected using PCR and sequencing approaches. For example, SARS-CoV-2 in wastewater in northern Italy using both nested RT-PCR targeting the ORF1ab region and real-time RT-PCR targeting the RdRp region, and the earliest positive samples were dated back to December 18, 2020 in Milan and Turin [La Rosa G et al., Sci Total Environ]. Similarly, the detection of SARS-CoV-2 in wastewater samples was also reported using real-time RT-PCR targeting the N gene, with the archived sample collected in Spain on March 12, 2019 [Randazzo et al., Water research]. The SARS-CoV-2 RNA was also detected in a patient in France in December 2019 using two different PCR-based assays and his last international travel was to Algeria in August 2019 [Deslandes et al., IJAA]. However, none of the three studies reported the viral sequences from the

positive samples. More recently, SARS-CoV-2 RNA was identified in an oropharyngeal swab specimen collected from a child with suspected measles in Italy in early December 2019 [Amendola et al., EID]. In addition, the amplified 470-bp fragment of the spike gene from the child showed 100% identical to that of SARS-CoV-2. All these studies highlight the potential cryptic spread of SARS-CoV-2 in some European countries before the first reported case in respective country, whose implications for the origins of SARS-CoV-2 clearly require further investigation."

[2021-01-19 18:37:55]

**[Eddie Holmes]**

You should be corresponding Bob, but I don't mind going last (or 2nd).

[2021-01-19 18:38:50]

**[Eddie Holmes]**

Weifeng is clearly being told to tow the party line...I'm going to have to take my name off otherwise it will undermine my credibility. Thoughts?

[2021-01-19 18:44:23]

**[Kristian Andersen]**

Yeah, clearly a party line here - which is pretty horrible. It's the fucking blame game from the US causing this.

Let's make Eddie last

[2021-01-19 18:44:53]

**[Kristian Andersen]**

And yeah - I'd take my name off it - language like this is going to raise eyebrows and I don't think you want to be part of that

[2021-01-19 18:45:17]

**[Eddie Holmes]**

Agreed, thanks. I'll use all the tact I can muster to get out of this. I might offer to edit the English but not be an author. What a fucking mess.

[2021-01-19 18:49:55]

**[Kristian Andersen]**

Talking about a fucking mess - look at how Carl Z is quoting me in the NYT [shared file(s): Screen Shot 2021-01-19 at 6.47.19 PM.png]

[2021-01-19 18:50:08]

**[Kristian Andersen]**

Now, look at my full quote [shared file(s): Screen Shot 2021-01-19 at 6.47.52 PM.png]

[2021-01-19 18:50:30]

**[Kristian Andersen]**

That is fucking bullshit - I trusted Carl to actual do a good job.

[2021-01-19 18:50:38]

**[Eddie Holmes]**

Bastard! Did you correct him??

[2021-01-19 18:51:33]

**[Kristian Andersen]**

I didn't, but I'll push the whole quote - that's really disingenuous since it makes me sound as if I agree with these monkeys.

[2021-01-19 18:57:05]

**[Eddie Holmes]**

Totally! Bloody out of order.

[2021-01-19 19:01:13]

**[Kristian Andersen]**

So unnecessary.

[2021-01-19 19:06:56]

**[Eddie Holmes]**

Untypical of Carl as well.

[2021-01-19 19:12:12]

**[Kristian Andersen]**

Bad day at the office. :man-shrugging:

[2021-01-19 19:17:27]

**[Eddie Holmes]**

Journos just can't help telling the story they want

[2021-01-19 21:59:40]

**[Kristian Andersen]**

Noisy, but growth rate of B.1.1.7 in Jordan similar to UK, DK, Portugal, Ireland, and all the other places... [shared file(s): Log\_growth.png]

[2021-01-19 22:57:31]

**[Kristian Andersen]**

*[thread - ID: 2021-01-19 22:57:31]*

I have not read it yet - but he asked reasonable questions...

<https://www.cnet.com/features/the-hunt-for-covid-19s-origin-and-the-lab-leak-theory/>

[2021-01-19 23:17:55]

**[Andrew Rambaut]**

*[thread - ID: 2021-01-19 23:17:55]*

Just taken a look at the UK data - we have 3 clusters of L452R that are completely independent of the Californian one. 2 are quite large.

[2021-01-19 23:22:53]

**[Andrew Rambaut]**

*[thread - ID: 2021-01-19 22:57:31]*

@Kristian Andersen Daszak's involvement in the WHO investigation is like "having Donald Trump run the investigation of Russian hacking of the 2016 election."

[2021-01-20 00:31:45]

**[Eddie Holmes]**

*[thread - ID: 2021-01-19 22:57:31]*

@Kristian Andersen But that's from Rowan Jacobsen who's a strong conspiracy theorist - he wrote that terrible Boston Mag story. I declined to talk to the CNET journo. That Frutos is a weird bloke. I haven't got a fucking clue what his 'circulation' model is all about: [shared file(s): SSRN-id3733527.pdf]

[2021-01-20 03:41:24]

**[Andrew Rambaut]**

Number 1:

<https://www.altmetric.com/top100/2020/>

[2021-01-20 03:42:42]

**[Andrew Rambaut]**

Mind you, the retracted Hydroxychloroquine paper is #5

[2021-01-20 04:42:44]

**[Robert Garry]**

PO2 - Let's go for back to back titles!

[2021-01-20 04:52:34]

**[Robert Garry]**

*[thread - ID: 2021-01-19 22:57:31]*

@Kristian Andersen Problem is these all set up a false equivalency - it's either natural or lab created/lab escape. Also a mile wide and fraction of an inch deep. Once you delve into any aspect (RaTG13, RnYN02 are fake, FCS in CoVs are rare, SC2 few Ns muts= adapted to humans, etc) you find that these are not two equal things.

[2021-01-20 06:41:01]

**[Kristian Andersen]**

*[thread - ID: 2021-01-20 06:41:01]*

Fuck yeah - top of the world!

[2021-01-20 06:43:30]

**[Kristian Andersen]**

*[thread - ID: 2021-01-19 22:57:31]*

@Kristian Andersen The false equivalence gets to me every time - so frustrating! I turn all these interviews down, but his questions were different, kinda interesting, and looked honest. You learn every day....

[2021-01-20 07:11:25]

**[Robert Garry]**

Figure revised to include Tommy's observation - !channel please check details, author order, revisions (almost done with those) etc. [shared file(s): image.png]

[2021-01-20 07:39:38]

**[Kristian Andersen]**

*[thread - ID: 2021-01-19 23:17:55]*

On the Rambaut scale - how alarming do these look to you? It's a little unclear here in San Diego, but I do think we might see it expanding rather rapidly - and in different lineages.

[2021-01-20 07:40:54]

**[Andrew Rambaut]**

*[thread - ID: 2021-01-19 23:17:55]*

@Andrew Rambaut They are fairly new but I don't know how fast they are growing. Will look again later today

[2021-01-20 08:02:29]

**[Robert Garry]**

There is a ton of mischief changing L452R could do. Likely a neutralizing epitope of course. The positive charge on R likely changes the interactions with several other chains. This could improve the interaction between Y453 and H34 on ACE2.

[2021-01-20 08:14:25]

**[Robert Garry]**

shared file(s): image.png

[2021-01-20 08:17:02]

**[Robert Garry]**

Blue: L452R, Black Y453, Orange H34 ACE2

[2021-01-20 08:23:12]

**[Robert Garry]**

@Eddie Holmes not sure if Tommy got the link. Not sure (tech?) but I think anyone with this link can log on.  
[https://docs.google.com/document/d/1UMQokOz\\_gDqE0s9keyI7ES8bC7-55EOFuA4UiznEP08/edit](https://docs.google.com/document/d/1UMQokOz_gDqE0s9keyI7ES8bC7-55EOFuA4UiznEP08/edit)

[2021-01-20 08:25:35]

**[Robert Garry]**

Anyway I'm pretty much done with the revised text . Everyone under water of course and SUPER busy, but when I get the thumbs up from the channel I'll go ahead and post... Check the last paragraph of the discussion for the major change and incorporation of the Tommy data.

[2021-01-20 09:55:30]

**[Andrew Rambaut]**

I don't have much more to say about the not-so-ruff draft. Looks great - nice work.

[2021-01-20 10:06:17]

**[Robert Garry]**

Totally awesome Andrew - thanks for the great changes - know that you are super slammed with everything!

[2021-01-20 10:48:34]

**[Robert Garry]**

*[thread - ID: 2021-01-20 10:48:34]*

Eddie - have not heard from Tommy. Maybe he thinks I'm spam :grinning:. At any rate I think very close to a go.

[2021-01-20 11:34:55]

**[Robert Garry]**

<https://www.msn.com/en-us/news/politics/donald-trump-pardons-steve-bannon-amid-last-acts-of-presidency/ar-BB1cUuAr?ocid=BingNewsar>

[2021-01-20 11:36:07]

**[Kristian Andersen]**

Well, I guess technically you have to be a criminal to be pardoned... And he certainly fulfills that criteria.

[2021-01-20 11:46:23]

**[Robert Garry]**

Indeed, Bannon may be advised not to accept the pardon because it is prima facia evidence that he committed a crime. The can be used to prosecute State crimes not covered by the pardon. This is why Trump did not issue pardons for himself or his spawn.

[2021-01-20 11:48:11]

**[Kristian Andersen]**

I knew pardons don't cover state crimes, but I didn't realize that's why Trump didn't try to self-pardon since the pardon itself could be used against him - very good. I'm sure Manhattan DA is ready...

[2021-01-20 11:55:15]

**[Eddie Holmes]**

*[thread - ID: 2021-01-20 10:48:34]*

@Robert Garry Tommy said it has paper access and will do his bits. I'll push him today.

[2021-01-20 11:56:10]

**[Eddie Holmes]**

*[thread - ID: 2021-01-20 06:41:01]*

@Kristian Andersen The haters are going to hate that.

[2021-01-20 11:57:15]

**[Robert Garry]**

*[thread - ID: 2021-01-20 10:48:34]*

@Robert Garry THANKS Eddie - the way this is moving it will be out-of-date by the morning...crazy.

[2021-01-20 12:00:30]

**[Eddie Holmes]**

*[thread - ID: 2021-01-20 10:48:34]*

@Robert Garry Got it.

[2021-01-20 12:02:03]

**[Robert Garry]**

Would not be surprised to see a charge filed this week - she is ready.

[2021-01-20 12:05:03]

**[Eddie Holmes]**

Open wing on Rikers seems appropriate.

[2021-01-20 12:31:19]

**[Robert Garry]**

I'm not in favor of the death penalty even for Trump. However, Terre Haute Federal Prison (where I was born BTW) would be a "nice" and fitting place for Trump. <https://apnews.com/article/donald-trump-wildlife-coronavirus-pandemic-crime-terre-haute-28e44cc5c026dc16472751bbde0ead50>

[2021-01-20 16:27:23]

**[Eddie Holmes]**

Strong words and the right ones:

<https://www.nytimes.com/2021/01/20/opinion/china-covid-who.html?referringSource=articleShare>

[2021-01-20 16:56:11]

**[Robert Garry]**

Important editorial - actually quite a contrast from Alina and her ilk.

[2021-01-20 17:50:32]

**[Robert Garry]**

A little about the Yunnan Pano spike. None of the S1 subunit but a good deal of S2. 5 differences - 2 like the GX lineage, 2 like GD and I different from both.

[2021-01-20 17:51:11]

**[Robert Garry]**

shared file(s): image.png

[2021-01-20 17:52:31]

**[Robert Garry]**

Tommy is working on the post - so I will post it later tonight.

[2021-01-20 18:22:42]

**[Eddie Holmes]**

Great to hear!

[2021-01-20 19:06:19]

**[Robert Garry]**

@Eddie Holmes Tommy's minor changes to the figure and text are incorporated. Let me know if you see anything else.

[2021-01-20 19:12:42]

**[Eddie Holmes]**

Doing it now!

[2021-01-20 19:27:58]

**[Eddie Holmes]**

Done! Post away!

[2021-01-20 19:28:11]

**[Robert Garry]**

THANKS EDDIE!!!

[2021-01-20 19:37:18]

**[Robert Garry]**

It's posted - let the fun begin...

[2021-01-20 19:41:23]

**[Eddie Holmes]**

Just tweeted it...kept it neutral.

[2021-01-20 19:42:02]

**[Eddie Holmes]**

Get some rest Bob!

[2021-01-21 11:42:45]

**[Eddie Holmes]**

I think the nomenclature debate is over: <https://www.instagram.com/reel/CKPicjIJN-s/?igshid=1v1ubmod5aq4r>

[2021-01-21 12:01:51]

**[Kristian Andersen]**

Love it. Since there are NO official photos of @Andrew Rambaut on the interwebs, can we please start a meme with the guy on the left being Andrew and maybe the guys on the right being Oli? I think people would buy it...

[2021-01-21 12:07:43]

**[Eddie Holmes]**

I agree, although I initially thought that the guy on the left was Trevor and that this dance was his gracious way to concede defeat.

[2021-01-21 12:09:05]

**[Kristian Andersen]**

Haha, that meme will work too.

[2021-01-21 12:10:12]

**[Robert Garry]**

That's not Trevor? Meanwhile: [shared file(s): image.png]

[2021-01-21 12:12:00]

**[Robert Garry]**

My oH mY the grapes seem rather sour. My vote on retraction is no, but IF we did would probably boost the Altmetric score.

[2021-01-21 12:12:54]

**[Eddie Holmes]**

What a surprise. Someone needs to explain to her that papers don't get retracted just because you disagree with the conclusions.

[2021-01-21 12:19:09]

**[Eddie Holmes]**

I'm also looking forward to her reading the new post...



[2021-01-21 13:12:05]

**[Robert Garry]**

Don't forget Yuri - his take should be interesting too. Now, Yuri has never build a giant soft core porn statue that can be seen from outer space, been dubbed the writer with America's dirtiest mind by GQ, spent 1300 days in the big house for child rape or been discovered drawing male genitalia on PO1 authors pictures in his Mum's basement. Yuri Deigin, MBA is a \*serial biotech entrepreneur, longevity research evangelist and activist, and a cryonics advocate\*. He is an expert in drug development and venture investments in biotechnology and pharmaceuticals. He is the CEO at Youthereum Genetics and the Vice President at Science for Life Extension Research Support Foundation.

[2021-01-21 13:18:22]

**[Kristian Andersen]**

Should add "Master of Blast"

[2021-01-21 13:20:24]

**[Eddie Holmes]**

Masterblaster or masterbater?

[2021-01-21 13:22:50]

**[Robert Garry]**

Is there a difference?

[2021-01-21 13:23:30]

**[Eddie Holmes]**

I think not

[2021-01-21 14:02:22]

**[Robert Garry]**

Yuri is also the CEO of Youthereum Genetics [seeeeeeeeeee he's a geneticist]. Better than that he might stop you and your cat :scream\_cat: from aging. Who want's their cat to die? just send him a donation:  
<http://youthereum.ca/#rec48441282> \*Aging is Humanity's Biggest Killer\*

- Biological aging causes our mortality risk to increase exponentially with age. It is also the reason why our chances of developing cancer or heart disease skyrocket after age 45.
- While science does not yet fully know how to stop or reverse aging, recent developments in the field of epigenetic reprogramming hold great promise as rejuvenating therapies.
- \*But Life Extension Therapies are on the Horizon\*

- Such therapies could provide decades of life extension, and that is why we are embarking on a journey to translate them from the lab to the clinic.
- Our ultimate goal is a therapy for humans, but we also plan on developing a life extension therapy for pets.

[2021-01-21 14:42:21]

**[Eddie Holmes]**

What a monumental heap of bullshit.

[2021-01-21 15:04:38]

**[Robert Garry]**

A scam artist and fraud...and an extremely arrogant one at that. But for a fee, I'm sure that he will cryogenically preserve your head and apparently the head of your cat. IF we were to draw our own wall of crazy [I'm not recommending it] there would be more than a few \$\$\$ links to Peter Thiel, Jeremy Epstein and Donald Trump. Thiel and Epstein both longevity/cryo funders (Epstein supposedly made arrangements to have both his head and penis frozen away for revival "later"). Thiel was Trump/s biggest donor. Yuri likely collects a check everytime he writes about the China virus. There will be more on Epstein and Trump I'm sure...

[2021-01-21 15:13:05]

**[Kristian Andersen]**

More on the immune escape (now with live virus) - it's not good.

<https://www.krisp.org.za/manuscripts/MEDRXIV-2021-250224v1-Sigal.pdf>

[2021-01-21 15:14:06]

**[Kristian Andersen]**

[thread - ID: 2021-01-21 15:14:06]

Why we don't already have the same data from the UK with B.1.1.7 I don't really understand. I expect it to be less pronounced for that lineage, but still substantial.

[2021-01-21 15:26:27]

**[Robert Garry]**

Agree - not good.

[2021-01-21 17:32:47]

**[Robert Garry]**

Thiel also funding his antiChina buddy Bannon , who Trump pardoned as one of his last acts as POTUS - not a coincidence.

[2021-01-21 17:32:52]

**[Robert Garry]**

<https://www.theguardian.com/world/2019/jul/17/google-peter-thiel-yellow-peril-racism-tech>

[2021-01-21 18:05:56]

**[Eddie Holmes]**

There's so much racism underpinning this.

[2021-01-21 23:03:59]

**[Eddie Holmes]**

There's a lot going on here. We must be guilty of something: [shared file(s): CCPVirus\_Timeline\_Small-1200x983.jpg]

[2021-01-21 23:20:20]

**[Andrew Rambaut]**

Looks very similar to the SARS-CoV-2 tree.

[2021-01-21 23:27:35]

**[Andrew Rambaut]**

```Dear Permanent Missions to the United Nations in New York:

Phase III vaccine trial participants are in the process of losing their immunity and will become individual super spreaders once they become infected. God told me that every person who gets vaccinated will infect & kill 10 people, so start multiplying the number of vaccinated people in your country by 11 if you want to know the minimum number of people who will be dying in the months ahead. I warned you about the vaccines causing mass amounts of deaths, but you did not listen, so now your leaders must face the consequences of those deaths.

I will fix this mess for you, but you must give me absolute power. Attached you will find the latest version of my future UN speech notifying the world that you have appointed me Head of the Global Recovery from SARS-CoV-2. This version includes my first fifteen official acts and my first most wanted list, with China President Xi Jinping listed at #2.

Every day you do not appoint me is another day that your leaders will be morally responsible for the deaths that will occur.

Sincerely,
Brady L. Shackelford
Founder, Half-owner, and Co-CEO
Shackelford Holdings Group Corp.

United States of America``

What do we think? Shall we give him absolute power?

[2021-01-22 00:51:43]

[Robert Garry]

What do we have to lose? His facebook: Man of God, 224 IQ, business owner, independent thinker, liberty advocate, and secret goofball.

[2021-01-22 00:56:23]

[Andrew Rambaut]

'half-owner'

[2021-01-22 04:42:40]

[Robert Garry]

Perhaps God owns the other half?

[2021-01-22 05:13:17]

[Robert Garry]

As for Yuri his link to the whole Bannon-Dr Yan-China virus right wingnut cabal does not take a whole wall of crazy just a small brick running thru Peter Theil.

<https://philanthropynewsdigest.org/news/paypal-co-founder-pledges-3.5-million-to-methuselah-foundation>

<https://m.facebook.com/yurideigin/photos/a.2061365927501523/2067517263553056/?type=3&source=54>

<http://youthereum.ca/#rec50876563>

[2021-01-22 05:21:13]

[Robert Garry]

But gotta admit they are scoring points:

<https://www.newsweek.com/beijing-must-come-clean-about-covid-19-origins-opinion-1563524>

[2021-01-22 05:42:58]

[Andrew Rambaut]

[thread - ID: 2021-01-21 15:14:06]

@Kristian Andersen <https://www.medrxiv.org/content/10.1101/2021.01.19.21249840v1>

[2021-01-22 05:49:53]

[Robert Garry]

Kevin (aka Billy Bostickson) just interviewing Yuri - <https://www.youtube.com/watch?v=JAqYaVXNlyc>

[2021-01-22 09:05:15]

[Kristian Andersen]

[thread - ID: 2021-01-21 15:14:06]

@Kristian Andersen Thanks. Much less of a drop for B.1.1.7, so that's good!

[2021-01-22 09:08:36]

[Andrew Rambaut]

[thread - ID: 2021-01-21 15:14:06]

@Kristian Andersen Yes. So 484K is the nasty one?

[2021-01-22 09:10:08]

[Kristian Andersen]

[thread - ID: 2021-01-21 15:14:06]

@Kristian Andersen I suspect 18, 417, and 484 in combination with 501

[2021-01-22 09:10:20]

[Kristian Andersen]

[thread - ID: 2021-01-21 15:14:06]

@Kristian Andersen I think L18F is more key than people realize

[2021-01-22 09:17:23]

[Andrew Rambaut]

[thread - ID: 2021-01-21 15:14:06]

@Kristian Andersen But L18F doesn't explain the RSA results

[2021-01-22 09:36:12]

[Kristian Andersen]

[thread - ID: 2021-01-21 15:14:06]

@Kristian Andersen ?

[2021-01-22 09:59:04]

[Kristian Andersen]

[thread - ID: 2021-01-21 15:14:06]

@Kristian Andersen RSA has that one, right? [shared file(s): Screen Shot 2021-01-22 at 09.58.38.png]

[2021-01-22 11:07:41]

[Kristian Andersen]

@Andrew Rambaut - how good is the data on the increased mortality from B.1.1.7? Makes sense it would be, however, comparing mortality rates during a surge is problematic....

[2021-01-22 11:09:28]

[Robert Garry]

[thread - ID: 2021-01-21 15:14:06]

@Kristian Andersen L18F is not in the cryo structure, but it is likely in the NTD near where delHV and the del around 241-3 in the mink.

[2021-01-22 11:12:47]

[Kristian Andersen]

[thread - ID: 2021-01-21 15:14:06]

@Kristian Andersen Yeah. I'm going more with it showing up both in RSA and BRA and the RSA paper showing that the NTD mutations are important for escape.

[2021-01-22 11:45:01]

[Robert Garry]

[thread - ID: 2021-01-21 15:14:06]

@Kristian Andersen Yeah - NTD is definitely doing something we are not yet accounting for.

[2021-01-22 11:47:56]

[Andrew Rambaut]

I am not sure it is that strong. But the report was leaked so they had to do the press. It is really hard to tease apart all the confounding factors.

[2021-01-22 11:49:13]

[Eddie Holmes]

This largely speaks for itself: [shared file(s): FigXX_B_Beta_MSA_v2.2_RdRp.pdf, FigXX_A_Beta_MSA_v2.2_Full length genome.pdf, all_similarity.xlsx]

[2021-01-22 11:50:06]

[Eddie Holmes]

[2021-01-22 11:54:11]

[2021-01-22 11:57:20]

[2021-01-22 12:13:49]

[2021-01-22 12:21:18]

[2021-01-22 12:21:47]

[2021-01-22 12:24:28]

[2021-01-22 12:24:59]

[2021-01-22 12:30:42]

[2021-01-22 12:44:08]

[2021-01-22 12:45:38]

[2021-01-22 12:50:35]

[2021-01-22 12:53:58]

[Robert Garry]

Yeah Alina read our post too. [shared file(s): image.png]

[2021-01-22 14:00:28]

[Eddie Holmes]

Clueless

[2021-01-22 14:36:13]

[Robert Garry]

She's creating a lot of trouble. Saw the same BS with Peter Duesberg back in the 80's [to be clear Alina is no Duesberg]. The right lies will get a lot of attention/most people can't sort the lies wrapped up in science from the facts.

[2021-01-22 15:13:18]

[Robert Garry]

@Kristian Andersen can take a lot more than that for sure... [shared file(s): image.png]

[2021-01-22 15:16:31]

[Robert Garry]

The paper is interesting for the insertion and for the immune escape at EriK. All the action in the indel regions.

[2021-01-22 15:41:44]

[Eddie Holmes]

These people are mad.

[2021-01-22 16:01:45]

[Kristian Andersen]

They're simply idiots - but let's have them have it...

[2021-01-22 17:33:59]

[Eddie Holmes]

No idea how they carry so much hate.

[2021-01-22 18:43:09]

[Eddie Holmes]

Can confirm that these new bat viruses are Yunnan 2020.

[2021-01-22 19:14:28]

[Robert Garry]

The notion that RaTG13 and RmYN02 are contrived gets yet another stake driven through the heart of it's rotten corpse.

[2021-01-22 19:18:06]

[Eddie Holmes]

Absolutely!! Looking forward to pointing that out! I think the Cambodian viruses are now on GISAID.

[2021-01-22 19:22:09]

[Robert Garry]

SAme with HA363 et al. - very close to the GD pango covs. Obviously GD is not fake either. Hope these papers go up in preprints soon.

[2021-01-22 19:38:25]

[Eddie Holmes]

I'm pushing as hard as I can.

[2021-01-22 23:03:29]

[Eddie Holmes]

<cid:F1D6EEC5-C974-49CC-B3ED-4D2A88641D91|cid:F1D6EEC5-C974-49CC-B3ED-4D2A88641D91>

[2021-01-22 23:04:41]

[Eddie Holmes]

shared file(s): RAxML_bipartitions.MSA_v2.3_tidy.pdf

[2021-01-22 23:06:20]

[Eddie Holmes]

New complete genome tree inc. the Cambodian and new pangolin sequence which is from Yunnan. The Yunnan pangolin sequence was of low quality. But, even with this it still falls in a very interesting position because it shows this lineage was already present in China (assuming its not from Yunnan customs) and not just imported in from another country. Pretty cool.

[2021-01-22 23:08:44]

[Eddie Holmes]

This tree looks a bit weird - perhaps because of whole genome plus recombination. Will try for some individual gene trees.

[2021-01-23 00:41:07]

[Eddie Holmes]

Some cool alpha CoVs well, closest relative of PEDV identified to date...again goes to show how little we have sampled. [shared file(s): Alpha-CoVs.pptx]

[2021-01-23 05:08:05]

[Robert Garry]

Fascinating Eddie. These new viruses are pure gold. Plenty to sort out. Even with the incomplete sequence the Yunnan Pango CoV different enough but still clustering closely with the GX Pango CoVs to indicate they likely carry these and spread them amongst themselves in the wild. Interesting to see the new bat viruses including HA363 hanging out closest to the GX pango CoVs. Interesting to see CamboBat hanging with the Pango Covs. HA379 may be the most interesting and important. The New Pango Cambobate CoV plus the new Yunnan Bat CoVs looks to me like it will - or at least should - lay to rest the notion that RaTG13, RmYN02, pango CoVs (GD, GX) were some sort of elaborate fake genome dump hastily contrived in the weeks after the first SC2 cases emerged to cover up the accidental or deliberated release of the GOF/bioweapons research at WIV.

[2021-01-23 05:21:20]

[Robert Garry]

Yes Eddie agree those AlphaCoVs are very cool. Important pathogens - dogs, cats, pigs - a parallel universe to the beta covs. But what I *really* want to see are more of the Fish Nidos. I think those are the going to be very informative.

[2021-01-23 05:39:36]

[Robert Garry]

Let me take a stab at Yuri's question: It says that thoughtful analysis wins out over racism, innuendo, conspiracies, wingnut politics, hidden agendas, fraud, hey look at me antics (Alina), lies, profound misunderstanding of basic/fundamental concepts and - in your case - "blasterbating." [shared file(s): image.png]

[2021-01-23 06:51:28]

[Robert Garry]

Here, I updated it:~Since~ It has been a little over one year since the first reports of a novel pneumonia (COVID-19) in Wuhan city, Hubei province, China. ~there has been~ Despite considerable discussion, ~and~ uncertainty remains over the origin of the causative virus, SARS-CoV-2. Infections with SARS-CoV-2 are now widespread ~in China~, with cases in every ~province~ country in the world. As of ~14 February 2020~ 23 January, 2021, ~64,473~ over 98 million such cases have been confirmed, with ~1,384~ over 2.1 million deaths attributed to the virus. These official case numbers are likely an underestimate because of limited reporting of mild and asymptomatic cases~.~ ~and~ As the virus ~is~ has spread through the human population new variants have arisen that are clearly more

capable of efficient human-to-human transmission. ~Based on the possibility of spread to countries with weaker healthcare systems, the World Health Organization has declared~ The COVID-19 ~outbreak~ pandemic remains a challenging International Public Health Emergency ~of International Concern (PHEIC)~. ~There are currently neither~ Vaccines ~nor~ and specific treatments for this disease, such as monoclonal antibody immunotherapeutics, have been developed with unprecedented speed; however, continued adaptation of SARS-CoV-2 to humans now challenges the efficacy of these new countermeasures.

[2021-01-23 07:05:39]

[Robert Garry]

Think we could sell it to a good journal as the opening paragraph of PO2? Seems to me the new viruses cross a data threshold to at least put some of the more prevalent "theories" back in their graves.

[2021-01-23 07:41:52]

[Andrew Rambaut]

Nelly B.1.1.7 update: There are a few now that seemed to have gone from PooH to PooR.

[2021-01-23 07:54:57]

[Robert Garry]

Holy crap - from a bad residue P to a better sometimes positive H, to a way, way better always positive R. PRRAR (minimal FCS) ---> HRRAR (still minimal FCS, but better) ---> RRRAR (still "minimal FCS, but getting much better). NOT a good trend.

[2021-01-23 09:47:52]

[Andrew Rambaut]

define 'better' here.

[2021-01-23 09:49:52]

[Kristian Andersen]

Better at getting cleaved - we're nearing some of the FCS seen in HPAs with that sequence

[2021-01-23 09:56:03]

[Andrew Rambaut]

Yeh - I was laughing the language.

[2021-01-23 10:16:34]

[Robert Garry]

I'm looking to see if the HA379 new YN Bat CoV has the QTQTN (like RaTG13 and GD pango cov - not GX), which fits the criteria for an optimal upstream landing site for furin.

[2021-01-23 10:28:17]

[Robert Garry]

[thread - ID: 2021-01-23 10:28:17]

Obviously, part of the well-thought out nefarious plan by the CCP red army, WIV supervillain virologists and their space alien advisors from the future to release a virus with suboptimal FCS/RBD that they projected would evolve (after it left China) into the more fit/immunologically inert variants currently spreading around the world.

[2021-01-23 11:30:43]

[Eddie Holmes]

I think you nailed it Bob.

[2021-01-23 11:33:37]

[Kristian Andersen]

I finally got a chance to read that c|net article - overall actually ok. Yes, too much false balance here, but I think he did pretty well.

[2021-01-23 11:37:18]

[Robert Garry]

And now that WE [not DRASTIC} have uncovered the actual plan, I'll see if I can get a back-channel message to Pompeo, Sen. Cotton and newly pardoned media genus Bannon. Seems like Tucker should want us on Fox for several episodes.

[2021-01-23 11:41:43]

[Kristian Andersen]

Latest data from Jordan on B.1.1.7 - signal starting to be pretty clear and that increase in transmission is really quite something. [shared file(s): Log_growth.png]

[2021-01-23 11:45:33]

[Robert Garry]

Don't think this is classified, but I heard from a good source that B.1.351 is in Kuwait.

[2021-01-23 13:20:37]

[Eddie Holmes]

@Robert Garry The sequence of the Cambodian bat virus is now on GISAID. Not sure if you have it. Also, do you/we plan to write-up these Virological posts into a paper? Things are moving quickly though.

[2021-01-23 13:39:31]

[Andrew Rambaut]

[thread - ID: 2021-01-23 10:28:17]

More seriously - what would be the optimal FCS?

[2021-01-23 13:41:08]

[Andrew Rambaut]

[thread - ID: 2021-01-23 13:41:08]

And of course optimal cleavage may not have peak fitness benefit to the virus - you can presumably cleave too well and alter some other trade off in the dynamics.

[2021-01-23 14:28:36]

[Andrew Rambaut]

Genomes - England per day. Red = B.1.1.7, Blue = B.1.177, Grey = the rest [shared file(s): image.png]

[2021-01-23 14:36:56]

[Eddie Holmes]

Just going through my emails for the GIPA crap. Some are poignant. [shared file(s): Screen Shot 2021-01-24 at 9.27.27 am.png]

[2021-01-23 14:37:41]

[Eddie Holmes]

Note the date

[2021-01-23 14:40:43]

[Andrew Rambaut]

Will these be made public?

[2021-01-23 14:46:28]

[Eddie Holmes]

No plans to. They don't directly relate to the paper.

[2021-01-23 14:51:55]

[Robert Garry]

[thread - ID: 2021-01-23 13:41:08]

@Andrew Rambaut Agree with this - optimal cleavage might vary depending on multiple factors - cleave in the wrong tissue or wrong time not good. - An optimal cleavage site is RRXRR. Not all X's equal so RRRRR among the best.

[2021-01-23 14:52:01]

[Eddie Holmes]

But I can of course use them if necessary.

[2021-01-23 14:53:21]

[Andrew Rambaut]

True - would be interesting if some of that got out (doesn't look good for CCDC)

[2021-01-23 14:54:18]

[Eddie Holmes]

Oh no.

[2021-01-23 14:57:12]

[Robert Garry]

Wow.

[2021-01-23 14:58:25]

[Robert Garry]

"Also, do you/we plan to write-up these Virological posts into a paper?" yes - needed! on it.

[2021-01-23 15:05:30]

[Kristian Andersen]

Whoa Eddie - that's pretty scary language in that email.

[2021-01-23 15:28:24]

[Eddie Holmes]

Yes, very bad. You know, all the bad stuff that came out of this, all the attacks that are ongoing, are due to George Gao. No doubt.

[2021-01-23 15:28:56]

[Eddie Holmes]

Thanks for working on the paper Bob!

[2021-01-23 16:50:55]

[Andrew Rambaut]

spike L18F is seen in 310 genomes within B.1.1.7 in the UK - more convergence

[2021-01-23 17:08:16]

[Kristian Andersen]

For fuck sake! This is adding immune escape to the increased transmission. Just need to add E484K and L417N/T and we're good to go.

[2021-01-23 17:12:33]

[Andrew Rambaut]

Here is a full list of variants in B.1.1.7 on sites with mutation seen in P.1 and B.1.351 (and not originally in B.1.1.7):

```Gene Mutation Original lineage Seen in B.1.1.7

ORF1ab S1188L P.1 A/L/P 1/4/2 genomes

K1655N B.1.351 M/N 1/3 genomes

E5665D P.1 D 2 genomes

spike L18F P.1/B.1.351 L 310 genomes

T20I P.1 N 17 genomes

P26S P.1 H/L/S 1/2/5 genomes

D80A B.1.351 Y 4 genomes  
D138Y P.1 G/H 1/75 genomes  
R190S P.1 M/S 2/2 genomes  
D215G B.1.351 B/N/Y 1/1/8  
R246I B.1.351 K 4 genomes  
E484K P.1/B.1.351 G/K 1/10 genomes  
H655Y P.1 Y 7 genomes  
P681R R 10 genomes  
A701V B.1.351 V 25 genomes  
E P71L B.1.351 H/L/S 3/5/2  
N P80R P.1 L 6 genomes  
T205I B.1.351 I/N 13/2 genomes``

[2021-01-23 17:13:18]

**[Andrew Rambaut]**

Probably some of them (particularly those with multiple residues) are probably just plastic.

[2021-01-23 17:14:22]

**[Andrew Rambaut]**

Will need to see how often some of these occur outside the background of B.1.1.7

[2021-01-23 17:15:01]

**[Kristian Andersen]**

Yeah. Very interesting to see how several of these are shared with BRA/RSA variants though - I find that a little confusing

[2021-01-23 17:16:34]

**[Kristian Andersen]**

I thought the mutations observed in P.1 / B.1.351 were likely fixed in a single individual and then took off in the population. But seeing them pop up here suggest to me that that likely wasn't the case. Maybe immune selection in \_the population\_, not \_intrahost\_, actually fixed them in the first place.

[2021-01-23 17:17:33]

**[Kristian Andersen]**

I think the UK lineage is likely a weird example of a chronic infection that took off, while the BRA/RSA lineages are just a result of selection on the population.

[2021-01-23 17:17:40]

**[Andrew Rambaut]**

The plastic ones could have just been hitchhiking in the generating individual

[2021-01-23 17:17:55]

**[Kristian Andersen]**

True

[2021-01-23 17:19:32]

**[Andrew Rambaut]**

Trevor has been going around saying the RSA lineage arose in sequence based on some genomes with only some of the mutations but they are not old sequences and I have heard that Tulio uses some weird homebrew bioinformatics that may call for reference occasionally.

[2021-01-23 17:20:16]

**[Kristian Andersen]**

Eh?

[2021-01-23 17:20:27]

[Andrew Rambaut]

Exactly

[2021-01-23 17:21:15]

[Kristian Andersen]

That's weird. I mean, P.1. has many overlapping mutations so surely those at least must be right?

[2021-01-23 17:21:34]

[Andrew Rambaut]

I thought they were more likely reversions than intermediates (still unlikely) but when I pointed them out to Tulio he said he thought they weren't real and they were fixing them.

[2021-01-23 17:21:46]

[Kristian Andersen]

Oh.

[2021-01-23 17:23:16]

[Andrew Rambaut]

I still think all three are chronic cases which have selected for antigenic escape within the host (and for B.1.1.7 at least increased transmissibility) and then these turned out to be in places where these were very fit.

[2021-01-23 17:24:13]

[Andrew Rambaut]

Otherwise we would see these combinations coming up a lot.

[2021-01-23 17:24:38]

[Kristian Andersen]

Yeah, that's true - either strong bottleneck (in single host) or very strong selection.

[2021-01-23 17:24:38]

[Andrew Rambaut]

Not to say they couldn't given enough time but the chronic patient is just a kickstart

[2021-01-23 17:25:32]

[Kristian Andersen]

Such an interesting virus evolutionarily speaking - I \_do\_ wonder what other shit it'll throw after us.

[2021-01-23 17:26:49]

[Eddie Holmes]

Tulio and his tools.

[2021-01-23 17:27:26]

[Kristian Andersen]

There was a reason we developed more robust tools...

[2021-01-23 17:27:48]

[Kristian Andersen]

But as always - any one of these tools used in the wrong hands > disaster.

[2021-01-23 17:31:05]

[Andrew Rambaut]

Yeah, he is using the ARTIC protocol on Illumina but then some crazy semi commercial software called Genome Detective

[2021-01-23 17:32:14]

**[Andrew Rambaut]**

Which seems to be a web app with a 'premium' pay-for version. Tulio was involved in development which is probably why.

[2021-01-23 17:33:27]

**[Kristian Andersen]**

I remember I came across that - I think maybe even reviewing a paper with it. Really need to use iVar if he's on the Illumina platform.

[2021-01-23 17:34:02]

**[Andrew Rambaut]**

I have mentioned it to him.

[2021-01-23 17:49:05]

**[Andrew Rambaut]**

*[thread - ID: 2021-01-23 17:49:05]*

Don't like this - L18F has cropped up quite a few times in B.1.1.7 but most of the 310 are in a single large cluster in one area of the country

[2021-01-23 17:49:29]

**[Robert Garry]**

Andrew alluded to it and I agree it's true - some spots on the genome are "slippery" or prone to mutation. It's the variable and constant domain meme of HIV, fle etc. In one sense hopeful since it suggests that while the space for mutation/adaptation is large it's not infinite. As @Andrew Rambaut referenced a handful of immunosuppressed/cancer patients out there (two NEJM paper) with patients with overlapping or common mutation/deletions, a few of which actually flip back and forth in the "quasispecies." The strongly immunosuppressed/persistent patients interesting - KGA aware of one of ours at Tulane that has stayed PCR positive for over 8 months. No provirus and a rudimentary proofing mechanism but still as Emma Hodcraft said a playground for the virus.

[2021-01-23 17:49:59]

**[Andrew Rambaut]**

Got to go to bed and stop staring at mutations.

[2021-01-23 17:54:23]

**[Robert Garry]**

Yes but I really don't want to think about the blissfully ignorant mess we'd be in if YOU hadn't been staring at mutations over the past several months.

[2021-01-23 17:55:47]

**[Eddie Holmes]**

*[thread - ID: 2021-01-23 17:55:47]*

Bob, you used the Q word.

[2021-01-23 18:00:27]

**[Kristian Andersen]**

Oh oh.

[2021-01-23 18:02:32]

**[Eddie Holmes]**

*[thread - ID: 2021-01-23 18:02:32]*

Spent HOURS putting the GIPA together...kind of hoping that the 'grand wizard of EgoHealth' makes into the public domain

[2021-01-23 18:02:45]

**[Kristian Andersen]**

That'd be fun.

[2021-01-23 18:03:14]

**[Kristian Andersen]**

*[thread - ID: 2021-01-23 17:49:05]*

Key question here - in an area of high standing immunity or low?

[2021-01-23 18:38:49]

**[Robert Garry]**

*[thread - ID: 2021-01-23 17:55:47]*

@Eddie Holmes moment of weakness :scream\_cat:

[2021-01-23 18:40:16]

**[Eddie Holmes]**

*[thread - ID: 2021-01-23 17:55:47]*

@Eddie Holmes Don't worry - won't be part of the GIPA so your dirty secret is safe.

[2021-01-24 02:41:44]

**[Eddie Holmes]**

Did you get this one? [shared file(s): Screen Shot 2021-01-24 at 9.41.08 pm.png]

[2021-01-24 03:46:09]

**[Andrew Rambaut]**

*[thread - ID: 2021-01-23 17:49:05]*

@Andrew Rambaut Need to check this but looks like it could be an area that was hit hard in the last wave.

[2021-01-24 03:48:05]

**[Andrew Rambaut]**

No. He is only offering the golf lesson to you by the looks of things.

[2021-01-24 05:24:10]

**[Robert Garry]**

No email from "John" either, but he seems nice.

[2021-01-24 06:28:17]

**[Robert Garry]**

So, these are the papers {plus another somewhat similar one focusing more on the deletions that I was reviewing for one of the glams} that triggered my unfortunate use of the "Q word," an old lazy bad habit from HIV days. <https://www.nejm.org/doi/full/10.1056/NEJMc2031364> <https://www.nejm.org/doi/full/10.1056/NEJMc2031670> As mentioned, we have a similar chronic patient - 8 months with positive SC2 pcrs. [shared file(s): image.png]

[2021-01-24 06:36:07]

**[Robert Garry]**

The patient above is different than the second series of patients below. First, the mutants don't show up til day 75 -they show up in a group including Eeek, and a bigger deletion at Y145. Other variants with diff constellation of mutations then come to dominate at different times, including a "transient" larger deletion that includes L18. Would have really been nice if the authors had given a little more info about depth of coverage etc. [shared file(s): image.png]

[2021-01-24 06:44:05]

**[Robert Garry]**

The difference in the second series is that in every case most of the variants are present in the first sample. Other mutations get added later but these are outside of spike. With one exception you don't see a mutation appear and then "disappear." The Tulane patient has a spike deletion in the first sample [A243/L244] and adds a few substitutions in spike on the second sample taken three months after the first. More KGA seq to come on later samples.



[2021-01-24 07:06:01]

**[Robert Garry]**

If you are still with me - the main point I want to make is that our Tulane immunosuppressed patient had zero antibodies to SC2 spike and nucleoprotein to date. Zilch. Rituximab plus Bendamustine - very low WBC. Unfortunately we don't have antibody data on the NEJM patients, but we do know that the first NEJM patient above was blasted with Rituximab and high dose steroids. We're going to try and measure T cell responses in the Tulane patient, but not expecting much. Bottom lines: 1. some immunosuppressed patients may have just by chance been infected with variants arising in their communities OR the variants came up *\*really\** fast. 2. immunosuppressed patients can select for variants over time -months , but the population dynamics are complex. 3. immune escape perhaps less important than fitness as a selective pressure in immunosuppressed patients - some of the fitter variants just happen to be in epitopes.4. By whatever mechanism a LOT of the same mutations appear via independent events in these immunosuppressed patients.

[2021-01-24 07:53:59]

**[Kristian Andersen]**

*[thread - ID: 2021-01-23 17:49:05]*

@Andrew Rambaut Great....

[2021-01-24 08:28:42]

**[Robert Garry]**

<https://www.sciencedirect.com/science/article/pii/S0092867420314562>

[2021-01-24 08:29:07]

**[Robert Garry]**

Similar picture here.

[2021-01-24 08:48:31]

**[Robert Garry]**

This patient in the Cell case study[!] is a bit more like the first NEJM patient. Some Mutations persist, others wink in, wink out. [shared file(s): image.png]

[2021-01-24 08:49:52]

**[Robert Garry]**

Unfortunately no earlier sequence than from day 45, so don't know the baseline sequence.

[2021-01-24 08:54:05]

**[Robert Garry]**

They also use the Q word [yikes], which perhaps suggests a teaching opportunity re viral population genetics.

[2021-01-24 09:00:15]

**[Robert Garry]**

<https://virological.org/t/emergence-of-y453f-and-69-70hv-mutations-in-a-lymphoma-patient-with-long-term-covid-19/580> Of course other immunosuppressed patients like this one here.

[2021-01-24 09:10:11]

**[Robert Garry]**

<https://www.medrxiv.org/content/10.1101/2020.12.05.20241927v3> "N501Y in Spike was transiently detected at day 55 and V157L in RdRp emerged. However, following convalescent plasma we observed large, dynamic virus population shifts, with the emergence of a dominant viral strain bearing D796H in S2 and \*ØH69/\*ØV70 in the S1 N-terminal domain NTD of the Spike protein." Importantly, no SC2 antibodies until they infused convalescent plasma.

[2021-01-24 13:42:44]

**[Robert Garry]**

*[thread - ID: 2021-01-23 18:02:32]*

@Eddie Holmes Sorry for the time sink/harassment. Not a good use of your time.

[2021-01-24 14:03:59]

**[Eddie Holmes]**

Thanks for all that Bob! I'll take a careful look after I've had my golf lesson.

[2021-01-24 14:13:47]

**[Robert Garry]**

Almost all the "immunosuppression" mutations perhaps not surprising are in indel regions. Putting together an alignment. Couple of "slippery" regions creating deletions.

[2021-01-24 14:19:42]

**[Eddie Holmes]**

Got a reply from this person with an interesting profile: [shared file(s): Screen Shot 2021-01-25 at 9.18.52 am.png]

[2021-01-24 14:22:44]

**[Eddie Holmes]**

I may have to write a book about this. Like everyone else.

[2021-01-24 14:24:44]

**[Robert Garry]**

This was probably part of the Trump Admin deep intel.

[2021-01-24 16:36:09]

**[Kristian Andersen]**

@Robert Garry - lots of good stuff here. Don't forget we had a chronic infection in San Diego too - no treatment in this guy.

<https://andersenlab.slack.com/files/U0HFUE9E3/F01HKFKCLHE/fake-reinfection.pdf> [shared file(s): fake-reinfection.pdf]

[2021-01-24 16:50:57]

**[Robert Garry]**

The two mutations to cysteine??? A new cysteine loop would be insane.

[2021-01-24 16:52:36]

**[Kristian Andersen]**

Yup. No idea if they could make a bridge though.

[2021-01-24 16:54:16]

**[Robert Garry]**

Also fits the later arising mutants scenario, but still pretty early.

[2021-01-24 17:38:09]

**[Robert Garry]**

So they are either bridging with each other or forming two new loops with an existing dicysteine.

[2021-01-25 07:57:55]

**[Robert Garry]**

@Kristian Andersen the R214C and G261C are *\*definitely\** forming a new cysteine bridge. They are close enough in the structure that they WILL shift around to make the bridge. The existing disulfide bonds are C12 - C136, C131 - C166, C291 - C301. C12 is [apparently] the N -terminus and C12 to up to the orange A26 is "disordered" and therefore not in the structure I used to model spike. There is a newer structure (unstabilized cryo that gets the whole n terminus, including an N17) - I need to redo that models for sure putting in C12. I might even update some of the Virological Figures. Unpaired cysteines are *\*very rare\** in viral glycoproteins. ALL the sarbecovirus spike cysteines are completely conserved from RmYN02, other Bat Covs, Pango Covs thru SARS-CoV to SC2. THIS IS HIGHLY UNUSUAL, BUT ULTRACOOL. Need to look at other CoVs to see the C-C structures in NTD. The role of NTD in SARS CoVs definately understudied. [shared file(s): image.png]

[2021-01-25 08:01:49]

**[Robert Garry]**

Those two residues have or are next to a residues that's changed before. Opps didn't change the mink - it's G261D - the GoD mutation.

[2021-01-25 08:05:01]

**[Robert Garry]**

New sequences disprove conspiracy theories based on a laboratory contrived origin of bat coronavirus RatG13 and pangolin coronaviruses.

[2021-01-25 09:27:07]

**[Kristian Andersen]**

Wow, that's pretty wild @Robert Garry - that's why we keep you around :wink:. I have never thought to think of this as a cysteine bridge, so lord knows what it does to the structure. For now, this virus remains inside the patient - we haven't seen any transmissions. With the patients at Tulane, I see a bigger study building....

[2021-01-25 09:41:22]

**[Robert Garry]**

If you show this to Erica or Andrew Ward - they want to jump on this I am certain. Consider that it's never (at least as far as I can tell with a quick look) been shown for HIV. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2555952/> "Sequence variability of Env among different HIV strains is notorious and in part explains why the humoral immune response against HIV-1 is inadequate in patients. \*Amid the countless changes in surrounding residues, the cysteine residues are strictly conserved among all isolates of HIV-1 (Louwagie \_et al., 1995 ; Los Alamos HIV sequence database: <http://hiv-web.lanl.gov>). \* This suggests that the antigenic shield of Env may vary, but that the disulfide-bonded structure of Env and hence the basic architecture of the molecule is constant?

[2021-01-25 09:49:00]

**[Robert Garry]**

The new swab samples from the Tulane patient are coming your way TODAY. Yes a bigger study - these two likely others are probably already looking at structures of the new variants, but yours will really get their blood boiling. CDC declined to come and do any contact tracing, but did offer up some advice for quarantining the patient. Regeneron wants to give the patient a whopping dose of their drug, which will cure him or give rise to a B.1.351 like variant.

[2021-01-25 11:46:02]

**[Robert Garry]**

Cambobacov spike pretty interesting - it has the E484 and 5/6 of the GD Pango/SC2 RBD residues we highlighted in PO1. Add to that the furin landing site QTQTN that it shares with PangoGD CoV and RatG13. [shared file(s): image.png]

[2021-01-25 11:55:41]

**[Robert Garry]**

So bottom line a new bat virus that confirms the authenticity of GD pangocov.

[2021-01-25 12:09:11]

**[Eddie Holmes]**

Brilliant work Bob! The Cambobacov paper should be online soon I believe

[2021-01-25 12:14:13]

**[Robert Garry]**

That would be great - have some ideas gelling for an "opinion" piece for Virological. Something along the lines of: New sequences disprove conspiracy theories based on contrived origins of bat coronavirus RatG13 and pangolin coronaviruses.

[2021-01-25 12:44:44]

**[Eddie Holmes]**

Love it! Looking forward to having a rant on Twitter

[2021-01-25 12:59:18]

**[Andrew Rambaut]**

Amazing. So the Cambobot has the RBD that RaTG13 lost through recombination and is slightly closer than the GD pango by the looks?

[2021-01-25 13:01:45]

**[Andrew Rambaut]**

On closer inspection maybe it isn't quite that simple but hey - really interesting

[2021-01-25 13:06:56]

**[Robert Garry]**

Yes, but I think your first approximation is pretty spot on - taking a look at the nucleotide alignment - maybe a case where the protein alignment gives a slightly different picture than the nucleotide alignment. - as ProfBill often says- you can see the "wobble" codons. That's natural evolution of course not nonsense like the WIV supervillains creating a fake set of SRA data to cover up their GOF/bioweapons program.

[2021-01-25 14:25:37]

**[Robert Garry]**

Certainly strongly supports all you said in Boni2020.

[2021-01-25 14:36:07]

**[Andrew Rambaut]**

Cool! If you make a nucleotide alignment of the spikes, I would love to take a look.

[2021-01-25 14:40:15]

**[Robert Garry]**

Will do - on it...

[2021-01-25 14:40:32]

**[Kristian Andersen]**

Yeah, very interesting - seems like that the "RaTG13 lost the pango RBD" might actually turn out true. Very nice confirmation.

[2021-01-25 14:40:57]

**[Kristian Andersen]**

Totally unrelated, but this seems very exciting... Can't wait to read the full book [shared file(s): chart.jpg]

[2021-01-25 14:41:14]

**[Kristian Andersen]**

[Actually, I can wait. Never mind]

[2021-01-25 14:42:29]

**[Robert Garry]**

Lost me at "Beyond the boyish good looks...."

[2021-01-25 14:42:59]

**[Kristian Andersen]**

Yeah, not really fair that they didn't say that about Eddie.

[2021-01-25 14:44:23]

**[Kristian Andersen]**

Here's a preview of the book. Thrilling. [shared file(s): LOCKDOWN\_Preview\_210121.pdf]

[2021-01-25 14:48:35]

**[Robert Garry]**

Somehow Lockdown just not the same pizzazz as Spillover, Outbreak or HOT ZONE.

[2021-01-25 14:49:20]

**[Kristian Andersen]**

Lame title - call it "Escape from the Lab" or something like that.

[2021-01-25 14:50:56]

**[Robert Garry]**

Have you ever noticed that when a book claims to tell the "true story" that often it isn't?

[2021-01-25 14:53:47]

**[Robert Garry]**

Speaking of nucleotide alignments: [shared file(s): image.png]

[2021-01-25 14:54:55]

**[Kristian Andersen]**

I think he meant to say "Based on a true story"....

And yeah - Yuri still hasn't figured out MSA scoring schemes. Maybe in his next online course.

[2021-01-25 15:11:52]

**[Robert Garry]**

And, what's up with Richard High Ebright (his actual name)?

[2021-01-25 15:16:05]

**[Eddie Holmes]**

Paper was started on the 5th (see below). I will pass this 'book' to the lawyers. [shared file(s): Screen Shot 2021-01-26 at 10.14.59 am.png]

[2021-01-25 15:26:06]

**[Eddie Holmes]**

Alas, likely the first of many.

[2021-01-25 18:21:32]

**[Eddie Holmes]**

<https://www.theguardian.com/world/2021/jan/26/wuhan-doctor-china-authorities-stopped-me-sounding-alarm-on-covid>

[2021-01-25 18:24:29]

**[Kristian Andersen]**

Getting murky...

[2021-01-25 18:26:59]

**[Eddie Holmes]**

This is the program I am in. The person behind it was very good. I guess it will be similar to that NYT article - high level fuck-ups all around. It will be very interesting to see how much she blames George directly.

[2021-01-25 18:29:12]

**[Eddie Holmes]**

I actually don't think George was hiding stuff - I just think he's a bit useless. Also he has an ego the size of a planet and he is madly angry with Zhang because he probably think his Noble prize has gone.

[2021-01-25 19:02:10]

**[Robert Garry]**

Looking forward to seeing it! China surely hoped this would just go away not at all unlike Trump. Sierra Leone, Guinea and Liberia just hoped Ebola would go away. Speak up and get called an alarmist. Seems like it was much

worse in China, which is also to their discredit. For me easy to separate the science questions on origins from the political questions about the cover-ups during the early outbreak. But, see how that's difficult for people that don't do origins every day for the past year.

[2021-01-25 19:05:28]

**[Eddie Holmes]**

<https://www.bbc.com/news/world-55756452>

[2021-01-25 19:06:15]

**[Eddie Holmes]**

Hyping it now

[2021-01-25 19:16:29]

**[Eddie Holmes]**

Jane who wrote that piece also did the film. Very smart.

[2021-01-25 19:23:15]

**[Robert Garry]**

Looks like great reporting!

[2021-01-26 05:23:51]

**[Robert Garry]**

<https://www.facebook.com/watch/?v=432344174486279> OK Fox news - but super well presented - worth your ten minutes to watch [it's what we are up against]. Short version Fauci funded GOF research: Wuhan /Daszak --> GOF research "proved" ACE2 entry --> SC2 emerges in Wuhan. Everything Alina wishes she could be - iows neatly packaged garbage/innuendo. Shorter version: hey look [in ominous tones] they were working on bat coronaviruses in Wuhan and Fauci funded it.

[2021-01-26 07:04:36]

**[Kristian Andersen]**

Yeah, saw parts of it - so dumb.

[2021-01-26 07:05:28]

**[Kristian Andersen]**

Separately - I think they might want to look up GOF in a dictionary...

[2021-01-26 07:10:31]

**[Robert Garry]**

At least the gorilla is doing OK even thou infected with ~LucifeR~ "LesteR." Or pick your own name LenoIR, LuthoR also possibilities.

[2021-01-26 07:37:57]

**[Kristian Andersen]**

Yeah, we might need to find a name for that one - last sequencing run, ~50% LesteR....

[2021-01-26 07:38:20]

**[Kristian Andersen]**

I suspect Lester and Nelly will have to battle it out - should be interesting.

[2021-01-26 07:38:27]

**[Robert Garry]**

@Andrew Rambaut is the go to for names...

[2021-01-26 07:45:05]

**[Kristian Andersen]**

Google Scholar is now indexing Virological... :wink: [shared file(s): Screen Shot 2021-01-26 at 7.44.40 AM.png]

[2021-01-26 07:46:48]

**[Andrew Rambaut]**

Enjoy - all 191 pages of it... [shared file(s): 2021-01-26\_SQuay\_Bayesian Analysis of SARS-CoV-2.pdf]

[2021-01-26 07:47:12]

**[Andrew Rambaut]**

How do these people have so much time on their hands?

[2021-01-26 07:47:28]

**[Kristian Andersen]**

Just saw it... I have no idea - I guess it's all they do?

[2021-01-26 07:47:41]

**[Andrew Rambaut]**

I like the pacman logo though

[2021-01-26 07:50:06]

**[Kristian Andersen]**

I should point out that Trevor was / is working on a Bayesian framework for this as well. Picking priors is a little sketchy...

[2021-01-26 07:50:57]

**[Andrew Rambaut]**

We should reply to tell him that. Perhaps they could collaborate

[2021-01-26 07:54:39]

**[Kristian Andersen]**

That'd be fun!

I do have \_some\_ respect for Quay though - he noticed the early ENA samples - still not explained.

[2021-01-26 08:11:40]

**[Andrew Rambaut]**

Cambodian bat genomes - just the variable loop: [shared file(s): image.png]

[2021-01-26 08:11:58]

**[Andrew Rambaut]**

Rooted by other pangolins

[2021-01-26 08:12:58]

**[Kristian Andersen]**

Just a matter of time before we see a near-perfect match to the RBD in bats,

[2021-01-26 08:15:28]

**[Robert Garry]**

Here's that nucleotide alignment of spike at 30,000 feet - from the ATG to the FCS- not the mess I thought it would be - you can clearly see the indels. To Kristian's point - the RBD actually aligns pretty well. [shared file(s): image.png]

[2021-01-26 08:23:36]

**[Robert Garry]**

And a bit of S2 - highly conserved at the amino acid level - but you can clearly see many instances of the \*\* \*\* pattern, with the mismatches being the "wobble" base in the triplet. Designed by nature not a supervillain. [shared file(s): image.png]

[2021-01-26 08:48:18]



[Andrew Rambaut]

Cara is trying again to get me to come to China: [shared file(s): image.png]

[2021-01-26 08:48:35]

[Andrew Rambaut]

This time she has a name for the organisation.

[2021-01-26 08:49:08]

[Andrew Rambaut]

If you look up "North American Foundation for Science and Technology" you get this very convincing website:  
<https://www.northamericanfoundationforscienceandtechnology.com>

[2021-01-26 08:50:35]

[Andrew Rambaut]

<https://www.northamericanfoundationforscienceandtechnology.com/our-team>

[2021-01-26 08:51:17]

[Andrew Rambaut]

shared file(s): image.png

[2021-01-26 09:11:26]

[Robert Garry]

Weed and stem cells - seems like a natural to me. Cara seems nice too, but might just be a bit of a trap...

[2021-01-26 09:16:22]

[Andrew Rambaut]

A trap? Surely not: [REDACTED]

[2021-01-26 09:30:09]

[Kristian Andersen]

Love the URL - a little hard to memorize, but still. Stellar.

[2021-01-26 09:36:08]

[Kristian Andersen]

Address linked to Exosomecure Research Foundation too - I suspect Johnny's home address. Nice area.

[2021-01-26 10:25:51]

[Robert Garry]

So, the real question arises. In one case - Andrew's email - Cara is Cara Li. But on the website the Cara is Cara Dong. More than one Cara? Cara got married and changed her name?

[2021-01-26 10:26:35]

[Robert Garry]

I think this may be a job for Alina or DRASTIC...

[2021-01-26 10:31:01]

[Kristian Andersen]

OMG the inconsistencies!

Clearly came from the lab.

[2021-01-26 10:46:14]

[Robert Garry]

MW251308 to MW251312

[2021-01-26 10:47:02]

**[Robert Garry]**

Yuri has moved up to clustal W - however the Thai bat viruses are interesting [shared file(s): image.png]

[2021-01-26 10:54:16]

**[Kristian Andersen]**

Their obsession with the FCS will backfire - we'll get viruses with more similar insertions and then their main argument becomes completely mute. Of course, they'll just move the goal post.

[2021-01-26 10:57:38]

**[Robert Garry]**

RmYN02 like cleavage site [shared file(s): image.png]

[2021-01-26 11:11:12]

**[Robert Garry]**

MW251308 this is Linfa and apparently he has some Thai pangos as well..... [shared file(s): image.png]

[2021-01-26 12:16:03]

**[Kristian Andersen]**

Dang. <https://www.medrxiv.org/content/10.1101/2021.01.21.21249203v1>

[2021-01-26 12:35:50]

**[Eddie Holmes]**

Very interesting to see all these new animal viruses. I've just approved the Cambodian bat one for bioRxiv.

[2021-01-26 12:37:51]

**[Eddie Holmes]**

Interesting paper on the new variants by David Ho as well.

[2021-01-26 12:51:34]

**[Kristian Andersen]**

URL?

[2021-01-26 13:50:00]

**[Eddie Holmes]**

The Cambodian paper is now online

[2021-01-26 16:26:04]

**[Robert Garry]**

Alignment including Thai Bat CoV and Cambodian Bat CoV. Take homes: Thai Bat spike and RmYN02 spike are nearly identical, including at the S1/S2 cleavage site. Cambobacov RBD is very similar to PangoGD RBD and SARS-CoV-2 RBD. 5/6 of the PO1 key residues. Cambobacov also has the Furin landing site QTQTN, like RaTG13, GD Pango and SARS-CoV-2, that is often deleted on extended cell passage. [shared file(s): image.png]

[2021-01-26 16:38:37]

**[Kristian Andersen]**

*[thread - ID: 2021-01-26 16:38:37]*

Nice! Bob, can you please share the actual alignment? Would like to try and merge it with what I have.

[2021-01-26 16:41:25]

**[Eddie Holmes]**

Great work Bob! Hoping to get the Yunnan bat virus sequences soon.

[2021-01-26 17:20:24]

**[Kristian Andersen]**

Here's the paper from David Ho - B.1.351 not looking good:  
<https://www.biorxiv.org/content/10.1101/2021.01.25.428137v2.full.pdf>

[2021-01-26 17:22:22]

**[Kristian Andersen]**

How people can look at this data and conclude that "it'll be totally fine for vaccines - all good news", I simply don't understand. Either it's delusional or it's because we have now (yet again) turned to wishful thinking.

There is little doubt in my mind we'll have to update the vaccine. Will B.1.351 kill them completely? Very likely not - however, there's going to be a hard hit to the efficacy because of this.

[2021-01-26 17:22:34]

**[Eddie Holmes]**

I thought not...

[2021-01-26 17:23:01]

**[Eddie Holmes]**

Fucker as you say...

[2021-01-26 17:24:36]

**[Kristian Andersen]**

The Moderna paper yesterday (which looks more promising) they literally took the serum at the very peak (a week after the booster) so the data would look better. In this paper they wait a few weeks and see a more worrisome effect - similar to the observations from RSA.

In any case - it sounds like Moderna is already working on an updated design, so that's the right thing to do - I just hope that work gets fast-tracked.

[2021-01-26 17:27:03]

**[Robert Garry]**

*[thread - ID: 2021-01-26 16:38:37]*

@Kristian Andersen Of course, I'll send when I get back to the office computer.

[2021-01-26 17:36:25]

**[Eddie Holmes]**

Indeed! Sounds like an update is needed ASAP.

[2021-01-26 17:44:07]

**[Kristian Andersen]**

I don't necessarily think it needs to get into people ASAP, but the whole process absolutely needs to be started ASAP - it's not a simple "six week and we're done" process. Better have this ready to go over the summer.

[2021-01-26 17:46:21]

**[Eddie Holmes]**

Totally agree.

[2021-01-26 18:04:05]

**[Kristian Andersen]**

Just looking at that CamboBat paper - very interesting. One thing they miss - that mismatch in the key RBD residue where CamboBat has "P" and the PangoCoV and SC2 have "F" (and SC1 / RmYN02 have "L") the "pre"-SARS CoVs from e.g., civets ALSO have "P". Pretty interesting. [shared file(s): Screen Shot 2021-01-26 at 5.59.43 PM.png, Screen Shot 2021-01-26 at 6.03.31 PM.png]

[2021-01-26 18:09:33]

**[Eddie Holmes]**

Oh cool! It's really not much of a paper.

[2021-01-26 18:14:07]

**[Kristian Andersen]**

No, it really isn't - more of a genome announcement (although, quite a genome!)

[2021-01-26 18:16:25]

**[Eddie Holmes]**

Yes, it's a beaut.

[2021-01-26 18:19:49]

**[Robert Garry]**

They had lots of opportunities to really get into sarbecovirus evolution -they didn't.

[2021-01-27 01:03:02]

**[Eddie Holmes]**

Apparently Linfa only has positive serology for the pangos. No sequences.

[2021-01-27 01:11:12]

**[Robert Garry]**

Good to know! Impressive nonetheless - can you ask him what secondary reagent he used for the pango elisa? We've been considering doing it too in Africa but you cant buy anti- pango IgG. Maybe cat, dog or ferret???

[2021-01-27 01:13:00]

**[Robert Garry]**

The other option is a blockade of binding assay (BOB!) but not as satisfying.

[2021-01-27 01:29:48]

**[Eddie Holmes]**

I'll see what I can find out. My mate at CNN just told that some people - I wonder who - are suggesting that cambobot spike is the result of GoF experiment. FFS. I despise these people more each day.

[2021-01-27 01:38:04]

**[Robert Garry]**

Thanks Mazet on the cambobot paper - guilt by association.

[2021-01-27 01:41:38]

**[Robert Garry]**

Yes Billy, Yuri and the DRASTIC crowd going nuts...as @Kristian Andersen said data/smata they'll just move the goalposts.

[2021-01-27 01:42:35]

**[Eddie Holmes]**

*[thread - ID: 2021-01-27 01:42:35]*

Apparently, the PREDICT crowd got added after they claimed it was their sample.

[2021-01-27 01:48:56]

**[Robert Garry]**

They said same about GD pango of course which is why pango serology is important. Pango actually carry the virus.

[2021-01-27 01:50:04]

**[Eddie Holmes]**

Which is what I always thought!! I never really believed the single outbreak stuff because there are 2 pango lineages.

[2021-01-27 01:55:36]

**[Andrew Rambaut]**

The question is whether the progenitor of SC2 is endemic in Chinese pangos or Malaysian ones and is being imported. I think Chinese pangos are pretty thin on the ground these days for obvious reasons.

[2021-01-27 01:55:50]

**[Robert Garry]**

*[thread - ID: 2021-01-27 01:42:35]*

@Eddie Holmes Typical - surprised she's not first author. First/last authors on all papers was the "deal" Metabiota [Wolfe/@longcovidfaker] made with all their predict sites.

[2021-01-27 01:56:19]

**[Andrew Rambaut]**

Or the pangos are just susceptible to most of the viruses in this branch of serbecoviruses

[2021-01-27 01:56:58]

**[Eddie Holmes]**

*[thread - ID: 2021-01-27 01:42:35]*

@Eddie Holmes Indeed. But the Cambodians insisted it wasn't their sample.

[2021-01-27 01:57:04]

**[Andrew Rambaut]**

Clearly the branch is widely distributed in bats

[2021-01-27 02:00:13]

**[Robert Garry]**

Good points Andrew - China imports a LOT of pangos from Africa too, so we're on a full court press to see if we can find any pango covs there...

[2021-01-27 02:00:22]

**[Eddie Holmes]**

The Yunnan pango sequence is close to those from Guangxi. Serology suggests positive animals in Thailand and Malaysia (i.e. Tommy).

[2021-01-27 02:01:51]

**[Eddie Holmes]**

Really hope Tommy's viruses get sequenced soon.

[2021-01-27 02:02:32]

**[Eddie Holmes]**

Not intermediate hosts but the ecology is really interesting.

[2021-01-27 02:02:35]

**[Robert Garry]**

Good to know too - any insights into what secondaries [cat, dog, ferret] work would be helpful.

[2021-01-27 02:11:46]

**[Eddie Holmes]**

I thought of the DRASTIC crew getting so upset over this does warm the heart. Bless.

[2021-01-27 02:18:27]

**[Andrew Rambaut]**

*[thread - ID: 2021-01-27 02:18:27]*

Has it got to the point where they say it is a fake?

[2021-01-27 02:20:46]

**[Eddie Holmes]**

[thread - ID: 2021-01-27 02:20:46]

I can't look at them: I get told 2nd hand. I bet Alina will be questioning research integrity.

[2021-01-27 06:51:41]

**[Robert Garry]**

Behold: <https://www.nbcnews.com/now/video/questions-rise-after-chinese-database-with-covid-research-removed-for-security-reasons-100059205726> Like the B.1.351 serology, the WHO mission playing out worse than I thought it would.

[2021-01-27 07:01:13]

**[Robert Garry]**

[thread - ID: 2021-01-27 02:18:27]

@Andrew Rambaut <https://twitter.com/BillyBostickson/status/1354338477492600832> Do they say IT'S FAKE in capitol letters - no, but that is clearly the insinuation.

[2021-01-27 07:02:45]

**[Andrew Rambaut]**

[thread - ID: 2021-01-27 02:18:27]

@Andrew Rambaut "Trimmed, Corrected & Pasteurised" - good gag.

[2021-01-27 07:03:13]

**[Andrew Rambaut]**

[thread - ID: 2021-01-27 02:18:27]

@Andrew Rambaut I like the 'translation' of the Cambodian too.

[2021-01-27 07:09:47]

**[Robert Garry]**

[thread - ID: 2021-01-27 02:18:27]

@Andrew Rambaut Actually I take it back. Daoyu aka Flavikins reborn after the twitter ban did say fake and fraudulent. [shared file(s): image.png]

[2021-01-27 07:44:32]

**[Robert Garry]**

<https://www.ncbi.nlm.nih.gov/nuccore/LC556375.1> THis I think is the Japan bat cov that was in the Nature newsarticle about cambobov. It's interesting like SC1 in the S1/2 junction but a 3 amino acid gap instead of 4 relative to SC2. [shared file(s): image.png]

[2021-01-27 07:46:26]

**[Robert Garry]**

Here's the alignment file. [shared file(s): clustalo-E20210127-153037-0863-50955906-p2m.clustal\_num]

[2021-01-27 07:48:14]

**[Robert Garry]**

and the fasta files [shared file(s): betacovs fasta whole spike.docx]

[2021-01-27 07:51:56]

**[Robert Garry]**

The indel structures of the the new asian bats are very interesting.

[2021-01-27 08:04:31]

**[Robert Garry]**

I have a feeling that the other new bat covs will also fit in nicely....

[2021-01-27 08:12:48]

**[Robert Garry]**

Oh and @Kristian Andersen correcting one mistake - The cysteines in the sarbecos are very conserved but not 100%. RmYN02, (and not the Thaibat and Japan bat "deletes" or is missing a pair - Japan Bat essentially just excises the cysteine loop - of course it could will be the other way around with SC1 etc adding the new cysteine loop kinda like your "fake reinfection patient" just in the CTD instead of the NTD.

[2021-01-27 13:58:27]

**[Eddie Holmes]**

As ever, great job Bob. The gaps are slowly filling...

[2021-01-27 19:30:42]

**[Kristian Andersen]**

Pretty scary reading this - how much do we think Nuno and Oli over-estimated prevalence?  
<https://www.washingtonpost.com/world/2021/01/27/coronavirus-brazil-variant-manaus/>

[2021-01-27 19:54:46]

**[Kristian Andersen]**

I missed this paper on NTD neut. Explains why P.1. and B.1.351 have the NTD mutations.  
<https://www.biorxiv.org/content/10.1101/2021.01.14.426475v1>

[2021-01-28 05:22:16]

**[Robert Garry]**

The money quote: "S2L28, S2M28 and S2X333 contact the N-terminal region (residues 14-20, NTD N-terminus), a  $\beta$ -hairpin formed by residues 140-158 (supersite  $\beta$ -hairpin), and a loop spanning residues 245-264 (supersite loop). These three regions collectively form an antigenic supersite on the pinnacle of the NTD on the side distal to the viral membrane (Figure 2A-I)."

[2021-01-28 10:37:19]

**[Robert Garry]**

*[thread - ID: 2021-01-28 10:37:19]*

Here's another look at the spike amino acid alignment. I've highlighted the RBD residues that make RBD contact according to PO1 and the Bloom mutagenesis paper. Somehow I think that Bloom2020 left out E484, but I'll double check that. PO1 predicted residues in green and Bloom contacts in blue highlights. One of the PO1 residues S494 is not considered a contact residue in Bloom2020 but again needs double checking. GdPango leads with 17/19 similar to SC2 followed by Cambobacov at a respectable 13/19 and RaTG13 12/19. There are some interesting things going on in the indels particularly tracking GX pango and RaTG13 in the NTD. Thaibatcov VERY similar to RmYN02. Japan batcov adds a bit more variability in the S1/S2 junction. [shared file(s): image.png]

[2021-01-28 14:02:31]

**[Kristian Andersen]**

Fuck. <50% efficacy - worse than I had hoped for (I expected something in the ~70% range)

<https://www.nytimes.com/live/2021/01/28/world/covid-19-coronavirus?type=style&live-updates&label=coronavirus%20updates&index=0#novavaxs-...th-africa>

[2021-01-28 14:05:27]

**[Eddie Holmes]**

I know! Fuck!!

[2021-01-28 14:14:12]

**[Andrew Rambaut]**

Question is whether it is all down to 484K?

[2021-01-28 14:27:40]

**[Kristian Andersen]**

I bloody hope not. I think the other mutations play a role too - for sure 417, but probably also 18

[2021-01-28 14:27:57]



**[Kristian Andersen]**

(in combination - not quite sure they do much on their own)

[2021-01-28 15:31:30]

**[Eddie Holmes]**

*[thread - ID: 2021-01-28 10:37:19]*

Thanks for doing this Bob. I hope to get more information from Weifeng soon.

[2021-01-28 15:40:14]

**[Robert Garry]**

Thanks Eddie. Here's another version - Gonna go with my own analysis since there are a couple of calls that Bloom2020 makes for interacting residues that are likely wrong, including importantly E484. Something to keep in mind for PO2 since we now have pretty good structures and the contact residues are more than the 6 we highlighted in PO1. [shared file(s): image.png]

[2021-01-28 15:44:34]

**[Robert Garry]**

Looking forward to the Weifeng sequences. Will fill more gaps - I should be able to share a draft of "New sequences disprove conspiracy theories of a laboratory-based proximal origin of SARS-CoV-2" over the weekend. Also, and they seem to have made a lesser pick, I'm doing an interview for 60 Minutes Australia tomorrow. I'm assuming they are somewhat credible and I didn't stumble down some "Fox" hole.

[2021-01-28 17:43:56]

**[Eddie Holmes]**

60 minutes? That's on one of the numbered channels (9) that I don't watch\*! But it is NOT Fox so all good. They are probably the best of commercial channels and are famous for covering the cricket. They are also owned by the same company that owns the Sydney Morning Herald which is a reasonable paper. \*But I will watch this one. My office is next to Channel 7 who are about notches down from Channel 9...they wanted me on to discuss 'the corona virus and stuff'.

[2021-01-28 17:44:38]

**[Eddie Holmes]**

Rootgate hits New Zealand. A full 20 minutes: <https://www.stuff.co.nz/national/health/coronavirus/124092178/miq-hotel-staffer-sacked-after-bedroom-encounter-with-quarantine-returnee>

[2021-01-29 12:02:50]

**[Robert Garry]**

Great job Kristian!

[2021-01-29 12:36:25]

**[Eddie Holmes]**

What's he gone and done now?

[2021-01-29 12:37:35]

**[Kristian Andersen]**

Just another talk to scare the shit out of people. I do it pretty well these days (scare the shit out of people - not the talk part). To be aired in 2022.

[2021-01-29 12:43:08]

**[Eddie Holmes]**

It was actually really interesting watching the Novavax chat yesterday: basically a 50/50 split on those who thought the results were good/bad.

[2021-01-29 12:43:25]

**[Robert Garry]**

So I agree that B117 will come to dominate quickly. BUT what if B.1.351 comes into play? Will both circulate, will one replace the other? I'm kinda "rooting" for B117.

[2021-01-29 12:45:06]

**[Eddie Holmes]**

Yes, a replicatory advantage of B.1.1.7 over B.1.351 would be bloody useful!

[2021-01-29 12:46:02]

**[Kristian Andersen]**

The Novavax is a fucking wakeup call like no other - the lack of urgency is disturbing. I don't think most people understand exactly how problematic that is - including vaccine makers and immunologists. "We want perfect data first!". Nope. Fucking move!

[2021-01-29 12:46:59]

**[Kristian Andersen]**

I'm pretty certain B117 will win out first, but as immunity builds up, probably some of these other lineages - OR B117 will simply pick up those mutations and continue to dominate. Will be very interesting to watch (and, of course, lineages X, Y, Z coming down the pipe....)

[2021-01-29 12:48:48]

**[Eddie Holmes]**

Definitely more lineages coming to a place near you soon. It was striking that people just seemed to want to hear the '89%' good news from the Novavax UK trial and not think about the SA data.

[2021-01-29 12:49:54]

**[Robert Garry]**

Yes indeed Eddie - it's distressing. J and J efficacy starting off lower than Novavax.

[2021-01-29 12:52:07]

**[Kristian Andersen]**

I think people just can't handle bad news by now, so they simply chose to ignore it - delusional, but understandable. I have a PhD in bad news, so I'm all good.

[2021-01-29 15:39:56]

**[Robert Garry]**

J&J : "In the U.S., the vaccine had an efficacy rate of 72 percent in clinical trials. But in South Africa, a country gripped by a new and more contagious variant, the efficacy rate dropped to just 57 percent. Dr. Anthony Fauci, the top U.S. infectious disease expert, warned that Johnson & Johnson's trial results were a "wake up call" and warned manufacturers to be ready to reformulate the vaccines if needed. "If ever there was reason to vaccinate as many people as expeditiously as we possibly can with the vaccine that we have right now, now is the time," Dr. Fauci said in an interview. Scientists still consider the Johnson & Johnson vaccine to be a success: It was 85 percent effective in preventing severe disease. In all three regions where the trial was run — the United States, Latin America and South Africa — after 28 days, none of the vaccinated participants who developed Covid-19 had to be hospitalized. It is also easier to transport and administer than its rivals. "

[2021-01-29 15:51:20]

**[Eddie Holmes]**

Really interesting.

[2021-01-29 16:09:05]

**[Robert Garry]**

*[thread - ID: 2021-01-27 02:20:46]*

@Eddie Holmes Bingo: [shared file(s): image.png]

[2021-01-29 16:16:19]

**[Eddie Holmes]**

[thread - ID: 2021-01-27 02:20:46]

Wow!!! Glad you a screenshot!! What a disgrace.

[2021-01-29 16:19:48]

**[Robert Garry]**

[thread - ID: 2021-01-27 02:20:46]

@Eddie Holmes Alina and others believe that there is a worldwide conspiracy to flood GSAID and GenBank with fabricated sequences. In addition to "scientist" turned detective I guess we need to add enforcer of database integrity.

[2021-01-29 16:22:17]

**[Eddie Holmes]**

[thread - ID: 2021-01-27 02:20:46]

This actually evil.

[2021-01-29 16:23:35]

**[Eddie Holmes]**

Also smells of desperation

[2021-01-29 16:24:00]

**[Robert Garry]**

[thread - ID: 2021-01-27 02:20:46]

@Eddie Holmes Agreed!

[2021-01-29 16:24:34]

**[Robert Garry]**

[thread - ID: 2021-01-29 16:24:34]

The 60 Minutes producer was impressed that I was willing to call conspiracy theories --- well -- conspiracy theories. Apparently they are off to interview and in studio PANEL:

- Jason Yat Sen Li
- Prof Mary-Louise McLaws – UNSW and advisor to the WHO
- Prof Bates Gill - Professor with the Department of Security Studies at Macquarie University
- Professor Raina MacIntyre - Global Biosecurity and head of biosecurity program at Kirby Institute
- Professor Nikolai Petrovsky - Medicine Flinders University

[2021-01-29 16:26:03]

**[Robert Garry]**

Nikolai Petrovsky I gather believes like Alina that SC2 is just too good at infecting humans and therefore was adapted in the lab.

[2021-01-29 16:28:18]

**[Eddie Holmes]**

Oh god...Bates is good (that is his real name)

[2021-01-29 16:30:28]

**[Robert Garry]**

Re Nikolai: I told him that SC2 was good at infecting a lot of animals: cats dogs, lions tigers, gorillas, mink and ferrets. Also that SC2 is still clearly adapting and getting better at infecting and being transmitted by humans.

[2021-01-29 16:30:40]

**[Eddie Holmes]**

Petrovsky is an idiot - mainly wants to hype his vaccine

[2021-01-29 16:30:56]

**[Eddie Holmes]**

Good for you!

[2021-01-29 16:39:11]

**[Kristian Andersen]**

Petrovsky is SUCH an idiot - in the literal sense.

[2021-01-29 16:42:07]

**[Eddie Holmes]**

Totally. I remember now that I was asked to do this but declined. I'm still pretty shocked by Alina's tweet

[2021-01-29 18:48:38]

**[Robert Garry]**

The producer kept saying I did great - we'll see...

[2021-01-29 18:50:18]

**[Robert Garry]**

Alina is totally inappropriate...she and Petrovsky - not that different.

[2021-01-29 19:07:13]

**[Eddie Holmes]**

I'm sure you were great! At least Petrovsky is trying to do something positive re the vaccine. Alina is just negative and destructive.

[2021-01-29 23:30:25]

**[Eddie Holmes]**

CONFIDENTIAL from Weifeng. The full-length tree is clearly not very informative. Very complex recombination. The RdRp tree looks clean perhaps. Apparently the China CDC also have a virus that is 91% similar. I don't have the sequences yet, but I have a plan. [shared file(s): Bat-CoV 20210130.pptx]

[2021-01-30 02:30:14]

**[Robert Garry]**

Thanks - This is terrific and a huge amount of work. The differences in nucleotide and amino acid trees in spike and RBD seem to have attracted some attention, which is good. Would like to see a similar analysis of NTD, etc [esp NTD ] like @Andrew Rambaut did in Boni2020.

[2021-01-30 02:43:17]

**[Eddie Holmes]**

Good idea. The alphas are really interesting as well.

[2021-01-30 03:01:22]

**[Andrew Rambaut]**

*[thread - ID: 2021-01-29 16:24:34]*

@Robert Garry Bates Gill is an excellent spoonerism of Bill Gates. I wonder what the tin-foils will make of that?

[2021-01-30 05:40:40]

**[Robert Garry]**

*[thread - ID: 2021-01-30 05:40:40]*

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7241398/#mmc1> This is the Baric/Shi cell paper on ACE2 trangenics that the DRASTIC crowd is obsessing over. This caught my attention: "The lung isolates indicated two mutations, C14554T (nsp13, L372F) and C23525T (spike, H644Y), compared with the genome of SARS-CoV-2-WIV04 (GISAID: EPI\_ISL\_402124). The mutation at nsp13 was unique compared with published viral sequences identified by online BLAST. The mutation in the spike gene was located at the end of the S1 region of the spike gene. This mutation was identified using BLAST in SARS-CoV-2 genome sequence isolated from a patient from the United States (GenBank: MT163720). The brain isolates exhibited only one mutation, C23525T (H644Y), at the S1 region of the spike gene." Nobody is perfect and they got the amino acid number wrong. No histadine at 644. C23525T is actually H655Y! You'll recognize that as one of the P.1 mutations.

[2021-01-30 05:55:33]

**[Robert Garry]**

Definitely think that the Novavax and J&J results are a wake-up call! I think Tony F/Biden are going to get them moving - pretty sure of that. I think we said it more than a month back that \*expectations for the vaccines were sky high and that needed to be walked back.\* if Moderna and Pfizer trials had been run in ZA or Brazil I don't think their results would have been much different than Novavax and J&J. That being said I am starting to take a little more comfort with the 57% number - NO not great - BUT if that comes with enough decrease in virus load to knock R down below 1 even for the variants (DATA PLEASE) then produce the hell out of Novavax and J&J and vaccinate. J&J says they can do a billion doses in a few months. START UPDATING ALL THE VACCINES \*NOW\*!

[2021-01-30 06:43:24]

**[Robert Garry]**

I could not bring myself to watch this garbage all the way through, but clearly the lab theory coming from both sides <https://www.youtube.com/watch?v=ZMGWLLDSA3c>:

[2021-01-30 07:47:16]

**[Kristian Andersen]**

50% effective vaccine in 50% of people.... I don't expect much help from the vaccine in buckling the trend in cases, but I \_do\_ expect it'll make quite a big difference in hospitalizations and that's incredibly important. So I agree that this is far from bad news, however, we need to get back into the 90% efficacy rang (with effectiveness hopefully closely matching that) to really turn the tides on the virus. We absolutely need updated vaccines for that - plus, I might be totally wrong about the lowered hospitalizations...

That's interesting about H655Y in mice and it's pathogenic effect. I was talking to Mike Osterholm earlier in the week, who clearly has the best intel on what's happening out in the world, and it seems that they're getting information suggesting that P.1 might be quite a lot more severe than good old Doug. That would not be good.

[2021-01-30 08:45:15]

**[Robert Garry]**

Oh and I put the gorilla on the Christmas card - turns out I couldn't help myself...

[2021-01-30 08:51:56]

**[Robert Garry]**

I know - impulsive-compulsive.

[2021-01-30 10:19:45]

**[Kristian Andersen]**

Watched the Bill Maher clip - total nonsense.

[2021-01-30 10:38:28]

**[Robert Garry]**

Indeed - and not nearly as entertaining as Bannon and Guo.

[2021-01-30 10:40:03]

**[Kristian Andersen]**

Agreed - it's just really dumb and uninformed. Would it have hurt to crack a joke or two? Or maybe just show up completely stoned? Seriously, get in the game man.

[2021-01-30 10:56:56]

**[Robert Garry]**

It will be also curious to see what Petrovsky says on 60 minutes - V1 and V2 of his in silico paper are pretty different <https://arxiv.org/abs/2005.06199v1> V1 and V2 are of course sandwiched by him going all over Australian TV: [shared file(s): image.png]

[2021-01-30 11:04:19]

**[Robert Garry]**

<https://www.acpjournals.org/doi/full/10.7326/M20-6519> Surprise, surprise - NO prophylactic effect of HCQ for SC2 acquisition in contacts. It did make some ppl sick thou.

[2021-01-30 15:08:43]

**[Eddie Holmes]**

Petrovsky should stick to failing to make vaccines.

[2021-01-30 15:09:40]

**[Eddie Holmes]**

*[thread - ID: 2021-01-30 05:40:40]*

@Robert Garry Great spot Bob!

[2021-01-30 15:14:40]

**[Robert Garry]**

*[thread - ID: 2021-01-30 05:40:40]*

@Robert Garry Yet another mutation involving aromatics. Prof Bill looking closely at that aspect. The spike domains are literally glued together with pi:pi interactions.

[2021-01-30 15:15:24]

**[Eddie Holmes]**

*[thread - ID: 2021-01-30 05:40:40]*

@Robert Garry Really interesting

[2021-01-31 08:55:27]

**[Kristian Andersen]**

Yikes. [shared file(s): EtD6MChXMAECBIF.jpeg]

[2021-01-31 08:58:08]

**[Kristian Andersen]**

While we obviously can't conclude anything based on this curve, based on some of the information I'm getting on P.1 and seeing this, I'm pretty worried the IFRs of all these lineages are also increased. Not good.

[2021-01-31 09:04:48]

**[Andrew Rambaut]**

Again - really difficult to separate IFRs from where these lineages are and how stretched the care is.

[2021-01-31 11:33:13]

**[Robert Garry]**

Anyone know where the ZA cases are clustering - when SC2 hit NOLa hard it was the African-American communities overwhelmingly - more predisposing conditions.

[2021-01-31 14:01:54]

**[Robert Garry]**

Just sent a google drive invite -

[https://docs.google.com/document/d/17-2hi7-fNsjE44himeCkm1PoZ7\\_-ncvpXUlhShZzDCU/edit](https://docs.google.com/document/d/17-2hi7-fNsjE44himeCkm1PoZ7_-ncvpXUlhShZzDCU/edit) Please send feedback - would be great if all could join but understand any declines or hesitancy. Nothing in stone, including the "tone." There's some decent science hidden there.

[2021-01-31 14:17:00]

**[Eddie Holmes]**

Brill, thanks Bob!! I'll get onto it.

[2021-01-31 14:48:35]

**[Kristian Andersen]**

@Andrew Rambaut - do you have a good read on what deletions in the S the B.1.351 lineage has? The original genomes didn't have any, CoVariants lists 242-245, Florian mentioned 242-244, but I see 241-243....

[2021-01-31 14:58:58]

**[Kristian Andersen]**

Alright - it's 241-243....

[2021-01-31 14:59:42]

**[Robert Garry]**

Actually I think most are 242-244 - few are 241-243 - our chronic patient has 243 and 244.

[2021-01-31 15:01:26]

**[Kristian Andersen]**

As far as I can tell - all are 241-243 ("LLA")

[2021-01-31 15:02:05]

**[Kristian Andersen]**

... but holy moly, these genomes are messy... Hmmm.

[2021-01-31 15:02:08]

**[Robert Garry]**

The main reference got that wrong originally and I fell for the trap. I need to update the virological post - which I am planning on.

[2021-01-31 15:02:54]

**[Robert Garry]**

Ok now I'm confused...

[2021-01-31 15:04:00]

**[Andrew Rambaut]**

They (Tulio & co) are using some hokey bioinformatics that initially was very poor at indels.

[2021-01-31 15:04:37]

**[Kristian Andersen]**

Yeah, they're tricky. Definitely LLA (241-243) though - just checked the Danish genomes.

[2021-01-31 15:06:30]

**[Kristian Andersen]**

Here's what I have - I think somewhat accurate, although I'm not convinced some of the other mutations are really there... [shared file(s): Screen Shot 2021-01-31 at 3.05.48 PM.png]

[2021-01-31 15:07:00]

**[Robert Garry]**

Somthings off Virus name: hCoV-19/Denmark/DCGC-32298/2021

Accession ID: EPI\_ISL\_869302

Type: betacoronavirus

GISAID Clade GH

PANGO Lineage B.1.351 (version: 2021-01-22)

AA Substitutions Spike A243del, Spike A701V, Spike D80A, Spike D215G, Spike D614G, Spike E484K, Spike K417N, Spike L18F, Spike L242del, Spike L244del, Spike N501Y, E P71L, N P13S, N T205I, NS3 Q57H, NS3 S171L, NSP2 T85I, NSP3 K837N, NSP5 K90R, NSP6 F108del, NSP6 G107del, NSP6 S106del, NSP12 P323L, NSP14 F240V, NSP14 V14L

[2021-01-31 15:08:11]

**[Kristian Andersen]**

Yeah, those DEL assignments are wrong...



[2021-01-31 15:08:39]

**[Robert Garry]**

irus name: hCoV-19/South Africa/KRISP-EC-K006856/2020

Accession ID: EPI\_ISL\_736936

Type: betacoronavirus

GISAID Clade GH

PANGO Lineage B.1.351 (version: 2021-01-22)

AA Substitutions Spike A243T, Spike A701V, Spike D80A, Spike D215G, Spike D614G, Spike E484K, Spike K417N, Spike L18F, Spike L241del, Spike N501Y, Spike Q239del, Spike T240del, E P71L, N T205I, NS3 Q57H, NS3 S171L, NSP2 T85I, NSP3 K837N, NSP5 K90R, NSP6 F108del, NSP6 G107del, NSP6 S106del, NSP12 M124I, NSP12 P323L

Passage details/history: Original

[2021-01-31 15:09:40]

**[Robert Garry]**

Here's one with LLA, but only three include LLA on GSAID.

[2021-01-31 15:10:49]

**[Kristian Andersen]**

Here's the full alignment from RSA - the deletion is out of frame, so that's probably why there's some confusion. LLA is definitely what's deleted, so that's 241-243. This fucking virus... [shared file(s): Nucleotide alignment.geneious]

[2021-01-31 15:11:28]

**[Robert Garry]**

Actually happy to hear all this !

[2021-01-31 15:12:45]

**[Robert Garry]**

Needs to be fixed on GSAID

[2021-01-31 15:15:24]

**[Kristian Andersen]**

And NextStrain... And Covariats... I'll make sure we get it right on Outbreak.info :wink:

[2021-01-31 15:16:02]

**[Robert Garry]**

But now I need to unfix the Christmas Card.:rage4:

[2021-01-31 15:16:18]

**[Kristian Andersen]**

Sorry Bob...

[2021-01-31 15:17:42]

**[Robert Garry]**

It what I got when I did the alignment myself which is why it shows up in our virological post that way. Somehow I thought I got it wrong.

[2021-01-31 15:18:41]

**[Kristian Andersen]**

Trust yourself man! :wink:

[2021-01-31 15:27:33]

**[Andrew Rambaut]**

The problem is it is ambiguous where the deletion is:

[2021-01-31 15:27:37]

[Andrew Rambaut]

shared file(s): image.png

[2021-01-31 15:29:39]

[Andrew Rambaut]

Actually in nucleotides it could be one base further towards 3'

[2021-01-31 15:30:50]

[Andrew Rambaut]

Definitely deletes 2 Ls and an A but could be LLA or LAL.

[2021-01-31 15:32:48]

[Robert Garry]

Oh my...can we look at the del in the Tulane patient as a tie-breaker?

[2021-01-31 15:34:11]

[Kristian Andersen]

I extracted the ORF and aligned in AA space - all come out with LLA deleted.

[2021-01-31 15:36:10]

[Andrew Rambaut]

But you could delete LAL and get the same amino acid sequence

[2021-01-31 15:36:38]

[Robert Garry]

The whole region is subject to various deletions in some other immune compromised patients.

[2021-01-31 15:37:27]

[Kristian Andersen]

I'll just accept I don't understand sequences... :wink:

[2021-01-31 15:37:53]

[Andrew Rambaut]

Always look at the nucleotide sequences, man.

[2021-01-31 15:38:49]

[Andrew Rambaut]

An interesting repeat here CTTTA CTTG CTTTA - don't know if it means anything

[2021-01-31 15:38:51]

[Kristian Andersen]

NEVER

[2021-01-31 15:39:05]

[Andrew Rambaut]

Just looks nice

[2021-01-31 15:39:08]

[Kristian Andersen]

Recombination. I'm telling you

[2021-01-31 15:39:48]

[Kristian Andersen]

We should volley it over to Billy - I'm sure he'd figure this one out for us.

[2021-01-31 15:40:44]

**[Robert Garry]**

Put Yuri on it - I'm sure that some blasterbating will solve the riddle.

[2021-01-31 15:40:48]

**[Andrew Rambaut]**

We should have a convention - when ambiguous, always call the most 5' position or something.

[2021-01-31 15:56:16]

**[Andrew Rambaut]**

Virus taxonomists really don't seem to understand virus evolution:

```I have a very stupid question before delving into the madness of a WHO-supported global and uniform SARS-CoV-2 nomenclature this week:

As a taxonomist the name SARS-CoV-2 has always bothered me. In all organismal taxonomies, any taxon has only a single member, i.e., there is only one animal per species (except if there are subspecies, but then there is only animal per subspecies). The logic behind this is obvious: either something is a representative of "same" (for instance you and me are genetically so much alike that we are both [isolates of] "human") or something is distinct from something else and hence needs to be classified differently (I hope I have more in common genetically with you than with a chimpanzee).

Gorbalenya et al. did this wonderful mental split in their original article in which they kind of acknowledged that the new Chinese virus really is SARS-CoV but not at the same time, by basically assigning two allegedly distinct animals to the same species (both SARS-CoV and SARS-CoV-2 are assigned to the same species Severe acute respiratory syndrome-related coronavirus). So, my question: does this hold up – for example, if you throw all SARS-CoV genomes into your global phylogenetic tree of all SARS-CoV-2 genomes, does the SARS-CoV clade remain as a true sister clade to the entire SARS-CoV-2 branch?

Thanks,
Jens````
I

[2021-01-31 15:58:55]

[Andrew Rambaut]

I just sent Jens a link to Boni et al which presumably will blow his mind trying to fit all that recombination into nested taxonomic boxes.

[2021-01-31 16:08:11]

[Eddie Holmes]

The problem lies in 'In all organismal taxonomies...'. What are these people on?

[2021-01-31 16:11:26]

[Andrew Rambaut]

My reply:

```The problem is that taxonomy doesn't really work for virus as far as I am concerned as there is essentially a structured continuum of diversity - i.e. completely artifactual notions of species. And with recombination that just makes thing completely arbitrary. I don't mind labelling bits of the phylogenetic tree for convenient discussion but I think we get too focused on trying to replicate a metazoan taxonomy on viruses.

That said - to answer you final question - yes, SARS1 and SARS2 are completely distinct (not even sibling clades) with the diversity within each minuscule compared to the divergence between them. This paper gives an overview of their relative positions (and some of the complex recombinant history in the sarbecovirus clade):

<https://www.nature.com/articles/s41564-020-0771-4>````

[2021-01-31 16:12:15]

**[Andrew Rambaut]**

Glad I can't make the WHO nomenclature meeting this week - will be carnage.

[2021-01-31 16:26:06]

**[Kristian Andersen]**

Lol. Jens was right about one thing though - that was indeed a dumb question.

“What do you mean, we can't fit these little things into neat little boxes?! Nein!!”

[2021-01-31 16:37:16]

**[Eddie Holmes]**

The WHO nomenclature thing will be horrendous. Tulio and Jens is an interesting combination.

[2021-01-31 16:43:38]

**[Robert Garry]**

Germans and their neat little boxes - yes I believe it's a thing...

[2021-02-01 01:07:00]

**[Eddie Holmes]**

More stuff from Weifeng. The tree for 6-20k looks pretty clean. No surprise that HA379 is closely related to RmYN02 as they were both sampled in Yunnan. Interestingly, all the sampling locations for these bats are only ~50 km from the border and close to Burma and Laos. Species are as follows: HA379 *Rhinolophus pusillus*, HA321 *Rhinolophus steno*, HA363 *Rhinolophus malayanus*, HA442 *Rhinolophus malayanus*. Bob, I don't have the sequences but I asked Weifeng to add the new ones your alignment which is attached. This figure won't be in Weifeng's paper but I think it's useful. [shared file(s): Bats■■20210201v1.pptx, ALL\_Beta\_REP\_S\_aa\_clustalnum\_Alv4.pdf]

[2021-02-01 04:58:45]

**[Robert Garry]**

This is really awesome - the thing that popped for me is the remarkable similarity of HA379 and GDpango in the N terminus and NTD. Thereafter in the RBD totally different. It's a funhouse mirror of RaTG13, GX pangolin coronavirus and SARS-CoV-2 that share a similar indel structure and several common or similar sequences in the N-terminus and the NTD. Then there is the mind-blowing new indel with dicysteines in the HA363 group. I'm guessing a new short loop but need to look at the structure.

[2021-02-01 04:59:59]

**[Robert Garry]**

@Kristian Andersen will notice new cysteine loop in the NTD, which is something that arose in one of his long patients.

[2021-02-01 05:30:28]

**[Robert Garry]**

@Eddie Holmes The HA379 and RmYN02 similarity is after the NTD and into the RBD - INTERESTING! Before that HA379 is much closer to GD pango.

[2021-02-01 06:47:36]

**[Robert Garry]**

The dicysteines in - one C in a new indel in Weifeng alignment in the HA321 *Rhinolophus steno*, HA363 *Rhinolophus malayanus*, HA442 *Rhinolophus malayanus* viruses likely do form their own little loop in NTD. Basically on the other side of the NTD From where the other cysteines are (in pale green). [shared file(s): image.png]

[2021-02-01 07:11:49]

**[Robert Garry]**

Also CRAZY that the HA321 *Rhinolophus steno*, HA363 *Rhinolophus malayanus*, HA442 *Rhinolophus malayanus* viruses are as far as I can see identical in spike. Three different species of bats - how does that happen???

[2021-02-01 07:21:23]

**[Robert Garry]**

ALSO - it would not surprise me to see HA321 *Rhinolophus steno*, HA363 *Rhinolophus malayanus*, HA442 *Rhinolophus malayanus* viruses binding to human ACE - pretty sure that they have the equivalent of E484 though it's a little off in the align.

[2021-02-01 07:47:54]

**[Robert Garry]**

They are like cambo bat in this regard

[2021-02-01 09:27:56]

**[Robert Garry]**

In fact HA321 Rhinolophus steno, HA363 Rhinolophus malayanus, HA442 Rhinolophus malayanus are pretty similar to Cambobats all around.

[2021-02-01 12:41:30]

**[Kristian Andersen]**

*[thread - ID: 2021-02-01 12:41:30]*

@Andrew Rambaut - do you guys have any K1191N (1188 in B117) popping up in B117 in the UK?

[2021-02-01 14:21:10]

**[Eddie Holmes]**

Thanks for doing that Bob. We did notice the similarity between HA379 and GD pango in parts of the sequence. Good point about HA321, HA363 and HA442. I'll check that with Weifeng. Attached is a tree with the species marked. [shared file(s): Fig\_BetaV3.2\_RdRp\_tidy\_Alv1.pdf]

[2021-02-01 14:28:53]

**[Andrew Rambaut]**

*[thread - ID: 2021-02-01 12:41:30]*

@Kristian Andersen Seem to have 52 in a simple search.

[2021-02-01 14:30:38]

**[Kristian Andersen]**

*[thread - ID: 2021-02-01 12:41:30]*

@Kristian Andersen OK - might just be founder on our end. I just don't understand why additional mutations that get added to B.1.1.7 continue to primarily be non-synonymous....

[2021-02-01 14:34:16]

**[Andrew Rambaut]**

*[thread - ID: 2021-02-01 12:41:30]*

@Kristian Andersen Actually 25 in England

[2021-02-01 14:48:37]

**[Andrew Rambaut]**

*[thread - ID: 2021-02-01 12:41:30]*

@Kristian Andersen There may be a couple of independent origins of K1191N here (because this is only B.1.1.7 with K1191N) but looks like a founder to the US from UK. [shared file(s): K1191N.tree.png]

[2021-02-01 14:49:16]

**[Andrew Rambaut]**

No you can't have your own variant. Their ours.

[2021-02-01 14:50:22]

**[Kristian Andersen]**

*[thread - ID: 2021-02-01 12:41:30]*

@Kristian Andersen OK, thanks - makes sense since we see them in almost all (all?) Florida genomes, so I think it just hitched a ride across the ocean. At least you didn't give us Eek - yet... I suspect we'll see that fucker pop up by himself here too.

[2021-02-01 15:03:36]

**[Andrew Rambaut]**

*[thread - ID: 2021-02-01 12:41:30]*

@Kristian Andersen 175 USA genomes with Eek.

[2021-02-01 15:04:54]

**[Andrew Rambaut]**

*[thread - ID: 2021-02-01 12:41:30]*

@Kristian Andersen Picking one at random... [shared file(s): image.png]

[2021-02-01 15:05:30]

**[Andrew Rambaut]**

*[thread - ID: 2021-02-01 12:41:30]*

@Kristian Andersen That one has 69/70 deletion too.

[2021-02-01 15:05:51]

**[Andrew Rambaut]**

*[thread - ID: 2021-02-01 12:41:30]*

@Kristian Andersen 25 of them are P.2 from Brazil

[2021-02-01 15:17:16]

**[Kristian Andersen]**

*[thread - ID: 2021-02-01 12:41:30]*

@Kristian Andersen Yeah, but none of them are B.1.1.7, right?

[2021-02-01 15:17:37]

**[Andrew Rambaut]**

*[thread - ID: 2021-02-01 12:41:30]*

@Kristian Andersen No.

[2021-02-01 15:18:23]

**[Kristian Andersen]**

*[thread - ID: 2021-02-01 12:41:30]*

@Kristian Andersen I'm sure that'll change... It'll be interesting to see how those will compete with good old B.1.1.7

[2021-02-01 16:31:05]

**[Robert Garry]**

Working on another display of the spike alignments - first pass, so don't hold me to 100% accuracy. Also the indels are per force not to scale. @Eddie Holmes is Weifeng going to preprint his awesome new viruses soon? [shared file(s): image.png]

[2021-02-01 17:55:44]

**[Eddie Holmes]**

Thanks Bob! I guess I'll start the paper with Weifeng very soon. He's just going to PCR confirm HA321, HA363 and HA442 now. I will encourage him to preprint it, but he's always a bit nervous this. I'll do my best.

[2021-02-01 18:49:05]

**[Robert Garry]**

Thanks Eddie - If those spikes are exactly the same pretty remarkable. Maybe some difference at the nucleotide level? Third base?

[2021-02-01 19:01:59]

**[Eddie Holmes]**

They were apparently sampled from a small botanical garden over a 6-week period.

[2021-02-01 19:14:02]

**[Robert Garry]**

Interesting - The notion of one bat infecting the others did cross my mind.

[2021-02-02 12:49:25]

**[Kristian Andersen]**

@Andrew Rambaut - added a few more names to this slide. Are these the (not really) "official" names you guys came up with? A lot up people really liked that slide, but I made a few mistakes, so want to update it (and also credit your team for the names - since that's coming up A LOT). [shared file(s): Screen Shot 2021-02-02 at 12.48.02.png]

[2021-02-02 13:01:11]

**[Robert Garry]**

When Pooh becomes PooR - I think PooR FranCiS should be the name. (OK It could be PeteR but more bland).

[2021-02-02 13:03:39]

**[Andrew Rambaut]**

So Leif isn't fixed in B.1.351 (it comes up secondarily, as does Karen). Leif also appears in B.1.1.7 and is quite prevalent.

[2021-02-02 13:04:28]

**[Andrew Rambaut]**

Plus all three have the deletion in nsp6 (which has therefore got to mean something)

[2021-02-02 13:05:04]

**[Andrew Rambaut]**

E484K is actually called Erik (I checked with Erik Volz - he is quite pleased).

[2021-02-02 13:10:38]

**[Kristian Andersen]**

Yeah, I noticed those weren't fixed - which is interesting. Same for many of the others. WHY CAN'T THIS BE SIMPLE!! Okay, I'll rename Eeek to Erik :disappointed:

I do wonder what's going on in nsp6. Sure, could be functional, but could also just be e.g., a recombination hotspot that tends to obtain an indel during chronic infections. Such a weird virus.

[2021-02-02 13:11:53]

**[Kristian Andersen]**

I so want a BoB mutation, but, well, I guess I can't have that. I'm please K417N ended up being Karen - I don't need to be part of this game.... :man\_in\_business\_suit\_levitating:

[2021-02-02 13:23:02]

**[Robert Garry]**

No wait K417N needs to be KristiaN. And, surely somewhere there must be a synonymous mutation in a Glutamic acid codon. GAA &lt;-&gt; GAG. That would of course be EddiE.

[2021-02-02 13:38:33]

**[Eddie Holmes]**

I'll change my name to EddY

[2021-02-02 15:16:15]

**[Robert Garry]**

AndreW mutations would be among the rarest of all. You might ask why. Except for Methionine [it's special too] Tryptophan is the only aa with a single codon: UGG. For AndreW - You need to change the first two bases of an Alanine codon GCU, GCC, GCA, or GCG and generally all three. But, you really need to want to put in the tryptophan codon UGG because close relatives UAG and UGA are stop codons. Stop codons in viral proteins are bad. If that region mutates "slightly" it's a stop and a dead virus. That's what makes this sequence: WPWYIW which



happens to be prior to the SC2 TM domain special too.

[2021-02-02 15:19:18]

**[Andrew Rambaut]**

Although interestingly the D3L mutation in N in B.1.1.7 is a complete codon change GAT->CTA

[2021-02-02 15:20:22]

**[Andrew Rambaut]**

As @Kristian Andersen said - this virus is weird

[2021-02-02 15:23:43]

**[Robert Garry]**

Fascinating - I dunno, but short copy-choice error events - 3, 6, 9, 12 bases at a time?

[2021-02-02 16:00:33]

**[Robert Garry]**

Only in New Orleans: [https://www.bing.com/videos/search?q=3+6+9+the+monkey+drank+wine&view=detail&mid=36\[...\]4N1480D022419AA6B84BBD86%26form%3dCONBDF%26conlogo%3dCT3210127](https://www.bing.com/videos/search?q=3+6+9+the+monkey+drank+wine&view=detail&mid=36[...]4N1480D022419AA6B84BBD86%26form%3dCONBDF%26conlogo%3dCT3210127)

[2021-02-02 16:05:57]

**[Robert Garry]**

You may want to watch the version from the Rebelles too...

[2021-02-02 16:06:51]

**[Robert Garry]**

I think Frenchie and LuLu might have a little thing going...

[2021-02-03 04:59:54]

**[Robert Garry]**

<https://www.facebook.com/watch/?v=751055602196267>

[2021-02-03 05:23:59]

**[Robert Garry]**

Skip Frenchie and LuLu (3,6,9 - the GOOSE drank wine), but you should really take a GANDER as to what Fox is doing to Francis and Tony.

[2021-02-03 06:49:18]

**[Kristian Andersen]**

So disgusting.

[2021-02-03 07:13:56]

**[Robert Garry]**

RatG13 plus pango RBD sliced and diced and cooked up in the lab - slam dunk....

[2021-02-03 07:16:49]

**[Robert Garry]**

All funded by Francis and Tony's illegal GOF research.

[2021-02-03 07:36:19]

**[Kristian Andersen]**

Very accurate summary.

[2021-02-03 09:04:35]

**[Robert Garry]**

Here's one version of the Rouge's Gallery so far... [shared file(s): image.png]

[2021-02-03 09:13:05]

**[Robert Garry]**

But - you could replace KristiaN with this KareN (Gillan). [shared file(s): image.png]

[2021-02-03 10:01:08]

**[Andrew Rambaut]**

Been trying to balance up the genders a bit on these names - so Karen is good.

[2021-02-03 10:31:11]

**[Robert Garry]**

I think she is Scottish and played one of the Dr Who's as well.

[2021-02-03 10:50:48]

**[Robert Garry]**

shared file(s): image.png

[2021-02-03 11:55:46]

**[Eddie Holmes]**

I'd avoid 'Karen' if at all possible

[2021-02-03 11:57:16]

**[Eddie Holmes]**

Terrible hateful nonsense from Steve Hilton

[2021-02-03 11:59:08]

**[Kristian Andersen]**

I don't understand that bs is legal.

[2021-02-03 12:06:48]

**[Robert Garry]**

Kathryn or Kaitlyn.

[2021-02-03 12:14:21]

**[Robert Garry]**

Francis and Tony are public figures. Actually it doesn't take too much to cross that line. Get you name written in a national publication or do a local TV Show and that's probably close to enough.

[2021-02-03 12:18:03]

**[Kristian Andersen]**

True. More importantly though, they're also the ones that will help this shit hole country get out of this mess. Then again, I guess we should require that, since they created the virus.

[2021-02-03 12:24:45]

**[Eddie Holmes]**

There's no point debating Fox with science.

[2021-02-03 12:29:19]

**[Robert Garry]**

Unfortunately - and give Alina, Relman and a slew of others of the ilk "credit" where it's due- the left is also embracing the crazy. I've \*completely reworked\* the commentary re the new Bat CoVs and will update the google doc later today. The version up there is way out of date.

[2021-02-03 12:35:36]

**[Eddie Holmes]**

Fair point. I doubt if the 3 hours the WHO spent at WIV yesterday is going to appease many people. Looks like they are on a well planned sightseeing tour of Wuhan. I'll have a look at the Google doc when you are done Bob

[2021-02-03 13:17:13]

**[Eddie Holmes]**

I may have missed this because I can't keep up. In that cast of character mutations how many are true 'immune escape' mutations in that they enable to reinfection of hosts, how many emerged in humans with some sort of partial immune response (e.g. chronic infection), and how many are compensatory/epistatic for other mutations. So, is NellY permissive for EriK? Or is it all of the above?

[2021-02-03 13:21:04]

**[Kristian Andersen]**

Leif, Karen, and Erik most concerning in that regard - probably...

[2021-02-03 13:21:40]

**[Eddie Holmes]**

Decent evidence of reinfection?

[2021-02-03 14:08:44]

**[Eddie Holmes]**

Q2. Is there any decent evidence of selection outside of the spike?

[2021-02-03 15:04:25]

**[Andrew Rambaut]**

L18F came up secondarily in both RSA and UK

[2021-02-03 15:04:55]

**[Andrew Rambaut]**

On the other hand the deletion in nsp6 is in all 3 variants

[2021-02-03 15:06:23]

**[Eddie Holmes]**

:+1:

[2021-02-04 04:40:56]

**[Robert Garry]**

Don't call it a conspiracy (but hint - they gotta bunch of secret viruses in China)

<https://podcasts.apple.com/us/podcast/coronavirus-did-covid-escape-from-a-lab/id1460716677?i=1000507391790>

[2021-02-04 04:44:53]

**[Robert Garry]**

Lawyers engaged! Yuri warns Angie: [shared file(s): image.png]

[2021-02-04 05:44:41]

**[Andrew Rambaut]**

Always prefix everything you say with "In my opinion, "

[2021-02-04 07:17:56]

**[Kristian Andersen]**

He's such a joke. Did you read what Angie said? She basically just called him an amateur and that was it... truth hurts - but I'm afraid lawyers can't fix that.... :stuck\_out\_tongue\_winking\_eye:

[2021-02-04 08:15:35]

**[Andrew Rambaut]**

In my opinion, he is an amateur.

[2021-02-04 08:41:16]

**[Robert Garry]**

And, in my opinion, the "Science Guy" is a tool.

[2021-02-04 09:05:34]

**[Kristian Andersen]**

He always has been...

[2021-02-04 09:19:21]

**[Robert Garry]**

As for Angie - I think that she's blown her chance to have Yurie cryopreserve her Pug's head --- you know --when the time comes....

[2021-02-04 10:19:34]

**[Robert Garry]**

Updated Fig. 2, which is basically a summary of the amino acid level similarities of the new BatCoVs that I think need highlighting. Similar in effect to the domain level trees Andrew did for Boni2020 [which would be good to see as well]. Still may need some tweaking (just like the COVID vaccines). [shared file(s): image.png]

[2021-02-04 11:20:23]

**[Eddie Holmes]**

My lawyers are better than his lawyers and have had some practice

[2021-02-04 12:39:21]

**[Robert Garry]**

Updated Fig. 1. [shared file(s): image.png]

[2021-02-04 15:44:40]

**[Eddie Holmes]**

Thanks Bob!

[2021-02-04 15:46:55]

**[Eddie Holmes]**

Oh, you remember that weird BGI submission to EBI in mid-December 2019? It transpires that EBI just assign these slots randomly in advance...they have nothing to do with the date when the sequences were sent. So, there is nothing weird here at all.

[2021-02-04 15:49:13]

**[Kristian Andersen]**

Ahhhhh. Last mystery solved then - I did find that really weird.

[2021-02-04 15:58:33]

**[Andrew Rambaut]**

That's what they would say

[2021-02-04 16:16:49]

**[Eddie Holmes]**

Yes. Have noticed that 'BGI' and 'EBI' share two letters and are both 3 letter words like CCP and CDC. Staring us in the face!

[2021-02-04 16:19:37]

**[Andrew Rambaut]**

Got contacted by a guy called Jon Gertner at NYT who is writing an article about the golden years of virus gen epi and the Oxford group - apparently he has talked to you Eddie. Is interested in all the conversations at the Turf.

[2021-02-04 16:20:22]

**[Eddie Holmes]**

Yes! He was good. I liked him. I told him we did all the work that the Turf.

[2021-02-04 16:21:38]

**[Eddie Holmes]**

I told him that all the virus phylogeny stuff started back with Walter Fitch and that we took it to new places over beer. I was sure to mention Harvey's name.

[2021-02-04 16:22:02]

**[Robert Garry]**

This sounds like one of those fabulous London bars - someday - someday - someday again...

[2021-02-04 16:22:04]

**[Eddie Holmes]**

The Turf was always much nicer the Kings Arms.

[2021-02-04 16:22:49]

**[Eddie Holmes]**

The Turf Tavern is/was a great pub. Close to Zoology. I've not been there for years.

[2021-02-04 16:23:27]

**[Andrew Rambaut]**

It even appears in Hardy's Jude the Obscure (apparently, I haven't read it).

[2021-02-04 16:25:03]

**[Eddie Holmes]**

We should update the Wiki page. Amazing to learn that Bob Hawke set his drinking record there...that's legend in Australia: [https://en.wikipedia.org/wiki/Turf\\_Tavern](https://en.wikipedia.org/wiki/Turf_Tavern)

[2021-02-04 16:25:20]

**[Andrew Rambaut]**

Will suggest he talks to young Worobey about the chimp-hunting expeditions planned in the Turf.

[2021-02-04 16:25:39]

**[Eddie Holmes]**

Oh, great call!

[2021-02-04 16:26:39]

**[Andrew Rambaut]**

*[thread - ID: 2021-02-04 16:26:39]*

The "Spotted Cow" is a better name

[2021-02-04 16:27:39]

**[Eddie Holmes]**

Exactly what I was thinking. 1381 is pretty amazing.

[2021-02-04 16:44:54]

**[Eddie Holmes]**

We've just got a (Sydney hotel quarantine) a lineage B.1.1.4 sequence with EriK. The genome does not contain any other notable mutations or deletions. I have attached the consensus genome here. Seen this before? [shared file(s): 21-010-0276.masked.fold.fasta]

[2021-02-04 16:45:43]

**[Kristian Andersen]**

I'm looking forward to reading \_that\_ story! Will it contain a family tree of how you nerds all relate to each other? I for the life of me can't figure it out.

[2021-02-04 16:48:01]

**[Eddie Holmes]**

There does need to be a nerdology.

[2021-02-04 16:48:33]

**[Kristian Andersen]**

Make it happen. The world needs this.

[2021-02-04 17:00:11]

**[Eddie Holmes]**

On it.

[2021-02-04 17:23:04]

**[Eddie Holmes]**

Actually, I think B.1.1.4 has EriK as default.

[2021-02-04 17:35:30]

**[Kristian Andersen]**

Unrelated, but related - can I just say, I'm very happy to see "ivar" in that sequence name... :blush:

[2021-02-04 17:41:07]

**[Eddie Holmes]**

Just for you! The public health people want to if a lineage carrying Erik alone is the cause for concern. In this case I would say no because I think this lineage has been around since 2020-03-23 according to Pangolin. Thoughts?

[2021-02-04 17:42:09]

**[Eddie Holmes]**

VOC cases are currently subjected to different quarantine procedures in Australia. So, your answer will dictate the quality of uber eats he/she will get.

[2021-02-04 17:43:44]

**[Eddie Holmes]**

B.1.1.4 is not increasing in frequency that I can see.

[2021-02-04 17:44:18]

**[Kristian Andersen]**

All SARS-CoV-2 viruses are of concern, the ones containing Erik, a little more so. But yeah - I'm not sure it does all that much by itself and I wouldn't really do anything differently because it's that one.

[2021-02-04 17:44:49]

**[Eddie Holmes]**

Thanks, that's what I think.

[2021-02-04 17:51:37]

**[Kristian Andersen]**

[and then Australia had a huge SARS-CoV-2 epidemic because academics didn't take the new variants seriously]. :eyes:

[2021-02-04 17:53:42]

**[Kristian Andersen]**

Btw. This (hopefully) going online in a couple of days - submitted earlier today.

Bob, NOLA study hopefully submitted tomorrow! [shared file(s): medRxiv.pdf]

[2021-02-04 17:54:10]

**[Kristian Andersen]**

And this hopefully going live early next week. The kids have been busy.

<https://outbreak.info/situation-reports-demo>

[2021-02-04 18:26:53]

**[Robert Garry]**

really great piece of work!

[2021-02-04 18:29:25]

**[Robert Garry]**

*[thread - ID: 2021-02-04 16:26:39]*

@Andrew Rambaut All great names - partial to the Resting Hare

[2021-02-04 18:34:07]

**[Kristian Andersen]**

Took us 6 years with Lassa. Took us 2 weeks with SARS-CoV-2... :zany\_face:

[2021-02-04 19:22:02]

**[Eddie Holmes]**

Yes, really good job!

[2021-02-04 20:29:21]

**[Kristian Andersen]**

*[thread - ID: 2021-02-04 20:29:21]*

I think she might be responding to Yuri... [shared file(s): Screen Shot 2021-02-04 at 8.28.51 PM.png]

[2021-02-04 21:31:55]

**[Kristian Andersen]**

I don't know if y'all saw this little perspective in Science. Is kinda interesting because the whole first part is basically wrong, but the last part has a lot of (obvious, but still) good points.

<https://science.sciencemag.org/content/371/6528/466.long>

[2021-02-04 21:40:52]

**[Eddie Holmes]**

I saw it and groaned a bit. There's a worse one coming out as a Comment in Nature. I had to take my name off.

[2021-02-05 00:06:35]

**[Andrew Rambaut]**

@Eddie Holmes B.1.1.4 + E484K tree: [shared file(s): image.png]

[2021-02-05 00:07:01]

**[Andrew Rambaut]**

So a recent cluster (presumably one at the top is an independent instance).

[2021-02-05 00:09:11]

**[Eddie Holmes]**

Thanks! So, a recent cluster of B.1.1.4 that have independently acquired EriK? Perhaps from the US?

[2021-02-05 00:13:28]

**[Eddie Holmes]**

Sorry, now seen your email! Thanks!!



[2021-02-05 00:17:14]

**[Andrew Rambaut]**

Spike mutations: D614G, E484K, G769V, W152L

[2021-02-05 00:18:30]

**[Andrew Rambaut]**

We are currently looking at whether 484K is starting to appear more frequently (in multiple backgrounds) than it did before or whether we just have more cases and more sequencing.

[2021-02-05 00:20:17]

**[Eddie Holmes]**

Yes, very interesting question. That we are seeing it in Australia is perhaps tell-tale.

[2021-02-05 00:20:24]

**[Andrew Rambaut]**

For your case I would say it is irrelevant with respect to action that it is a recent cluster - just that it has 484K. I.e., it is not a 'cluster of concern' but it has a mutation of concern.

[2021-02-05 00:21:12]

**[Andrew Rambaut]**

If you look at the number of States that cluster spans - it does suggest widespread transmission in the US.

[2021-02-05 00:21:37]

**[Andrew Rambaut]**

But everything has been spreading like crazy in the US

[2021-02-05 00:23:22]

**[Eddie Holmes]**

*[thread - ID: 2021-02-05 00:23:22]*

I think the local health people just like to be doing stuff. Hopefully this person gets put in a room at the end of the corridor.

[2021-02-05 01:07:29]

**[Eddie Holmes]**

The quantum computer sequencing sounds interesting. I might link him up with EgoHealth :zany\_face: [shared file(s): Screen Shot 2021-02-05 at 8.03.49 pm.png]

[2021-02-05 03:31:59]

**[Andrew Rambaut]**

*[thread - ID: 2021-02-05 00:23:22]*

@Eddie Holmes And gets special 'room service' no doubt.

[2021-02-05 06:01:28]

**[Robert Garry]**

*[thread - ID: 2021-02-04 20:29:21]*

@Kristian Andersen Good that Angie is taking the heat for use PO1 guys. Kinda like the now iconic scene in the first Wonder Woman movie where Diana literally runs through the battlefield. Bad as Yuri and the DRASTICs are imagine how you'd feel about this:

[https://www.vice.com/en/article/5dp4gx/professor-catfished-by-stalker-identity-theft-plagiarism:scream\\_cat](https://www.vice.com/en/article/5dp4gx/professor-catfished-by-stalker-identity-theft-plagiarism:scream_cat):

[2021-02-05 07:00:54]

**[Robert Garry]**

Coming to think that it may be the combo of NellY and EriK, not necessarily either alone that is the most concern. Probably not enough attention on PooH and the NTD Deletions... Oh to Andrew's point the nsp6 deletion as well.

[2021-02-05 07:46:09]

**[Robert Garry]**

Seriously Alina and Ebright <https://twitter.com/Ayjchan/status/1357691160198807552> THis is garbage...

[2021-02-05 07:52:15]

**[Andrew Rambaut]**

*[thread - ID: 2021-02-05 07:52:15]*

It isn't entirely wrong - I heard from someone else that they had got a paper to review from Nature and they said they weren't going to review it until the genome was released. Then Jeremy's tweet and Eddie persuading Zhang to release it.

[2021-02-05 07:52:42]

**[Kristian Andersen]**

The part about Nature is probably correct. The part involving "Ed" I'm sure isn't

[2021-02-05 07:53:33]

**[Kristian Andersen]**

Instead of reading Twitter, watch this instead. <https://youtu.be/IgGmYeAm0jk>. It'll make you feel better.

[2021-02-05 07:55:15]

**[Robert Garry]**

THis is the part in particular I do not like - [shared file(s): image.png]

[2021-02-05 07:58:46]

**[Andrew Rambaut]**

Yes - that is wrong.

[2021-02-05 07:58:55]

**[Kristian Andersen]**

"They"

[2021-02-05 07:59:34]

**[Andrew Rambaut]**

The embargo is just the standard, wait until we tell you to release it but give us an accession number.

[2021-02-05 07:59:57]

**[Andrew Rambaut]**

And in the mean time George was pissing around with getting GISAID to setup something for them.

[2021-02-05 08:03:25]

**[Robert Garry]**

Someone in the news media needs put out the real story and timeline - Alina and Ebright already no doubt working their magic with the spews media ...

[2021-02-05 08:09:50]

**[Robert Garry]**

I'm sure that those two are already pushing the narrative that Eddie and Zhang were going to hold the sequences until July...

[2021-02-05 09:29:39]

**[Robert Garry]**

The deletion at Y144 {Y145} It"s out of frame as well right?

[2021-02-05 12:27:26]

**[Kristian Andersen]**

@Andrew Rambaut - do you happen to have some good curated ccCoV genomic datasets?

[2021-02-05 12:28:28]

**[Kristian Andersen]**

I'm getting a lot of "have we reached peak fitness" (I doubt it) questions, so I'd like to get a sense of where we actually are in the cc world. I assume "peak fitness" is dominated by a bunch of local maxima - not a single big hill to climb.

[2021-02-05 12:30:05]

**[Eddie Holmes]**

The sequence was submitted to GenBank on the 5th - the day it was sequenced - before the paper was written. The embargo is a standard - hold until publication clause. The data was sent to the Ministry of Health on that day. Zhang also told them that it was a human respiratory pathogen. I wanted to release the sequence on that day as well but we could not because China had imposed a gag order on the 3rd. We submitted the paper on the 7th. We very quickly heard from a reviewer that they thought it was a good idea to release the sequence as did the editor. I was trying to get Zhang to do it but he was under pressure. After Jeremy's tweet I contacted Jeremy and told him the story, although I think he was really referring to George. He said it had to be released by the Monday. So, I tried again with Zhang and he agreed. The GenBank sequence was released on the 12th. He did put his neck on the line and he did get into serious trouble. Things got so bad that I told him a few times that we should just withdraw the paper just to save him. There's nothing new here and I've explained this - including Jeremy's tweet - to get press many times. If she wants to moan it should be to the China CDC who had the data earlier and did nothing.

[2021-02-05 12:33:15]

**[Robert Garry]**

Thank Eddie - And, of course, Virological release was earlier than GenBank.

[2021-02-05 12:33:43]

**[Andrew Rambaut]**

And Gisaid despite what Bogner claims.

[2021-02-05 12:34:55]

**[Robert Garry]**

A little while back I think we discussed that Ct values for G614 are lower than for D614. B117 still lower, but does anyone have Ct data for B.1.351 and P.1?

[2021-02-05 12:44:36]

**[Eddie Holmes]**

Exactly. Virological seemed the best way to get it out and Andrew and I had discussed that option already. The GISAID option never crossed my mind. To me, the key thing is that Zhang told the Ministry of Health exactly what it is was on the 5th, that it was likely a human respiratory pathogen, and that people should take precautions. That was the key info. But 100s of health care workers were infected by the time they finally admitted human-to-human transmission some weeks later. That's the true scandal.

[2021-02-05 12:52:14]

**[Kristian Andersen]**

Oh, I missed this beauty from the Science Police. [shared file(s): Screen Shot 2021-02-05 at 12.50.04.png]

[2021-02-05 12:54:53]

**[Eddie Holmes]**

I think he's talking about his own work at the end.

[2021-02-05 12:56:24]

**[Eddie Holmes]**

*[thread - ID: 2021-02-05 07:52:15]*

No, the reviewer did review the paper but also said it was a good idea to release the sequence.

[2021-02-05 13:02:34]

**[Andrew Rambaut]**

*[thread - ID: 2021-02-05 07:52:15]*

@Andrew Rambaut i think it was George's paper in that case.

[2021-02-05 13:04:39]

**[Andrew Rambaut]**

*[thread - ID: 2021-02-05 07:52:15]*

@Andrew Rambaut I should email you about this so you can lay it all out for for a future Fol.

[2021-02-05 13:05:17]

**[Andrew Rambaut]**

*[thread - ID: 2021-02-05 07:52:15]*

@Andrew Rambaut "Eddie, can you just remind me what really happened?"

[2021-02-05 13:08:05]

**[Eddie Holmes]**

*[thread - ID: 2021-02-05 07:52:15]*

@Andrew Rambaut Fortunately Zhang does not like to use email

[2021-02-05 13:13:21]

**[Robert Garry]**

*[thread - ID: 2021-02-05 07:52:15]*

@Andrew Rambaut This timeline needs to be public (to the extent that it isn't already). Agree that the No H2H transmission BS cost lives. So did the this is not an airborne virus BS, but that is another story.

[2021-02-05 13:13:56]

**[Robert Garry]**

*[thread - ID: 2021-02-05 07:52:15]*

@Andrew Rambaut FOIA - a doubled edged sword....

[2021-02-05 13:20:25]

**[Eddie Holmes]**

*[thread - ID: 2021-02-05 07:52:15]*

@Andrew Rambaut I've explained all this a number of times. I think that BBC doco covers a lot of this.

[2021-02-05 13:44:41]

**[Robert Garry]**

*[thread - ID: 2021-02-05 07:52:15]*

@Andrew Rambaut Indeed, so tiresome. The way they twist the story is yet more evidence that the "Science Police" force is highly corrupt.

[2021-02-05 13:53:37]

**[Eddie Holmes]**

*[thread - ID: 2021-02-05 07:52:15]*

@Andrew Rambaut I'm just treating all this as background noise to be ignored. I never look at these people on Twitter and I bet there are others we don't even know about.

[2021-02-05 14:00:00]

**[Robert Garry]**

*[thread - ID: 2021-02-05 07:52:15]*

@Andrew Rambaut YOU are a wise man Eddie!

[2021-02-05 14:38:14]

**[Eddie Holmes]**

Found this one from Jan 5th. Somewhat prescient. I wouldn't mind this being released in a freedom of information act: [shared file(s): Screen Shot 2021-02-06 at 9.36.10 am.png]

[2021-02-05 14:38:52]

**[Kristian Andersen]**

"very bad". No shit.

[2021-02-05 14:40:34]

**[Eddie Holmes]**

I don't think they even accepted human-to-human transmission until about Jan 22nd.

[2021-02-05 14:42:57]

**[Robert Garry]**

This is amazing - On another note - I uploaded a leaner version of the bat CoV post. Much more subtle.

[2021-02-05 14:43:35]

**[Eddie Holmes]**

Great, I'll take a look.

[2021-02-05 14:57:28]

**[Robert Garry]**

Fig.1 updated

[2021-02-05 14:57:34]

**[Robert Garry]**

shared file(s): image.png

[2021-02-05 14:57:53]

**[Robert Garry]**

Fig. 2

[2021-02-05 14:58:00]

**[Robert Garry]**

shared file(s): image.png

[2021-02-05 14:59:11]

**[Robert Garry]**

Fig. 2 is prob not needed - a bit redundant.

[2021-02-05 15:04:48]

**[Robert Garry]**

[https://www.pbs.org/wgbh/frontline/film/chinas-covid-secrets/?utm\\_source=Twitter&utm\\_medium=Twitter&utm\\_campaign=Trailer&utm\\_content=Video](https://www.pbs.org/wgbh/frontline/film/chinas-covid-secrets/?utm_source=Twitter&utm_medium=Twitter&utm_campaign=Trailer&utm_content=Video) I recognize some of these ppl.

[2021-02-05 15:07:27]

**[Kristian Andersen]**

Is that the same as the BBC one?

[2021-02-05 15:07:39]

**[Eddie Holmes]**

Yes.

[2021-02-05 15:13:25]

**[Robert Garry]**

Same narrator as <https://www.pbs.org/wgbh/frontline/film/outbreak/credits/>

[2021-02-05 15:14:14]

**[Robert Garry]**

Metabiota is the supervillain organization in this one...

[2021-02-05 15:20:46]

**[Eddie Holmes]**

Oh, I will watch that one then! Thanks for the new figures Bob.

[2021-02-05 16:26:38]

**[Eddie Holmes]**

Wow. [shared file(s): Screen Shot 2021-02-06 at 11.26.03 am.png]

[2021-02-05 16:28:33]

**[Kristian Andersen]**

Are you fucking kidding me? Shut this shit down NOW!

[2021-02-05 16:28:57]

**[Eddie Holmes]**

Should I tweet a comment on this?

[2021-02-05 16:32:08]

**[Kristian Andersen]**

I just did - but this is COMPLETELY out of order - even if there's nothing to see here.

[2021-02-05 16:32:21]

**[Kristian Andersen]**

It's just so idiotic - what is she hoping to achieve?

[2021-02-05 16:36:10]

**[Eddie Holmes]**

I'm going to tweet as well.

[2021-02-05 16:38:33]

**[Eddie Holmes]**

Done.

[2021-02-05 16:39:03]

**[Robert Garry]**

Unfucking believable.

[2021-02-05 16:39:09]

**[Eddie Holmes]**

She's just evil.

[2021-02-05 16:39:38]

**[Robert Garry]**

She's jealous - you did an awesome job for the Frontline...

[2021-02-05 16:42:25]

**[Robert Garry]**

And, she's evil. Kristian is right - she needs to be shut down That tweet is slander. Trouble is: 1. You're a public figure. 2. She has no assets - cost you more to sue her than she is worth. Speaking from experience.

[2021-02-05 16:44:26]

**[Eddie Holmes]**

I will pass this on the lawyers

[2021-02-05 16:50:11]

**[Eddie Holmes]**

But, I agree that lawyers are not the best course of action. Makes me feel better though.

[2021-02-05 17:07:20]

**[Robert Garry]**

Well - they could do some things - cease and desist letter for example

[2021-02-05 17:10:43]

**[Robert Garry]**

Engaging her "science" is ludicrous - she is so far out of her depth it is pathetic. However, there are not that many that can grasp the difference.

[2021-02-05 17:12:16]

**[Eddie Holmes]**

True. I do not want to get into a long tweet debate about all this. I had planned to ignore it but that tweet crossed the line. I've now a one tweet response and that is it.

[2021-02-05 17:28:08]

**[Robert Garry]**

Well I guess the Wash Post watches Fox

News.<https://www.washingtonpost.com/opinions/2021/02/05/coronavirus-origins-mystery-china/?arc404=true>

[2021-02-05 17:30:45]

**[Eddie Holmes]**

Yes, I saw. They even mention DRASTIC. Will be interesting to see what WHO report.

[2021-02-05 17:39:03]

**[Robert Garry]**

Here I fixed the WasPost editorial : According to research by DRASTIC, a network of convicted pedophiles, erotic novel writers, cryonic hucksters, slanderous post-docs turned science police, purveyors of city sized soft-core pornography and led by a penis-fixated graffiti artist, this is the most important bat coronavirus database in China.

[2021-02-05 17:45:09]

**[Eddie Holmes]**

:rolling\_on\_the\_floor\_laughing:

[2021-02-05 18:00:13]

**[Eddie Holmes]**

I also have on hand the relevant emails with Clare Thomas at Nature and Jeremy Farrar via Twitter message. These :100: support what I've said and show that I was trying to get the sequence released ASAP but that Zhang was under strong pressure. These are not subject to GIPA but it is good to have them.

[2021-02-05 18:42:28]

**[Eddie Holmes]**

I have all the ammo, it's just a case of when I use it. I was hoping to stay above all this shit.

[2021-02-06 04:10:44]

**[Robert Garry]**

"A further surprise was in store. Chan and her colleague Dr Shing Hei Zhan scrutinised the evolutions of SARS-CoV-1 (the cause of the 2003 SARS epidemic) and SARS-CoV-2 (the cause of the current pandemic) in the early months of their respective outbreaks and found that while the former mutated rapidly in early human cases, as



the virus adapted to its new host, the latter did not. This implies that the virus causing Covid-19 was already well adapted to infecting human beings, a point that was also suggested by the World Health Organization in its global study on the origins of Covid-19, published in November.

There are three possible explanations for this. The first is that the virus had circulated, undetected, in people for months. The second is that the virus was already highly adept at human-to-human transmission, even while it was still in bats or other animals. The third is that it had become adapted in human cells, or humanised animals, in a laboratory."

[2021-02-06 04:11:57]

**[Robert Garry]**

shared file(s): Did the Covid-19 virus really escape from a Wuhan lab\_.pdf

[2021-02-06 04:13:46]

**[Robert Garry]**

shared file(s): Did the Covid-19 virus really escape from a Wuhan lab\_.pdf

[2021-02-06 04:15:46]

**[Robert Garry]**

Alina/Ridley's grand expose. She's still pushing her flawed "it had become adapted in human cells, or humanised animals, in a laboratory."

[2021-02-06 04:28:27]

**[Robert Garry]**

In a significant change from a year ago, a growing number of top experts – including (ordered alphabetically by last name) Drs Francois Balloux, Ralph S Baric, Trevor Bedford, Jesse Bloom, Bruno Canard, Etienne Decroly, Richard H Ebright, Michael B Eisen, Gareth Jones, Filippa Lentzos, Michael Z Lin, Marc Lipsitch, Stuart A Newman, Rasmus Nielsen, Megan J Palmer, Nikolai Petrovsky, Angela Rasmussen and David A Relman – have stated publicly (several in early 2020) that a lab leak remains a plausible scientific hypothesis to be investigated, regardless of how likely or unlikely.

[2021-02-06 04:29:21]

**[Robert Garry]**

We informed and obtained consent from each expert for their inclusion in this list.

[2021-02-06 04:33:49]

**[Robert Garry]**

ALSO @Eddie Holmes did you interact with Frontline/BBC producer Dan Edge? Clearly also at the top of the game.

[2021-02-06 06:20:53]

**[Robert Garry]**

Given that's Alina has made herself a public figure, I see no downside whatsoever to hitting back at her hard. A follow-up email to the new Broad Director surely can't hurt. before - I think Eric was just being Eric - plus he didn't want to create any waves while he was making his career change. Of course, I also think it's time overdue for PO2. I'm pretty sure that we could properly refute the "quote" science of lab origins.

[2021-02-06 07:25:21]

**[Andrew Rambaut]**

The question is how much we want to directly enter the fray? I was quite happy with just talking about the natural origins based on the available bat and pangolin sequences but obviously that doesn't address these arguments. If we want to go full on to attack these ideas I think we have:

1. You can't go from RaTG13 to SARS-CoV-2 by passaging. Require the induction of 1200 mutations, about half of which are reversions back to the common ancestor. Even if you did it, that would be a shit load of passages so would be unfeasible in animals. And passaging SC2 in cells causes all sorts of stuff to happen like loss of FCS (although perhaps that is just some cells).
2. You can't use modern molecular techniques to create this virus 'de novo' because you have no idea what mutations you would put in. You still need a starting virus that is almost identical to SC2 and just introduce a few things (i.e. FSC and the odd ACE2 contact residues). And you would introduce the perfect cleavage site and the

optimum RBD. So this means something almost the same as SC2 exists or existed in a lab without any publication. 3. The only plausible lab origin theory (and possibly the only one that isn't a conspiracy in the event itself) is that someone collected SC2 as part of a collection of samples, was working in through them perhaps to isolate or sequence them and infected themselves (without knowing) and then transmitted (without knowing). But this is simply specific subsection of the zoonotic hypothesis - no different from bat->farmer->market worker. Given it is specific and this would afford a single unique opportunity for the virus to jump, it is vanishingly less likely than the other types of contact humans have with animals.

[2021-02-06 07:28:44]

**[Robert Garry]**

Damn you are good - so well stated Andrew!

[2021-02-06 07:33:11]

**[Robert Garry]**

:beer:

[2021-02-06 07:40:35]

**[Robert Garry]**

For #3 I would add that Alina, Baker et al have recommended stopping all these activities, which of course is 180 degrees opposite to what needs to be done. If you want to leave the world completely vulnerable to SARS3, SARS4 etc, sure stop studying sarbecovirus diversity.

[2021-02-06 07:55:38]

**[Andrew Rambaut]**

The way to do it may be to leave them with a couple of very specific things that they need to prove if they are to turn out to be right - the major one is that a live virus, collected from the wild, that was SARS-CoV-2 or near-identical to it was in a lab in Wuhan in November 2019. Then just let them obsess about that whilst everyone else moves on. The problem at the moment is that they say all these vague notions about passaging and engineering that seem plausible to people who don't know what is required.

[2021-02-06 08:00:57]

**[Robert Garry]**

Yes indeed that---is--- it! It's #2 aka Relman - and the pure essence of a conspiracy theory - they have the progenitor and are keeping it a secret because they don't want the world to know they f'ed up and released it or they are hiding their super secret bioweapons program.

[2021-02-06 08:26:47]

**[Kristian Andersen]**

No point in spending time explaining it's not a lab escape - just keep reiterating the data supporting it's all natural evolution. Then combine that with three main things (1) lab escape proponents have not put forward a testable hypothesis, (2) the lab hypothesis comes down to a single 'fact' - this happen in Wuhan (that really is all there is to it), and (3) - and while I hate this part, it's effective - they're amateurs. It's not a nice look to be the person calling other scientists idiots, but they are - so I have no issue hammering on #3 these days.

[2021-02-06 08:29:58]

**[Kristian Andersen]**

The only viable version of the "lab escape" hypothesis that's left, is the one we mention in PO1 - that somebody had the virus at the WIV and popped it into tissue culture. But as we say, that would look identical to natural emergence - no point for scientists trying to figure out if that could have happened, since it's not a scientific question - it lies with intelligence.

[2021-02-06 08:35:53]

**[Andrew Rambaut]**

Exactly - that was my point 3.

[2021-02-06 08:36:14]

**[Andrew Rambaut]**

But that is not the hypothesis they are proposing.

[2021-02-06 08:42:51]

**[Andrew Rambaut]**

But in the end you are never actually trying to convince these people, just make their arguments seem daft.

[2021-02-06 08:42:56]

**[Kristian Andersen]**

Do they have an actual hypothesis?

[2021-02-06 08:43:08]

**[Kristian Andersen]**

“just make their arguments seem daft” Excactly

[2021-02-06 08:43:34]

**[Kristian Andersen]**

And when you break it down - all they have is the fact that this was detected in Wuhan. That’s literally it.

[2021-02-06 08:44:05]

**[Andrew Rambaut]**

Yes.

[2021-02-06 08:44:51]

**[Andrew Rambaut]**

And that is why they are so anti any idea of a previous history of circulation or cases in Europe in November etc.

[2021-02-06 09:31:21]

**[Robert Garry]**

Alina is still in love with her notion that the virus was "already well adapted to humans" when the first cases were detected based on dN/dS. Yet, we know the virus infects minks, ferrets, dogs, cats, lions, gorillas, rodents as well as it infects humans. Doug and the VoC that have followed show that SC2 and its RBD and FCS are still adapting to us.

[2021-02-06 09:34:35]

**[Kristian Andersen]**

I think they forget that SC1 != SC2. They’re literally basing that entire argument on n=1. I told her this many many months ago (gave her an example from Ebola - which looks like SC2.... mysterious!), but I guess it doesn’t fit the narrative very well.

[2021-02-06 09:53:18]

**[Robert Garry]**

Do you remember the big deal that was made about how Shi did not mention the FCS in her first SC2 paper? Did I miss it? Where in the Chan-Ridley paper is the mention of the FCS that definitely proves SC2 is man-made?

[2021-02-06 09:53:48]

**[Robert Garry]**

Guess they forgot FCS too.

[2021-02-06 09:54:43]

**[Kristian Andersen]**

Moving the goal post. Constantly.

[2021-02-06 10:45:04]

**[Robert Garry]**

Speaking of FCS <https://www.sciencedirect.com/science/article/pii/S1873506120304165> YP\_009072440.1

[2021-02-06 10:46:14]

[Robert Garry]

\_Hibecovirus - two known One with a FCS the other not. the S2' of the nonFCS one has a predicted O-linked glycan....\_

[2021-02-06 12:28:51]

[Eddie Holmes]

I'd be tempted to hold off until the WHO team make some statements because that will take all this to a new level.

[2021-02-06 13:35:36]

[Robert Garry]

Not expecting much, but yes indeed whatever they say will set off noise and fury. Alina/Drastic will probably still be circling the track taking their victory laps. My guess - we'll also be asked to make some sort of response either by Nature or Nature Med sometime around the time when the WHO Team makes a response. We should probably be ready. The above discussion in channel is moving in a productive direction.

[2021-02-06 14:49:07]

[Robert Garry]

BTW that tree above suggests to me that the presence of a FCS is a pretty normal thing for a betacoronaviruses. 4 of 5 subgeneses have them. The only one that doesn't [yet] probably under sampled.

[2021-02-06 15:02:10]

[Eddie Holmes]

My guess is that the WHO will either rule out lab escape completely or make vague statements that more data are required. I suspect this will send Alina et al. into fits of rage rather than victory labs. If they do rule it out completely the key thing will be if they make clear statements about why they are excluding it

[2021-02-06 15:53:51]

[Robert Garry]

Yeah - I totally agree I meant they would \*still\* be taking victory labs after the recent op eds in the Telegraph, WashPost, Fox spews etc. It's what they are doing at the moment, but they'll get fresh life for their virology cosplay no matter what WHO team does. I'm not particularly hopeful for clear statements. The little short-lived victories of Alina and DRASTIC in the court of public opinion will eventually be crushed when the actual natural progenitor of SC2 is inevitably discovered. They can then go back to their soft core megaporn, erotic writing, freezing puppy heads, etc.

[2021-02-06 16:11:38]

[Eddie Holmes]

shared file(s): Image from iOS.jpg

[2021-02-06 17:08:59]

[Eddie Holmes]

The last thing we need is Brazilians to become dominant.

[2021-02-06 17:10:48]

[Eddie Holmes]

Re: Broad. Is Alina paid via a research grant? She can't be doing any actual science. Is tax payers money funding her campaign?

[2021-02-06 17:41:29]

[Kristian Andersen]

Well, you can give her money here. <https://giving.broadinstitute.org/alina-chan>

[2021-02-06 17:43:53]

[Kristian Andersen]

I assume federal funding, since that's how most people are paid - e.g., my entire lab. She's with Ben Deverman - <https://vector.engineering/team/>

[2021-02-06 17:47:47]

**[Eddie Holmes]**

So, she's doing all this on federal funded time. There's so much it's not after hours work.

[2021-02-06 17:50:34]

**[Kristian Andersen]**

HFSP - <https://www.linkedin.com/in/alina-chan/>

[2021-02-06 17:52:09]

**[Eddie Holmes]**

Perhaps I could ask the Broad Director if it's appropriate for all this to be done on the Broad's and HFSP time?

[2021-02-06 17:53:18]

**[Kristian Andersen]**

Yup - and to be honest, I'm not sure HFSP would be happy about this...

[2021-02-06 17:54:14]

**[Eddie Holmes]**

Perhaps I should say that I am following up with them?

[2021-02-06 17:55:15]

**[Kristian Andersen]**

Not actually sure she's HFSP anymore - so probably NIH finds (although, no where to find out, since those would have gone to Ben). [shared file(s): Screen Shot 2021-02-06 at 5.54.19 PM.png]

[2021-02-06 17:55:41]

**[Kristian Andersen]**

[very relevant project to figure out SC2 origins btw...]

[2021-02-06 17:56:25]

**[Eddie Holmes]**

Ok. I'll think about how to do this.

[2021-02-06 18:50:12]

**[Eddie Holmes]**

This implies that the WIV will be given the all clear

<https://apnews.com/article/china-granted-who-full-access-wuhan-52dae25c21db7c80c404251e481f88bc>

[2021-02-07 01:00:33]

**[Robert Garry]**

Andrew put his finger on the pivotal point. A lab origin of SC2 is possible \*ONLY IF WIV ALREADY\* had SC2 or a virus 99% similar to SC2. The other so-called lab theories, like 1. the Steve Hilton theory that you could cobble together SC2 from a bit of GD pango spliced onto RATG13 or 2. the Alina theory that passaging RatG13 on human cells/hACE transgenics gets you SC2 are as Kristian says strictly amateur hour or virologist cosplay. I\*F WIV ALREADY\* had SC2 or a virus 99% similar to SC2 and was working on it then Shi is the greatest cover-up artist ever. A true magician the likes of whom the world has never seen. If so, RaTG13 is the ultimate magician's rabbit - cute, distracting and totally a sleight of hand. Hey look over there - RatG13 is the closest we got. Stated another way - the only way SC2 is a product of GOF research is if WIV had preSC2 aka the 99% progenitor already. Eddie has identified what should be the goal of the WHO team: clarity. Will we get it?

[2021-02-07 01:12:24]

**[Andrew Rambaut]**

Which is why people saying that a lab origin is not a conspiracy theory are completely wrong - including Bloom, Bedford etc. If it was in fact a lab origin then there was SC2 progenitor in WIV or where-ever and there has been a conspiracy to hide that fact. The problem with that is that prior to the emergence of SC2 there would have been no reason to hide the fact the virus existed and was being worked on.

[2021-02-07 01:26:41]

**[Eddie Holmes]**

Oh it's a conspiracy theory. I just got a message from Peter Daszak asking me about the photos I took in the market in 2014. Perhaps the market is back in? In his latest interviews he talks about important clues there.

[2021-02-07 02:02:51]

**[Andrew Rambaut]**

I have no interest in interacting with the nutters but I think it is important to make it clear what people like Jesse Bloom and Trevor are saying when they claim it is a plausible scenario that needs investigating. They are not being all sciency and reasonable.

[2021-02-07 05:47:03]

**[Robert Garry]**

In the 60 Minutes Australia piece that's coming with Nikolai Petrovsky et al. I'm definitely on tape saying lab origins are conspiracy theories.

[2021-02-07 05:55:09]

**[Robert Garry]**

Bloom, Bedford, Rasmussen etc were backed into a corner by Alina. Binary choice - investigate or not investigate "lab origins." Not really a choice - you can't say don't consider it at all - though some of our peers on the Jan20 phone calls and in the peer review thought we shouldn't (and FWIW that review - oh origins is going to be out of date topic shortly - is not looking too prescient in hindsight.) Not defending the other Origins comments Bloom and Bedford have made - pretty disappointing.

[2021-02-07 06:00:21]

**[Robert Garry]**

And, another good point Andrew. Not at all plausible. If Shi had had the progenitor she would have revealed that instead of RaTG13. Game over. We'd have never written PO1.

[2021-02-07 06:09:43]

**[Robert Garry]**

Dazsak/market/clues? Unless there's literally a "smoking" raccoon dog or other positive animal I'm not to hopeful that trail goes very far. It's pretty old ground too - I think it's fairly well settled that there were cases before the Market cases. It's not much but perhaps the WHO team could put to rest the SC2 came into Wuhan on a frozen fish package "theory." About as likely as that other "theory" that space aliens sent SC2 to us on a meteor.

[2021-02-07 07:18:11]

**[Kristian Andersen]**

*[thread - ID: 2021-02-07 07:18:11]*

Poor guy - confused and all. [shared file(s): Image from iOS.jpg]

[2021-02-07 07:33:29]

**[Robert Garry]**

lol

[2021-02-07 07:59:49]

**[Robert Garry]**

@Kristian Andersen looking forward to your further correspondence with your pal Yuri. Curious if you've heard from Xander or Alex B. lately. They seem rather quiet.

[2021-02-07 08:06:16]

**[Andrew Rambaut]**

*[thread - ID: 2021-02-07 07:18:11]*

@Kristian Andersen "If you have to ask someone..."

[2021-02-07 08:29:09]

**[Kristian Andersen]**

I might mess with him a little - just to fuck up his little conspiracy brain...

Haven't heard from Xander and Alex since they accused me of research fraud and genocide. I miss them.

[2021-02-07 08:29:33]

**[Kristian Andersen]**

Sorry, not genocide - war crimes. Need to be accurate in the allegations.

[2021-02-07 09:00:44]

**[Robert Garry]**

Speaking of racist utterances - and this may be old news - but Don McNeil recently got fired by the NYT for using the N-word in a discussion with some interns about 5 years ago,

[2021-02-07 09:10:43]

**[Kristian Andersen]**

Damn - didn't know that. He's be very quiet as of late, so I guess that explains it.

[2021-02-07 11:12:05]

**[Eddie Holmes]**

This is all so weird. I do like the idea of smoking raccoon dog.

[2021-02-07 11:13:51]

**[Eddie Holmes]**

WHO panel say they will announce some initial findings before they leave on Wednesday...that will be very interesting

[2021-02-07 12:17:45]

**[Kristian Andersen]**

This is pretty nuts - AZN/Oxford vaccine totally killed by B.1.351. Not good. (and do we need to go back to consider that strange overlap between all these variants and the vax trials? Probably not, but it makes me uncomfortable).

<https://twitter.com/EricTopol/status/1358488910637060097?s=20>

[2021-02-07 12:22:39]

**[Andrew Rambaut]**

I think the big question is is this E484K or is it a combo with something else. E484K is popping up all over the shop at the moment.

[2021-02-07 12:23:17]

**[Robert Garry]**

Also mild-moderate disease - more important how about severe?

[2021-02-07 12:25:15]

**[Kristian Andersen]**

I think Leif and Karen are key too - but I'd expect B.1.1.7 + Erik to come with a big hit too.

[2021-02-07 12:26:34]

**[Kristian Andersen]**

Absolutely no effect preventing mild-moderate so I don't expect much ability to prevent severe either. But we'll see - this is very early data. It's just a shit vaccine - I'm sure the others won't see this bad a drop (and we have \_some\_ data on that) and will also prevent severe disease in many cases.

[2021-02-07 12:28:26]

**[Andrew Rambaut]**

Leif is everywhere (and quite common on B.1.1.7)



[2021-02-07 12:29:00]

**[Andrew Rambaut]**

When testing vaccines against B.1.351, are they using one with Leif and Karen?

[2021-02-07 12:29:24]

**[Andrew Rambaut]**

Or the serum - do they know the genotype of the donor?

[2021-02-07 12:30:12]

**[Robert Garry]**

*[thread - ID: 2021-02-07 12:30:12]*

[https://docs.google.com/document/d/17-2hi7-fNsjE44himeCkm1PoZ7\\_-ncvpxUIhShZzDCU/edit](https://docs.google.com/document/d/17-2hi7-fNsjE44himeCkm1PoZ7_-ncvpxUIhShZzDCU/edit) On another note - I just popped a \*nearly clean draft\* of a proposed Virological post about Cambodian, Thai and Japanese bat sarbecoviruses. It's actually pretty mild, but Alina etc. \*do\* get attention. I borrowed VERY heavily from this channel, so please let me know if you are co-authors or I can go solo...

[2021-02-07 12:30:14]

**[Kristian Andersen]**

These are clinical trials - so wildtype

[2021-02-07 12:31:14]

**[Kristian Andersen]**

What's critically important here - drop in efficacy, even bigger than drop observed in vitro

[2021-02-07 12:31:29]

**[Kristian Andersen]**

(which is not surprising to me)

[2021-02-07 12:31:57]

**[Andrew Rambaut]**

But do they know whether the infected cases are with a B.1.351 with Leif and/or Karen or one without

[2021-02-07 12:32:33]

**[Robert Garry]**

I think it's the problem that spike is wild-type - not stabilized as in the mRNA vaccines - am I right about this?

[2021-02-07 12:33:18]

**[Robert Garry]**

Good question - they really should have sequence data in the breakthroughs -

[2021-02-07 12:35:29]

**[Kristian Andersen]**

> But do they know whether the infected cases are with a B.1.351 with Leif and/or Karen or one without  
Ah, yes, good point - I assumed with all those, but yeah, they're not all fixed. I assume likely all three

> I think it's the problem that spike is wild-type - not stabilized as in the mRNA vaccines - am I right about this?  
Not stabilized - like Sputnik. Why they did that, I don't know. Why they haven't updated it, I don't know. Fact is, in six months, that vaccine will be totally irrelevant.

[2021-02-07 12:36:56]

**[Kristian Andersen]**

I'm additionally worried that South Africa might have additional data on this vaccine we don't know about - they just canceled their whole vaccine program with this one and that's a HUGE step you don't take lightly unless there are additional concern (?). We have to remember that shit immunity can often be worse than no immunity.

[2021-02-07 13:10:20]



**[Eddie Holmes]**

[thread - ID: 2021-02-07 12:30:12]

Bob, I will take a look when I can but I would just hold off submitting anything until after the WHO team have made their announcement in a few days. I sense that Daszak is increasingly bullish about excluding WIV.

[2021-02-07 18:23:05]

**[Kristian Andersen]**

Add Tom Inglesby... [https://twitter.com/t\\_inglesby/status/1358601852728860674?s=21](https://twitter.com/t_inglesby/status/1358601852728860674?s=21)

[2021-02-07 18:30:07]

**[Eddie Holmes]**

I think a lot of it is now the Emperor's New Clothes....you have to say it because that's the flavour of the day. There should be a bandwagon emoji.

[2021-02-07 18:33:40]

**[Kristian Andersen]**

:disguised\_face:

[2021-02-07 20:43:44]

**[Eddie Holmes]**

WHO press conference in Wuhan on Tuesday John from the BBC says. I'm not going to talk with him.

[2021-02-07 21:30:00]

**[Kristian Andersen]**

Yeah, he emailed me too - and yeah, I'll decline as well (plus, I'll be out most of this week - pretty perfect timing on my part :wink: )

[2021-02-07 23:11:06]

**[Eddie Holmes]**

Just got this from Dominic in Wuhan - "Real argy bargy here in Wuhan. The head Chinese guy just said that your photos of the Huanan market might have been synthesised!". WTFuck is going on?? Perhaps they denying they even had mammals there? Weird.

[2021-02-07 23:37:07]

**[Andrew Rambaut]**

Does that suggest the WHO group are suggesting a direct role for the market?

[2021-02-07 23:46:31]

**[Eddie Holmes]**

There's definitely something going on re: the market but I can't quite think what. Could just be a direct link or just tying-up loose ends before eliminating it. Daszak says he was going to use the photos for species identification. This leads me to think that the officials must have denied that the species I photographed were ever in the market but that my crappy photos prove otherwise. I also wonder if those 'environmental samples' are actually more informative than we think.

[2021-02-07 23:47:37]

**[Eddie Holmes]**

I seem to be the Forrest Gump of COVID.

[2021-02-07 23:49:43]

**[Andrew Rambaut]**

One thing there is copious evidence for is that you are not working for the CCP -

[2021-02-07 23:56:36]

**[Eddie Holmes]**

True. I ain't going back to China.

[2021-02-07 23:59:12]

**[Andrew Rambaut]**

Didn't you get the nice invite from Cara at the "North American Foundation for Science and Technology"?

[2021-02-08 01:03:57]

**[Robert Garry]**

<https://science.sciencemag.org/content/370/6512/20.full> I came across this article on LinFa. Herein a clue as to what may be [note: actually should be] going on: "This is an extremely interesting approach," says Isabella Eckerle, a virologist at the Centre for Emerging Viral Diseases at the University of Geneva. Eckerle and colleagues \*validated the test for WHO\* and published the result as a preprint in late September. "Especially for screening potential plasma donors or when \*looking for the animal reservoir\* it should be really useful." IIRC LinFa told Eddie he had some positive pangolins - this is the assay he likely used for the serology. Bottom line: WHO has LinFa's assay and may be trying to get their hands on the samples from the Market. Argy Bargy?

[2021-02-08 01:18:48]

**[Eddie Holmes]**

Ha, good spot! Must be what Linfa used in the pangolins, although I assumed they were Thai pangolins as the bat virus in that paper is from Thailand. Not sure that Linfa would have gotten Wuhan samples but who knows. Yi Guan went to the market straight away as well. All very curious.

[2021-02-08 05:11:47]

**[Robert Garry]**

I'm thinking that none of the WHO team want to come off as "working for the CCP" either. IF I had been picked and agreed that would be my greatest "fear." Hence they need something to show they are really investigating. That's where LinFa's assay that WHO has shown GREAT interest in comes into play. I could be wrong but I am guessing that's gonna come up at the presser tomorrow.

[2021-02-08 05:34:47]

**[Andrew Rambaut]**

My thought is whether the initial samples came up as SARS and they quite reasonably cleared the market. They would have taken samples from the animals (it is inconceivable they wouldn't). What maybe went wrong is that the animal samples came up negative. This is when they realised it wasn't just animal exposure and it was circulating. So they suppressed the negative results (much easier than positive results). Then they got the environmental samples which presumably were just the result of the human cases and that was the best they could do.

[2021-02-08 06:24:00]

**[Robert Garry]**

Agree with all of this...will be interesting what the presser says tomorrow...

[2021-02-08 11:36:30]

**[Eddie Holmes]**

Yup, could be. Just got another invite from Cara...how timely

[2021-02-08 12:15:43]

**[Andrew Rambaut]**

Just spotted this on BBC [shared file(s): Image from iOS.jpg]

[2021-02-08 12:16:17]

**[Andrew Rambaut]**

The sinister puppet master in the shadows

[2021-02-08 12:16:46]

**[Kristian Andersen]**

Old news man, old news.

[2021-02-08 12:18:44]

**[Eddie Holmes]**

If they do find seropositive animal samples how long before the first 'they spiked the samples' tweets from Boston?

[2021-02-08 12:31:40]

**[Robert Garry]**

Just listened to some of the Alina podcast. She's vacuous, but also cleverly evasive. I am coming around [OK I'm already at] to Andrew's point that they really need to be boxed into a corner and made to come up with some specifics. Most important is that you need a very close relative (99% or better) to get to SARS-CoV-2 by any sort of GOF research. Also blow up the notion that lab origins is not a conspiracy theory. It is.

[2021-02-08 12:39:11]

**[Robert Garry]**

The Puppet Master was one of the first supervillains faced by the the Fantastic Four. I remember it well back in 1963.... No resemblance to Eddie

[2021-02-08 12:39:37]

**[Robert Garry]**

Maybe a little? [shared file(s): image.png]

[2021-02-08 12:41:45]

**[Eddie Holmes]**

*[thread - ID: 2021-02-08 12:41:45]*

Oh, I'm going to be using that!

[2021-02-08 12:42:43]

**[Eddie Holmes]**

Linfa's paper that is out in Nat Comms tomorrow... keep in conference [shared file(s): Nat Comm\_Author Proof-LW210208.pdf]

[2021-02-08 12:52:41]

**[Kristian Andersen]**

Only read the abstract, but definitely interesting paper.

[2021-02-08 12:54:02]

**[Eddie Holmes]**

Thai pangolin

[2021-02-08 13:06:23]

**[Robert Garry]**

Yeah it's the ACE2 - blockade of binding assaY [ACE2BOB] -

[2021-02-08 13:06:57]

**[Robert Garry]**

Can add the full reference to the virological post - full credit for a nice work.

[2021-02-08 13:08:41]

**[Robert Garry]**

*[thread - ID: 2021-02-08 12:41:45]*

@Eddie Holmes Let me see if I can find a better one...

[2021-02-08 13:09:22]

**[Robert Garry]**

*[thread - ID: 2021-02-08 13:09:22]*

I dunno - I'm just not seeing it... [shared file(s): image.png]

[2021-02-08 13:14:05]

**[Eddie Holmes]**

You're killing me

[2021-02-08 13:15:42]

**[Robert Garry]**

@Kristian Andersen should have warned you better.

[2021-02-08 13:29:50]

**[Kristian Andersen]**

Never. I want people to peel this onion themselves... :wink:

[2021-02-08 14:02:20]

**[Andrew Rambaut]**

*[thread - ID: 2021-02-08 13:09:22]*

@Robert Garry There's Cara with some bags of money...

[2021-02-08 14:36:20]

**[Robert Garry]**

*[thread - ID: 2021-02-08 13:09:22]*

@Robert Garry I think they meant ■- but close enough!

[2021-02-08 15:17:44]

**[Robert Garry]**

*[thread - ID: 2021-02-08 13:09:22]*

@Robert Garry And of course they never quite look like their pictures...

[2021-02-08 16:00:55]

**[Kristian Andersen]**

:joy: [shared file(s): Screen Shot 2021-02-08 at 4.00.00 PM.png]

[2021-02-08 16:07:11]

**[Eddie Holmes]**

Tough choice there Kristian

[2021-02-08 16:08:23]

**[Kristian Andersen]**

Tough indeed - by rejecting his request, I might miss a chance for obtaining eternal life.

[2021-02-08 17:55:51]

**[Robert Garry]**

Don't forget your cats Kristian - Yuri will [possibly] "save" them too.:cat2:

[2021-02-09 02:16:08]

**[Eddie Holmes]**

I'm giving up watching this press conference - bloody waste of time

[2021-02-09 02:46:43]

**[Eddie Holmes]**

*[thread - ID: 2021-02-09 02:46:43]*

Will piss off Alina and crew though

[2021-02-09 03:23:12]

**[Eddie Holmes]**

[thread - ID: 2021-02-09 03:23:12]

Raccoon dogs. That's what my photos were of and what they are interested in.

[2021-02-09 04:39:37]

**[Robert Garry]**

<https://www.telegraph.co.uk/global-health/science-and-disease/coronavirus-news-vaccine-south-africa-variant-quarantine-cases/>

[2021-02-09 04:44:07]

**[Robert Garry]**

Any competent scientist that does not have a preconceived notion and takes more than a superficial look at the question will come to the same conclusion.

[2021-02-09 04:45:34]

**[Robert Garry]**

[thread - ID: 2021-02-09 03:23:12]

@Eddie Holmes IIRC raccoon dogs were one of @Eddie Holmes go to beasts from the get go.

[2021-02-09 04:54:49]

**[Robert Garry]**

[thread - ID: 2021-02-09 04:54:49]

Don't see how "frozen food" is separate from 1 or 2 - apparently to make their hosts happy. [shared file(s): image.png]

[2021-02-09 05:20:15]

**[Andrew Rambaut]**

@Robert Garry Any opinion on this: <https://pubmed.ncbi.nlm.nih.gov/33556558/>

[2021-02-09 05:47:00]

**[Robert Garry]**

Quick look - I'll look again in the office. Setting aside the phylogeography (of course) - the additional cleavage is possible. CoVs likely have more than one "fusion" peptide. There is a cysteine bond following the D614G and prior to the FCS - inbetween is one of the aforementioned putative fusion peptides.

[2021-02-09 05:52:23]

**[Andrew Rambaut]**

We have a new emerging lineage (I may have mentioned it - A.23.1 - it seems widely distributed in Africa, UAE, now Cambodia) that has Q613H P681R (and now, in the UK only, Erik). So would likely be mirroring Doug+Pooh?

[2021-02-09 06:54:50]

**[Robert Garry]**

Well Q613R showed up in the lion on the Christmas Card, so Q613H/R both adding positive charge. D614G takes away a negative charge. Something going on there for sure.

[2021-02-09 07:10:56]

**[Robert Garry]**

Following Doug is a disulfide - Disulfide isomerases are important for virus entry - see references 28 and up in this paper.

[2021-02-09 07:11:00]

**[Robert Garry]**

<https://www.mdpi.com/1999-4915/13/1/53/htm>

[2021-02-09 07:15:42]

**[Robert Garry]**

The disulfides need to be broken in some case to allow S2 (HA2, GP2 etc) to refold to the 6 helix bundle - so you can get fusion peptides and the aromatic domain WPWYIWLGFAGL in SC@ close together to mediate virus cell membrane fusion. [shared file(s): image.png]

[2021-02-09 07:18:33]

**[Robert Garry]**

Importantly you also need the protease cleavages to loosen up the structure disassociate the trimer so that the 6 helix bundle can form and the fusion peptide (S) can interact with the cell membrane. REcall that in addition to the FCS there is also the S2' site with a putative fusion peptide right next door. So I don't see why ther couldn't be another cleavage before the FCS with a fusion peptide here as well.

[2021-02-09 07:20:47]

**[Robert Garry]**

So need to show that the elastase cleavage site is used but it's not out of the question and could make some sense. There is a fusion peptide for sure between the FCS and S2' -looks like there may be one before the FCS as well.

[2021-02-09 07:22:29]

**[Robert Garry]**

I still think that the most likely thing that Doug and the Q613H/R mutants are doing is adjusting the charge there and loosening up the trimer, but no reason that they couldn't be generating a new or better cleavage site as well.

[2021-02-09 07:31:08]

**[Robert Garry]**

*[thread - ID: 2021-02-08 13:09:22]*

@Robert Garry Speaking of Cara's picture - She and Jonny both have them removed from the website - Jonny also scrubbed his weed research...

[2021-02-09 07:31:48]

**[Andrew Rambaut]**

*[thread - ID: 2021-02-08 13:09:22]*

@Robert Garry Do you think Jonny is actually involved?

[2021-02-09 07:32:54]

**[Andrew Rambaut]**

*[thread - ID: 2021-02-08 13:09:22]*

@Robert Garry [REDACTED]

[2021-02-09 07:33:19]

**[Andrew Rambaut]**

*[thread - ID: 2021-02-08 13:09:22]*

@Robert Garry shared file(s): image.png

[2021-02-09 07:33:48]

**[Andrew Rambaut]**

*[thread - ID: 2021-02-08 13:09:22]*

@Robert Garry <https://www.manta.com/c/mhq8yjsx/exosomecure-research-foundation>

[2021-02-09 07:34:07]

**[Andrew Rambaut]**

*[thread - ID: 2021-02-08 13:09:22]*

@Robert Garry So could have all been harvested off the web, I guess.

[2021-02-09 07:34:25]

**[Robert Garry]**

[thread - ID: 2021-02-08 13:09:22]

@Robert Garry IT wouldn't surprise me. The China invites do look a bit shady and Jonny has Shady written all over him.

[2021-02-09 07:34:51]

**[Andrew Rambaut]**

[thread - ID: 2021-02-08 13:09:22]

@Robert Garry <https://www.nevada-register.com/1443669-exosomecure-research-foundation>

[2021-02-09 07:37:22]

**[Robert Garry]**

[thread - ID: 2021-02-08 13:09:22]

@Robert Garry Course maybe Jonny is just interested in that NSP6 deletion? Exosomes, autophagosomes et c  
<https://pubmed.ncbi.nlm.nih.gov/21799305/>

[2021-02-09 07:46:53]

**[Robert Garry]**

<https://www.cnet.com/news/who-investigation-into-covid-19-says-lab-origin-extremely-unlikely/>

[2021-02-09 09:40:01]

**[Robert Garry]**

I hate to link to this crap, but Yuri and friends wrote a paper: [shared file(s): 2102.03910.pdf]

[2021-02-09 10:15:30]

**[Robert Garry]**

[thread - ID: 2021-02-09 02:46:43]

@Eddie Holmes Mark them as pissed - and typical Alina it's all about the bribes to reporters etc. [shared file(s): image.png]

[2021-02-09 10:28:34]

**[Robert Garry]**

[thread - ID: 2021-02-09 04:54:49]

@Robert Garry @Peterfoodsafety is the lead from WHO so I guess I just answered my own question about the frozen fish...

[2021-02-09 11:01:20]

**[Robert Garry]**

My expectations were low. It's actually worse than you might expect.

[2021-02-09 11:27:02]

**[Eddie Holmes]**

Thinking how angry they must be this morning really warms my heart. It's pretty great that the WHO have said that the lab escape idea is not worth further discussion.

[2021-02-09 11:44:59]

**[Robert Garry]**

Yes - a bad day for Alina and the DRASTIC krewe. The frozen food thing is weak and looks like a concession to the Chinese. Other than that OK - Hard to listen to the video....

[2021-02-09 12:01:33]

**[Eddie Holmes]**

Totally agree about the frozen food thing - must be a concession. That and the Thai study is a heavy blow. I'm particularly pleased by the pangolin results. Bob - I couldn't access the Google Doc as I don't have permission.

[2021-02-09 12:02:36]

**[Robert Garry]**

Lin-Fa's paper is out. <https://www.nature.com/articles/s41467-021-21240-1>

[2021-02-09 12:02:41]

**[Robert Garry]**

[https://docs.google.com/document/d/17-2hi7-fNsjE44himeCkm1PoZ7\\_-ncvpxUIhShZzDCU/edit?usp=sharing](https://docs.google.com/document/d/17-2hi7-fNsjE44himeCkm1PoZ7_-ncvpxUIhShZzDCU/edit?usp=sharing)

[2021-02-09 12:02:57]

**[Robert Garry]**

It says anyone with this link can access the paper..

[2021-02-09 12:07:14]

**[Robert Garry]**

I think I have both your gmail and .edu emails as editors. But Kristian is right - sometimes tech uses me instead of the other way around...

[2021-02-09 12:08:52]

**[Robert Garry]**

Have at it - nothing written in stone - I do think there are some relevant things to add in a timely way to the WHO report including the impact of the Thai and other viruses...

[2021-02-09 12:13:17]

**[Eddie Holmes]**

Yes, Linfa's paper is another blow to the lab escape looms

[2021-02-09 12:15:22]

**[Eddie Holmes]**

Loons as well

[2021-02-09 12:18:03]

**[Robert Garry]**

The WHO guy is @PeterFoodSafety so I think he might be carrying some strong priors.

[2021-02-09 12:24:32]

**[Eddie Holmes]**

Good point

[2021-02-09 12:28:15]

**[Robert Garry]**

They are clear though - Lab Escape is "extremely Unlikely."

[2021-02-09 12:42:53]

**[Eddie Holmes]**

:clinking\_glasses:

[2021-02-09 12:43:45]

**[Robert Garry]**

Does the link work for you now Eddie?

[2021-02-09 12:56:56]

**[Eddie Holmes]**

It does! Thanks Bob!

[2021-02-09 12:58:36]

**[Robert Garry]**



Thank you Eddie - I don't think any of Cambo, Thai and Japan bat papers quite link everything together. Needs to be done...

[2021-02-09 13:00:09]

**[Eddie Holmes]**

I agree.

[2021-02-09 16:20:15]

**[Robert Garry]**

[https://www.washingtonpost.com/world/asia\\_pacific/coronavirus-who-china-investigation-wu\[...\]021/02/09/2af3c44c-6a79-11eb-a66e-e27046e9e898\\_story.html](https://www.washingtonpost.com/world/asia_pacific/coronavirus-who-china-investigation-wu[...]021/02/09/2af3c44c-6a79-11eb-a66e-e27046e9e898_story.html) "Just saying that they have really good safety protocols is not an answer in my view," said Marc Lipsitch, a professor of epidemiology at Harvard's T.H. Chan School of Public Health, who was not among the scientists on the trip. "That alone does not put my mind at rest." "If the only information you're allowing to be weighed is provided by the very people who have everything to lose by revealing such evidence, that just doesn't come close to passing the sniff test," said David A. Relman, a microbiologist at Stanford University. "Raina MacIntyre, professor of biosecurity at the University of New South Wales in Australia, was also surprised to see the idea of a lab accident ruled out so quickly."

[2021-02-09 16:35:32]

**[Eddie Holmes]**

Rubbish reporting! (i) comments only from side; (ii) no reference to the full evidence that will be provided in the report. Just let the anti-GoF people talk why don't you.

[2021-02-09 17:18:34]

**[Robert Garry]**

Pushback coming but that's expected- I'm guessing Raina who is quoted in the WashPost might not be too happy I called these conspiracy theories on 60 minutes Australia she's also in.

[2021-02-09 17:29:52]

**[Eddie Holmes]**

She's a rent-a-gob. Pisses off everyone

[2021-02-10 04:46:43]

**[Robert Garry]**

[https://www.youtube.com/watch?v=HI9nqcgD3ow&feature=emb\\_logo](https://www.youtube.com/watch?v=HI9nqcgD3ow&feature=emb_logo) Maybe not surprising but most of the coverage is saying it still leaked from WIV - this BBC is about as "fair and balanced" as it gets.

[2021-02-10 06:21:15]

**[Robert Garry]**

And then there is this: "And \*even Kristian Andersen\*, a prominent US professor of immunology and microbiology who is dismissive of lab leak theories, said he does not find the data linking the virus to frozen foods to be "credible". <https://unherd.com/2021/02/the-whos-covid-shame/>

[2021-02-10 07:38:00]

**[Robert Garry]**

<https://www.youtube.com/watch?v=ZK8iyaGAg7g> A 28 year record

[2021-02-10 07:39:38]

**[Robert Garry]**

Raina says WHO has to keep its membership happy.

[2021-02-10 07:41:31]

**[Robert Garry]**

If you listen to the end you find that her dog is not happy...

[2021-02-10 08:11:55]

**[Robert Garry]**

IN other news: <https://www.wired.co.uk/article/chronic-infection-uk-coronavirus-variant>. This part I LIKED!\*S\*ars-CoV-2 may be the most surveilled virus in history. In the 13 months since virologists Zhang Yongzhen and Edward Holmes published the entire genome of the virus, more than 360,000 Sars-Cov-2 genomes have been sequenced and uploaded to GISAID – a platform for sharing viral genomes. Almost half of those genomes came from the UK, which sequences roughly ten per cent of all its positive Covid-19 tests, making the country a canary in the coal mine for detecting new variants.

[2021-02-10 09:56:28]

**[Robert Garry]**

Jesse, jesse jesse...Jesse Bloom, a virologist at the Fred Hutchinson Cancer Research Center, was "surprised to see some members of the team dismiss the accidental lab leak theory while seeming to suggest, without any specific evidence, the possibility that frozen food might have played a role."

"I remain agnostic about the origins of SARS-CoV-2," said Bloom, referring to the official name of the virus. "But it's important to have a careful independent accounting of the research into SARS-related coronaviruses that was being done in labs in Wuhan before the emergence of this pandemic, and it doesn't appear that this team accomplished that," Bloom said. [https://www.washingtonpost.com/world/asia\\_pacific/coronavirus-china-who-wuhan-pandemic/2021/02/10/f1751148-6b41-11eb-a66e-e27046e9e898\\_story.html](https://www.washingtonpost.com/world/asia_pacific/coronavirus-china-who-wuhan-pandemic/2021/02/10/f1751148-6b41-11eb-a66e-e27046e9e898_story.html) WashPost - the new Fair and Balanced,,,

[2021-02-10 12:22:19]

**[Eddie Holmes]**

It was always going to be a mix of science and diplomacy. However, it is so much worse because of the presence of Daszak on the team. I've no idea what the WHO were thinking on that one.

[2021-02-10 12:32:31]

**[Robert Garry]**

Exactly, not certain that the brain engages before every word come out of the Grand Wizard's mouth.

[2021-02-10 14:13:13]

**[Robert Garry]**

<https://www.nature.com/articles/d41586-021-00375-7> "Scientists say the WHO team's advice to broaden the search for the virus origin beyond China is justified, especially given f\*resh reports of coronaviruses closely related to SARS-CoV-2 found in bats in Japan, Cambodia and Thailand."\*

[2021-02-10 14:16:23]

**[Robert Garry]**

<https://www.msn.com/en-us/news/us/state-department-who-expert-clash-on-coronavirus-origin-investigation/ar-BB1dzAG7>"But WHO expert Peter Daszak later pushed back on the statement, saying that President Joe Biden "has to look tough on China."

"Please don't rely too much on US intel: increasingly disengaged under Trump & frankly wrong on many aspects," Daszak tweeted.

He continued: "I'm disappointed that a statement came out that might undermine the veracity of this work even before the report is released. Again – as the sole US citizen on this team, I'm happy to talk w/ White House re findings of @WHO mission."

[2021-02-10 14:31:34]

**[Eddie Holmes]**

Interesting comments from Linfa. The state department have nothing, clearly. Posturing.

[2021-02-10 15:12:27]

**[Robert Garry]**

Agree state department in a tough spot so they are indeed posturing. Dazak - if I may be so bold - is way out of his lane and in danger of further damaging the WHO effort, which was far from perfect. Here he writes, "Please don't rely too much on US intel: increasingly disengaged under Trump & frankly wrong on many aspects," Daszak tweeted." I do not believe that Daszak is an expert on US Intelligence [any form of intelligence?]. As for Lin-fa I'd like to know where else his ACE2BOB assay is taking him....no mention of it in the WHO Briefing.

[2021-02-10 15:19:04]

**[Robert Garry]**

I think Lin-Fa's on to something too...

[2021-02-10 17:32:39]

**[Kristian Andersen]**

In case y'all wondering why I'm so quiet - this was my lunch spot today.

Fret not, I'll be back rambling next week... [shared file(s): Image from iOS.jpg]

[2021-02-10 18:18:36]

**[Eddie Holmes]**

*[thread - ID: 2021-02-10 18:18:36]*

Yuri will be missing you

[2021-02-10 18:27:24]

**[Robert Garry]**

Awesome - brings back memories of the Am Soc Virol mtgs always held near one of the National Parks - my girls and I always did 3 weeks in the summer around the ASV mtgs.

[2021-02-10 18:31:26]

**[Robert Garry]**

*[thread - ID: 2021-02-10 18:18:36]*

@Eddie Holmes Yuri, Alina and the other Drastic :clown\_face:s licking their wounds. Problem with the WHO presser is not much science - the Cambo, Thai and Japan bat virus are a opportunity to counter some of the conspiracy theories with science.

[2021-02-10 18:55:52]

**[Kristian Andersen]**

To Jesse's point - it's worth pointing out that "remaining agnostic" doesn't actually entail a 50/50 split of lab vs nature, but rather involves looking at data. He has not.

[2021-02-10 19:23:25]

**[Robert Garry]**

Important point - the lab link proponents or "agnostics" have either not looked closely at the data or looked and did not have the background to comprehend.

[2021-02-10 19:24:33]

**[Robert Garry]**

Or they were weighed down some heavily by their prior assumptions that no amt of info would change their view.

[2021-02-10 19:40:24]

**[Eddie Holmes]**

*[thread - ID: 2021-02-10 18:18:36]*

@Eddie Holmes Totally agree. Stick to the science.

[2021-02-10 19:40:57]

**[Eddie Holmes]**

*[thread - ID: 2021-02-10 19:40:57]*

Agreed. Hopefully I'll get a debrief from Dominic soon.

[2021-02-10 21:29:24]

**[Eddie Holmes]**

@Robert Garry I spoke too soon...sorry. I can see the doc but I don't have edit access. Sorry.

[2021-02-11 06:35:43]

[Robert Garry]

[https://docs.google.com/document/d/1pYh8dkuNi\\_tAVxw5CdYJRN-KRdkb5EvmrQwNEXDM7mM/edit](https://docs.google.com/document/d/1pYh8dkuNi_tAVxw5CdYJRN-KRdkb5EvmrQwNEXDM7mM/edit) New doc/new invites - maybe some luck...

[2021-02-11 06:46:24]

[Robert Garry]

[thread - ID: 2021-02-10 19:40:57]

@Eddie Holmes Would be good - he'd doing a fine job under difficult circumstances. Daszak seems to like to stir the pot....mixing in too much Ego \*hey he says - I'll talk to Biden set him straight).

[2021-02-11 06:50:39]

[Robert Garry]

[thread - ID: 2021-02-10 19:40:57]

@Eddie Holmes Agree with DD that it would have been good to have more epi data about early cases. Seems like an opportunity lost - but I sorta get it. If they came out and said no epi links of early cases to WIV, then the conspiracy theorists will just cry cover-up. And, any case within 100 km of WIV is going to be taken as conclusive evidence for the leak in the literal sense.

[2021-02-11 07:00:58]

[Robert Garry]

[thread - ID: 2021-02-10 19:40:57]

@Eddie Holmes Hoping to see the argument fleshed out that there is no evidence that WIV had and was working on SC2 or a 99%+ CoV before the outbreak. Logically there no reason that they would have not revealed this, and instead released the 96% CoV RaTG13.

[2021-02-11 07:03:22]

[Robert Garry]

[thread - ID: 2021-02-10 19:40:57]

@Eddie Holmes Also - and we can prompt this on Virological (if Bob can figure out proper invites on Google docs) that the new Cambo, Thai and Japan viruses totally obliterate the DRASTIC/Alina nonsense that RaTG13, RmYN)2 and the pango viruses are contrived.

[2021-02-11 07:48:17]

[Robert Garry]

Here are the permissions on the new doc.... [shared file(s): image.png]

[2021-02-11 08:16:13]

[Kristian Andersen]

Thanks Bob - hopefully I can find some time to take a look next week as well.

[2021-02-11 08:49:48]

[Robert Garry]

Worth reading :[https://www.wsj.com/articles/possible-early-covid-19-cases-in-china-emerge-during-who-mission-11612996225?mod=hp\\_lead\\_pos2](https://www.wsj.com/articles/possible-early-covid-19-cases-in-china-emerge-during-who-mission-11612996225?mod=hp_lead_pos2)

[2021-02-11 09:20:00]

[Robert Garry]

[https://www.who.int/director-general/speeches/detail/who-director-general-s-openin\[...\]ks-at-the-member-states-briefing-on-covid-19---11-february-2021](https://www.who.int/director-general/speeches/detail/who-director-general-s-openin[...]ks-at-the-member-states-briefing-on-covid-19---11-february-2021) Not over til it's over: " Some questions have been raised as to whether some hypotheses have been discarded.

I want to clarify that all hypotheses remain open and require further study."

[2021-02-11 11:57:19]

[Robert Garry]

Any luck with the new link Eddie? Kristian may have to do a tech rescue. It possible you might need to log into google I guess.

[2021-02-11 12:36:04]

**[Eddie Holmes]**

Sorry Bob, I still don't have edit access. I can only view.

[2021-02-11 12:38:13]

**[Robert Garry]**

try it now I reversed you gmail holmes.eddie now gave invite.

[2021-02-11 12:40:17]

**[Eddie Holmes]**

Got it now Bob. All good. I'll try to go over this later today.

[2021-02-11 12:41:42]

**[Robert Garry]**

GREAT nothing cast in stone of course - just looking to consolidate the good science and correct some bad science that's out there...

[2021-02-11 13:27:47]

**[Kristian Andersen]**

Bob - do you have a pdf of the WSJ article?

[2021-02-11 13:35:59]

**[Robert Garry]**

here you go [shared file(s): Possible Early Covid-19 Cases in China Emerge During WHO Mission - WSJ.pdf]

[2021-02-11 13:52:26]

**[Eddie Holmes]**

Not sure if this is something or nothing. I'll need to have a chat with Dominic.

[2021-02-11 14:01:07]

**[Andrew Rambaut]**

Need the ages. Also why don't they have a hell of a lot more in December? 80 in Oct/Nov would mean 100s in Dec.

[2021-02-11 14:19:03]

**[Robert Garry]**

Agree - also agree with this: "Marion Koopmans, a Dutch virologist on the WHO team, echoed that concern. "From what we know about serology, out of 92 cases you would at least have some positives," she said." She right - if they were doing the tests right there would be some positives. What about that Italian 4 year old with the supposed positive pcr - they could test his blood for antibodies. Almost inconceivable they didn't.

[2021-02-11 15:14:43]

**[Robert Garry]**

<https://www.vanityfair.com/news/2021/02/behind-the-scenes-of-donald-mcneils-new-york-times-exit>

[2021-02-11 16:12:20]

**[Eddie Holmes]**

Was he really that important for COVID or is that his self-created myth?

[2021-02-11 17:08:07]

**[Kristian Andersen]**

WSJ News Exclusive - Possible Early Covid-19 Cases in China Emerge During WHO Mission!

... wait, we investigated and actually those weren't early COVID-19 cases. But fuck it, we already wrote the article,

so here we go. :man-facepalming:

[2021-02-11 17:14:00]

**[Eddie Holmes]**

The reporting on the WHO mission has been largely shit.

[2021-02-11 17:27:23]

**[Kristian Andersen]**

WaPo kinda started the shit slide - but they have been shit about it for quite sometime. Same with WSJ.

[2021-02-11 18:13:09]

**[Robert Garry]**

WSJ started it when they published the Chan/Ridley BS. Expected them to take the Trump/China virus line. Yes - WashPost shit editorial opened the shit floodgates. The rest is a mish mash of AntiCCP, antiGOF anti GMO, antiscience agitators.

[2021-02-11 18:15:43]

**[Robert Garry]**

Also antianimal research, antiBSL work, and so forth...

[2021-02-11 18:16:20]

**[Robert Garry]**

It's a pretty toxic gumbo...

[2021-02-11 18:21:32]

**[Eddie Holmes]**

Amy Maxmen tweeted this which is great: [shared file(s): Et97R90VcAEGPDX.jpg]

[2021-02-11 18:22:21]

**[Eddie Holmes]**

A lot of this does seem to be a hangover from the GOF debate of 2012 with added CCP sauce.

[2021-02-12 01:07:27]

**[Eddie Holmes]**

Bob, I've had a go at the text. Love it! It's going to send the tinfoil hats into a mouth-frothing frenzy! You and I can keep editing over the next few days if you like. Great stuff.

[2021-02-12 01:13:09]

**[Andrew Rambaut]**

I will be able to dive in over the weekend.

[2021-02-12 04:52:12]

**[Robert Garry]**

Thanks Eddie and Andrew! Excellent points by Eddie in the comments so far - agree with every one of them - let's tighten up the vague bits. Look forward to hearing from Andrew, who wil recognise a lot of his text from channel above. @Kristian Andersen is good at direct language so can help with the bits that need that.

[2021-02-12 08:02:25]

**[Kristian Andersen]**

What is up with that nsp6 deletion? Curious....

@Andrew Rambaut how's L452R growing in the UK?

[2021-02-12 08:10:54]

**[Andrew Rambaut]**

[thread - ID: 2021-02-12 08:10:54]

That nsp6 is cropping up a lot, isn't it. The B.1.525 I posted this morning has E484K and all three of the lineage defining B.1.1.7 deletions (plus Q677H - i.e. adjacent to FCS - possibly affects the O-linked glycs?).

[2021-02-12 08:15:26]

**[Kristian Andersen]**

No coincidence that's for sure

[2021-02-12 08:17:11]

**[Andrew Rambaut]**

No. We are working on a project trying to define the convergent peak for all this. I would love you all's input once we have put the guts together.

[2021-02-12 08:22:14]

**[Kristian Andersen]**

It's definitely interesting - and I can't quite figure out what's going on here. Is it selection driving the same deletions? Or do we have some homology among these sites in general, and then during a chronic infection they're more likely to be cut out because of polymerase slippage, recombination, etc? When not deleted, how conserved are these sites in nucleotide space?

Lots of interesting questions here - I definitely think they warrant a very close look since something is definitely going on.

[2021-02-12 12:34:44]

**[Eddie Holmes]**

*[thread - ID: 2021-02-12 12:34:44]*

<https://www.washingtonpost.com/technology/2021/02/12/china-covid-misinformation-li-meng-yan/> "Even now, she is preparing another paper, nearing 30 pages, that she hopes will refute her critics and bring fresh attention to her claims about China, covid-19 and what she says is an international coverup campaign." That's us.

[2021-02-12 12:35:03]

**[Robert Garry]**

A couple of factors from my corner. Most of the mutations are in loops (not beta sheets not helixes) which tend to be variable across all viral glycoproteins. The core amino acids form a scaffold in virion (prefusion form) and postfusion forms that are more or less constant. The NTD and CTD also have a core structure that is more or less constant. Chronic infection is a rather special case as then immune selection/escape is going to play a more important role, if not the key role. Even a less "fit" virus might be selected under immune pressure if it can escape the immune response. However, transmission between two nonimmune humans is another thing. It's possible an immune escape could play a role (for ex: secretory IgA in respiratory secretions of the donor) but not clear. More likely for transmission it's mostly about virus loads or fitness to replicate in the URT. So a lot of mutations could impact that - ones that make the virus adsorb better (like in the NTD) or bind to receptors in the RBD better (Nelly, Erik) or infect better P681H/R come to mind. But mutations in virus regulatory factors like NSP6 could also contribute. I'm actually a little surprised that there are not more transcriptase or other "run of the mill" replication competence mutations. The calculus for transmission changes again in humans with immunity - then it's likely to be more even mostly about immune escape, but you are not likely to select for less fit viruses in this case.

[2021-02-12 12:40:25]

**[Robert Garry]**

*[thread - ID: 2021-02-12 12:34:44]*

@Eddie Holmes One fact check: "Yan's paper on Zenodo — despite several blistering scientific critiques and widespread news coverage of its alleged flaws — now has been viewed more than \*1 million times\*, probably making it the most widely read research on the origins of the coronavirus pandemic, according to the Harvard misinformation researchers." \*Only 1 M seems kinda paltry.\*

[2021-02-12 12:41:25]

**[Eddie Holmes]**

*[thread - ID: 2021-02-12 12:34:44]*

@Eddie Holmes Not even close!



[2021-02-13 06:18:32]

**[Robert Garry]**

Just to add that viruses obviously do a lot of things to enhance replication besides just better adsorption, binding and fusion, including inhibiting interferon  
<https://journals.plos.org/plospathogens/article?id=10.1371/journal.ppat.1008737> . This is where nsp6 might come in too  
[https://www.cell.com/cell-reports/pdfExtended/S2211-1247\(20\)31223-7](https://www.cell.com/cell-reports/pdfExtended/S2211-1247(20)31223-7) nsp6 also inhibits autophagy  
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4203519/> which could enhance replication by preventing degradation of its sometimes weird proteins. Why that particular 9 nucleotide deletion in nsp6 keeps popping is not clear - but it's an important clue - it fits the pattern of being in an external loop.

[2021-02-13 06:56:31]

**[Robert Garry]**

*[thread - ID: 2021-02-10 19:40:57]*

@Eddie Holmes [https://www.reuters.com/article/us-health-coronavirus-who-china/china-refused-to-pro\[...\]raw-data-on-early-covid-cases-team-member-says-idUSKBN2AD090](https://www.reuters.com/article/us-health-coronavirus-who-china/china-refused-to-pro[...]raw-data-on-early-covid-cases-team-member-says-idUSKBN2AD090) One thing the investigation solidified is that the Grand Wizard is a tool - first "snapping" at Biden admin (who just said we want to look at the data) and now apparently dissing DD and others on the "team." Just spits out the first thing that pops into his mind...

[2021-02-13 07:02:03]

**[Robert Garry]**

*[thread - ID: 2021-02-10 19:40:57]*

@Eddie Holmes As for DRASTIC, it seem their main spokes-monkey (aka Kevin) has gone private. The WHO report must have them rattled. [shared file(s): image.png]

[2021-02-13 07:45:48]

**[Robert Garry]**

*[thread - ID: 2021-02-12 08:10:54]*

@Andrew Rambaut Very good thought! doesn't affect the O-linked prediction however.

[2021-02-13 12:09:28]

**[Robert Garry]**

[https://www.reuters.com/article/us-health-coronavirus-usa/white-house-cites-deep-con\[...\]o-covid-19-report-demand-s-early-data-from-china-idUSKBN2AD0FX](https://www.reuters.com/article/us-health-coronavirus-usa/white-house-cites-deep-con[...]o-covid-19-report-demand-s-early-data-from-china-idUSKBN2AD0FX)

[2021-02-13 14:55:43]

**[Eddie Holmes]**

The phoney war is in full swing. I've chatting to my mate from CNN this morning. He's been talking to the WHO team and they seem to have evidence of a lot of early cases in Wuhan. Apparently, there are also 1000s of blood bank sample that have not been tested. He reckons that the WHO won't be allowed back.

[2021-02-13 17:53:24]

**[Robert Garry]**

DD is doing as good as he can (impressed actually). On the other hand Daszak is just a disaster. Yes the early case thing (not to mention the frozen food concession) is not playing well. Will have to get really lucky with blood as there is not much SC2 there. Some non infectious, but it's going to be low, high Ct at best.. That awful CDC paper [and other] notwithstanding there is a lot of CROSS-REACTIVITY with seasonal CoVs {good paper in this week's Cell} so serology is going to be dicey at best. Yes - what you need to find - and you could get lucky - is a bunch of sera that binds multiple SC2 proteins and is neutralizing. Science has to lead us out of the Phoney War (TM) (well put!). I think the cambo, thai and bat post is really need next week. Eddie you did a masterful job sorting out the weak points!

[2021-02-13 17:58:13]

**[Robert Garry]**

Real COVID-19 is not too hard to spot serologically - but with caveats - high correlation btwn rxty to Nucleoprotein, RBD and S2 PLUS neutralization. Caveat: you will get something like this in the very rare person with al lot of seasonal CoV infections.



[2021-02-13 19:09:46]

**[Eddie Holmes]**

Good points about the serology. Dominic is a really good guy. Totally straight. everything that Daszak says sounds like spin. The paper is coming on nicely!

[2021-02-14 07:15:31]

**[Kristian Andersen]**

13 additional sequences from December?

<https://amp.cnn.com/cnn/2021/02/14/health/who-mission-china-intl/index.html>

[2021-02-14 07:41:32]

**[Robert Garry]**

Good quotes Eddie!

[2021-02-14 07:43:17]

**[Andrew Rambaut]**

Lets not forget that Imperial estimated 400-2000 (or thereabouts) at the beginning of January based on the exports. I am sure they were right.

[2021-02-14 08:07:59]

**[Robert Garry]**

<https://www.sciencemag.org/news/2021/02/politics-was-always-room-who-mission-chief-reflects-china-trip-seeking-covid-19-s> Ben Embarek defended the much-debated press conference, \*explained why the lab escape hypothesis has in fact not been ruled out,\* and summarized what was learned about when, where, and how SARS-CoV-2 first infected humans. Questions and answers have been edited for brevity and clarity.

[2021-02-14 08:11:19]

**[Robert Garry]**

\*"Q: So it will be investigated further, just not by you and your team?"

\*A:\* It's not something we're going to pursue in the coming weeks and months. But our assessment is out there, and the topic is on the table. This is to me a big achievement, because for the past year it was \*Mission Impossible\* to even discuss it or even put it on the table or on the agenda of any meeting or discussion". Where have I heard this before?

[2021-02-14 09:26:29]

**[Kristian Andersen]**

Superb Q&A!

[2021-02-14 10:38:35]

**[Robert Garry]**

When Embarek says to "even discuss it or even put it on the table or on the agenda of any meeting or discussion" was a \*Mission Impossible,\* I strongly suspect that it was not just the Chinese that were pushing back, but members of his own team. We correctly determined to include it in PO1 against the advice of at least one reviewer. Extremely unlikely sums it up \*bordering\* on impossible. As @Andrew Rambaut said above the only possibility is that WIV et al. had SC2 itself or the immediate progenitor. To say this is to say they are pulling off the greatest conspiracy/cover-up in history.

[2021-02-14 10:44:58]

**[Kristian Andersen]**

I already have the tinfoil hats swooping in - I missed them. [shared file(s): Screen Shot 2021-02-14 at 10.44.17 AM.png]

[2021-02-14 10:54:22]

**[Robert Garry]**

[thread - ID: 2021-02-14 10:54:22]

Well done @Kristian Andersen - !channel let's hit them with some hard science with the cambobot post. Eddie nearly has it cleaned up nicely...

[2021-02-14 11:14:12]

**[Kristian Andersen]**

*[thread - ID: 2021-02-14 11:14:12]*

@Eddie Holmes - do you know if this particular email will be made public as part of your FOIA? It reflects well where we stood early in our research. [shared file(s): Screen Shot 2021-02-14 at 11.12.37 AM.png]

[2021-02-14 11:28:20]

**[Eddie Holmes]**

*[thread - ID: 2021-02-14 11:14:12]*

No. The FOI request wanted emails related to the papers. As this is before the paper I didn't include it. But we could of course release it ourselves if necessary.

[2021-02-14 11:40:30]

**[Kristian Andersen]**

*[thread - ID: 2021-02-14 11:14:12]*

@Kristian Andersen Ah, okay. I'll leave this under wraps for now - but once we have the list of emails to be released, we might want to put out a few of them with some context. They'll be noticed, no doubt.

[2021-02-14 11:43:00]

**[Eddie Holmes]**

*[thread - ID: 2021-02-14 11:14:12]*

Agreed. There's a few that I can also release.

[2021-02-14 11:58:37]

**[Kristian Andersen]**

Very interesting figure! [shared file(s): EuNejqhXcAUjMGC.jpeg]

[2021-02-14 11:59:43]

**[Kristian Andersen]**

What's wild - two doses of Pfizer leads to greater neutralization against SARS-CoV than B.1.351 according to this figure. That's wild.\

[2021-02-14 12:00:50]

**[Kristian Andersen]**

And IMO - highly suggestive of lower overall antigenicity of B.1.351 - i.e., a more general mechanism of (Ab-mediated) immune evasion.

[2021-02-14 12:13:27]

**[Robert Garry]**

Kind of surprising to me -P1 takes a hit, but B.1.351 is bad. Does it suggest that the B.1.351 NTD mutations D80A [DorA?). D215G (DouG, Jr?),R246I (RidhI?) may be more problematic than Erik????

[2021-02-14 12:15:36]

**[Kristian Andersen]**

Yeah, I was really surprised by that difference as well - I thought they'd be about equal. Need to see the preprint itself so we can see the actual mutations

[2021-02-14 12:15:59]

**[Kristian Andersen]**

And B.1.351 is just dead dead - it's pretty scary.

[2021-02-14 12:37:23]

**[Robert Garry]**

Note that all of those mutations D80A [DorA?]. D215G (DouG, Jr?), R246I (RidhI?) remove a charge (aspartic acid or arginine) - if you scroll back to initial discussions of Doug you'll see references that similar D mutations have characterized flu mutations in the past.

[2021-02-14 12:47:56]

**[Eddie Holmes]**

[thread - ID: 2021-02-14 10:54:22]

Yes, this is coming along nicely. Great work Bob. Let's try and get this sent this week if we can. It's coming along nicely.

[2021-02-14 12:54:01]

**[Robert Garry]**

Will do!

[2021-02-14 13:30:05]

**[Andrew Rambaut]**

[thread - ID: 2021-02-14 11:14:12]

@Kristian Andersen yeah better to seem to release them as the result of an FOI

[2021-02-14 13:30:51]

**[Kristian Andersen]**

[thread - ID: 2021-02-14 11:14:12]

@Kristian Andersen Should I maybe release that one, redacting Mike's name? I'm kinda tempted...

[2021-02-14 13:32:10]

**[Eddie Holmes]**

[thread - ID: 2021-02-14 11:14:12]

@Kristian Andersen Let's see how this transpires. It's possible that USYD will reject the request. It's a long process.

[2021-02-14 13:57:33]

**[Kristian Andersen]**

I'm such an arrogant twat, but this kind of bullshit really needs to be countered - being an idiot doesn't prove that SARS-CoV-2 came from the lab. Matt and Alina - the perfect couple. [shared file(s): Screen Shot 2021-02-14 at 1.55.48 PM.png]

[2021-02-14 14:07:10]

**[Eddie Holmes]**

He's always been a total arse.

[2021-02-14 14:07:42]

**[Eddie Holmes]**

I blocked him a while ago.

[2021-02-15 00:06:47]

**[Eddie Holmes]**

Matt has form: <https://www.prospectmagazine.co.uk/magazine/theoriginofaids>

[2021-02-15 00:08:21]

**[Eddie Holmes]**

<http://www.aidsorigins.com/daily-telegraph-review/>

[2021-02-15 01:41:51]

**[Eddie Holmes]**

More from my mate at CNN re lab escape: "I've bugged spooks on this for 8 months and they - who would love to pin it in China - don't seem to buy it (certainly in a way they could share).... so it's going to need some actual weight isn't it."

[2021-02-15 05:05:03]

**[Robert Garry]**

not helpful [shared file(s): image.png]

[2021-02-15 10:45:16]

**[Robert Garry]**

<https://www.wsj.com/articles/who-are-the-covid-investigators-11613401955>

[2021-02-15 10:50:27]

**[Robert Garry]**

People like Matt Ridley, Ebright, Filipa (alina's buddy), Lipstich etc have a long history of railing against human caused outbreaks or antiGOF research. Is this a Col?

[2021-02-15 11:31:20]

**[Eddie Holmes]**

Exactly. That WSJ article is predictably crap.

[2021-02-15 11:59:24]

**[Robert Garry]**

[https://docs.google.com/document/d/1pYh8dkuNi\\_tAVxw5CdYJRN-KRdkb5EvmrQwNEXDM7mM/edit!channel](https://docs.google.com/document/d/1pYh8dkuNi_tAVxw5CdYJRN-KRdkb5EvmrQwNEXDM7mM/edit!channel)  
Incorporated or responded to most all of Eddie's spot-on edits and I've updated the figures. Almost ready to go (?), but needs one or so Eddie references and a look thru by Andrew and Kristian. Also suggested an author order here - however, putting @Kristian Andersen first would get the most pings...:grin: Timing good this week I believe.

[2021-02-15 12:08:53]

**[Robert Garry]**

<https://www.youtube.com/watch?t=723&v=BhLAZKYwFh8&feature=youtu.be> :exploding\_head:

[2021-02-15 12:25:32]

**[Kristian Andersen]**

Hey Bob - hoping to take a look at the manuscript later in the week - but sooooo many papers right now that require my attention. Need to get revisions to our B.1.1.7 paper turned around and then I'll take a look at this one next :wink:

[2021-02-15 17:21:38]

**[Eddie Holmes]**

I made a few more edits Bob - looks grand.

[2021-02-15 17:54:45]

**[Robert Garry]**

Thanks much - yes excellent - great edits Eddie and Andrew - when Kristian gets a chance to sign off and Andrew says yes I'll post!

[2021-02-16 02:09:08]

**[Andrew Rambaut]**

Hi all - I would like to go over this a before posting - will aim to do that this morning. I feel we should get the tone and language exactly right - we are aiming at the supposedly sensible people who may be have false equivalency of the different hypotheses. I think are definitely not trying to have an argument with Drastic - just show how dumb they are.

[2021-02-16 05:35:20]

**[Robert Garry]**

All so true Andrew! And, to add that the other goal would be - per @Andrew Rambaut above - to paint the tinfoil hat crowd into a corner. Dismiss with science of the new Cambo, Thai and Japan covs all the nonsense about recombining RaTG13 and pango Covs, passage in cell culture, seamless engineering and get it down to someone had to have had \*prior to the outbreak\* either SC2 itself or its immediate progenitor with this new SC2-like RBD plus either the QTQNS or NSPAX/-R at the FCS. Yes indeed the target is sensible people, so tone and language important.`

[2021-02-16 07:29:29]

**[Andrew Rambaut]**

Sorry about this Bob but I am not too fond of the current structure of the piece - the intro is brief, the results technical and then the lab origins stuff is sprung in the discussion and dominates. The different bits of the discussion are addressing different points made by lab-origins people without making them explicit - i.e., is mainly done as rebuttals. Is there really anything to say on this other than a very close progenitor virus would need to exist in the lab and there are very good reasons to believe it didn't.

[2021-02-16 07:36:35]

**[Andrew Rambaut]**

This could be a hypothesis by hypothesis rebuttal of the lab-origins (i.e., from the strongest, complete engineering, through modification, through passaging and finally down to just culturing and accidental escape). Or it could be a description of the new genomes and what they mean for natural origins. But at the moment it is not clear to me how the 'results' section actually fits with the 'discussion' section.

[2021-02-16 07:50:56]

**[Robert Garry]**

I see your point! "Description of the new genomes and what they mean for natural origins" is the better course. Fitting the results with discussion definitely can be improved...

[2021-02-16 14:15:21]

**[Robert Garry]**

*[thread - ID: 2021-02-16 14:15:21]*

I think this is literally some form of insanity - she wants people to stop doing pathogen research. [shared file(s): image.png]

[2021-02-16 14:36:00]

**[Robert Garry]**

I've cut out the hypothesis rebuttal parts (or rather moved them to comments). Now more focused on the new genomes and what they mean for natural origins. Will remove the tinfoil hat references if this version is more effective.

[2021-02-16 15:01:44]

**[Robert Garry]**

<https://www.minervanett.no/corona/the-most-logical-explanation-is-that-it-comes-from-a-laboratory/361860>

[2021-02-16 15:03:04]

**[Robert Garry]**

He's more than 90% confident [maybe that didn't translate well?]

[2021-02-16 16:17:16]

**[Eddie Holmes]**

*[thread - ID: 2021-02-16 14:15:21]*

@Robert Garry I think she missed a P

[2021-02-16 16:19:31]

**[Eddie Holmes]**

Thanks for revising the paper Bob. I'll see if I can take another look today tor tomorrow morning. That Norwegian article is mad!

[2021-02-16 17:27:55]

**[Robert Garry]**

Thanks - still several bits that can be fine-tuned for sure.

[2021-02-16 20:13:28]

**[Kristian Andersen]**

"Scariants" - pretty good term by Topol. (I don't know what the hell is up with that "7 strains" study...) [shared file(s): Screen Shot 2021-02-16 at 8.12.36 PM.png]

[2021-02-16 20:16:14]

**[Kristian Andersen]**

Although, Eddie, that last part of the last sentence didn't age too well :wink:. (I maintain pretty much everything in that paper remains true, however). [shared file(s): Screen Shot 2021-02-16 at 8.15.08 PM.png]

[2021-02-16 20:17:24]

**[Eddie Holmes]**

*[thread - ID: 2021-02-16 20:17:24]*

Unless, of course, they are not 'natural'....

[2021-02-16 20:18:37]

**[Kristian Andersen]**

Well, then that other paper you wrote didn't age well...

[2021-02-16 23:22:23]

**[Andrew Rambaut]**

I think the '7' variant one are 7 independent instances of 677H which Emma Hodcroft has named after birds in a preprint.

[2021-02-17 01:21:19]

**[Eddie Holmes]**

[https://www.theguardian.com/world/2021/feb/17/nicknames-emerge-for-growing-list-of-covid-variants?utm\\_source=dlvr.it&utm\\_medium=twitter](https://www.theguardian.com/world/2021/feb/17/nicknames-emerge-for-growing-list-of-covid-variants?utm_source=dlvr.it&utm_medium=twitter)

[2021-02-17 02:09:12]

**[Robert Garry]**

Q677H in 6 lineages and Q677P is the 7th. Q677P is mostly in New Mexico and Louisiana. Histidine at 677 "removes" one of the o-linked glycan predictions and decreases the "scores" of the other two. OTOH, the proline in Q677P puts in another kink near the FCS to join P681 and increases the O-linked glycan "score."

[2021-02-17 02:11:49]

**[Andrew Rambaut]**

Would the glycan's affect the accessibility of the cleavage site to furin and thus these 677 mutations be moderating/enhancing cleavage?

[2021-02-17 02:25:47]

**[Robert Garry]**

*[thread - ID: 2021-02-17 02:25:47]*

The O-linked glycan would probably inhibit cleavage, but the extra proline kink might enhance. Either could actually be advantageous under certain circumstances. Example: Cleaving the FCS too soon would activate the fusion process which could be "bad" for the virus in the wrong tissue or depending on timing. It's thought that viruses may have evolved the whole cleavage scheme to keep from triggering fusion during synthesis/assembly, which would obviously be "bad."

[2021-02-17 02:41:35]

**[Robert Garry]**

This from an email list: Nigeria Health Watch: A reminder that Conspiracy Theories get amplified and have real world consequences such as increasing vaccine hesitancy (are you listening Tom Frieden?) Of course the conspiracy theories regarding the China virus are being used like a club by Trump Bannon Pompeo Fox news {going hard after Fauci who "funded WIV"} - not a good look so far from Biden admin (come on Eric L]. Conspiracy theories and COVID-19 vaccine introduction in Nigeria

Editor's Note: This week's piece comes from researchers Dr. Chizoba Wonodi, Chisom Obi-Jeff, Dr Carleigh Krubiner, Elana Felice Jaffe, Dr. Ruth Karron, and Dr. Ruth Faden. They analyze the rise of conspiracy theories during public health crises like the current coronavirus pandemic and explore who is most vulnerable to conspiracy theories about Covid-19 vaccines and why people display vaccine hesitancy. The research is part of COVER, a six-month Wellcome-funded project led by researchers from Johns Hopkins School of Public Health and implemented in Nigeria by Direct Consulting and Logistics.

Less than 12 months after the World Health Organization (WHO) declared that the COVID-19 outbreak constituted a Public Health Emergency of International Concern (PHEIC), there are currently 11 approved vaccines that have been administered in 75 countries, with Nigeria planning to introduce vaccines in March 2021. As of the 16th February, there have been just over 108,822,960 confirmed cases, 2 million deaths and 76.69 billion USD in economic loss globally, the COVID-19 vaccine is the world's best shot at combating COVID-19 and returning lives and livelihood to normal. Yet, conspiracy theories (CTs) and a raging infodemic on COVID-19 and the vaccines threatens the vaccines' promise.

What are conspiracy theories and why should they matter?

Conspiracy theories reject standard explanation for events and describe them as a secret plot perpetrated by influential people or organizations. These theories increase during social crises or health emergencies, due to uncertainties, contradictions, and psychological distress associated with the event.

Image source: Orodata

When the COVID-19 quickly spread globally, leaving mass disruption and death in its wake, people were left with many questions and few answers. Conspiracy theories emerged to fill the gaps. Fueled by the internet and social media, CTs have travelled and thrived. There are different theories about the origin of COVID-19 and speculation about the motives behind COVID-19 vaccines in Nigeria. Nearly everyone has heard one CT or another, and many people continue to be bombarded with them daily. Belief in these CTs is concerning because it threatens the adoption of COVID-19 preventive behaviours, including potential vaccine hesitancy as an obstacle to achieving adequate coverage and immunity.

Conspiracy theories, fake news, and rumours about vaccines are not new in Nigeria. Their disruptive effects have previously exerted heavy financial and programmatic burden on the country. Widespread rejection of polio vaccination in Northern Nigeria in 2004 following false rumours that the vaccine sterilizes Muslim girls is still fresh in people's memories. It took Nigeria more than a decade of concerted effort and significant funding to overcome the vaccine hesitancy and interrupt wild polio transmission. In 2017, a false rumour about the Nigerian army injecting children with 'vaccines' to cause monkeypox erupted in South East Nigeria. This rumour disrupted immunization activities in South East Nigeria, previously known for high immunization coverage and strong vaccine demand in both the public and private sectors. Given lessons from the polio vaccine experience, government officials, religious leaders and respected public figures quickly restored order and trust with targeted communication and public persuasion. The contrast between the long-running polio rejection and short-lived monkeypox disruption highlights the notion that vaccine hesitancy can vary by source and course. It also illustrates that no program or region is immune to direct or collateral damage from CTs and rumours.

Image source: Orodata

Who will be most vulnerable to conspiracy theories about COVID-19 vaccines?

COVID-19 vaccines will be administered to a new cohort (adults) for whom there is limited experience on how they will accept the vaccine. Unlike the previous experience with polio and monkeypox rumours, where a single malicious plot was linked to one vaccine or event, with COVID-19, the CTs are numerous and wide-ranging. A recent analysis by the National Primary Health Care Development Agency (NPHCDA) and Nigeria Centre for Disease Control showed CTs circulating in Nigeria about COVID-19 vaccine safety, efficacy, allocation equity, and low confidence in the healthcare system. This begs the question, how different will COVID-19 vaccine hesitancy be compared to experiences with other vaccines; and what new approaches are needed to tackle the problem? While exposure to these COVID-19 CTs is almost universal, we do not know yet what proportion of the population believes them or a common profile/characteristics of a COVID-19 CT believer. Historically, vaccine hesitancy in Nigeria has been more



common among populations with low literacy and poor health outcomes. Given the role social media plays in fueling COVID-19 misinformation, there is not enough evidence yet to fully understand the hesitancy pattern and whether the educated population is more or less skeptical than the less-educated population.

Why do people believe in conspiracy theories about COVID-19 vaccines or display hesitancy toward them? The NPHCDA has commenced periodic surveys to track trends in attitudes to COVID-19 vaccines. They have also instituted rumour surveillance to identify circulating rumours and respond with the facts. These are laudable efforts that must be supported by all. However, more exploration is needed to understand why people believe in CTs and what pathways lead to vaccine hesitancy. Although this is a new research area, there is emerging evidence to show that intrinsic and extrinsic factors may explain why some people will believe in CTs about COVID-19 vaccines rather than credible information to the contrary. Recent studies have linked vaccine hesitancy to moral foundations — universal instincts that determine how people make decisions. It may be worthwhile to explore if certain moral concerns predispose people to believe in CTs. This will complement information gleaned from standard knowledge, attitude, and practice studies and throw light on possible pathways to influencing attitudinal change even among CT believers.

Will you take the COVID-19 vaccine when it's available in Nigeria?

Trust in government is another crucial factor. Distrust in the government and vaccinations has been linked to belief in CTs and vaccine hesitancy. A global survey found that respondents who trusted their government were more likely to accept a vaccine. Those who distrusted their governments were more likely to believe in alternative explanations for things happening. With the country's challenging economic situation and hardship exacerbated by lockdowns, there is already significant public discontent with the government, particularly handling the relief materials meant to cushion the pandemic effects. Some believe COVID-19 response is another conspiracy by politicians to loot the treasury. This level of distrust is likely to fuel belief in CTs about the vaccine.

With the COVID-19 vaccine rollout on the horizon, there is an urgent need to understand what factors may contribute to vaccine hesitancy, including moral foundations, government distrust and CT beliefs. More research is needed to identify these factors and target them with appropriate public health messaging interventions.

Current study to better understand COVID-19 vaccine conspiracy theories in Nigeria

The COVID-19 Vaccine Ethics Research (COVER) in Nigeria aims to examine these issues in detail to inform communication strategies and messages that will contribute to a successful COVID-19 vaccine introduction in the country. COVER is a mixed-methods study using qualitative and quantitative approaches to better understand Nigeria's CT phenomena and its link to COVID-19 vaccine acceptance. Vaccines are our best bet out of the COVID-19 outbreak and with a better understanding of the key trigger points that contribute to vaccine hesitancy, the hope is that with equitable access to vaccines and the needed supply reaching Nigeria in the short to medium term, the spread of COVID-19 can be mitigated and we all able to return to some semblance of normality In our lives.

[2021-02-17 02:43:19]

**[Robert Garry]**

[thread - ID: 2021-02-16 20:17:24]

@Eddie Holmes and were sent to us by the Italians on frozen fish!

[2021-02-17 02:59:40]

**[Andrew Rambaut]**

[thread - ID: 2021-02-17 02:25:47]

@Robert Garry There is a tendency amongst some virologists (not the ones here, of course) to assume that any increase in kinetics automatically translates into fitter viruses. But as you say the virus needs to time the infection course just right (be maximally shedding in just the right tissue for as long as possible before symptoms onset). Everything after that is inconsequential damage caused by this.

[2021-02-17 05:31:03]

**[Robert Garry]**

[thread - ID: 2021-02-17 02:25:47]

@Robert Garry Worth remembering that Q675H showed up in a dog.

[2021-02-17 11:04:49]

**[Kristian Andersen]**

Pretty key data from Tulio - people infected with B.1.351 have neutralizing activity (at similar levels to non-B.1.351) against B.1.351 and non-B.1.351.

Bodes well for vaccine updates. [shared file(s): Screen Shot 2021-02-17 at 11.00.59.png]

[2021-02-17 12:11:26]

**[Robert Garry]**

Yes - indeed that was my main concern - can humans recognize that epitope? Odds were good in favor, but not 100%. Good to see the data and yes - get the v.2 with Nelly, EeeK, "DorA", "DouG, Jr." and a few others into production asap. Relevant discussion after you left on the EBOV vaccine - seems that protection is rather short-lived too which explains the vaccinee infections, re-infections or recrudescence. Unless you stabilize those class I Viral Fusion Proteins it's hard to induce good neuts. EBOV good enough for ring vaccination, long term protection - not so much unless you plan on vaccinating everyone against EBOV on a yearly basis.

[2021-02-17 13:45:07]

**[Andrew Rambaut]**

Ah Laura.. [shared file(s): image.png]

[2021-02-17 13:45:35]

**[Andrew Rambaut]**

Your silly mutation nicknames are too white and you didn't consult the ICTV!

[2021-02-17 13:45:55]

**[Kristian Andersen]**

Lol

[2021-02-17 13:55:20]

**[Kristian Andersen]**

[https://www.theguardian.com/world/2021/feb/17/uk-to-begin-worlds-first-covid-human-challenge-study-within-weeks?CMP=share\\_btn\\_tw](https://www.theguardian.com/world/2021/feb/17/uk-to-begin-worlds-first-covid-human-challenge-study-within-weeks?CMP=share_btn_tw)

[2021-02-17 13:56:01]

**[Kristian Andersen]**

"They will be exposed to the coronavirus in a safe, controlled environment". Define "safe". :wink:

[2021-02-17 14:06:25]

**[Robert Garry]**

Nelly - (black rapper), Pooh (a talking Bear), EeeK (what you would do if a bear talked to you) , LeiF (dead Norseman). KaitlyN, DorA, But OK maybe go with DenG instead of Doug.

[2021-02-17 14:08:37]

**[Robert Garry]**

:face\_with\_rolling\_eyes:

[2021-02-17 14:09:50]

**[Andrew Rambaut]**

This is getting mental: [shared file(s): image.png]

[2021-02-17 14:13:58]

**[Kristian Andersen]**

She's a plant biologist and TED fellow Andrew - you're never gonna win.

[2021-02-17 14:14:40]

**[Andrew Rambaut]**

I know her twitter rants well.

[2021-02-17 14:15:45]

**[Kristian Andersen]**

I don't know her - but I was just on a three hour meeting with Bette Korber so I can't take any more ranting today.  
:firecracker:

[2021-02-17 14:17:57]

**[Kristian Andersen]**

I get the sense Aine's got this one down though.:clap: [shared file(s): Screen Shot 2021-02-17 at 2.17.23 PM.png]

[2021-02-17 14:18:24]

**[Andrew Rambaut]**

Ooh yours must have been the call she had to leave mine to go to.

[2021-02-17 14:19:02]

**[Andrew Rambaut]**

(Korber, I mean)

[2021-02-17 14:19:16]

**[Robert Garry]**

Laura seems nice. Good sense of humor. Grounded. Knows what's important. Doesn't sweat the small stuff. Focused.

[2021-02-17 14:19:32]

**[Andrew Rambaut]**

That totally sums her up.

[2021-02-17 14:19:49]

**[Andrew Rambaut]**

Oli, Nick and I were talking to Korber about your recombination problem in California

[2021-02-17 14:20:58]

**[Kristian Andersen]**

She would give zero information - what does she have?

[2021-02-17 14:28:55]

**[Andrew Rambaut]**

Yup.

[2021-02-17 14:29:07]

**[Andrew Rambaut]**

She told us how you find recombination

[2021-02-17 14:31:09]

**[Andrew Rambaut]**

Basically they have lots of recurrent mutations (I say, they have - I mean they have found in other people's data). Most are clearly just homoplasies being brought up by epistatic effects. Their only argument is that they are rare globally.

[2021-02-17 14:33:35]

**[Andrew Rambaut]**

*[thread - ID: 2021-02-17 14:33:35]*

She showed one picture that looked like a convincing case because it had 2 parents and good tracts of recombination (i.e., the entire spike) but was either a lab artifact, or a coinfecting individual with a messed up consensus or an actual unusual recombination. None of it matters though - clearly recombination is massively important to within host evolution and vanishingly unimportant to population evolution except in so far as the first

leads to the second

[2021-02-17 14:34:58]

**[Eddie Holmes]**

As for Laura Boykin - idiotic nonsense. I'm not sure how B.1.1.7 counts as white.

[2021-02-17 14:35:24]

**[Andrew Rambaut]**

I think she is confused.

[2021-02-17 14:35:40]

**[Eddie Holmes]**

@Robert Garry I've gone through the text again Bob - looks good. I'm happy with the cuts.

[2021-02-17 14:37:18]

**[Robert Garry]**

THANKS Eddie \_ I'll clean it up a bit more for Andrew and Kristian...

[2021-02-17 14:44:09]

**[Kristian Andersen]**

*[thread - ID: 2021-02-17 14:33:35]*

@Andrew Rambaut Very clear... Glad she had a chance to teach you how to do it properly.

[2021-02-17 14:58:45]

**[Robert Garry]**

<https://www.biorxiv.org/content/10.1101/2021.02.05.429982v1>

[2021-02-17 14:59:22]

**[Kristian Andersen]**

Ohhhhhh, we rock SO much! :boom:

[2021-02-17 16:15:19]

**[Robert Garry]**

It will be interesting to see what the Q677P mutation does to the O-glycans - it actually jacks up the prediction for each of the 3 sites quite a bit.

[2021-02-17 16:18:21]

**[Andrew Rambaut]**

And 681R removes the O-glycan and makes it more basic?

[2021-02-17 16:18:52]

**[Andrew Rambaut]**

How would you rank 677P, 681R and 681H?

[2021-02-17 16:37:16]

**[Robert Garry]**

Q677P - highly likelihood of 3/3 sites O-glycosylated in mucosal tissues. Q677H - only 2/3 sites with O-glycans - moderate probability that sites are used in mucosal tissues. 681R and H also knock down to only 2/3 sites with O-glycans - moderate probability that sites are used in mucosal tissues. Maybe "epistasis" going on with mutations like DouG that loosen-up the trimer and make it more "cleavable" - Maybe some of the FCS mutations tuning up the spot for optimum efficiency and timing of cleavage (like Goldilock's soup - not too hot not too cold).

[2021-02-17 17:09:11]

**[Andrew Rambaut]**

Thanks!

[2021-02-17 17:11:16]

**[Kristian Andersen]**

681R is interesting in this regard - might lose some control over the cleavage, but overall make it more 'cleavable'?

[2021-02-17 18:38:53]

**[Robert Garry]**

<https://www.newscientist.com/article/2268014-exclusive-two-variants-have-merged-into-heavily-mutated-coronaviruses/>

[2021-02-17 18:42:07]

**[Kristian Andersen]**

Yeah, this is the recombinant Andrew referred to. I don't doubt SARS-CoV-2 will/does recombine, but this is just typical Korber bs. :face\_vomiting:

[2021-02-17 22:19:19]

**[Kristian Andersen]**

Btw - if you have seen Jeremy's Twitter rants as of late... Talk about "... seems nice. Good sense of humor. Grounded. Knows what's important. Doesn't sweat the small stuff. Focused." [shared file(s): Re: FW: "Exclusiveness" does not promote rapid data sharing in a pandemic]

[2021-02-18 05:05:59]

**[Robert Garry]**

Hmmm....meanwhile the Virological post is looking good thanks to great suggestions, so please take a look before Alina succeeds in cutting off all our funding: [shared file(s): image.png]

[2021-02-18 05:12:23]

**[Robert Garry]**

[https://docs.google.com/document/d/1pYh8dkuNi\\_tAVxw5CdYJRN-KRdkb5EvmrQwNEXDM7mM/edit](https://docs.google.com/document/d/1pYh8dkuNi_tAVxw5CdYJRN-KRdkb5EvmrQwNEXDM7mM/edit)

[2021-02-18 09:35:53]

**[Andrew Rambaut]**

@Robert Garry Some discussion in another place on where the RBD ends in SC2: is it 331N - 526G (what we had in Prox) or 527?

[2021-02-18 09:51:21]

**[Robert Garry]**

331N to 526 or 527 is - what I would consider - the entire C-terminal Domain CTD. The RBD itself is a smaller loop within the CTD, which is actually a bit bigger than what we estimated in PO1 - so running about 414 to 506.

[2021-02-18 10:00:58]

**[Robert Garry]**

AFAIK there is not a definite - or official - end to the CTD. No cysteine loop or other feature that would tie it off.

[2021-02-18 11:04:46]

**[Andrew Rambaut]**

Fair enough

[2021-02-18 13:27:27]

**[Eddie Holmes]**

<https://www.theguardian.com/uk-news/2021/feb/18/6cm-tall-man-offered-covid-vaccine-after-nhs-blunder-liam-thorp>

[2021-02-18 13:27:44]

**[Eddie Holmes]**

That made my day

[2021-02-18 13:31:54]

[Kristian Andersen]

BMI of 28,000 - only in Texas would that be possible... :bacon:

Hilarious - good sport on Twitter too. [shared file(s): Screen Shot 2021-02-18 at 13.31.01.png]

[2021-02-18 13:33:08]

[Eddie Holmes]

COVID's Stonehenge from Spinal Tap moment

[2021-02-19 00:52:54]

[Eddie Holmes]

Got this from a colleague. Any thoughts about what might explain this? "You may have heard that folks are having real trouble culturing genetically homogenous VOCs. We always knew that culturing prototype viruses in "plain" Vero cells could lead to the selection of furin cleavage site deletion mutants, but this was rarely a problem in practice, and could be avoided altogether by using Vero-TMPRSS2.

However, with B1.351 (and to an extent B1.1.7 – we don't yet know about P.1) the problem has become way worse. Alex Sigal and Tulio de Oliveira at Durban ran into problems immediately when growing up their variant, which they thought they'd sorted with a fresh primary isolation and passage in Vero-TMPRSS2. They sent us and a few other labs this virus, together with the earlier dFCS isolate just after Christmas. However, since then, they ran into further problems with the uncontrolled build-up of a range of substitutions and deletions on re-passage, and this seems to be happening to colleagues in London. (We are not yet sure whether we have this problem, owing to the slowness of WTCHG turn-round!). So, the question is, what's going on, and does it tell us interesting about the biology and phylodynamics of the virus?"

[2021-02-19 01:50:21]

[Andrew Rambaut]

This is something we are trying to grapple with - I really think there is a shift in the fitness landscape globally and these VOCs (and many other lineage) seem to be converging on a new fitness peak. Once you have the core set then there are lots of compensatory or epistatically linked mutations that get selected for (such as the spike and nsp6 deletions, FCS tweaks). The question is what is the global shift in the fitness landscape? Is it population level (i.e., lots of NPI driving higher transmissibility or rising sero-prevalence?) or an individual level - treatment, prior exposure in sub-clinical infections?

[2021-02-19 01:51:11]

[Andrew Rambaut]

I would love to get a collaboration together on this and put our heads together.

[2021-02-19 06:39:24]

[Robert Garry]

Transmissibility is complicated as we have been. discussing:<https://dash.harvard.edu/handle/1/37366884>

[2021-02-19 10:08:56]

[Kristian Andersen]

That "California" variant is growing pretty quickly in CA to say the least... @Andrew Rambaut - do you see any growth of that lineage in the UK? (L452R). [shared file(s): image (1).png]

[2021-02-19 10:49:42]

[Andrew Rambaut]

Will look but we are at about 95% B117 with rapidly falling case counts.

[2021-02-19 10:50:11]

[Andrew Rambaut]

Don't like the look of this I just found in GISAID: [shared file(s): Image from iOS.jpg]

[2021-02-19 11:00:21]

[Kristian Andersen]

Any specific concern about that GISAID entry other than it being a vaccinated person who got P.1? I think we're going to see a lot of those... (B.1.351 too - and probably B.1.1.7 with additional friends)

[2021-02-19 11:02:56]

**[Andrew Rambaut]**

Just it is the first example I think. And Pziser. Vaccinated in June? Presumably trial.

[2021-02-19 11:03:47]

**[Andrew Rambaut]**

What concerns me is the very small number of P.1s that are likely in Italy and they already have a potential breakthrough

[2021-02-19 11:04:08]

**[Andrew Rambaut]**

The denominator is small

[2021-02-19 11:05:16]

**[Andrew Rambaut]**

On the other hand the numerator is 1 :man-shrugging::skin-tone-4:

[2021-02-19 11:08:09]

**[Kristian Andersen]**

I hear the Pziser vaccine is pretty bad :wink:.

I agree with you - general concern, but I might appear a little less concerned because it's pretty clear to me that we're going to start seeing a lot of these. The in vitro studies all look at absolute PEAK neut titers and B.1.351 has a huge hit - I expect that'll translate to a lot of infection out in the wild. Hopefully those cases will be milder on average though - and we have \_some\_ data to suggest that's the case. What that spread will be though, well.... :man-shrugging:

[2021-02-19 12:35:07]

**[Robert Garry]**

To @Andrew Rambaut point above. I'm pretty sure there has been a global shift in the fitness landscape. I'm not too sure where the major selection is at the population level or the individual level or BOTH. However, I do think that the mutations at nsp12 P323 are contributing mightily to the volatility. I'm just shaking my head in disbelief. Like a screaming read flag this amino acid is literally sitting in the groove of the RdRp complex. It surely has to affect transcription fidelity. A deletion in nsp8 also may be a factor. [shared file(s): image.png]

[2021-02-19 12:35:53]

**[Robert Garry]**

Same feeling I got when I saw the PRRA....

[2021-02-19 12:47:21]

**[Robert Garry]**

Looks like it showed up early around about the time of the first DouG sightings.

[2021-02-19 13:12:39]

**[Kristian Andersen]**

What's the coordinates of that mutation in ORF1a space Bob?

[2021-02-19 13:24:29]

**[Robert Garry]**

I think it's C14408T P4715L.

[2021-02-19 13:27:37]

**[Kristian Andersen]**



ORF1b P314L? Interesting - pretty much defines Doug...

[2021-02-19 13:31:39]

**[Robert Garry]**

Yeah - DouG literally opened up the stem but the nsp12 mutation may be affecting polymerase fidelity (surprising if it didn't). Could be why @Eddie Holmes reports the volatility in trying to grow postDouG variants in cell culture.

[2021-02-19 13:32:33]

**[Robert Garry]**

P323L I think.

[2021-02-19 13:34:19]

**[Kristian Andersen]**

Here's Nextstrain - 323 is listed as only "K". [shared file(s): Screen Shot 2021-02-19 at 1.33.44 PM.png]

[2021-02-19 13:34:41]

**[Kristian Andersen]**

[https://nextstrain.org/ncov/global?c=gt-ORF1b\\_314](https://nextstrain.org/ncov/global?c=gt-ORF1b_314)

[2021-02-19 14:17:22]

**[Robert Garry]**

Yeah -that it... It's DouG's world but his naughty polymerase girlfriend PearL may be causing a lot of disruption on her own.

[2021-02-19 14:26:29]

**[Kristian Andersen]**

You know - none of these spike mutations may make SARS-CoV-2 more transmissible...

[2021-02-19 14:30:01]

**[Robert Garry]**

You could be right - Thinking back and Bob C and Tom Geisbert will know better, but I think that all of the mutations that make LASV replicate in guinea pigs are in polymerase.

[2021-02-19 14:34:17]

**[Kristian Andersen]**

I believe in flu, the polymerase is key too.

[2021-02-19 14:38:45]

**[Robert Garry]**

Exactly!

[2021-02-19 14:39:34]

**[Robert Garry]**

Although occasionally a little FCS can get involved in the fun.

[2021-02-19 14:45:42]

**[Andrew Rambaut]**

I heard from a confidential source that in macaque infections P323L (Phil) came up in 10/10 monkeys.

[2021-02-19 14:46:48]

**[Andrew Rambaut]**

And yes Phil is strongly linked with Doug but came up first (in January).

[2021-02-19 14:47:34]

**[Andrew Rambaut]**

I think it is probably the first major human adaptation

[2021-02-19 14:48:32]

**[Robert Garry]**

Remarkable!

[2021-02-19 14:50:43]

**[Robert Garry]**

I think that all of the natural human-to-animals have been DouG/PhiL, but the fact that a PreDoug virus converted to PhiL in 10/10 monkeys is crazy...

[2021-02-19 14:50:45]

**[Kristian Andersen]**

*[thread - ID: 2021-02-19 14:50:45]*

So why're we talking about "Doug took over the world"? I'd be \_much\_ more inclined to think Phil did and brought his friend Doug with him

[2021-02-19 14:56:13]

**[Robert Garry]**

Just an impression but many [not all] of the places the nonPhiL viruses are lingering seem to be relatively low incidence countries.

[2021-02-19 15:11:02]

**[Robert Garry]**

RaTG13 and SC1 have the proline at that site.

[2021-02-19 15:12:41]

**[Kristian Andersen]**

Proves it came from the lab.

[2021-02-19 15:19:16]

**[Robert Garry]**

Don't tell Yuri, Alina or Billy the one-eyed dead monkey.

[2021-02-20 00:18:13]

**[Andrew Rambaut]**

*[thread - ID: 2021-02-19 14:50:45]*

@Kristian Andersen Yes - that is the hypothesis that the people with the monkeys are talking about.

[2021-02-20 07:11:40]

**[Andrew Rambaut]**

Interesting though is A.23.1 with Doug's neighbour Qeith. It has NSP12 Y346H - related?

[2021-02-20 07:12:18]

**[Andrew Rambaut]**

(also 681R of course)

[2021-02-20 07:14:59]

**[Andrew Rambaut]**

Full complement is:

Spike: F157L, V367F, Q613H, P681R, R102I

N: Q39R, S202N

NS8: L84S, E92K

NSP4: T495I

NSP6: L98F, M183I, M86I

NSP12: Y346H

Could the NSP6 have similar effects to the deletion?

[2021-02-20 07:23:16]

**[Andrew Rambaut]**

Much of this is discussed in <https://www.medrxiv.org/content/10.1101/2021.02.08.21251393v1.full.pdf> but I don't think we mentioned the RdRp mutation because P323L has never really been talked about yet.

[2021-02-20 07:33:49]

**[Robert Garry]**

Y346H -not directly in the groove itself \*but right in line with the P323\*. So putting that charged Histidine in is going to disrupt the bonding underlaying the channel and have a very similar effect to PhiL. [shared file(s): image.png]

[2021-02-20 07:36:07]

**[Andrew Rambaut]**

Bingo.

[2021-02-20 07:39:21]

**[Andrew Rambaut]**

So we have a common set of functional sites/effects for all the new variants:

An RdRp mutation, an nsp6 modification, spike 613/614, some NTD mutations/deletions and some RBD mutations.

[2021-02-20 07:47:29]

**[Robert Garry]**

YES indeed! AS for the nsp6 mutations i'm betting functionally similar to the SGF del -the L98F mutations is probably the most important - in the same "external" loop as the SGF deletion and it makes WF more strongly aromatic. Tryptophans are not kept unless they are needed, so yes affecting regulation of whatever NSP6 is doing to interferon and/or autophagy. Not to dismiss the Met to Inosine mtations that are probably paired and doing something to that TM helix. [shared file(s): image.png]

[2021-02-20 07:56:13]

**[Robert Garry]**

Thanks Andrew for the changes to the bat virological! Nicely done and overall much more focused and more importantly \*effective\* thanks to you and Eddie. @Kristian Andersen the bat-post looking good IMO. Let us know when you're able to take a brief look - life being insanely crazy all around.

[2021-02-20 08:06:52]

**[Robert Garry]**

[thread - ID: 2021-02-20 08:06:52]

"So we have a common set of functional sites/effects for all the new variants: An RdRp mutation, an nsp6 modification, spike 613/614, some NTD mutations/deletions and some RBD mutations." \*Incredible\* examples of convergent evolution in real-time. The fact that this emerged in Uganda with not - to my knowledge - a massive number of cases is making me think perhaps that here at least individual adaptation for viral fitness in humans &gt; immune escape. No Nelly, EeeK, etc in the A.23.1 Uganda variant, which \*may\* be the better signs of immune escape \*or\* fitness plus immune escape.

[2021-02-20 08:07:41]

**[Andrew Rambaut]**

Will add ORF8 truncation/modification to that list.

[2021-02-20 08:08:13]

**[Andrew Rambaut]**

[thread - ID: 2021-02-20 08:06:52]

@Robert Garry There is a cluster of A.23.1 that have EeeK in the UK (which is how I found it in the first place).

[2021-02-20 08:10:32]

**[Andrew Rambaut]**

*[thread - ID: 2021-02-20 08:10:32]*

We are writing a paper about the B.1.1.7 variant including its origins and I would love to put some of this speculation in it and then perhaps lay it out in another paper. You interested in being involved? (any of you).

[2021-02-20 08:19:18]

**[Andrew Rambaut]**

My current favourite hypothesis is that all of this is about increasing transmissibility in the face of global implementation of NPI which is why we have simultaneous explosive 2nd waves (Doug & Phil) and then the 3rd waves (VOCs). In particular I am wondering if partially-effective measures may have driven evolution for transmissibility in the same way that ineffective vaccines can. Doug & Phil arose in China during the first lock down period (but possibly outside of Wuhan in somewhere like Shanghai) but really took off in Italy. Displaced everything globally except for areas like Africa where there was not much reported incidence and not much response and lineage A persisted. Then as incidence started to rocket, NPI were implemented and the lineage A VOCs were selected for.

[2021-02-20 08:20:13]

**[Andrew Rambaut]**

This would be an explosively political hypothesis given all the anti-lockdown stuff going on.

[2021-02-20 08:25:52]

**[Kristian Andersen]**

I agree with the first part - not sure about the VOCs. I think the selection pressure there is more complicated with RSA/BRA selecting more for evasion, than inherent transmission. The fixation of mutations was probably due to intrahost selection, but I agree the near-fixation in the population likely has more to do with transmission (in a population with high levels of immunity - so reinfections).

[2021-02-20 08:27:16]

**[Kristian Andersen]**

*[thread - ID: 2021-02-20 08:27:16]*

B.1.1.7 just looks different to me - again, mutations fixed intrahost in the first place, then near-fixation in the population because of being inherently more transmissible. I think partial immune escape adds to its success as well.

[2021-02-20 08:28:48]

**[Kristian Andersen]**

But overall, yes, I agree with the hypothesis and think the distinction of different waves being due to different mitigation efforts is a good one - but as you say, massively politically charged.

The fourth wave will likely be driven almost entirely by vaccine escape.

[2021-02-20 08:29:45]

**[Robert Garry]**

Makes a lot of sense to me.

[2021-02-20 08:30:19]

**[Kristian Andersen]**

(this ain't the flu, btw).

Bob, I'll look at the document today!

[2021-02-20 09:18:13]

**[Andrew Rambaut]**

*[thread - ID: 2021-02-20 08:27:16]*

@Kristian Andersen I generally agree - I am 100% convinced that B.1.1.7 is different from everything in its origin story but has converged on the same peak.

[2021-02-20 09:23:53]

**[Andrew Rambaut]**

[thread - ID: 2021-02-20 09:23:53]

I guess the first question to demonstrate is that has there been a shift in the adaptive landscape (rather than just a lot more unusual stuff happening because there are shed loads of cases - although that too). Possible reasons for a wide-spread shift in the population level landscapes are 1) NPI, 2) deployment of anti-viral treatments, 3) increasing seroprevalence 4) ? anything else?

Then there is the possibility of a shift in within host landscapes - more chronic infections, possibly in immuno-compromised, possibly treated. Here it is a numbers game - more infections mean more of these and more chance some of them hit this population-fit fitness peak and then transmit onwards.

[2021-02-20 09:38:56]

**[Kristian Andersen]**

[thread - ID: 2021-02-20 09:38:56]

Yeah, these are good - I think very likely #1 (broadly defined) and #3 - not sure about #2.

[2021-02-20 09:43:01]

**[Robert Garry]**

? anything else? Perhaps something about the demographics shifted too - no data just an impression that a lot more young adults started to get infected in the second wave. That may be because US sucked at testing early on and young adults were getting infected just not counted. Young adults also more likely not to adhere to NPI. In terms of the "numbers game" the fact that SubSaharan Africa remains largely devoid of massive outbreaks til you get down to South Africa tells me they are different (which makes the Uganda variant all the more important) - my bias based on some serology that we are ~sitting on~ trying to get out tells me differences in exposure to seasonal coronaviruses (known and perhaps unknown) could be driving the difference btwn Africa nd the rest of the world.

[2021-02-20 09:47:11]

**[Kristian Andersen]**

Worth adding to the same speculations - what might we expect the future to look like? I have little doubt that the virus will escape our vaccines relatively quickly, meaning we will still continue to see cases - there's no herd immunity here.

That scenario may seem like doom, however, it's possible that via vaccination and (re)infections there will be enough immunity to protect against severe disease. I think most virologists believe this is the likely outcome - i.e., SC2 becomes the common cold.

However, I am very concerned this is wishful thinking. SC2 does not appear to be another ccCoV to me. It can infect a huge range of animals and a huge range of tissues. It can infect not just the upper airways (like ccCoVs), but also lungs, hearts, and other major organs (in fact, pretty much all of them). Some of the reinfections have been severe and have organ involvement (I believe?). To my knowledge, that has never been described with ccCoVs, unless patients have been immunocompromised. So while I'm sure \_some\_ immunity will \_almost\_ always be better than none, I am not convinced that this will simply fade into the background like ccCoVs, as I think many scientists believe. It's a very attractive scenario creating a huge confirmation bias. But do we honestly and seriously believe that once most people have gotten that one shot - or been infected - this will become just another ccCoV?

I certainly hope so, but I have a hard time convincing myself the data support such a scenario being the most likely outcome.

[2021-02-20 09:49:16]

**[Kristian Andersen]**

> trying to get out tells me differences in exposure to seasonal coronaviruses (known and perhaps unknown) could be driving the difference btwn Africa nd the rest of the world  
India too. That place is the most mysterious of all to me.

\_Some\_ level of cross-protection would support the notion that SC2 could become just another ccCoV, albeit slightly more severe - but less so than e.g., flu.

Dunno.

[2021-02-20 10:19:39]

**[Robert Garry]**

Couple of things that are hopeful in terms of whether some sort of "herd" immunity is going to get us out of this mess. 1. Galit's data on OC43 that she showed at last wks conference - prior exposure/existing immunity to OC43 basically precluded severe disease. 2. new data showing that a vaccination [one dose] on top of a prior infection induces a "massive" and "broad" immune response. 3. exposure to B.1.351 does induce good neuts to .1.351 and 4. the African experience [good point about India], which I think reflects a near universal blanket immunity to "seasonal" CoVs including probably a beta or two we don't yet know about. BUT, I'm the optimistic one.

[2021-02-20 10:25:39]

**[Robert Garry]**

I think a scenario of a yearly vaccination with constant updating [stabilized spike of course] is the most likely outcome - and yes it's not the flu so there will be a death toll, so not pretty. Monoclonals (in combo) - again being updated could blunt this. ASnd, some hope for a small molecule drug. Universal CoV vaccine - not so hopeful.

[2021-02-20 10:27:00]

**[Andrew Rambaut]**

*[thread - ID: 2021-02-20 09:38:56]*

@Kristian Andersen Yeah - these are not all likely hypotheses I just want to get everything on table.

[2021-02-20 10:29:11]

**[Kristian Andersen]**

Yup, I agree on all of that - with annual updates and us constantly chasing after the virus (which will become easier over time), we'll be fine. My concern is that most people seem to hope for this scenario on "autopilot". Basically, we have our current vaccines, we'll get them, and it'll be a smooth cruise going forward. I'm not so sure.

[2021-02-20 10:29:23]

**[Andrew Rambaut]**

I think I will lay some stuff out there in the B117 paper (which we need to get out quickly because Tulio is being annoying). But then I think a nice piece in Science or Nature to bring it all together?

[2021-02-20 10:29:49]

**[Andrew Rambaut]**

Basically - a "what the fuck just happened" piece?

[2021-02-20 10:30:06]

**[Kristian Andersen]**

I think bringing it all together would be really important and helpful to a lot of people - so I'm a yes on that plan.

[2021-02-20 10:31:01]

**[Kristian Andersen]**

*[thread - ID: 2021-02-20 10:31:01]*

Basically fleshing out a little more \_many\_ of the points already made in this thread. Maybe we can deploy some AI to scan through our text and write the paper for us...

[2021-02-20 10:35:22]

**[Andrew Rambaut]**

Is that what you refer to your grad students as?

[2021-02-20 10:37:04]

**[Kristian Andersen]**

"Eddie Holmes", actually - but close.

[2021-02-20 14:55:11]

**[Eddie Holmes]**

Sorry, I need catch-up. Just been chatting with my mate at CNN. Confidentially: (i) the WHO report is going to be delayed a bit; (ii) Peter Embarek and Daszak seem to be leaking stuff to the press (my mate reckons that Daszak may have burned his bridges with China); (iii) it turns out that the 1st documented patient is in fact Dec 8th and not Dec 1st. The parents of that patient have a link to a different wet market in Wuhan. Not sure if that means anything; (iv) there were seemingly 10 animal vendors at the Huanan market and apparently the Chinese have not tested animals from the base of the chain that leads to these vendors...the base is animals from southern China (Yunnan, Guangdong etc.). The WHO will recommend that (iii) and (iv) should be investigated further and it seems amazing they have not...or they have and are not telling.

[2021-02-20 15:12:42]

**[Kristian Andersen]**

Oh, very exciting - thanks for the update Eddie! This bit "the base is animals from southern China" is key - and I think something Peter was excited about as well.

[2021-02-20 15:14:54]

**[Andrew Rambaut]**

But they would say that wouldn't they.

[2021-02-20 15:15:25]

**[Andrew Rambaut]**

They are leaking on behalf of CCP

[2021-02-20 15:15:45]

**[Andrew Rambaut]**

Or it was frozen salmon or something

[2021-02-20 15:17:47]

**[Kristian Andersen]**

Haha.

[2021-02-20 15:18:09]

**[Kristian Andersen]**

Just enough edge to not come directly from the CCP :wink:

[2021-02-20 15:18:32]

**[Robert Garry]**

(i) I think one could sense a little tension when Tedros said all hypotheses were still open. Not too surprising they can't agree on precise wording, but unfortunately delays fueling up the tinfoil hats. Would not be surprised if there wasn't a bit of pushback from multiple govts. (ii) One presumes Embarek is clearing things with WHO. Daszak is a loose cannon - sorta held it together for a NYTimes interview - otherwise not so good. (iii) I'm guessing a lot of people have links to various wet markets. What's perhaps just as relevant - the missing of any link to WIV. IF there were links of ANY of the early cases to WIV or any other labs in Wuhan I am dubious that this could be covered up even in China. Not impossible, but I believe unlikely. But yeah investigate the heck or of those early cases (iv) Investigate the animals too! I'm still waiting for them to go in with Lin-Fa's ACE2BOB assay and look for anti-sarbecovirus Abs in animals in YN, GD and further south.

[2021-02-20 15:39:45]

**[Kristian Andersen]**

@Robert Garry - are the figures for the google doc available somewhere?

[2021-02-20 15:42:12]

**[Robert Garry]**



Fig 2 [shared file(s): CoV Mosaic v3 minus HA379-363 copy.pdf]

[2021-02-20 15:42:30]

**[Robert Garry]**

Fig 1

[2021-02-20 15:44:34]

**[Robert Garry]**

Fig 1 [shared file(s): new asian bat covs 2-6-21a copy.pdf]

[2021-02-20 15:53:22]

**[Kristian Andersen]**

These are great figures. Isn't it funny that the indel with the really important site is somehow super mysterious to the tinfoil hats, while the many other indels aren't? :thinking\_face:

[2021-02-20 16:06:08]

**[Kristian Andersen]**

Looks great Bob - ready to post from my standpoint.

[2021-02-20 16:10:47]

**[Eddie Holmes]**

Bob - can I have one more look over it today? Then post tomorrow?

[2021-02-20 16:13:52]

**[Eddie Holmes]**

I think the WIV is totally off the agenda for the WHO. My contacts say that the Chinese have been not looking into either. Let's face it, identifying a lab weak from WIV is a Yale lock with a credit card for the security services and yet they have fuck all.

[2021-02-20 16:52:18]

**[Andrew Rambaut]**

Sorry to keep doing this to you Bob but have you any thoughts on A701V ? Close enough to FCS to have an effect?

[2021-02-20 16:52:33]

**[Andrew Rambaut]**

Or just a nothing.

[2021-02-20 17:24:05]

**[Robert Garry]**

No problem at all - please keep the questions coming. I think the A701V could just be random. A to V a pretty conservative change, but A82V in Ebola virus was a pretty big deal. It's in the region between S1/S2 and S2' so it gets "cut out" during entry - some thoughts that the cutout peptide could have some "activity." Maybe, but it could just be a "spacer," Not close enough to the FCS to have an effect.

[2021-02-20 18:44:02]

**[Eddie Holmes]**

*[thread - ID: 2021-02-20 18:44:02]*

Paper looks good to post Bob. There are just 2 comments left which I think are resolved but you can judge. Do we need an Abstract? Perhaps not for a post?

[2021-02-21 05:23:15]

**[Robert Garry]**

Thanks all! It does look great and good strong counterpoints to the lab origins mob (hey look at the science). Will make the final edits when I get to the office a bit later this morning. One final minor point- will add the Alina ref, per Kristian, but then should also add Petrovsky I think ???

[2021-02-21 07:08:20]

**[Kristian Andersen]**

Yup

[2021-02-21 07:38:30]

**[Robert Garry]**

*[thread - ID: 2021-02-20 18:44:02]*

@Eddie Holmes Think we can do without an abstract for the post. Intro [too short] serves the purpose .

[2021-02-21 08:12:54]

**[Robert Garry]**

Let the tinfoil hats explode...

[2021-02-21 09:53:15]

**[Robert Garry]**

Worth a read:

<https://www.cbsnews.com/news/transcript-matt-pottinger-on-face-the-nation-february-21-2021/>"MARGARET BRENNAN: U.S. intelligence has said COVID, according to wide scientific consensus, was not man-made or genetically modified. You are not in any way alleging that it was, are you?

MATT POTTINGER: No. If you weigh the circumstantial evidence, the ledger on the side of an explanation that says that this resulted from some kind of human error, it far outweighs the- the side of the scale that says this was some natural outbreak. We have very strong reason to believe that the Chinese military was doing secret classified animal experiments in that same laboratory, going all the way back to at least 2017. We have good reason to believe that there was an outbreak of flu-like illness among researchers working in the Wuhan Institute of virology in the fall of 2019, but right- immediately before the first documented cases came to light."

[2021-02-21 09:54:28]

**[Robert Garry]**

Actually, he is precisely alleging it came from the WIV.

[2021-02-21 10:28:55]

**[Robert Garry]**

Some of the details rather off, but A for effort. <https://coronavirus-annotation-2.sci.utah.edu/>

[2021-02-21 11:16:59]

**[Eddie Holmes]**

Secret military experiments - what a piece of absolute crap. Good to see the post up there Bob!

[2021-02-21 11:44:54]

**[Robert Garry]**

That's precisely correct :hankey:. Not even the smiley kind.

[2021-02-21 12:13:56]

**[Eddie Holmes]**

<https://www.cnn.com/2021/02/21/china/who-covid-19-origins-intl/index.html>

[2021-02-21 12:43:42]

**[Robert Garry]**

NPW is the real deal...

[2021-02-21 12:57:17]

**[Eddie Holmes]**

Yes, he's a good guy. Swears a lot.

[2021-02-21 15:08:26]

**[Eddie Holmes]**

Did you see this: <https://www.biorxiv.org/content/10.1101/2021.02.13.431090v1.full.pdf+html>

[2021-02-21 15:09:54]

**[Eddie Holmes]**

I've not read it carefully yet, but interesting to see the adaptive changes in ORF1ab as well. They are dead right that dN/dS is pretty rubbish when you have fixed mutations.

[2021-02-21 15:12:34]

**[Kristian Andersen]**

Yeah, just saw it too - pretty interesting. And yes, "A" is totally unique to SC2 there

[2021-02-21 15:13:39]

**[Eddie Holmes]**

*[thread - ID: 2021-02-20 08:10:32]*

I'm in...sorry, just catching up this thread now.

[2021-02-21 15:14:15]

**[Kristian Andersen]**

it's nicely spotted, since it's the only mutation unique to SC2 in the RBD - we should have picked this up earlier. I wonder if H519 does something interesting too.

[2021-02-21 15:16:23]

**[Kristian Andersen]**

519 is "H" in SC2, but N in almost all other sequences - the only other deviation is K in the P378 pangolin, although that is a pretty bad sequence, so might not be real.

[2021-02-21 15:16:38]

**[Eddie Holmes]**

No one thinks about fixed changes: nicely blows-up the idea that SARS-CoV-2 was perfectly adapted to humans at the outset.

[2021-02-21 15:18:13]

**[Kristian Andersen]**

*[thread - ID: 2021-02-21 15:18:13]*

Well, actually, this supports being perfectly adapted to humans :wink:. A in that position was fixed from the get go.

[2021-02-21 15:20:18]

**[Kristian Andersen]**

(and yeah - dN/dS is shit. Just no point).

[2021-02-21 15:23:31]

**[Eddie Holmes]**

*[thread - ID: 2021-02-20 08:27:16]*

I can certainly see that Doug & Phil increased transmissibility, but that does not explain why B.1.1.7 et al., which arose later, are doing so well. That may have arisen through an intra-host advantage, but it's obvious that they have an epidemiological scale advantage as well. Clearly they have increased fitness which can only be due to (i) increased transmissibility in itself....which suggests that there should be other key mutations in ORF1ab (?) and/or (ii) immune evasion that enables more refection and hence increases R. Perhaps that deletion in nsp6 is the key?

[2021-02-21 15:24:56]

**[Eddie Holmes]**

*[thread - ID: 2021-02-20 09:23:53]*

Are there \*proportionately\* more chronic infections? Do we know their overall frequency?

[2021-02-21 15:27:17]

**[Eddie Holmes]**

*[thread - ID: 2021-02-20 10:31:01]*

Definitely needs to be set out here.

[2021-02-21 15:35:40]

**[Eddie Holmes]**

*[thread - ID: 2021-02-21 15:18:13]*

The Chan/Petrosky analysis was that dn/ds suggested that there was NO adaptation to humans. This shows otherwise. We know that this mutation is fixed in all the human samples studied to date, but we don't know about any chains of transmission that died out.

[2021-02-21 15:43:01]

**[Andrew Rambaut]**

Hmm. Not sure about this paper - they are using software for detecting genomic selective sweeps using LD, I think.

[2021-02-21 15:43:48]

**[Eddie Holmes]**

But they do then do experimental assays to confirm these computational results. I can't judge how good these are. The bottom-line that there has been a continual adaptive process.

[2021-02-21 15:49:38]

**[Kristian Andersen]**

Yeah, the sweep analyses are shit - can't do that in viral genomes, only sexually reproducing organisms.

That said, they DID come across a very very interesting mutation (by chance?) and the experimental data is good

[2021-02-21 15:53:14]

**[Eddie Holmes]**

Yes, it's the experimental data that is interesting.

[2021-02-21 15:59:02]

**[Eddie Holmes]**

In other news: <https://peterdaszak.com/>

[2021-02-21 16:01:55]

**[Eddie Holmes]**

@Kristian Andersen You're included for your 'fairy tales'. Someone has put a lot of effort into this shit.

[2021-02-21 16:13:47]

**[Kristian Andersen]**

Well, they got my last name wrong so they can't be that clever...

Unbelievable how much time some people have on their hands. [shared file(s): Screen Shot 2021-02-21 at 4.13.10 PM.png]

[2021-02-21 16:14:30]

**[Kristian Andersen]**

"PETER DASZAK MEMORIAL RESEARCH INSTITUTE". That's pretty good - I gotta admit.

[2021-02-21 16:16:37]

**[Kristian Andersen]**

... made with Microsoft FrontPage - oldskool.

[2021-02-21 16:18:13]

**[Eddie Holmes]**

Lots of young scientists are mentioned - pure evil I think.

[2021-02-21 19:41:30]

**[Eddie Holmes]**

Just (confidentially\_ re-sharing this email thread from early last year (Kristian has it already). Just to highlight the names involved in the WIV story. All the anti-GoF bunch. [shared file(s): FW Coronavirus research in China.pdf]

[2021-02-21 20:13:02]

**[Eddie Holmes]**

This is the email that triggered my work on the WIV. The irony, of course, is the lab escape lot started this but we are the ones being accused of being unyielding.

[2021-02-21 22:01:32]

**[Eddie Holmes]**

Just got this from Peter Daszak: not funny at all. "The website is the least of it - we've got a security guard at the house visits once a day because we had a white powder letter last summer and the online threats are heinous - getting email death threats weekly now".

[2021-02-21 22:09:20]

**[Kristian Andersen]**

I don't like the guy, but that's just terrible - seriously. What the hell is wrong with people?!

[2021-02-22 00:14:08]

**[Eddie Holmes]**

I agree. It's just not on. Ebright, Alina et al. have a lot to answer for. They legitimise the hate.

[2021-02-22 06:22:44]

**[Robert Garry]**

*[thread - ID: 2021-02-20 08:27:16]*

@Kristian Andersen Nsp6 yes and the NTD mutations to. As @Andrew Rambaut has highlighted I think the constellation of mutations converging to a common set (albeit with precise mutations somewhat variable) is key to the "what the fuck just happened" question.

[2021-02-22 06:25:15]

**[Robert Garry]**

Doing it right [https://theconversation.com/i-was-the-australian-doctor-on-the-whos-covid-19-mission-t\[...\]-s-what-we-found-about-the-origins-of-the-coronavirus-155554](https://theconversation.com/i-was-the-australian-doctor-on-the-whos-covid-19-mission-t[...]-s-what-we-found-about-the-origins-of-the-coronavirus-155554)

[2021-02-22 06:32:21]

**[Robert Garry]**

Daszak not so much, but even he should not be threatened - that's a crime and ppl like Alina are indeed culpable. One reminder about Pottinger who just did the TV interview - there is that definite connection to Peter Thiel and via Thiel to Bannon. Connecting the dots is not that hard, and by "dots" I mean \$. \*Conspiracy theory - you bet!\* <https://www.dailymail.co.uk/news/article-7090931/Tech-billionaires-Eric-Schmidt-Peter-Thiel-seen-secretive-Bilderberg-summit.html> "Trump has also sent two members of the National Security Council, Matthew Turpin, Director of China and Matthew Pottinger."

[2021-02-22 07:31:43]

**[Robert Garry]**

At least we made Yuri laugh! [shared file(s): image.png]

[2021-02-22 07:33:00]

**[Kristian Andersen]**

*[thread - ID: 2021-02-22 07:33:00]*

I serve to please.

[2021-02-22 07:35:39]

**[Robert Garry]**

Not clear at all who is the :clown\_face:. @Kristian Andersen or the guy that will freeze your corgi's head for a fee. And, to continue my little conspiracy "theory" Yuri and Thiel it seems go way back. Yuri likely picking up another nice check for his latest tweets. Remind me when our CCP checks are coming?

[2021-02-22 07:38:48]

**[Kristian Andersen]**

I think we just have to mention that frozen foods did it, and then the checks will come.

[2021-02-22 07:39:23]

**[Robert Garry]**

ON it!

[2021-02-22 07:56:56]

**[Robert Garry]**

:gorilla: [shared file(s): image.png]

[2021-02-22 07:57:17]

**[Robert Garry]**

Don't miss it!

[2021-02-22 07:57:38]

**[Robert Garry]**

But wasn't that zoo in San Diego?

[2021-02-22 08:45:29]

**[Kristian Andersen]**

Yeah, San Diego... I was asked to be on that program too - but declined.

[2021-02-22 08:47:18]

**[Kristian Andersen]**

Devi is :100: though, so I'm sure she didn't exactly intend to stir the pot of conspiracy... No doubt large-scale factory farming is risky from a natural emergence perspective though - but calling them "bioweapon factories" is just dumb.

[2021-02-22 08:48:55]

**[Andrew Rambaut]**

You can't have a 'natural' bioweapon - by definition

[2021-02-22 08:51:36]

**[Kristian Andersen]**

Hah, good point.

[2021-02-22 08:51:43]

**[Andrew Rambaut]**

Also I don't think that a human virus getting into mink is a particularly risky think other than potentially exposing more people or creating a reservoir. It isn't going to get more human adapted.

[2021-02-22 08:53:13]

**[Kristian Andersen]**

I don't know - having a parallel epizootic with god knows what kind of selection pressures operating is to be avoided at all cost. Mink farming is typically also associated with other farming - creating risks of further epizootics.

[2021-02-22 08:59:38]

**[Andrew Rambaut]**

I agree about the zoonosis as a route from things like bats into humans especially as these mustelids seem such good models for humans. But I just can't get excited about animal transmission as a source of variants.

[2021-02-22 09:01:17]

**[Andrew Rambaut]**

Would need to be some funky epistatic interactions to get somewhere that is not readily reachable in humans in the first place.

[2021-02-22 09:25:55]

**[Robert Garry]**

I'd like to see how Dougless and prePhil do in minks/ferrets - are they like the monkeys? Also not having mink farms is not going to change "quality of life" for anyone except people like Ivanka and of course the mink farmers. Raise ferrets instead and let's use them to figure out better Cov/flu vaccines and drugs.

[2021-02-22 09:51:24]

**[Robert Garry]**

*[thread - ID: 2021-02-21 15:18:13]*

@Kristian Andersen The T372A change is in the CTD, it does not likely interact with ACE2 at any level so I don't think it's in the RBD per se. Maybe this is just me. But \*YES\* indeed look at N519H/K [lot's of aspartic acid and histadine mutations popping up in variants - just like in the flu adaptations btw]. Good spot @Kristian Andersen It's symmetrical with the T372. What are these two changes doing you might ask? If I had to guess it has to do with the "flipping up" of the CTD to better expose the RBD. Spike exists in two conformations: closed (CTD down) and open (CTD flipped up) - it would surprising to me if both of these changes didn't favor "open." [shared file(s): image.png]

[2021-02-22 10:01:52]

**[Kristian Andersen]**

*[thread - ID: 2021-02-21 15:18:13]*

@Kristian Andersen Ohhh, interesting. Hmmm - some functional stuff here would be cool...

[2021-02-22 10:03:34]

**[Robert Garry]**

*[thread - ID: 2021-02-21 15:18:13]*

@Kristian Andersen Those mutations are also likely epitopes so factor that in.

[2021-02-22 10:11:57]

**[Robert Garry]**

*[thread - ID: 2021-02-22 07:33:00]*

@Kristian Andersen BTW Yuri seems to have graduated to ClustalW, so I guess none of us stand a chance anymore.

[2021-02-22 11:35:07]

**[Eddie Holmes]**

I think 'bioweapon' was more of an allegory. And clearly the endemic circulation of the virus in humans is more of a worry than any spill-back to animals.

[2021-02-22 11:52:10]

**[Robert Garry]**

*[thread - ID: 2021-02-21 15:18:13]*

@Kristian Andersen And, of course the lack of a glycan at N370 because of the T372A also a big deal.

[2021-02-22 12:19:46]

**[Eddie Holmes]**

In the spirit of reconciliation I suggest we ask Yuri to go on these fun runs:

<https://www.whtimes.co.uk/news/man-fundraises-by-running-in-shape-of-penises-7564206>



[2021-02-22 12:33:28]

**[Robert Garry]**

Hilarious!

[2021-02-22 12:35:34]

**[Robert Garry]**

An editor with a sense of humor...

[2021-02-22 13:26:06]

**[Kristian Andersen]**

Haha, \_we\_ should sign him up.

[2021-02-22 13:29:00]

**[Kristian Andersen]**

Speaking of which - here's Charles' paper on the "California" variant.... (I asked for our group to be taken off - I'm concerned about the robustness of some of the analyses/conclusions to say the least). [shared file(s): L452R-variant-manuscript-ver4.pdf]

[2021-02-22 13:52:58]

**[Andrew Rambaut]**

I don't believe that 'variant' is doing anything special.

[2021-02-22 13:54:28]

**[Robert Garry]**

Agree - Good choice Kristian.

[2021-02-22 13:56:52]

**[Kristian Andersen]**

I \_think\_ it might be slightly more transmissible, but I'm not even sure about that. For the rest, well :man-shrugging:.

Doesn't matter though - B.1.1.7 will knock it out within the next few weeks.

[2021-02-22 13:57:29]

**[Andrew Rambaut]**

Go B.1.1.7!

[2021-02-22 13:59:06]

**[Robert Garry]**

Absolutely!

[2021-02-22 23:37:17]

**[Eddie Holmes]**

Can I just loop back to an earlier chat: @Andrew Rambaut in A.23.1 (Uganda I think) I assume you don't see Doug and Phil (the mutation in nsp12)? So, the elevated number of changes in this lineage is due to a different evolutionary pathway facilitated by another 'enabling' mutation like Doug (or Phil)? Do you see mutations that are structurally/functionally similar to Doug and Phil? I'm just wondering if this parallel evolutionary process provides some important clues?

[2021-02-23 00:03:59]

**[Andrew Rambaut]**

It doesn't have Doug but it does have his brother Q613H. No Phil (a minority of them have nsp12 mutations but haven't dug into those yet). Does also have a bunch of NSP6 mutations in similar places to the deletion.

[2021-02-23 00:05:01]

**[Andrew Rambaut]**

Also I have had some backtracking about the P323L coming up in monkeys - data looks dodgy apparently.

[2021-02-23 00:07:19]

**[Andrew Rambaut]**

A.23.1 also has a cluster in the UK with E484K

[2021-02-23 00:10:36]

**[Eddie Holmes]**

Fascinating. So, D614G or Q613H (and perhaps linked mutations) push the virus down a particular evolutionary 'corridor' which then means that only certain subsequent mutations will follow?

[2021-02-23 00:18:34]

**[Andrew Rambaut]**

Interestingly it seems that P681R arose after Q613H: [shared file(s): A.23.1\_2021-02-02.tree.png]

[2021-02-23 00:25:41]

**[Eddie Holmes]**

Ha. So that parallels P681H in B.1.1.7?

[2021-02-23 00:41:31]

**[Eddie Holmes]**

Reminds me of this: <https://science.sciencemag.org/content/328/5983/1272>

[2021-02-23 04:48:31]

**[Robert Garry]**

V367F interesting in the CTD - probably more effect on the "flipping up" of the RBD.

[2021-02-23 06:40:30]

**[Kristian Andersen]**

Reminds me of "keystone" mutations in Polio vaccine reversion too. Nate and I summarized an Andino paper on that a while back - <https://pubmed.ncbi.nlm.nih.gov/28340335/>

[2021-02-23 07:59:07]

**[Robert Garry]**

Yes indeed A.23.1 very significant. Great tree @Andrew Rambaut Seems to me that a "WTF just happened" paper has a lot of precedence. Yeah a lot of good thinking in the Grumbaugh/Andersen commentary... <https://journals.plos.org/plosmedicine/article?id=10.1371/journal.pmed.0030263> Also the Chik paper you discuss is also relevant - the key mutation near the fusion peptide. And then of course this one you also discussed. <https://science.sciencemag.org/content/336/6088/1534>

[2021-02-23 13:54:14]

**[Kristian Andersen]**

Just got contacted by the Office of the President for an off-the-record conversation about COVID origins.... Hmmmm, I wonder if they have anything - or more likely not. This should be interesting.

Bob, did you get a request too?

[2021-02-23 13:56:49]

**[Eddie Holmes]**

Seriously? Not a scam? My guess is that they are just interested in general info. and why we think the way we do.

[2021-02-23 13:57:03]

**[Robert Garry]**

No - but I'm sure you will set them on the right track.

[2021-02-23 13:58:11]

**[Eddie Holmes]**

They would not be the people who would release the key info.

[2021-02-23 13:58:58]

**[Robert Garry]**

Isn't OoP Eric Lander?

[2021-02-23 13:59:41]

**[Kristian Andersen]**

Not a scam - legit email sender. Yeah, Lander is the scientific advisor.

[2021-02-23 14:02:02]

**[Eddie Holmes]**

Tell him that Alina is a pain in the arse. I'm not all impressed with the behaviour of the Broad on this and a variety of other matters.

[2021-02-23 14:03:34]

**[Robert Garry]**

She is evil and not helping the reputation of the Broad.

[2021-02-23 14:19:13]

**[Robert Garry]**

The only lab release "theory" that is possible is if WIV or another lab actually had SC2 or a virus that is one or two steps away from SC2. If anyone had one of these 1. no reason to hide it before the outbreak. and 2. hiding SC2 or the preSC2 would require the greatest conspiracy EVER. The corollary to this is that in this case SC2 or preSC2 is a NATURAL virus. The Baker/Alina/Relman crap about stopping work on bat/animal CoVs cause someone could have brought it back to the lab also needs vetted somewhere other than the WSJ.

[2021-02-23 14:44:27]

**[Robert Garry]**

The crap about stopping work on bat/animal CoVs is Alina's revenge for all the natural origins proponents that have called out her bullshit. Give the devil her due it's gotten some level of traction, esp with the whole GoF crowd weighing in.

[2021-02-23 15:08:58]

**[Eddie Holmes]**

*[thread - ID: 2021-02-23 15:08:58]*

Totally agree Bob. Someone said that our latest post was just covered in This Week in Virology. I'm not sure if I have the strength to listen.

[2021-02-23 16:38:19]

**[Robert Garry]**

I'll "look."

[2021-02-24 01:15:51]

**[Andrew Rambaut]**

@Eddie Holmes I just got the final FOI document to check over. An interesting read and comes across as a genuine investigation (as it was, of course) with no prior agenda. Interesting it drags in Jeremy as a key player. Also shows Collins had eyes on it (but only in retrospect). I can't see anything I personally should be concerned about (which is what UoS was asking about) so unless there is anything you want to draw my attention to, I will sign off on it.

[2021-02-24 01:35:59]

**[Eddie Holmes]**

Thanks. Collins is a good point and I can see people picking up on that. One clause for non-release is that they 'expose people to serious harm or intimidation' and given that we are bound to get online abuse for this (even though the emails are innocuous) I think the Uni may opt not to release the emails because they have a duty of care over my mental health. Their call though.

[2021-02-24 04:43:52]

**[Robert Garry]**

*[thread - ID: 2021-02-23 15:08:58]*

@Eddie Holmes I listened and literally fell asleep - so I could have missed mention of Holmes2021. I didn't hear a mention. They did talk about Lin-Fa's NatComm paper in depth but - Sooooo boring and this is coming from someone who is really interested in the topic. Not to mention some chalk screeching on the chalkboard moments of misinformation.

[2021-02-24 05:03:23]

**[Robert Garry]**

Online abuse will come even though it's all totally innocuous. Since the Fol request IIRC has the clear link in to DRASTIC {same group that released the Baric emails}, I'm betting Billy the one-eyed dead lab monkey aka Kevin the U-Tuber will - at the least - have a field-day drawing penises on everyone's heads. Conspiracy Theorists can't help but - well - build conspiracy theories. It's what they do. Alina no doubt will construct a brand new Wall of Crazy to -you know - link all the dots.

[2021-02-24 05:05:33]

**[Robert Garry]**

Oh - BTW - UoS just this very minute sent me the docs as well.

[2021-02-24 05:38:00]

**[Robert Garry]**

First pass thru for me but I saw nothing harmful. Shows we gave the lab/cell culture passage theory an honest and very complete look and ultimately - pretty much - rejected.

[2021-02-24 06:07:57]

**[Robert Garry]**

Pompeo editorial in the WSJ - will post complete copy here when I get to office.

[2021-02-24 07:16:41]

**[Robert Garry]**

Pompeo [shared file(s): China's Reckless Labs Put the World at Risk - WSJ.pdf]

[2021-02-24 07:34:39]

**[Andrew Rambaut]**

So much insinuation without actually accusing them of anything

[2021-02-24 07:41:25]

**[Kristian Andersen]**

Hah, this is soooooo terrible. I'm pretty sure that Pompey looked up "Biosafety Level", thought, "That's some scary shit - let's blame China", and grabbed the keyboard.

US politicians (and intelligence) actually used to be widely respected in the world. Boy, has that gone downhill.

[2021-02-24 07:44:38]

**[Kristian Andersen]**

We now have an "NYC" variant... Sigh. Any concerns about any of these mutations - especially the ORF1s? [shared file(s): Screen Shot 2021-02-24 at 7.38.07 AM.png]

[2021-02-24 07:45:20]

**[Kristian Andersen]**

Here's the report on it - rising in NYC (yes, of course there's a preprint...)

[https://outbreak.info/situation-reports?country=United%20States&division=California\[...20York&pango=B.1.526&selected=New%20York&selectedType=division](https://outbreak.info/situation-reports?country=United%20States&division=California[...20York&pango=B.1.526&selected=New%20York&selectedType=division)

[2021-02-24 08:11:33]

**[Andrew Rambaut]**

*[thread - ID: 2021-02-24 08:11:33]*

There are 2 subclades of B.1.526 - one has E484K, the other S477N.  
<https://github.com/cov-lineages/pango-designation/issues/6>

[2021-02-24 08:26:29]

**[Kristian Andersen]**

Ah, interesting - need to dig a little further then (we can now do pango lineage + mutation on outbreak.info, so that's pretty nifty). If this is the one with, especially, eek, then that's interesting - a lot of standing immunity in large parts of NYC.

[2021-02-24 08:51:17]

**[Robert Garry]**

That's a really good point about all the pre-existing immunity in NYC. E484K doing double duty - ACE2 binding plus a neutralizing epitope. S477N likely the same/overlapping epitope, but NO interaction with ACE2 at least directly.  
[shared file(s): image.png]

[2021-02-24 09:02:19]

**[Robert Garry]**

*[thread - ID: 2021-02-24 08:11:33]*

@Andrew Rambaut Q957R is interesting - Q957 probably forms a salt bridge with K304. Put another positive charge there make clash and likely "loosens up" the monomer more than a bit. Like Eddies corridor analogy though - variants finding their way down to a common path,

[2021-02-24 09:22:50]

**[Kristian Andersen]**

Yeah, B.1.526 with eek is definitely rising in New York. This might be real.

[https://outbreak.info/situation-reports?country=United%20States&division=California\[...\].1.526&muts=S%3AE484K&selected=New%20York&selectedType=division](https://outbreak.info/situation-reports?country=United%20States&division=California[...].1.526&muts=S%3AE484K&selected=New%20York&selectedType=division)

[2021-02-24 09:27:32]

**[Robert Garry]**

*[thread - ID: 2021-02-24 09:27:32]*

Speaking of the WSJ - they just requested an interview to discuss our Virological post.

[2021-02-24 09:27:44]

**[Andrew Rambaut]**

It is weird the V701A reverting in the S477N lineage - maybe the tree is wrong

[2021-02-24 09:29:14]

**[Robert Garry]**

HMMMM - that is interesting.

[2021-02-24 09:29:17]

**[Kristian Andersen]**

Oh... We have identified a MAJOR issue with Illumina's consensus caller - it's calling reference calls if there are \_any\_ mismatching reads at a variant site. That might be why

[2021-02-24 09:29:38]

**[Kristian Andersen]**

If this is from NYC, it's possible they used Illumina's DRAGEN pipeline

[2021-02-24 09:29:55]

**[Kristian Andersen]**

(I have reached out to them - crickets).

[2021-02-24 09:30:49]

**[Kristian Andersen]**

shared file(s): image (1).png, Screen Shot 2021-02-24 at 09.30.29.png

[2021-02-24 09:34:16]

**[Andrew Rambaut]**

Interesting - we have seen quite a lot of 'reversions' in some of the VOCs. Who would be using this consensus caller? Is there a way to find out?

[2021-02-24 09:34:20]

**[Kristian Andersen]**

Preprint on the NYC sequences - pretty interesting.

<https://www.biorxiv.org/content/10.1101/2021.02.14.431043v2.full.pdf>

[2021-02-24 09:34:43]

**[Kristian Andersen]**

I'm worried A LOT of people are using the Illumina pipeline - and there's no way to find out in most cases

[2021-02-24 09:35:27]

**[Kristian Andersen]**

Any lab that hasn't previously been involved in virus sequencing and isn't as comfortable with command line tools would likely use this caller. It's a big big problem.

[2021-02-24 09:46:44]

**[Kristian Andersen]**

B.1.526 with S477N: [https://outbreak.info/situation-reports?country=United%20States&division=California\[...\].526&muts=S%3AS477N&selected=New%20York&selectedType=division](https://outbreak.info/situation-reports?country=United%20States&division=California[...].526&muts=S%3AS477N&selected=New%20York&selectedType=division)

[2021-02-24 09:47:25]

**[Kristian Andersen]**

Interestingly, none with both (kinda supporting this is a real effect - since they're independent events):

<https://outbreak.info/situation-reports?pango=B.1.526&muts=S%3AE484K&muts=S%3AS477N>

[2021-02-24 11:41:21]

**[Eddie Holmes]**

*[thread - ID: 2021-02-24 09:27:32]*

Jeremy Berg? He contacted me as well? I declined, but I looked him up and he seems straight and not a lab escape advocate.

[2021-02-24 11:44:27]

**[Robert Garry]**

Not Jeremy - Betsy McKay - writes with Jeremy Page [maybe he was the one that contacted you] yeah pretty straight up reporting - not like Pompeo and Alina or the Editorial Page.

[2021-02-24 11:53:45]

**[Eddie Holmes]**

You have to laugh: [shared file(s): Screen Shot 2021-02-25 at 6.53.00 am.png]

[2021-02-24 12:02:20]

**[Robert Garry]**

Hilton of course is the one that says mix RaTG13 with GD Pango and \*Bibbidi-Bobbidi-Boo\* whatda you got: SARS-CoV-2. Maybe a simple No to Fox News and sorry you don't have time to discuss fairy tales.

[2021-02-24 12:03:31]

**[Robert Garry]**

And of course with Hilton [cue the organ music] throw in a little Tony Fauci paid for it!

[2021-02-24 12:03:32]

**[Eddie Holmes]**

I was thinking of a shorter, more direct response

[2021-02-24 12:07:16]

**[Kristian Andersen]**

Dear Fox,

I suggest Steve looks up "Gain of Function" in a dictionary as a start. I might also suggest an online course in basic science - edX is a great start.

Yours,  
Eddie

[2021-02-24 12:07:56]

**[Kristian Andersen]**

"The material is a bit complex to most people without a scientific background..." They totally nailed that part. Hence maybe Steve should not even attempt...

[2021-02-24 12:08:36]

**[Eddie Holmes]**

Oh, so tempting.

[2021-02-24 12:24:47]

**[Kristian Andersen]**

Looking through the FOIA material - sad to see all the juicy stuff isn't there. We can assign roles to each character based on this - Bob's clearly "The Nerd", I'm clearly "The Schemer", Butt Lesion "Who?", so we only need Eddie and Andrew...

[2021-02-24 12:36:08]

**[Kristian Andersen]**

Eddie - "Supreme Commander", Andrew "Part Nerd, Part Schemer".

[2021-02-24 12:44:11]

**[Eddie Holmes]**

I think I'm more "The Fiddler" than the "Supreme Commander". I don't do leadership well.

[2021-02-24 12:51:08]

**[Kristian Andersen]**

"The Fiddler" - I like that... I don't know though - I think you do the "Commander" part pretty well. Whether supreme or not, is up for debate....

[2021-02-24 13:00:35]

**[Kristian Andersen]**

One question to the FOIA though - I do think we need to make the reviews public as the emails make the Nature connection clear. The original version of the paper is still what's on Virological, correct?

[2021-02-24 13:09:00]

**[Eddie Holmes]**

I'm not sure we're allowed to do that because (i) they explicitly said that correspondence with the journal was excluded and (ii) we'll need get approval from Nature. But, that does raise an issue of what Nature will think. So, perhaps I should run all these emails by Nature now anyway?



[2021-02-24 13:39:31]

**[Robert Garry]**

Just off the phone with Betsy McKay - actually pretty good - they are going to do a series on origins, but just starting. YEs - not a bad idea to run emails by Nature - nothing there that's really a problem - I'm OK with "The Nerd" - I'm owning it!

[2021-02-24 13:42:34]

**[Kristian Andersen]**

Yeah, might be worth popping this by Nature - questions will for sure be asked ("did they get rejected because their natural hypothesis wasn't supported well enough"? Quite the opposite.... Still pissed about it).

[2021-02-24 13:43:00]

**[Kristian Andersen]**

Agree, Betsy is pretty good, but I'm unclear about her motives on origins - I guess we'll see...

[2021-02-25 05:44:25]

**[Robert Garry]**

On topic: Polk awards for Ed Yong, Kai K. and Helen Branswell - seems right.

[2021-02-25 06:44:08]

**[Kristian Andersen]**

Yup. They have been doing a tremendous job!

[2021-02-25 07:51:32]

**[Robert Garry]**

B.1.427 and B.1.429 Charles loves the spotlight - has ever since the "heady" days of Bas-Congo Virus. But what really got me intrigued is the W152C mutation. An unpaired cysteine - not likely to be selected for or even tolerated. WTF is a common theme with this virus. So digging into this a bit I have a "theory." The cysteine could be creating a metal chelating spot. SEE FIGURE. Also check back above the two "new" cysteines in the Weifeng alignment in the HA321 Rhinolophus steno, HA363 Rhinolophus malayanus, HA442 Rhinolophus malayanus viruses - same spot in the NTD so these could form a new metal chelating spot with two of the histidines as well [equally likely a new dicysteine loop]. Finally the two new cysteines that popped up in @Kristian Andersen "reinfection" patient could also be doing the metal chelation thing with the histidines or forming their own new dicysteine loop. [shared file(s): image.png]

[2021-02-25 07:52:52]

**[Robert Garry]**

Someone with a cryoEM really needs to take a look.

[2021-02-25 07:55:49]

**[Kristian Andersen]**

*[thread - ID: 2021-02-25 07:55:49]*

Interesting... Hasn't it previously been hypothesized that the FCS itself is involved in metal chelation, potentially expanded the receptor usage of the virus?

That site is pretty interesting- we also see R and L in that position at times:  
[https://nextstrain.org/ncov/global?c=gt-S\\_152](https://nextstrain.org/ncov/global?c=gt-S_152)

[2021-02-25 07:57:44]

**[Kristian Andersen]**

I'm talking to Charles later this morning btw - I think he got a little spooked and is realizing that maybe his data is shit... I think the potential transmission advantage of the variant is interesting, so worth looking at that further - but not the way Charles did. Won't matter in a few weeks though - B.1.1.7 is going in for the knockout.

[2021-02-25 08:04:53]

**[Robert Garry]**

[thread - ID: 2021-02-25 07:55:49]

@Kristian Andersen Heparin sulfate binding I think.

[2021-02-25 08:37:34]

**[Kristian Andersen]**

Charles actually looked at binding of W152C in his 'paper'. Decreased binding - by quite a bit (manu above). [shared file(s): Screen Shot 2021-02-25 at 08.36.44.png]

[2021-02-25 08:52:21]

**[Kristian Andersen]**

@Andrew Rambaut - I assume this isn't actually a pango issue, right? [shared file(s): Screen Shot 2021-02-25 at 08.51.50.png]

[2021-02-25 09:10:41]

**[Andrew Rambaut]**

This was happening occasionally - a false positive P.1. probably due to convergence. We have fixed this now in the latest pangolin so P.1s will only be called based on having 5 or more of the defining mutations.

[2021-02-25 10:38:02]

**[Kristian Andersen]**

Andrew - do you have a copy of that Economist article?

[2021-02-25 12:10:36]

**[Andrew Rambaut]**

shared file(s): It's a family affair - The same covid-19 mutations are appearing in different places \_ Graphic detail \_ The Economist.pdf

[2021-02-25 12:10:49]

**[Andrew Rambaut]**

Not very well formatted in the PDF

[2021-02-25 12:18:37]

**[Kristian Andersen]**

Cool, thanks. Yeah, clearly works better on the website - I thought his Twitter thread was good and the graphics looked clear.

[2021-02-25 12:20:27]

**[Andrew Rambaut]**

Yes. He was good to work with and did the research

[2021-02-25 12:50:01]

**[Kristian Andersen]**

Gotta say - yes, a lot of shitty reporting and journalists out there, but MANY of them are doing a tremendous job reporting on pretty complex stuff!

[2021-02-25 13:35:00]

**[Robert Garry]**

@Eddie Holmes Nothing else to redact on the FOI. Good to go from my end.

[2021-02-25 16:26:41]

**[Robert Garry]**

I think we should get started on a peer-reviewed paper - I think strong without the additional Weifeng sequences , but would be a simple matter to incorporate the additional sequences once released.

[2021-02-25 16:42:05]

**[Kristian Andersen]**

The FOI is with my institution at the moment - I have no concerns, but wanted to let them know.

[2021-02-25 16:42:45]

**[Kristian Andersen]**

(except - we need the reviews from our Nature submission to be online too - it's important, otherwise the rejection will be misunderstood (or, rather, misrepresented)).

[2021-02-25 17:01:47]

**[Eddie Holmes]**

I agree Bob. I'm following up with the Nature thing Kristian.

[2021-02-25 23:28:11]

**[Andrew Rambaut]**

We don't necessarily need the reviews - just the 'rejection' letter. That summarises what the reviewers said, I think?

[2021-02-26 01:31:06]

**[Eddie Holmes]**

I'm on the case.

[2021-02-26 04:56:02]

**[Robert Garry]**

Drawing penises on PO1 authors heads is hard, relentless and costly work. Perhaps even, Mum has threatened to push him out of her flat. Please "consider" supporting Billy aka Kevin. Paypal or Bitcoin accepted. [shared file(s): image.png]

[2021-02-26 12:40:18]

**[Eddie Holmes]**

Abusive conspiracy theorist down own his luck. Heart-breaking.

[2021-02-26 12:57:27]

**[Eddie Holmes]**

He should also take a lesson from that charity runner on penis drawing - his had so much more detail.

[2021-02-27 07:13:47]

**[Robert Garry]**

Isn't it about more than time that Alina UNPINS her pinned Wall-of-Crazy tweetorial? So much bullshit, misinformation, innuendo and SLANDER. "I hope this analysis will help to clear things up. It will refresh us on significant early pandemic events and major publications discussing the origins of the virus (3/30)."

Notably, many of the key papers describing original data on bat or pangolin coronaviruses closely related to SARS-CoV-2 share co-authors." "Soon, another preprint describing a closely related bat virus, RmYN02, and a @NatureMedicine correspondence "The proximal origins of SARS-CoV-2" were published. These both share an author with Lam et al. @Nature and both proposed that SARS2's origins are natural. (11/30)" "\*\*Alina Chan\* @Ayjchan

.

Oct 25, 2020

Popular request: top points. 1. Public has little idea what happened/is happening behind the scenes with journals x authors of SARS2rCoV papers. 2. The closest related virus genomes to SARS2 cannot be independently assembled due to missing data/have unexplained indiscrepancies."

[2021-02-27 07:17:12]

**[Kristian Andersen]**

I think she should keep it up - perfect example of how she's deep into the conspiracy.

I have previously pointed out that her technical concerns were wrong and bullshit (e.g., genomes can in fact be assembled - if you know what you're doing). She didn't seem to care.

[2021-02-27 07:35:01]

**[Robert Garry]**

True - the new Bat CoV genomes - as our Virological post points out - eliminates any doubt possibility that RaTG13, RmYN02, pangocovs and SC2 are fake/fraudulent.

[2021-02-27 07:53:45]

**[Kristian Andersen]**

Yes - plus I assembled all the pango and bat genomes previously and put the bam files online for anybody to see. It's a google search away... :wink:

[2021-02-27 08:19:33]

**[Andrew Rambaut]**

So it was you that assembled those pango and bat genomes to create the deadly SARS-CoV-2 and released it in the center of Wuhan!

[2021-02-27 08:20:46]

**[Kristian Andersen]**

:shushing\_face:

[2021-02-27 09:25:24]

**[Robert Garry]**

Channelling Alina: Can't prove it DIDN't happen so it MUST be plausible. OTOH I do think that the release of our emails for the UoS Fol request will creatse some threats and opportunities, which is what got me considering all the terrible science that Alina and her ilk have spewed out.

[2021-02-27 11:10:08]

**[Robert Garry]**

<https://blog.whitecoatwaste.org/wp-content/uploads/2021/02/NIH-Letter-re-Wuhan-Institute-of-Virology-FINAL-Perry-Feb-2021.pdf>

[2021-02-27 11:11:48]

**[Robert Garry]**

Extension of the Fox/Hilton campaign. 16 members of congress all Republicans coming specifically for Tony...

[2021-02-27 11:15:10]

**[Kristian Andersen]**

It's unbelievable how dumb some US politicians are - even the very very very basic facts of what GOF is, they didn't bother to check. Also, "treacherous research" - I hope I'll never deserve that accolade :wink:

[2021-02-27 15:27:08]

**[Robert Garry]**

*[thread - ID: 2021-02-27 15:27:08]*

Offered without a clue.

<https://medium.com/illumination-curated/the-unexpected-case-of-the-disappearing-flu-64fd1fa5e909>

[2021-02-27 17:58:11]

**[Robert Garry]**

*[thread - ID: 2021-02-27 17:58:11]*

\*LL\_Beta\_REP\_S\_aa\_clustalnum\_Alv4.pdf\*

\*Eddie Holmes\*

[3:06 AM]

**[Andrew Rambaut]**

Some one brought some back to the lab once in Oxford. Can't remember who it was. Absolutely foul.

[2021-02-28 12:37:10]

**[Eddie Holmes]**

Nick Grassly I think

[2021-02-28 12:37:17]

**[Andrew Rambaut]**

Seems likely

[2021-02-28 12:39:10]

**[Andrew Rambaut]**

6 cases of P.1 in UK, 3 in Aberdeen, 3 in SW England. One seems to have no epi information which is fun. How are they getting here? Can't be from Manaus surely. Must be widespread elsewhere.

[2021-02-28 12:39:22]

**[Andrew Rambaut]**

Aberdeen? Bonkers

[2021-02-28 12:39:41]

**[Andrew Rambaut]**

Perhaps the oil industry

[2021-02-28 12:39:58]

**[Kristian Andersen]**

South America has a lot of people in it.

[2021-02-28 12:40:10]

**[Kristian Andersen]**

(and NO genomic epi in most countries)

[2021-02-28 12:40:34]

**[Andrew Rambaut]**

Yup. And shows that hotel quarantine is going well.

[2021-02-28 12:41:31]

**[Eddie Holmes]**

Shame it's not Cowdenbeath as their football team is ironically called 'the blue Brazil'

[2021-02-28 12:42:27]

**[Kristian Andersen]**

I'm interested to see what happens when P.1 / B.1.351 hit London and battle it out with B.1.1.7 - especially as vaccine coverage is going up.

[2021-02-28 12:45:50]

**[Andrew Rambaut]**

I did check whether Aberdeen FC had any players from distant parts the last time they had an outbreak in August - the virus was very different from anything sampled at the time. Turned out to be from Kazakhstan.

[2021-02-28 12:47:26]

**[Eddie Holmes]**

Interesting. The UK hotel quarantine scheme is not long enough for a start. Needs to be at least 14 days.

[2021-02-28 12:48:39]

**[Andrew Rambaut]**

Needs to be from all places. Crazy they can require it for Spain but not USA.

[2021-02-28 12:49:13]

**[Kristian Andersen]**

We don't have any COVID here, so it's fine.

[2021-02-28 12:49:49]

**[Andrew Rambaut]**

Mind you, your VOCs are pathetic

[2021-02-28 12:50:08]

**[Eddie Holmes]**

What?! Not from the USA??

[2021-02-28 12:50:14]

**[Kristian Andersen]**

Well, just wait until you see our recombinants.

[2021-02-28 12:50:56]

**[Eddie Holmes]**

*[thread - ID: 2021-02-28 12:50:56]*

Has Korber submitted a paper yet?

[2021-02-28 12:51:07]

**[Andrew Rambaut]**

*[thread - ID: 2021-02-28 12:51:07]*

Here is the list of places from which travel is banned (i.e., you do hotel quarantine):

``Angola

Argentina

Bolivia

Botswana

Brazil

Burundi

Cape Verde

Chile

Colombia

Democratic Republic of the Congo

Ecuador

Eswatini

French Guiana

Guyana

Lesotho

Malawi

Mauritius

Mozambique

Namibia

Panama

Paraguay

Peru

Portugal (including Madeira and the Azores)

Rwanda

Seychelles

South Africa

Suriname

Tanzania

United Arab Emirates (UAE)

Uruguay

Venezuela



Zambia  
Zimbabwe````  
Notice any commonalities?

[2021-02-28 12:52:02]

**[Andrew Rambaut]**

*[thread - ID: 2021-02-28 12:50:56]*

Had a long conversation with her explaining why her one example 'recombinant' probably wasn't.

[2021-02-28 12:52:35]

**[Kristian Andersen]**

*[thread - ID: 2021-02-28 12:50:56]*

@Eddie Holmes Did she listen? She never listens....

[2021-02-28 12:52:35]

**[Eddie Holmes]**

Did she believe you?

[2021-02-28 12:52:51]

**[Andrew Rambaut]**

Of course not.

[2021-02-28 12:53:33]

**[Andrew Rambaut]**

Her group has some hokey triplet method which is totally useless as you don't have an outgroup

[2021-02-28 12:54:15]

**[Andrew Rambaut]**

Basically she found a 'californian' virus with 69/70 deletion in it and was claiming it was recombinant with a B.1.1.7. But 69/70 comes up all the time.

[2021-02-28 12:54:31]

**[Andrew Rambaut]**

I spent way too long on it.

[2021-02-28 12:55:25]

**[Kristian Andersen]**

Wait, she specifically said 69/70 came from B.1.1.7 and hence it must be a recombinant? That's, well, dumb. Very.

[2021-02-28 12:56:04]

**[Eddie Holmes]**

What an idiot. I look forward to reviewing that for Cell.

[2021-02-28 12:58:23]

**[Andrew Rambaut]**

That was the only homoplasy but she had a convincing looking plot of the two 'parents' and the 'recombinant' and it showed a tract in spike that looked like B.1.1.7 compared to the other parent. But it was actually also the same as the reference and the other parent had had some mutations. Just so dumb

[2021-02-28 12:59:15]

**[Andrew Rambaut]**

The worse thing is we started the meeting with an explanation from Bette about how you detect recombination in viruses.

[2021-02-28 13:00:36]

**[Kristian Andersen]**

Hahahaha, must have been so painful to go through that.

[2021-02-28 13:52:42]

**[Eddie Holmes]**

She's so awful. I really hope she gets a bit of public ridicule for this.

[2021-03-01 06:10:39]

**[Robert Garry]**

not bad [shared file(s): Covid-19 Virus Studies Yield New Clues on Pandemic's Origin - WSJ.pdf]

[2021-03-01 06:54:19]

**[Robert Garry]**

Alina read the article. Thankfully, she's ready to help us out of our confusion.:pray: [shared file(s): image.png]

[2021-03-01 10:10:40]

**[Robert Garry]**

*[thread - ID: 2021-02-28 12:51:07]*

@Andrew Rambaut Most have the letter a, which I believe was to be "a" paper topic. Some of the ones that don't have the letter a - have the sound of a: Chile, Seychelles. That leaves only Lestotho and Peru as the outliers.

[2021-03-01 10:14:07]

**[Robert Garry]**

Fol breaking elsewhere: <https://twitter.com/JudicialWatch/status/1366434136123146241> Get ready for the hype.

[2021-03-01 10:23:28]

**[Kristian Andersen]**

That tweet from Alina has to be one of the dumbest she has ever done - everything in it is idiotic.

[2021-03-01 11:33:30]

**[Eddie Holmes]**

Doesn't make any sense. She's just throwing in objections with no real logic. Quite fun actually.

[2021-03-01 11:35:46]

**[Kristian Andersen]**

"Top experts are very very confused"

"They're looking for ancestral origins in bats"

"Finding the reservoir shouldn't take a decade" (said one year in)

All, really mindblowingly dumb.

[2021-03-01 11:38:17]

**[Eddie Holmes]**

Kindergarten insights. The one thing have definitely been is consistent throughout all of this. No confusion.

[2021-03-01 14:23:12]

**[Andrew Rambaut]**

This is utterly awful:

<https://www.nature.com/articles/d41586-021-00525-x>

How to insult just about everyone, not cite any work done previously.

[2021-03-01 14:29:28]

**[Eddie Holmes]**

Agreed! I pulled my name off.

[2021-03-01 14:29:31]

**[Kristian Andersen]**

Holy crap. Especially love this paragraph [shared file(s): Screen Shot 2021-03-01 at 14.25.52.png]

[2021-03-01 14:30:04]

**[Kristian Andersen]**

“... many of them early in their careers, who cobble together software and analytical tools in their own time to find essential answers” - Andrew, I assume that’s you. Sorry, buddy. :face\_with\_rolling\_eyes:

[2021-03-01 14:30:33]

**[Eddie Holmes]**

It was really insulting to so many people!!!

[2021-03-01 14:31:15]

**[Kristian Andersen]**

This part is just unbelievable - “The Twitter thread became a key source of information on the new variant, and E.B.H.’s Christmas break was lost to crunching further sequences and briefing journalists”. I’m glad she thinks so highly of herself. I’m gonna give myself a prize too - I’m going to call it The Kristian Prize.

[2021-03-01 14:31:31]

**[Kristian Andersen]**

Of course - none of these people have sequenced anything....

[2021-03-01 14:31:43]

**[Kristian Andersen]**

(or shared data)

[2021-03-01 14:31:55]

**[Eddie Holmes]**

The original version of the paper was fine. It then degenerated into this...I told them multiple times that the focus on Emma was completely inappropriate.

[2021-03-01 14:31:56]

**[Andrew Rambaut]**

And she thinks her Christmas break was ruined -

[2021-03-01 14:32:08]

**[Eddie Holmes]**

Exactly!!

[2021-03-01 14:32:37]

**[Kristian Andersen]**

Well, at least she didn’t die from COVID-19 or had to take care of patients with COVID-19, so there’s a silver lining... Unreal.

[2021-03-01 14:33:12]

**[Eddie Holmes]**

Would be quite good if you Tweeted this:stuck\_out\_tongue:

[2021-03-01 14:33:16]

**[Kristian Andersen]**

“Christmas break was lost to crunching further sequences and briefing journalists”.

[2021-03-01 14:33:29]

**[Kristian Andersen]**

So, so, so sorry for her.

[2021-03-01 14:35:01]

**[Andrew Rambaut]**

I am so livid. But I can't say anything as Emma is a former student. Someone needs to call this out. I can't believe the limited set of citations too - Franky Bollocks" paper? FFS.

[2021-03-01 14:35:47]

**[Kristian Andersen]**

Yeah - this really should be called out. Some of the worst I have read. What the heck went wrong here? Or are these people just so full of themselves by now that this seems ok?

[2021-03-01 14:36:34]

**[Andrew Rambaut]**

```The 'phylogenetic' tools used to track these variants were largely developed by evolutionary biologists to study the lineage of organisms. They were designed to construct phylogenetic trees that can ask, for example, whether flight evolved twice in mammals, or whether two large groups of bats began as one that then diverged.

Now, co-opted to track a pandemic, the leaves of the phylogenetic tree represent SARS-CoV-2 sequences taken from individuals, and the tree grows with the number of cases ```
Now co-opted?

[2021-03-01 14:37:11]

[Kristian Andersen]

Haha - "whether flight evolved twice in mammals"

[2021-03-01 14:37:18]

[Eddie Holmes]

Here are some of my emails: [shared file(s): Screen Shot 2021-03-02 at 9.36.14 am.png]

[2021-03-01 14:37:19]

[Kristian Andersen]

The best example they could come up with.

[2021-03-01 14:38:53]

[Eddie Holmes]

And another. This is like a freedom of information act request: [shared file(s): Screen Shot 2021-03-02 at 9.38.02 am.png]

[2021-03-01 14:39:14]

[Eddie Holmes]

The whole thing is complete and embarrassing shit.

[2021-03-01 14:39:41]

[Kristian Andersen]

"We will *for sure* address this". Sure. Great emails Eddie - this is embarrassing beyond belief - in Nature, no less.

[2021-03-01 14:41:36]

[Eddie Holmes]

They were so transfixed on getting it into Nature that they didn't see what they were doing.

[2021-03-01 14:41:42]

[Kristian Andersen]

And good choice taking yourself off the paper - I did the same on Charles' paper too because he wouldn't listen to sense either. Some scientists are so full of themselves by now - but this has to be the worst example I have seen.

[2021-03-01 14:50:20]

[Eddie Holmes]

Just so my emails make sense, the text that I am commenting on stated that UK govt policy was based on Emma's tweet. At the very least the corresponding authors need to be told this is insulting.

[2021-03-01 14:52:32]

[Andrew Rambaut]

Yeah - we wrote a report which went in to the SoS

[2021-03-01 14:55:36]

[Andrew Rambaut]

Then technical notes went to WHO and other governments.

[2021-03-01 14:57:31]

[Eddie Holmes]

This should be pointed out. I'm very disappointed with Nick Goldman as he tried to defend all this. I got my name removed from the Email chains.

[2021-03-01 14:58:56]

[Kristian Andersen]

Too harsh? [shared file(s): Screen Shot 2021-03-01 at 14.58.38.png]

[2021-03-01 14:59:22]

[Kristian Andersen]

(not posted yet)

[2021-03-01 15:00:32]

[Eddie Holmes]

Nope

[2021-03-01 15:00:47]

[Andrew Rambaut]

I am not sure 'misrepresents' more than completely ignores.

[2021-03-01 15:00:58]

[Kristian Andersen]

"Ignores" - better.

[2021-03-01 15:01:14]

[Eddie Holmes]

Yes indeed

[2021-03-01 15:04:30]

[Andrew Rambaut]

I can just imagine the cringy reply about how everyone worked super hard.

[2021-03-01 15:05:39]

[Kristian Andersen]

Hah - there's no going back from this other than a full retraction. This is embarrassing beyond belief.

[2021-03-01 15:09:26]

[Eddie Holmes]

It is indeed a total disaster. The original version was a technical piece about issues in phylogenetic analysis. It was fine. The Editor then completely rewrote it into this shit. But all that stuff about Emma saving the world came from the paper authors. That was embarrassing and misleading. It also totally over-hyped the issues. Rob Lanfear said he agreed with my concerns but still decided to be an author!

[2021-03-01 15:11:19]

[Kristian Andersen]

One very important question the authors need to ask themselves - would they have been authors if this had been for, say, Nature Microbiology and not Nature?

[2021-03-01 15:12:32]

[Kristian Andersen]

Charles trying to convince me to stay on his paper made it very clear that he had been talking directly to NEJM and Cell and that they both wanted it - this should never be a consideration when it comes to sloppy science. Or whatever-the-fuck this is. Just horrible.

[2021-03-01 15:13:28]

[Eddie Holmes]

The reaction to their paper is EXACTLY what I told them would happen. They were warned!!

[2021-03-01 15:23:18]

[Andrew Rambaut]

There we go. As predicted: [shared file(s): image.png]

[2021-03-01 15:23:31]

[Andrew Rambaut]

"exactly what we were trying to avoid"

[2021-03-01 15:27:14]

[Eddie Holmes]

That's total BS!!! You saw my emails.

[2021-03-01 15:31:11]

[Eddie Holmes]

If they wanted to avoid these issues they would removed all the personal stuff.

[2021-03-01 15:32:54]

[Kristian Andersen]

And this is directly insulting to me - this isn't about fucking me man! [shared file(s): Screen Shot 2021-03-01 at 15.31.21.png]

[2021-03-01 15:37:59]

[Eddie Holmes]

I've just written to Rob.

[2021-03-01 15:40:43]

[Robert Garry]

Jeez - just got back from a long lecture - may have started out with good intentions, but wow so off base. "And good choice taking yourself off the paper" INDEED! Safe to say Rob didn't get the point...

[2021-03-01 15:46:45]

[Andrew Rambaut]

Just written to Emma. Don't want to pile on these people - it is Nick and Christophe who should be responsible.

[2021-03-01 15:50:15]

[Eddie Holmes]

Nick & Christophe are indeed the main culprits although Emma did nothing to change what was written about her.

[2021-03-01 15:54:20]

[Eddie Holmes]

And Rob's Twitter response is just untrue. We even had a bloody email chat about these concerns!!

[2021-03-01 21:11:15]

[Kristian Andersen]

Well, I certainly hope they're wrong about this particular point. [shared file(s): Screen Shot 2021-03-01 at 9.03.00 PM.png]

[2021-03-02 16:49:29]

[Eddie Holmes]

Am I right in thinking that there has been a marked lack of Twitter activity about Nature piece? I wonder if the authors were just embarrassed by it? There were some good replies to your tweet Kristian.

[2021-03-02 17:06:07]

[Kristian Andersen]

I think it's fair to say the authors are embarrassed - I know I would be. Emma hasn't really been much on Twitter as of late though.

[2021-03-02 17:26:18]

[Eddie Holmes]

What a bloody waste of time.

[2021-03-02 17:26:49]

[Kristian Andersen]

This :point_down: [shared file(s): Screen Shot 2021-03-02 at 5.26.20 PM.png]

[2021-03-02 17:27:09]

[Kristian Andersen]

Why in the WORLD they put that in, I don't understand.

[2021-03-02 17:41:53]

[Eddie Holmes]

I know, I know. I told them. It's just nauseating. Putrid. It will do her more harm than good.

[2021-03-02 17:44:09]

[Kristian Andersen]

Yes, unfortunately - I like her and she's awesome, but there have been several similar instances lately. A lot of scientists have let SARS-CoV-2 fame go to their head. Too bad, really.

We need to get back to the days where Nick was the King of Twitter.

[2021-03-02 17:55:12]

[Eddie Holmes]

I don't know her at all, but clearly the fame has gone to her head. She did nothing to change that text. She's learnt all this from Trevor.

[2021-03-02 17:57:26]

[Eddie Holmes]

Richard Neher should have done some mentoring as well.

[2021-03-02 17:59:49]

[Kristian Andersen]

Hah - you'd imagine him beating the Trevor out of her and replace it with physics smugness :wink:

[2021-03-02 18:01:52]

[Eddie Holmes]

Oh, don't get me started...

[2021-03-02 18:04:27]

[Kristian Andersen]

Back to science - we just picked up two _very_ interesting "CA" lineage viruses carrying the d144 deletion and a few other mutations, including N501Y and (more intriguingly) L455F - two out of six of the contact residues hit in a single lineage. L455F is rare - mostly seen in a few genomes from Australia. Eddie, do you have any idea if that mutation was looked into?

@Robert Garry your eyes on L455F? Remember, the "CA" lineage has the L452R mutation too, so I wonder if those two together might do something funky. [shared file(s): Screen Shot 2021-03-02 at 6.01.56 PM.png, Protein alignment.geneious]

[2021-03-02 18:05:32]

[Kristian Andersen]

The screenshot - two bottom sequences = new genomes. Above that, "Type" B.1.429 and above that, Wuhan Hu-1.

[2021-03-02 18:13:36]

[Eddie Holmes]

Can you tell me what the Australian sequences are? I'll look into it. No way that L455F will have been studied here.

[2021-03-02 18:33:10]

[Kristian Andersen]

I can't... We're unfortunately not allowed to pull GISAID IDs...

I can see UK has a few of the double mutants too.

<https://outbreak.info/situation-reports?pango&mut=s%3AN501Y&mut=s%3AL455F>

[2021-03-02 18:45:14]

[Eddie Holmes]

Ok, I'll ask about it.

[2021-03-02 18:47:58]

[Robert Garry]

I'll look - any change to an aromatic amino acid could potentially set up a stronger binding.

[2021-03-02 18:50:38]

[Kristian Andersen]

Yeah, interesting model here: http://biosig.unimelb.edu.au/covid3d/mutation/QHD43416/ACE2_BOAT/L455F/A.

But I feel that L452R mutation must mess around with this whole interface, so lord knows what L455F does on top.

Probably all just random, but pretty interesting to see 2/6 key binding residues hit in a single virus (and a characteristic deletion - so probably some funky infection).

[2021-03-02 23:14:03]

[Andrew Rambaut]

Not seeing any UK ones on GISAID with both: [shared file(s): image.png]

[2021-03-02 23:16:23]

[Andrew Rambaut]

A cluster of 20 from Australia in August with L445F and S477N? example: Australia/VIC17844/2020, EPI_ISL_779495

[2021-03-02 23:19:34]

[Andrew Rambaut]

There are 45 B.1.1.7 with the addition of L445F and I can see your two californian ones with L445F and N501Y:
[shared file(s): image.png]

[2021-03-02 23:19:54]

[Andrew Rambaut]

shared file(s): image.png

[2021-03-02 23:22:27]

[Andrew Rambaut]

Also there may be some in the New York epidemic with L452R?

[2021-03-03 12:49:52]

[Kristian Andersen]

[thread - ID: 2021-03-03 12:49:52]

Interesting - did not realize the UK genomics study is now the most accessed on Virological! More than the original genome - and our paper a distant third... [shared file(s): Screen Shot 2021-03-03 at 12.48.18 PM.png]

[2021-03-03 13:08:09]

[Andrew Rambaut]

[thread - ID: 2021-03-03 12:49:52]

@Kristian Andersen Should really publish that.

[2021-03-03 13:09:14]

[Kristian Andersen]

[thread - ID: 2021-03-03 12:49:52]

@Kristian Andersen Hah, yeah. Was on the phone with Oli this morning... Totally forgot there isn't actually a paper.

[2021-03-03 13:40:36]

[Robert Garry]

[thread - ID: 2021-03-03 12:49:52]

@Kristian Andersen If a paper blooms on virological, is it really a paper?

[2021-03-03 13:48:20]

[Kristian Andersen]

[thread - ID: 2021-03-03 12:49:52]

@Kristian Andersen "is it really a paper" - better, "does it really need a paper"? IDK - I like these virological posts quite a bit...

[2021-03-03 13:50:51]

[Kristian Andersen]

[thread - ID: 2021-03-03 12:49:52]

@Kristian Andersen In a world where fucking everything has to be in some flashy journal to count, nerding out on an online forum, fiddling around with data, and geeking out on the science feel quite satisfactory. Plus, no editors or reviewers to deal with - just colleagues.

[2021-03-03 13:56:27]

[Eddie Holmes]

[thread - ID: 2021-03-03 12:49:52]

@Kristian Andersen We should lobby for it to be on PubMed.

[2021-03-03 13:57:16]

[Kristian Andersen]

[thread - ID: 2021-03-03 12:49:52]

@Kristian Andersen Nah.

[2021-03-03 13:58:19]

[Eddie Holmes]

[thread - ID: 2021-03-03 12:49:52]

@Kristian Andersen That was poorly disguised sarcasm.

[2021-03-03 13:59:26]

[Kristian Andersen]

[thread - ID: 2021-03-03 12:49:52]

@Kristian Andersen Typically my specialty. Sometimes I can't even figure out myself if I'm being sarcastic or not. It's confusing to the yankees.

[2021-03-03 14:01:02]

[Eddie Holmes]

[thread - ID: 2021-03-03 12:49:52]

@Kristian Andersen It's the default setting in the UK.

[2021-03-03 15:31:32]

[Robert Garry]

Minor fyi - So, apparently Alina has been throwing a tantrum along with the earth sculpturer/coal miner about the Betsy McKay WSJ article from a few days back. BMcK doing another one and actually more in a series on "origins."

[2021-03-03 15:43:55]

[Eddie Holmes]

Aw, bless. I hope Betsy doesn't put the rattle back into the pram.

[2021-03-03 15:49:10]

[Kristian Andersen]

I'm not hopeful. I don't trust Betsy, and more broadly speaking, WSJ.

[2021-03-03 15:50:52]

[Eddie Holmes]

I'm with you there.

[2021-03-03 15:51:03]

[Robert Garry]

Always good to be cautious....

[2021-03-03 15:54:23]

[Robert Garry]

I also talked to Amy Maxmen at Nature - apparently she's also on to something -

[2021-03-03 15:55:55]

[Kristian Andersen]

About origins? Amy is good, but some of her stuff is shaky - and her background knowledge can be quite limited at times (I talked to her about Ebola a long time ago and I was shocked by how little she knew, given that she has written so much about it). But I think she can be trusted - so that's a big plus!

[2021-03-03 16:01:06]

[Robert Garry]

Yeah sorta origins...she might do a podcast...

[2021-03-03 16:11:31]

[Kristian Andersen]

I think we need the Bob Garry podcast. It's fine we don't have Twitter Garry, but I think the world definitely needs Podcast Garry... Like that German dude.

[2021-03-03 16:34:24]

[Eddie Holmes]

Oh, I agree!

[2021-03-03 16:49:23]

[Eddie Holmes]

I think we call it 'The Bob's Bollocks' (which, to clarify, means it will be ace). I think that would give a more positive vibe than 'Garry's Grumbles'.

[2021-03-04 07:02:21]

[Robert Garry]

WSJ this morning [shared file(s): WHO Investigators to Scrap Plans for Interim Report on Probe of Covid-19 Origins - WSJ.pdf]

[2021-03-04 07:03:08]

[Robert Garry]

Alina and friends - open letter. [shared file(s): COVID OPEN LETTER FINAL 030421 (1).pdf]

[2021-03-04 07:14:22]

[Robert Garry]

Actually, the *Open Letter* is very strange. Here are the scenarios they want to consider : "Start its study by considering all possible scenarios for each pathway. These should include: o A pure zoonosis event with/without intermediate host;
o Infection at a sampling site of a lab employee or of some accompanying non-lab personnel;
o Infection during transport of collected animals and/or samples;
o Lab Acquired Infection (LAI) in one of the laboratories in Wuhan;
o Lab-escape without LAI, for instance via waste handling or animals that escaped or were disposed of inappropriately. " Honestly, what happened to the SC2 is bioengineered, modified by seamless molecular biology or passaged on human cells or transgenic animals? @Andrew Rambaut was correct - they seems to be now wedged into a corner that--- well--- they had SC2 before the outbreak and just didn't tell any body.

[2021-03-04 07:46:50]

[Kristian Andersen]

But Bob, we have to remain openminded, correct? I.e., _anything_ and _everything_ is possible.

:man_in_business_suit_levitating:

[2021-03-04 07:47:24]

[Kristian Andersen]

Look at the names on that letter though - not a _single_ credible scientist. Which is a little surprising to me.

[2021-03-04 08:58:03]

[Robert Garry]

Yeah not exactly a long list of nobel laureates.

[2021-03-04 11:06:11]

[Eddie Holmes]

Bruno Canard is credible. I'm not sure why he goes for this. But it's a really weak list. REALLY weak. Generally C-listers. Interesting to see Claverie on board, although he is routinely full of shit.

I spoke to Peter Daszak last week and he said he was just finishing his part of the report. My Wuhan holiday snaps are in their somewhere.

[2021-03-04 11:26:12]

[Kristian Andersen]

OK article from Betsy - and great quote from you Bob!

[2021-03-04 11:34:03]

[Eddie Holmes]

The Bob's Bollocks!

[2021-03-04 11:37:36]

[Robert Garry]

Oh yes - but perhaps a bit of a missed opportunity for more Bullocks on FoxBusiness....Might have been fun but

[2021-03-04 12:17:06]

[Eddie Holmes]

@Kristian Andersen There's a recombination paper in the bioRxiv queue that would be good if you took a look at. Looks like garbage to me.

[2021-03-04 12:35:47]

[Andrew Rambaut]

I found some solid examples of recombination with B.1.1.7. No surprises but pretty clear with multiple genomes sequenced in different labs.

[2021-03-04 12:39:50]

[Eddie Holmes]

This one does not look very good and talks about enhanced fitness. But I don't have time to look at it now as I have to do another talk.

[2021-03-04 12:55:37]

[Kristian Andersen]

I see it Eddie - will take a look.

We have a few very recent genomes that smell like recombination to me as well - I'm pretty convinced recombination happens quite frequently, so (as discussed before), I'm not surprised. That said, need proper evidence.

[2021-03-04 12:59:01]

[Kristian Andersen]

Yeah, junk. "The VOCs have a lot of mutations so they must be recombinants"....

[2021-03-04 13:25:17]

[Kristian Andersen]

Key paper from South Africa here - people infected with B.1.351 fully neutralize B.1.351 viruses AND neutralize non-B.1.351 viruses pretty well. <https://www.medrxiv.org/content/10.1101/2021.01.26.21250224v2>

[2021-03-04 13:27:35]

[Kristian Andersen]

Also, one very interesting finding - although it's n=1. They had somebody infected by non-B.1.351 _but_ with a virus that had the E484K mutation. The serum from that patient absolutely knocked it out of the park when it came to neutralizers against both B.1.351 and non-B.1.351 - so much so, they had to exclude the individual from most analyses. If this holds up, we might have a winner for near-perfect vaccine antigen - spike + E484K, 2P, and dFCS. That'd be cool.

[2021-03-04 14:19:33]

[Eddie Holmes]

I finally looked at this carefully. Did you see the BEAST analysis? TempEST found no temporal structure so they went ahead and used a strick clock anyway. On a 440 nt region. [shared file(s): Latrinne.NatComm20.pdf]

[2021-03-04 15:13:52]

[Kristian Andersen]

[thread - ID: 2021-03-04 15:13:52]

You know, no point in having data get in the way of a good story.

[2021-03-04 21:03:02]

[Eddie Holmes]

L455F. This is what the person collating the sequences told me: "I just had a quick peek at the Aussie mutation data I have and dug out the samples that have the L455F mutation. There are 16 in total, all from Victoria, collected on the following dates: 2020-08-18, 2020-08-20, 2020-08-27, 2020-08-28, 2020-08-29, 2020-08-30, 2020-08-31, 2020-09-05, 2020-09-10, 2020-09-11, 2020-09-15. All belong to the D.2 lineage.

I've attached a .csv file just in case you wanted to look further at the full suite of mutations in these samples. The mutation column has the mutation summary in the form of Gene:RefAA:Position:AltAA:nonsynonymous, e.g. S:L:455:F:n." [shared file(s): L455F_samples.csv]

[2021-03-04 21:07:19]

[Kristian Andersen]

Thanks Eddie - appreciate it. I'll have a look in the morning - pretty interesting mutation this one.

[2021-03-04 23:48:35]

[Andrew Rambaut]

[thread - ID: 2021-03-04 15:13:52]

@Kristian Andersen And a median joining network for good measure.

[2021-03-05 04:39:50]

[Robert Garry]

The residue at 456 is also an F - so L455F makes FF - a bit of glue.

[2021-03-05 04:53:47]

[Robert Garry]

More Bullocks: [shared file(s): Some Scientists Question W.H.O. Inquiry...andemic's Origins - The New York Times.pdf]

[2021-03-05 04:57:52]

[Robert Garry]

And Andrew was right - flush them out - get their real views in print. Ebright - just stop all the research on viruses. "That seems to strike at the heart of the concerns of the Paris group, which is the nature of future research. Dr. Ebright said that everyone in the group was concerned about both wildlife surveillance and laboratory research into viruses as potentially increasing, not lessening the likelihood of future pandemics. If either collecting samples in the wild or work with those samples in labs were implicated in the origin of the pandemic, he said, the need would be urgent "to assess whether benefits outweigh risks and if not to restrict those activities."

[2021-03-05 05:14:51]

[Robert Garry]

I guess we agree - it's a natural virus. [shared file(s): image.png]

[2021-03-05 05:22:16]

[Robert Garry]

Oh my: <https://twitter.com/ydeigin/status/1367758790532169730>

[2021-03-05 07:04:57]

[Kristian Andersen]

He's dumber than I thought.

[2021-03-05 07:18:51]

[Robert Garry]

Quite a bit dumber.

[2021-03-05 07:21:31]

[Robert Garry]

And same goes for Ebright.

[2021-03-05 07:23:37]

[Robert Garry]

Important to point out that what these people, including Alina, want to do is to SHUTDOWN virology research - stop looking for new viruses and close down all the BSL-3/4 labs. The so-call Paris group OPEN LETTER Doesn't come out and say that but it is clearly the agenda.

[2021-03-05 07:27:54]

[Kristian Andersen]

One might think that'd make us less prepared for the next pandemic, but hey, what do I know.

[2021-03-05 07:33:52]

[Robert Garry]

To Alina's "point" above. CDC- While rabies is rare in people in the United States, with only 1 to 3 cases reported annually, about 55,000 Americans get post-exposure prophylaxis (PEP) each year to prevent rabies infection after being bitten or scratched by an infected or suspected infected animal. WHO: Rabies is estimated to cause 59 000 human deaths annually in over 150 countries, with 95% of cases occurring in Africa and Asia. Due to widespread underreporting and uncertain estimates, it is likely that this number is a gross underestimate of the true burden of disease. These are real non-lab exposures of humans to a deadly virus. The rabies numbers are staggering and vastly greater than the numbers of Lab personnel Bat exposures. Yet Alina would shut down BSL-4 and field work on all viruses in nature. Dangerous and dumb.

[2021-03-05 08:38:49]

[Kristian Andersen]

I'm not sure what the point of Jim's article was (if there was one), but strong quotes from you Bob!

[2021-03-05 09:11:26]

[Andrew Rambaut]

Uhh, got DMed by Tami Leiberman after my tweet. Doesn't seem to know the difference between infectivity and transmissibility.

[2021-03-05 09:32:25]

[Kristian Andersen]

What did she DM? I know Tami relatively well and she's good, but some of her SC2 stuff has been really disappointing and very naive.

[2021-03-05 09:32:39]

[Kristian Andersen]

"Some" = "most", unfortunately.

[2021-03-05 09:53:03]

[Andrew Rambaut]

shared file(s): Image from iOS.jpg

[2021-03-05 10:06:49]

[Kristian Andersen]

That's indeed pretty naive thinking - plus, the RBD can be found across multiple different viruses by now, so clearly this isn't "selecting for human transmissibility". And yeah - infection != transmission (although the former is obviously required for the latter).

[2021-03-05 10:41:53]

[Robert Garry]

A house burns down - some people die. Another house burns down and some more people die. The town builds a fire department. Another house catches on fire. The fire department stops the fire, but not before several houses burn. The firemen saved several other houses and perhaps several lives. The firemen are blamed for starting the fire.

[2021-03-05 11:03:41]

[Robert Garry]

Hmmmm - good advice I guess: [shared file(s): image.png]

[2021-03-05 11:32:14]

[Kristian Andersen]

I guess these folks didn't take Statistics 101 - especially the chapter on that Tom dude. Or maybe they just flunked out of primary school.

[2021-03-05 13:12:51]

[Eddie Holmes]

Paris Group = Great Barrington Agreement II.

[2021-03-05 13:32:57]

[Eddie Holmes]

Here's an interesting factoid. All Weifeng's new bat viruses, as well as RmYN01 and RmYN02, were collected from this location. Just shows the amazing amount of diversity of these viruses in nature and the sheer difficulty of finding bat zero: https://en.wikipedia.org/wiki/Xishuangbanna_Tropical_Botanical_Garden

[2021-03-05 13:44:43]

[Eddie Holmes]

And these were not collected from caves, but from a botanical garden where lots of tourists go

[2021-03-05 14:00:18]

[Robert Garry]

Thanks Eddie - I really need to get out more often - looks like a beautiful place....

[2021-03-05 14:04:48]

[Eddie Holmes]

And the point being that bats and their viruses are everywhere - we can't stop exposure

[2021-03-05 14:10:48]

[Robert Garry]

As for the Paris group I think Kristian said it - let them put their "science" out in the sunlight. There it will die like other conspiracy theories. Oh and there was a Nature podcast - a bit of Bullocks.

<https://www.nature.com/articles/d41586-021-00599-7> Amy should have mentioned all the PO1 authors beside Kristian and me, but other than that a good job. Heartwarmingly, it did cause Alina to throw her rattle out of the pram again. Alina is really quite dishonest - twisting up a bunch of stuff that was said to fit her own priors. For ex: Amy never said the Thai bat spike was the most similar to SC2 spike just that it is similar, which of course is true and a point of Holmes2021.

[2021-03-05 14:19:08]

[Kristian Andersen]

Bob, coincidence you and I are implicated in both? I think not... :man_in_business_suit_levitating: [shared file(s): Screen Shot 2021-03-05 at 2.18.18 PM.png]

[2021-03-05 14:22:59]

[Robert Garry]

Yeah - probably not a coincidence - pretty damn scary actually....

[2021-03-05 14:26:16]

[Eddie Holmes]

And Andrew and I were involved in the HIV polio vaccine origin stuff. It all adds up....

[2021-03-05 14:27:54]

[Robert Garry]

Just connect the dots.....

[2021-03-05 14:30:02]

[Kristian Andersen]

Ohhhh. And yeah - just asking questions here.

[2021-03-05 14:30:57]

[Eddie Holmes]

Great work on the podcast Bob. I'll take a listen while walking my dog (Xi Jinping) a little later.

[2021-03-05 14:32:22]

[Robert Garry]

Running with the dog or something like that!

[2021-03-05 14:37:26]

[Eddie Holmes]

Well, as we're all CCP lapdogs I thought it appropriate. Amy has just tweeted about the podcast.

[2021-03-05 15:38:16]

[Robert Garry]

[thread - ID: 2021-03-05 15:38:16]

I don't know how or why, but saw this interesting twit account: <https://twitter.com/BlockedVirology> You guys are *FAMOUS!* Almost makes me want to actually tweet - almost. Maybe I can block without actually tweeting - there's a thought! or not. or maybe podcast. I guess I am very very confused.

[2021-03-05 15:47:32]

[Eddie Holmes]

That's pretty awesome. I've always wanted to curate my own opinion bubble.

[2021-03-05 16:10:41]

[Eddie Holmes]

I also really like the grumpy virus picture

[2021-03-05 17:14:19]

[Kristian Andersen]

Seemed appropriate. [shared file(s): Screen Shot 2021-03-05 at 17.13.52.png]

[2021-03-05 17:17:48]

[Eddie Holmes]

A common bond

[2021-03-05 18:39:05]

[Eddie Holmes]

I thought the futon cleavage site was that annoying gap between the cushions on the sofa where your butt sometimes gets stuck. [shared file(s): Screen Shot 2021-03-06 at 1.35.36 pm.png]

[2021-03-05 19:21:22]

[Kristian Andersen]

Sure sign of engineering had we found a futon cleavage site! :100:

[2021-03-06 06:10:25]

[Robert Garry]

Only a real problem if the futon cleavage site also came with a few o-kinked toucans. Damned birds really can make a mess.

[2021-03-06 06:16:35]

[Andrew Rambaut]

[thread - ID: 2021-03-05 15:38:16]

If we block the BlockedByAVirologist account, do you think it will explode?

[2021-03-06 06:21:34]

[Robert Garry]

It will take a critical mass of blocks - then yes :boom:

[2021-03-06 06:50:53]

[Kristian Andersen]

[thread - ID: 2021-03-05 15:38:16]

... exactly my screen shot :wink:. The universe is still intact.

[2021-03-06 06:51:23]

[Andrew Rambaut]

Ha. Yes missed that.

[2021-03-06 06:53:57]

[Robert Garry]

"The universe is still intact." Perhaps, but twittering on the brink...

[2021-03-06 07:06:35]

[Kristian Andersen]

Bob, can you confirm? [shared file(s): EvzgGLTVoAEId4O.jpeg]

[2021-03-06 08:37:11]

[Robert Garry]

Yes - - great cartoon!

[2021-03-06 08:37:44]

[Robert Garry]

ppl not happy about being the meat in the covid sandwich.

[2021-03-06 08:41:46]

[Kristian Andersen]

It's so dumb - if we stopped being stupid about this - and instead got smart, just for a change - life could be pretty much back to normal in a month. But no - let's prolong the misery, why don't we. :man-shrugging:.

[2021-03-06 12:23:36]

[Eddie Holmes]

Total death toll to COVID in New South Wales where I live is 56. Just saying.

[2021-03-06 12:50:25]

[Kristian Andersen]

.... and that's likely seen as a tragedy. Here, we celebrate getting it below 2,000.

Daily. Of course.

[2021-03-06 13:33:52]

[Robert Garry]

8 of the top 10 states for C19 deaths are Solid Republican. Not sure about what is going on in Virginia. Look for the cases in Texas, Mississippi and unfortunately also Louisiana to spike. For spite or science - take your pick - we should do sequencing to study the influx of cases from TX and MS to LA because the idiot governors there still want to please Trump. [shared file(s): image.png]

[2021-03-06 14:22:04]

[Kristian Andersen]

B.1.1.7 is nicely unique in Texas. We'll make sure to describe how it conquers them country...

[2021-03-06 14:38:26]

[Robert Garry]

[https://www.washingtonpost.com/opinions/global-opinions/the-who-needs-to-start-over-in-i\[...\]021/03/05/6f3d5a0e-7de9-11eb-a976-c028a4215c78_story.html](https://www.washingtonpost.com/opinions/global-opinions/the-who-needs-to-start-over-in-i[...]021/03/05/6f3d5a0e-7de9-11eb-a976-c028a4215c78_story.html) WashPost Editorial Board - need I say more?

[2021-03-06 14:45:32]

[Eddie Holmes]

Luckily I can't read this. The WHO have not even published their report yet and the Post are moaning. Pathetic. Who's on the board Bob?

[2021-03-06 14:55:03]

[Robert Garry]

Opinion by Editorial Board

March 6, 2021 at 8:00 a.m. CST

MORE THAN a year after the coronavirus pandemic began, its origins are mysterious. The truth may take years to discover, but now is a good time to relaunch the search for it. A joint inquiry by the World Health Organization and China has run into trouble, as a group of 26 scientists pointed out this week in an open letter to the WHO. Both the possibility of a zoonotic spillover from animal hosts and that of a laboratory accident need independent, expert investigation — and it is time for a new team to seriously tackle the laboratory hypothesis.

Why is the issue of the virus origins so important? Because the source and method by which the virus made the leap to people are critical to prepare for any future pandemic. Too much political heat has already been spent on this issue, some generated by China, where the first major outbreak began, and some by Donald Trump in his attempt to distract attention from his catastrophic pandemic response as president. The blame-throwing must not impede finding the truth.

The WHO-China investigation team, focused on zoonotic spillover, is writing a report, which the director general of the WHO, Tedros Adhanom Ghebreyesus, says will be released the week of March 15.

AD

Another hypothesis, that the pandemic was ignited by some kind of laboratory leak or accident, is denied by China. However, a senior researcher at the Wuhan Institute of Virology, Shi Zhengli, was working on “gain of function” experiments, which involve modifying viral genomes to give them new properties, including the ability to infect lung cells of laboratory mice that had been genetically modified to respond as human respiratory cells would. She was working with bat coronaviruses that were genetically very similar to the one that caused the pandemic. Could a worker have gotten infected or inadvertent leakage have touched off the outbreak in Wuhan?

The joint WHO-China team said in its Feb. 9 news conference in Wuhan that the laboratory hypothesis was “extremely unlikely” and would not be further studied; later, Dr. Tedros said that nothing was off the table. As the 26 scientists point out in their letter, the team lacked the training and forensic skills required to investigate this possibility. They were under strong pressure from China to steer clear of the subject altogether.

What's needed is an independent, multidisciplinary and unfettered investigation into the origins of the outbreak, both the zoonotic and laboratory hypotheses. China's obduracy is not going away. The WHO, a membership organization, lacks the powers to pry open closed doors in China, and there is not another good alternative. However, Dr. Tedros could appoint a new team of highly qualified international experts, including forensic specialists, to investigate the laboratory-leak hypothesis, and forcefully insist that China not stand in its way. If he openly challenged China on this matter, he would have the support of a world wanting to know how this nightmare began and how to prevent another.

[2021-03-06 14:59:01]

[Robert Garry]

Editorials represent the views of The Washington Post as an institution, as determined through debate among members of the editorial board. The board includes: Editorial Page Editor Fred Hiatt; Deputy Editorial Page Editor Jackson Diehl; Deputy Editorial Page Editor Ruth Marcus; Associate Editorial Page Editor Jo-Ann Armao, who specializes in education and District affairs; Jonathan Capehart, who focuses on national politics; Lee Hockstader, who writes about immigration, and political and other issues affecting Virginia and Maryland; Charles Lane, who concentrates on economic policy, trade and globalization; Stephen Stromberg, who specializes in energy, the environment, public health and other federal policy; David Hoffman, who writes about foreign affairs and press freedom; Molly Roberts, who focuses on technology and society; and Emefa Agawu, who writes about social policy and other issues, with a focus on developments in state capitals and cities around the U.S. Hiatt is one of the problems - here's how he started one signed editorial on China: By Fred Hiatt

The Washington Post

Donald Trump is not all wrong about China.

[2021-03-06 15:04:48]

[Eddie Holmes]

Huh, interesting. What a dumbass editorial. 1. Wait for the WHO report. 2. Inherent contradictions "The WHO, a membership organization, lacks the powers to pry open closed doors in China, and there is not another good alternative" followed by "However, Dr. Tedros could appoint a new team of highly qualified international experts, including forensic specialists, to investigate the laboratory-leak hypothesis, and forcefully insist that China not stand in its way". Forcibly insist?? What does that mean? The WHO will invade? 3. Hopelessly naive to think that China will let another team in.

[2021-03-06 15:34:57]

[Kristian Andersen]

WaPo has lost its mind.

[2021-03-06 16:42:35]

[Eddie Holmes]

A liberal US newspaper suggesting that a health body use force
What a fucked up world we live in

[2021-03-06 17:47:05]

[Robert Garry]

Yes totally - but more fucked up; <https://twitter.com/Peterfoodsafety/status/1368322592063557639> Good lord - Embarek and Koopmans tweeting with Alina.

[2021-03-06 17:52:45]

[Eddie Holmes]

They should not engage

[2021-03-06 18:14:12]

[Robert Garry]

Agreed - she and her "Paris Group" have zero credibility.

[2021-03-06 18:26:08]

[Eddie Holmes]

Parasites

[2021-03-07 00:12:21]

[Robert Garry]

Brilliant!

[2021-03-07 05:21:05]

[Robert Garry]

Pompous Parisians Promoting Preposterous Pandemic Possibilities.

[2021-03-07 05:26:41]

[Robert Garry]

WHO communicator communicating with Alina - gotta say this is pretty good. [shared file(s): image.png]

[2021-03-07 07:04:47]

[Kristian Andersen]

Haha, nice! Really, what it is is "amateursplained" - people with no relevant experience trying to explain experts how things really should be done.

[2021-03-07 08:24:52]

[Kristian Andersen]

Another dumb title from WaPo (mostly with quotes from Jesse - who definitely _did_ underestimate the virus, but that's hardly "scientists".... (although, of course, many _did_ in addition to Jesse))

<https://www.washingtonpost.com/health/2021/03/07/scientists-underestimated-coronavirus-are-racing-keep-up-with-evolution/> [shared file(s): Screen Shot 2021-03-07 at 8.22.57 AM.png]

[2021-03-07 11:12:00]

[Eddie Holmes]

Gabby Stern is my new hero

[2021-03-07 11:25:50]

[Robert Garry]

Ditto!

[2021-03-08 04:44:06]

[Robert Garry]

More and more scary: <https://www.politico.com/news/magazine/2021/03/08/josh-rogin-chaos-under-heaven-wuhan-lab-book-excerpt-474322>

[2021-03-08 06:51:00]

[Kristian Andersen]

That idiot wrote a book? Geez

[2021-03-08 07:01:41]

[Robert Garry]

truly - any idiot can write a book.... [shared file(s): image.png]

[2021-03-08 07:05:53]

[Robert Garry]

Sure Alex is no Nicholson Baker, who thinks we need to stop trapping bats and - you know - look for coronaviruses. [shared file(s): image.png]

[2021-03-08 07:11:40]

[Robert Garry]

<https://www.scmp.com/news/china/politics/article/3124546/who-readies-covid-19-origins-report-demands-grow-more>

[2021-03-08 07:12:48]

[Robert Garry]

"They also say there is no public record of a highly similar virus to SARS-CoV-2 – which causes Covid-19 – being isolated in any lab. In addition, a genetic analysis published in _Nature Medicine_ last spring found "strong evidence" there was no genetic manipulation of the new coronavirus. Others argue it is possible there were viruses in the lab, or handled during research, that were not publicly known.

Genetic engineer Alina Chan, another signatory to the open letter and a researcher at the Broad Institute of MIT and Harvard, said it was important for the WHO team to be clear in the report about their limitations when evaluating hypotheses. "If they don't have the mandate and they didn't have the access, just say so right away," she said."

[2021-03-08 07:14:53]

[Robert Garry]

You know Alina - if you think WHO, NIH (Tony Fauci/Francis Collins) and Eddie Holmes/Kristian Andersen are the BAD GUYS, then maybe biology is not the right gig for you.

[2021-03-08 12:40:57]

[Eddie Holmes]

Simone is a straight reporter. I don't think she believes lab escape.

[2021-03-08 13:09:34]

[Robert Garry]

"Others argue it is possible there were viruses in the lab, or handled during research, that were not publicly known." This is it in a nutshell - good on Simone for writing it. The fact that the virus emerged in Wuhan are what Alina and her crowd have left PLUS the theories that WIV had SARS-CoV-2 or something very close from *nature* before the pandemic.

[2021-03-08 13:18:54]

[Robert Garry]

Billy aka Kevin has written a poem about @Kristian Andersen. He and Nicholson Baker should write something together. [shared file(s): image.png]

[2021-03-08 13:19:05]

[Kristian Andersen]

Andrew's tweet is spot on for that exact scenario [shared file(s): Screen Shot 2021-03-08 at 1.18.39 PM.png]

[2021-03-08 13:19:47]

[Kristian Andersen]

I like that poem - clever. I should frame it. Thanks Billy.

[2021-03-08 13:27:21]

[Eddie Holmes]

Such great work from Billy. I'm just surprised he can't get financed.

[2021-03-08 13:31:00]

[Kristian Andersen]

Maybe he should try selling poetry on Amazon - happy to provide him with material.

[2021-03-08 13:51:32]

[Eddie Holmes]

Given how cock obsessed Billy is it's not hard to imagine how microscopic his own member must be. I also suspect it requires its own gain of function.

[2021-03-08 14:16:41]

[Andrew Rambaut]

I was going to ask - how hard is it to collect samples with cultureable viruses? From what I am hearing it is difficult to culture SARS-CoV-2 from many samples so I would imagine sampling bats (say) you would be just hoping for RNA rather than infectious virus.

[2021-03-08 14:45:20]

[Robert Garry]

Yes - hard to culture from natural samples. First issue is you are getting animals that are likely at different stages in infections - early, late, persistent, recovering - who knows? We don't know how long viremia lasts in Mastomys with Lassa virus. Seems much lower than in humans. Rabies - long term infections, bats carry for a loooong time eventually some [all?] get sick. For SC2 from humans unless the Ct values are really low say low 20s it's very difficult. Not to say that there is not infectious virus there and that under the right circumstance (inhaling it directly into the nasal passages or lungs even a fairly low may be all it takes. I'm just guessing but unlikely bats would

produce their Covs at high levels even if you caught them just right . The intermediate hosts/reservoirs, might grow virus to higher levels (like say civets for SC1), but probably varies a lot from animal to animal like humans . Sick snotty nose pangolins might have higher loads for their viruses, too. Same apparently true of camels for MERS-CoV. All these considerations are why no-one's cultured ebola virus from a bat yet.

[2021-03-08 14:54:07]

[Andrew Rambaut]

And if you just out sampling to look for diversity you are probably going to store the samples to preserve RNA rather than hope to culture anything.

[2021-03-08 14:55:51]

[Robert Garry]

Yes - you might try to get lucky and if your cold chain was good freeze some sample away, but RNA is the way to go in most field situations.

[2021-03-08 14:58:49]

[Robert Garry]

But - most likely - screening by culturing is not going to be as sensitive as screening the RNA, if you know what you are doing with the RNA .

[2021-03-08 14:58:51]

[Eddie Holmes]

We and colleagues do this all the time. The plan is always to get into a cold chain as quick as possible for sequencing. We do have a portable -80C we use in some cases, but it's usually a case of storage in RNA later.

[2021-03-08 15:02:25]

[Robert Garry]

In general the RNA (even fragmented non-infectious) hangs a lot longer than any infectious virus.

[2021-03-08 15:04:14]

[Kristian Andersen]

Yeah, culturing viruses from bats or any other animal = bloody hard. I wouldn't be surprised that if you had 50 bats all infected with SC2, you'd only be able to grow it out of one of those.

[2021-03-08 15:04:38]

[Robert Garry]

Explains some of the problems in the diagnostic space - Start mixing in detection with antigen assays [which correlates not so well with infectious virus or RNA] and it gets complicated fast.

[2021-03-08 15:06:43]

[Andrew Rambaut]

[thread - ID: 2021-03-08 15:06:43]

But that means these ideas about WIV sampling viruses from the wild and one of the accidentally escapes might be wrong?

[2021-03-08 15:07:34]

[Kristian Andersen]

I think most of those people underestimate how incredibly hard it is to grow stuff from such samples, yes.

[2021-03-08 15:07:52]

[Robert Garry]

Screening species with serology though I think is the way to go - that is why Lin-Fa's ACE2BOB makes sense - find the species that have antibodies then trap the hell out of them until you get lucky and hit one at peak viremia/RNA.

[2021-03-08 15:07:57]

[Kristian Andersen]

I think they assume - 10,000 samples = 10,000 chances for SC2 to hop out of a tube. Nope.

[2021-03-08 15:08:39]

[Robert Garry]

[thread - ID: 2021-03-08 15:06:43]

@Andrew Rambaut Hammer hits nail!

[2021-03-08 15:09:34]

[Kristian Andersen]

There's virtually _zero_ chance a virus could leak out of a tube - if they culture to high titers, sure - but again, in most circumstances that's not going to be possible because it's so hard to grow anything out of a primary sample.

[2021-03-08 15:11:59]

[Robert Garry]

That and they should be doing it with at least an N95 and better yet a PAPR. Damn sure have my ppl in a PAPR/class 2 hood if they are trying to grow virus in large amts.

[2021-03-08 15:12:39]

[Kristian Andersen]

Yes, Bob, but these are Chinese scientists - they're clueless, you know.

[2021-03-08 15:12:46]

[Kristian Andersen]

:face_with_rolling_eyes:

[2021-03-08 15:13:38]

[Robert Garry]

Indeed but they're miles ahead of The Parisites(R) , who are so out of their depth it is really NOT at all funny.

[2021-03-08 15:54:28]

[Eddie Holmes]

And why would they possibly be culturing a random bat virus which was not associated with the miners outbreak (because they published a partial sequence of RaT13 years ago)?

[2021-03-08 16:02:00]

[Kristian Andersen]

BECAUSE Eddie! Just Because!!!

[2021-03-08 16:05:18]

[Eddie Holmes]

Fuck, you're right.

[2021-03-08 18:33:41]

[Eddie Holmes]

Weifeng's paper is now out on bioRxiv
Still waiting on accession numbers though

[2021-03-08 18:36:53]

[Eddie Holmes]

Very slow for some reason

[2021-03-08 18:53:13]

[Kristian Andersen]

"the phylogenetic and genomic diversity of these viruses has likely been underestimated" - no shit :wink:

[2021-03-08 18:55:07]

[Eddie Holmes]

No shit. ALL these viruses plus RmYN01 and RnYN02 were sampled in a 1100 hectare botanical garden. No caves nor miners.

[2021-03-08 18:56:37]

[Eddie Holmes]

So, chances of finding bat zero...

[2021-03-08 18:56:43]

[Kristian Andersen]

So freaky - plus, all this recombination - it's like a random number generator.

[2021-03-08 18:57:41]

[Eddie Holmes]

It is! Took me a while to get it all planned:rolling_on_the_floor_laughing:

[2021-03-08 18:58:21]

[Kristian Andersen]

Yeah man - difficult to properly fake all those novel genomes. Great job man. I assume CCP pays 10 grand per fake genome?

[2021-03-08 19:02:45]

[Eddie Holmes]

25k. I've upped my rate.

[2021-03-08 19:08:26]

[Robert Garry]

Don't forget the cut for the time-traveling 9-foot tall lady space aliens.

[2021-03-08 19:13:52]

[Eddie Holmes]

Will pass you the seqs soon Bob.

[2021-03-09 04:50:55]

[Robert Garry]

I agree with most all of this - does that make me a socialist?
<https://www.wsws.org/en/articles/2021/03/06/wuha-m06.html>

[2021-03-09 04:59:31]

[Robert Garry]

One of the Parisites - interesting pinned tweet. [shared file(s): image.png]

[2021-03-09 05:20:09]

[Robert Garry]

@Eddie Holmes - just read the paper - BRILLIANT! - more Parasite/DRASTIC Heads set to explode. May post a note on Virological to follow-up....

[2021-03-09 06:33:26]

[Robert Garry]

ACTUALLY Alina is a conspiracy theorist

[2021-03-09 06:33:28]

[Robert Garry]

<https://disinformationchronicle.substack.com/p/alina-chan-dichron-interview>

[2021-03-09 06:33:34]

[Robert Garry]

Own it!

[2021-03-09 06:42:35]

[Robert Garry]

What is with these people? https://prometheusshrugged.substack.com/p/oh-the-lengths-to-which-they-will?r=ep9dv&utm_campaign=post&utm_medium=web&utm_source=copy

[2021-03-09 12:23:55]

[Eddie Holmes]

Absolutely in no way a conspiracy theorist whatsoever: [shared file(s): Board of Crazies.png, Screen Shot 2020-10-22 at 7.33.29 am.png]

[2021-03-09 12:25:59]

[Kristian Andersen]

[thread - ID: 2021-03-09 12:25:59]

Really is the perfect example of somebody who's deep deep into conspiracy. The time it must have taken to create that figure... My god.

[2021-03-09 13:04:57]

[Robert Garry]

She also likes the attention and pushing the "big" people's buttons. She's also very certain of her own abilities even in areas she has shown to me that she has no aptitude for. Not a real good combination.

[2021-03-09 13:16:56]

[Robert Garry]

Not a perfectly done alignment , but still you can see that RpYN06 spike is VERY close to GD pango spike and very different from RnYN02 spike until you get to the RBD. The RpYN06 RBD is VERY close to RNYN02 spike and very different from GD pango spike After the RBD the three viruses are similar, until you get to the S1/S2 junction where they all differ. [shared file(s): image.png]

[2021-03-09 13:18:42]

[Robert Garry]

Alina is dead wrong about GD pango CoV - scientists like Tommy and Eddie and Nature are not involved in some grand conspiracy to pusht a fake virus.

[2021-03-09 13:20:42]

[Robert Garry]

As for Alina's accusation that by obscuring SC2 origins said scientists are playing a hand in the deaths of millions, my suggestion - go look in the mirror.

[2021-03-09 13:46:24]

[Andrew Rambaut]

It is interesting how little people understand the motivations of scientists - we saw this before with the HIV origins thing - the assumption that we all collude to protect the establishment and/or pharma. The reality is of course that if we found evidence of lab origins or whatever we would be straight down to Nature/Science with it. But you would think Alina would know this.

Another misunderstanding I have come to realise is that many lay-people believe that research grants are actually personal income for the scientists which is why we don't want to do anything that might jeopardise it.

[2021-03-09 14:22:54]

[Robert Garry]

RsYN04 is interesting in its own right. Extra insertion, which either adds a VERY tight cysteine loop or creates a metal binding domain in the NTD. Plus the nonFCS at S1/S2 junction has 4 predicted O-linked glycans. [shared

file(s): image.png]

[2021-03-09 15:14:04]

[Robert Garry]

Another thing about Alina's BS - if she thinks there are integrity issues with the pango papers then fine contact the journals. There is a process for that, which the journals went through. Not getting her way, she escalated, went public and took to accusing people literally of genocide. At my University this would be a violation of ethics rules, violating the rights of Tommy, Eddie and a lot of other people. I would recommend without hesitation that she be fired for crap like that - take that attitude and BS somewhere else.

[2021-03-09 15:59:35]

[Eddie Holmes]

Yes, it's the questioning of the 'integrity' issues that really infuriates me and why I contacted the Broad in the first place. To avoid elevating my blood pressure and an early death I've held off for now. But if she does it again then that will be it. I have to say that I was extremely underwhelmed by the Broad.

[2021-03-09 16:23:07]

[Kristian Andersen]

I'm very surprised by how passive Broad has been in all of this. Had she done this at our institution, she would have been fired - personal attacks are sackable offenses. Rightly so.

[2021-03-09 16:29:41]

[Robert Garry]

[thread - ID: 2021-03-09 12:25:59]

@Kristian Andersen She is also wasting a lot of other people's time driving the false narrative about fake pango /bat CoV sequences and how SC2 emerged perfectly adapted. Not that other idiots haven't and wouldn't have carried that water, but she brings the imprimatur of the Broad - and by their passivity - tacit approval.

[2021-03-09 16:57:18]

[Eddie Holmes]

Got this from a friend at EgoHealth. Very interesting. Obviously keep to yourselves: "Apparently the WHO team spent a fair bit of time matching landmarks from your photos to the market when they visited, and the drain grates that the raccoon dogs were sitting on top of in your pictures correspond to the places in the market where they found the lowest CoV Ct values (all of this is still confidential but will be in the report I think). Seems reasonable that those guys were infected and shedding virus in their feces, as Koopmans thought it was highly unlikely that that level of CoV RNA would be in those grates from human sources. Unfortunately the Chinese didn't do any source tracing of any mammals from the market originally (I think they're still claiming it was seafood only), and now all those farms are apparently coat hanger factories (?), so I don't think that they'll be able to really test that hypothesis. The WHO team also found frozen raccoon dog/ferret badger (they're unsure and I think are waiting for barcoding) carcasses still at the market, so it's possible that some of the frozen food detections they've had could have come from the same source farm or processing plant as the live animals."

[2021-03-09 17:12:23]

[Kristian Andersen]

Very interesting - and, of course, makes a ton of sense. Kinda looking forward to the full report - I'm not convinced it'll be a total dud :wink:

[2021-03-09 17:23:37]

[Eddie Holmes]

Agreed - seems better than I imagined
The Parasites will explode

[2021-03-09 17:48:39]

[Robert Garry]

That would be good!

[2021-03-09 19:07:11]

[Robert Garry]

"Seems better than I imagined" Indeed -Eddie - you may have saved them with your "vacation" photos!

[2021-03-09 19:09:41]

[Robert Garry]

"unlikely that that level of CoV RNA would be in those grates from human sources." Yes - the level that ppl find on hospital surfaces with dozens of patients in a ward is tiny...

[2021-03-09 19:16:02]

[Kristian Andersen]

Yeah, really good point. Rob Knight has been doing a ton of surface sampling from hospital rooms, rooms with confirmed infections, etc. - teeny tiny amounts of RNA can be found. It's there - but not a lot. Finding a lot of virus RNA on grates would suggest active shedding - probably fecal.

[2021-03-09 19:17:16]

[Robert Garry]

WashPost spinning here. i'm guessing [hoping] White house are smart enough to figure this out - maybe with a little help from Kristian... [shared file(s): Opinion | The Biden administration conf...Wuhan lab claims - The Washington Post.pdf]

[2021-03-09 19:18:27]

[Kristian Andersen]

Nope - I don't believe the current administration is going to be better on this particular point. Was very disappointed talking to Biden's office - they had already bought into the lab claims.

[2021-03-09 19:19:51]

[Robert Garry]

Maybe that explains Lander not doing anything with Alina. Sad.

[2021-03-09 19:23:47]

[Robert Garry]

But, I think they'll be other opportunities to set the record straight - plus the fact that there are closer viruses out there in nature. Just a question of whether Alina et al. can shut down the work before they are found.

[2021-03-09 19:24:26]

[Kristian Andersen]

Oh, Josh Rogin.... It's amazing you can actually write a full article but without saying anything at all - pure word soup.

[2021-03-09 19:35:39]

[Eddie Holmes]

So, the White House no nothing which means there is no security agency information on the lab escape. End of story.

[2021-03-09 19:35:56]

[Kristian Andersen]

Yup - simple as that.

[2021-03-09 19:36:53]

[Kristian Andersen]

One year in and not a single lead suggestion any connection to the lab - which is actually quite remarkable in the sense that they could cook _anything_ up to make it at least _appear_ to be related to lab escape. But they don't even have that.

[2021-03-09 19:37:41]

[Kristian Andersen]

Also, definitely not a conspiracy theorist. Not at all. [shared file(s): Screen Shot 2021-03-09 at 7.31.45 PM.png, Screen Shot 2021-03-09 at 7.33.06 PM.png, Screen Shot 2021-03-09 at 7.33.50 PM.png, Screen Shot 2021-03-09 at 7.34.21 PM.png, Screen Shot 2021-03-09 at 7.35.06 PM.png]

[2021-03-09 19:41:43]

[Robert Garry]

"Nature just had a podcast with bad information." Really?

[2021-03-09 19:46:14]

[Eddie Holmes]

Absolutely crazy. Can't wait for that WHO report!

[2021-03-09 19:51:29]

[Robert Garry]

yeah - that was the best piece of news today about your raccoon dog pics over the grate correlating the low Cts. Also in the good news category - Weifeng's paper puts several more nails in the coffin containing Alina's GD pango is fake story.

[2021-03-09 19:54:21]

[Eddie Holmes]

Although, of course, I'm going to look like I'm even deeper in the conspiracy....

[2021-03-09 19:56:18]

[Kristian Andersen]

Getting rich off those CCP checks. There are worse things in life. :moneybag::cn:

[2021-03-09 19:58:53]

[Eddie Holmes]

There are indeed. Just can't wait to see that report released now.

[2021-03-09 19:59:45]

[Kristian Andersen]

Yup, same. Some actual expert on that mission and they're going to be thinking VERY hard about how to phrase things so it should be insightful.

[2021-03-09 22:03:32]

[Eddie Holmes]

Here are key new seqs. They are not up on GISAID yet (hopefully by end of the week) so please keep any analysis private until then. [shared file(s): BatCoV_SARS-CoV-2-related.fasta]

[2021-03-10 04:38:26]

[Robert Garry]

Perfect - have progress on updating figures for our virological post. Can do this after they appear on GSAID.

[2021-03-10 04:56:05]

[Robert Garry]

I think it's GREAT that Eddie's pics might be the smoking gun of the "forensic" evidence that WHO collects. The ppl that had SC2 at the market were not likely to have been shedding so much virus that it ended up on a sewer grate under an animal cage. Very likely then that SC2 was in animals. Good for Koopmans pointing out the low Cts making it likely that it was animals. If traders were bringing infected animals to this market they were likely bring infected animals to other markets as well. Coupled with the facts that there was a period of undetected circulation this easily explains why cases not linked to the Hubei market also showed up. NO early cases linked to a lab - lots of cases linked to the market - lab theory out the window.

[2021-03-10 05:28:43]

[Andrew Rambaut]

Yes - this is what I was saying back in January last year - it was not going to be a single animal in a single place. Likely in a number of places and maintain in the animals as new ones are brought in.

[2021-03-10 07:00:26]

[Robert Garry]

[thread - ID: 2021-03-10 07:00:26]

And yes - will make the lab leak/tinfoil hat crowd's heads collectively explode. I can hear it now - it's all just circumstantial evidence, not proof, etc. Most of the early cases from the market - coincidence unlikely - likely telling us a whole lot.

[2021-03-10 08:21:21]

[Robert Garry]

[https://www.chathamhouse.org/events/all/members-event/sustaining-response-inside-who-ch\[...\]-briefing&utm_content=global-health-briefing-china-mission](https://www.chathamhouse.org/events/all/members-event/sustaining-response-inside-who-ch[...]-briefing&utm_content=global-health-briefing-china-mission)

[2021-03-10 09:06:05]

[Robert Garry]

Daszak, Koopmans et al...

[2021-03-10 09:07:38]

[Kristian Andersen]

Looks interesting!

[2021-03-10 11:42:39]

[Eddie Holmes]

[thread - ID: 2021-03-10 07:00:26]

The anticipation is killing me

[2021-03-10 11:56:27]

[Robert Garry]

I just listened to the Chatham House webinar (after daisy-chaining zooms for most of the morning). The Parasites dominated the questioning to the panel, but - good news imo the panel was ready. Judge for yourself thou. Daszak: annoying, but getting his rhetoric together. Koopmans: sharp and smooth - on point. Watson: pretty outclassed in terms of communication skills, but a point or two. NO mention of Eddie's smoking raccoon dog pics, but none expected - I do think they are saving it for the release of the report.

[2021-03-10 12:24:50]

[Eddie Holmes]

Did they say when the WHO report will be released? I'm sure they're saving the smoking canid and other details and which will really annoy the Parasites

[2021-03-10 12:38:48]

[Robert Garry]

They said within two weeks.

[2021-03-10 13:18:30]

[Robert Garry]

Making Parasites crazier - the gall of these ppl is amazing - clueless about viruses, but that won't stop them. [shared file(s): image.png]

[2021-03-10 13:31:09]

[Eddie Holmes]

Ha, that's so stupid! :rolling_on_the_floor_laughing:

[2021-03-10 13:48:56]

[Kristian Andersen]

:rolling_on_the_floor_laughing:

[2021-03-10 13:50:03]

[Kristian Andersen]

Eddie, can you please (please!) do us a favor and reply? Maybe point her to your book on Amazon on the topic for extra snark.

[2021-03-10 13:53:05]

[Eddie Holmes]

On it.

[2021-03-10 14:10:40]

[Eddie Holmes]

Would this be ok? "There's a process called 'recombination' that is commonly documented in nature that explains this pattern. Coronaviruses recombine frequently. This is covered in basic virology textbooks and my own monograph: <https://www.amazon.com/Evolution-Emergence-Viruses-Oxford-Ecology/dp/0199211132>"

[2021-03-10 14:12:36]

[Kristian Andersen]

Sufficiently snarky - so yes.

[2021-03-10 14:14:43]

[Eddie Holmes]

Done. I didn't reply because I have blocked this nutter, but I pasted that tweet in.

[2021-03-10 14:15:55]

[Kristian Andersen]

:fire:

[2021-03-10 14:19:54]

[Eddie Holmes]

She is so spectacularly dumb. They just don't understand the basic biology of what they are talking about.

[2021-03-10 14:21:10]

[Kristian Andersen]

I mean - they should have come across recombination by now if they actually cared about looking at this properly... But I guess that was never the purpose.

[2021-03-10 14:23:39]

[Andrew Rambaut]

Found some lovely examples of recombinants between B.1.1.7 and other lineages: [shared file(s): group4_snp_plot.png]

[2021-03-10 14:24:32]

[Andrew Rambaut]

Perhaps that is lab made too?

[2021-03-10 14:31:58]

[Eddie Holmes]

You can't argue with people so dumb.

[2021-03-10 14:34:10]

[Kristian Andersen]

Interesting recombinants - Andrew, do you have an automated way to detect these? We have seen some strange sequences lately.

[2021-03-10 14:37:16]

[Andrew Rambaut]

Was just looking for intermediates of B.1.1.7 - i.e., perhaps involved in the genesis events. Came across a bunch with some of the mutations but not all. The best ones were some that had multiple genomes so were clearly transmitting - but the cool thing is they were sequenced in different labs so no lab funny business. Probably loads more but these are the low hanging fruit (about 5-6 sets)

[2021-03-10 14:38:58]

[Kristian Andersen]

Interesting - not really surprised. So Bette is right? As in, her analyses are right?

[2021-03-10 14:42:53]

[Andrew Rambaut]

Once again Bette got the right answer but is using flawed methods. Her 3-sequence recombination method can't distinguish recombination from convergence.

[2021-03-10 14:43:07]

[Andrew Rambaut]

But recombination is no surprise to any one.

[2021-03-10 14:56:51]

[Kristian Andersen]

That's what I thought - and yeah, recombination is absolutely no surprise to anybody who's been following this virus. I can assure you Bette will make full use of being wrongly right, though....

[2021-03-10 15:04:44]

[Kristian Andersen]

Eddie - you're killing me... [shared file(s): Screen Shot 2021-03-10 at 14.36.44.png]

[2021-03-10 15:09:28]

[Robert Garry]

I remember a tale of "rightfully" wrong back in the Ebola days
<https://science.sciencemag.org/content/353/6300/658.1.full> <https://pubmed.ncbi.nlm.nih.gov/27516593/> Rambaut et al show that the erratum to our report on Ebola virus Makona evolution not only corrected sample dates modified by others in GenBank but also corrected an additional transcriptional error in our original analysis. We agree with their observation that both factors contributed to our revised evolutionary rate estimate but continue to stand by our revised estimate and conclusions.

[2021-03-10 15:12:58]

[Eddie Holmes]

Oh, I remember that one well!

[2021-03-10 15:48:02]

[Robert Garry]

<https://onlinelibrary.wiley.com/doi/10.1002/bies.202000325>

[2021-03-10 15:50:49]

[Robert Garry]

taking Segreto and Deigin to task.

[2021-03-10 15:55:23]

[Eddie Holmes]

Thank you Russia!

[2021-03-11 04:48:29]

[Robert Garry]

If I understand the term correctly, this is

"womansplaining." <https://twitter.com/Ayjchan/status/1369824491904327682> Does seem that there has been at least a couple of good things that came from the Parisite open letter. Alina and the Parisites are backed into the corner that WIV must have had SC2 or something very close if it was a "lab leak." IOWS SC2 came from nature. Plus, their true agenda is revealed: fieldwork/sampling bats and other animals must stop and BSL3/4 labs must be shutdown.

[2021-03-11 06:16:13]

[Robert Garry]

Reading btwn PD's lines here I think we're getting closer to the reveal of @Eddie Holmes smoking dog pics. [shared file(s): WHO Team Expert Expects Covid-19's Origins Will Be Found 'Within A Few Years' - WSJ.pdf]

[2021-03-11 10:44:46]

[Eddie Holmes]

Yup, that's the Parisite Plan - no work allowed. They clearly sent their letter to newspapers all over the world.

[2021-03-11 10:44:56]

[Robert Garry]

Good advice [shared file(s): image.png]

[2021-03-11 10:46:09]

[Kristian Andersen]

Oh wow, reasonable people actually still exist? That's cool.

[2021-03-11 10:47:52]

[Eddie Holmes]

Good letter. This whole debate will shift after the WHO report is released. I'm not exactly sure how, but we will enter a new phase?

[2021-03-11 10:50:05]

[Kristian Andersen]

If they have the 'grate' data in there I think we should forcefully come out and make it clear that this is over - the evidence is clear. This is exactly the type of evidence that we have been looking for and we need to push hard to discredit people like Alina as conspiracy theorists - because that's clearly what it becomes if WHO has additional data. We have been too gentle on those accounts up until now.

[2021-03-11 10:50:30]

[Kristian Andersen]

I might also chose to call out the Broad for "lending credibility to fringe theories".

[2021-03-11 10:51:28]

[Robert Garry]

I've been doodling: [shared file(s): image.png]

[2021-03-11 10:52:47]

[Kristian Andersen]

Nice - yes, we should definitely expand on this. Once that WHO report is out, I think we might want to get towards publication of PO2. Let's have a Zoom call after the report is out. To be clear - IMO PO2 wouldn't need to consider anything that has to do with a lab.

[2021-03-11 10:53:45]

[Eddie Holmes]

Bloody awesome! I agree Kristian - if the WHO report says what I heard from EgoHealth then I think we should push hard in public against the Parisites.

[2021-03-11 10:57:12]

[Robert Garry]

All taken from comments of !channel

[2021-03-11 11:09:23]

[Robert Garry]

Origins and evolution of SARS-CoV-2? Could include some things about pathways to the variants as well I think. It all relates - SC2 more pantropic than human adapted, but its getting better at infecting us.

[2021-03-11 11:14:33]

[Robert Garry]

Also working on an update to Holmes2021 virological post - including the new Weifeng viruses from the garden.
[shared file(s): image.png]

[2021-03-11 11:19:25]

[Robert Garry]

O-glycans included here in the N terminus, but also some "new" ones near the S1/S2 junction. Hard to think that this is all just coincidence.

[2021-03-11 11:20:04]

[Robert Garry]

Also updating Figure 2, but not quite there yet.

[2021-03-11 11:20:32]

[Eddie Holmes]

Thanks Bob! There's another close bat CoV on GISAID - PrC31 I think. Also from Yunnan. This is from the China CDC. Paper being written up apparently.

[2021-03-11 11:22:08]

[Robert Garry]

Will check it out!

[2021-03-11 11:37:37]

[Robert Garry]

It's VERY close to RpYN06 in spike. [shared file(s): image.png]

[2021-03-11 11:45:06]

[Robert Garry]

Very close [shared file(s): image.png]

[2021-03-11 11:46:44]

[Kristian Andersen]

[thread - ID: 2021-03-11 11:46:44]

@Andrew Rambaut - reading the most recent PHE report on VOCs/VOIs (so good!), is it fair to say that non-B.1.1.7 VOCs just aren't that successful in the UK compared to B.1.1.7? Enough data to make that conclusion?

Separately, is it fair to say that B.1.1.7 lineages with mutations such as E484K don't appear to be any more successful than 'vanilla' B.1.1.7?

[2021-03-11 11:47:19]

[Eddie Holmes]

Interesting!

[2021-03-11 12:52:19]

[Kristian Andersen]

Hmmm (link not accessible) [shared file(s): Screen Shot 2021-03-11 at 12.51.55.png]

[2021-03-11 12:52:22]

[Andrew Rambaut]

[thread - ID: 2021-03-11 11:46:44]

@Kristian Andersen I think 351 has picked up a bit of traction but tiny numbers. On the other hand it is unlikely to be more transmissible than B.1.1.7 - at best equal. And current NPI is bringing B.1.1.7 down.

[2021-03-11 12:52:29]

[Andrew Rambaut]

Soon.

[2021-03-11 12:52:42]

[Andrew Rambaut]

Just trying to coordinate a 3-way release.

[2021-03-11 12:53:16]

[Andrew Rambaut]

Perhaps with a bit of editorial to try and minimise stigmatisation of survivors.

[2021-03-11 12:54:15]

[Robert Garry]

hmmmm - A82V is the only amino acid I really care about.

[2021-03-11 12:54:32]

[Kristian Andersen]

Stealing my thunder Bob.

[2021-03-12 06:31:11]

[Robert Garry]

Really nice work @Andrew Rambaut "We then aligned the two 2021 Guinea EBOV genomes with a representative 1063 genomes from the 2013-2016 West Africa outbreak (Figure 2). The 2021 Guinean genomes share 10 substitutions that accumulated during the West Africa EVD outbreak (compared to KJ660346), including an A82V mutation in the glycoprotein, which arose when the virus spread to Sierra Leone and is considered a marker for human adaptation [2,3]. These shared mutations make it unlikely that the new cases are a result of a new spillover from the animal reservoir, but instead are directly linked to human cases in the 2013-2016 West Africa EVD outbreak."

[2021-03-12 06:47:19]

[Robert Garry]

More Parasite BS from WasHPost Editorial and Alina's buddy Filipa [shared file(s): Opinion _ The world still hasn't figured out how to regulate research into deadly viruses - The Washington Post.pdf]

[2021-03-12 07:02:05]

[Robert Garry]

But - good news in a way - the antiScience bullshit is now on the table for the world to look at once again for the umpteenth time. I've been serving on Biosafety committees over 3 decades - CDC inspects BS labs in the US and it's much more intense in Europe. Total BS.

[2021-03-12 08:11:32]

[Robert Garry]

CRISPR - its so dangerous we shouldn't even use it at all - if there's only a 1 in a trillion chance it could creates a dangerous infectious cancer in humans like is killing Tasmanian Devils we must stop. X-rays - they're mutagenic - same problem - stop please. Cell phones put out radiation as well - next thing you know an infectious brain cancer - do you want this happening to you? NO more cell phones please. And Zoos - please shut them all down - leave those animals out in the wild. They next deadly virus might come from a zoo or botanical garden - Eddie Holmes says there are bats in gardens - yes bats! if there's only a 1 in a trillion chance we must shut down zoos. They are evil anyway - shut then down. Cats - dogs, ferrets all susceptible to deadly coronaviruses - no more pets please! And meat - did you know that domestic animals can get infected with bat viruses? Please no more meat - EVER. Did

you know that fields where they grow rice, corn and wheat are literally teaming with animals, mice, bird etc. People are literally going into those fields - Stop that - no plant products to eat either. It just makes sense. Fish - let's eat fish - wait Eddie says there are viruses in fish too- arenaviruses, filoviruses - please we MUST stop all the madness - no contact with animals ever - where is the UN on this? We need a commission!

[2021-03-12 08:16:49]

[Andrew Rambaut]

Nipah - don't eat tree sap that bats might have pissed on.

[2021-03-12 09:01:39]

[Robert Garry]

[thread - ID: 2021-03-12 09:01:39]

https://twitter.com/Bobby_Network Clever: Eddie morphing to Shi, Daszak Baric etc [shared file(s): image.png, image.png, image.png]

[2021-03-12 09:37:14]

[Kristian Andersen]

Somebody needs to turn off the internet.

[2021-03-12 09:50:18]

[Robert Garry]

That too - it's so dangerous we shouldn't even use it at all - if there's only a 1 in a trillion chance it could create a dangerous cult that explodes bombs and releases deadly viruses we must stop - now - please!

[2021-03-12 12:00:26]

[Robert Garry]

"A total of 23 different bat species were tested in this study (Table S1). Samples were 619 collected between May 2019 and November 2020 from Mengla County, Yunnan Province in southern China (101.271563 E, 21.918897 N; 101.220091 E, 21.593202 N and 101.297471 E, 21.920934 N). The Xishuangbanna Tropical Botanical Garden has an ethics committee that provided permission for trapping and bat surveys within 623 this study." @Eddie Holmes do you happen to have Table S1 from Zhou2021? OR a month and year when RpYN06 and RsYN06 were collected. Updating Holmes 2021 figs etc.

[2021-03-12 12:18:11]

[Eddie Holmes]

I'll email them all to you Bob - I'll just make a cup of tea...as long as turning on the kettle is not deemed too dangerous

[2021-03-12 12:22:07]

[Eddie Holmes]

Had a chat to Linfa and it seems he has more positive pangolins. He's going to run his VirScan-like assays on Tommy's. I think we have 7 positive animals. Of course, that bats may be passing the virus to pangolins does nearly show that virus jump between species in nature. Who would have thought!!

[2021-03-12 12:27:37]

[Robert Garry]

Thanks Eddie. I understand that bats etc live in Sri Lanka and other tea growing countries - so yes better to curtail that overly risky activity going forward. Agreed the pango story is an interesting one on many levels - lots of important CoV evolution and ecology to sort. That is unless the Parasites have their way and all this threatening virology is stopped.

[2021-03-12 12:33:14]

[Eddie Holmes]

You're right! I had better stick to coffee...oh no, civets shit coffee beans!!!

[2021-03-12 12:38:33]

[Eddie Holmes]

[thread - ID: 2021-03-12 09:01:39]

I post this because it is pretty instructive.

[2021-03-12 12:51:48]

[Robert Garry]

Also consistent with another conspiracy theory - all the world's leading virologists (and a few politicians) are shape-shifting space aliens from the future.

[2021-03-12 12:56:55]

[Robert Garry]

It's really the only way to explain QTQTNS and some of the other spike motifs in newly sequenced Bat CoVs.

[2021-03-12 13:05:25]

[Robert Garry]

Here's the updated Fig. 1 with the new bat viruses. Also noticed that a few of the new ones have a concentration of S,T,P around the S1/S2 junction. Interestingly, several have several predicted O-linked glycans. So that's a feature of the site that is independent of the SC2 FCS itself. Also worth noting the O-linked glycans near the N terminus as well. [shared file(s): image.png]

[2021-03-12 13:10:37]

[Eddie Holmes]

Great stuff Bob. I've just sent you the SI files.

[2021-03-12 13:31:48]

[Eddie Holmes]

Shouldn't forget this stuff either: <https://www.cdc.gov/mmwr/preview/mmwrhtml/mm5241a2.htm>

[2021-03-12 13:43:00]

[Robert Garry]

THANKS -yeah the serosurveys are VERY important. Koopmans was on NBC news last night for an interview and they were "grilling" her about the supposed flu-like cases that were at WIV in Fall 2019. She said they were antibody negative - a big nothing, but grist for Fox News and Pompeo.

[2021-03-12 13:46:22]

[Eddie Holmes]

Ha. What a surprise

[2021-03-12 13:47:53]

[Robert Garry]

And this: I do think Koopmans all by herself will make the Parasites look like the fools that they are. [shared file(s): image.png]

[2021-03-12 14:42:26]

[Eddie Holmes]

Interesting. Bring that report on.

[2021-03-12 16:42:10]

[Robert Garry]

Partly revised Fig 2 incorporating the new viruses from Weifeng and CRP31. Easy reference to see how similar GD pango is the RpYN06 and CPR31 in the NTD. Beyond that - I think it suggests that just like the RBD and S1/S2 inserts are bringing functionality (binding ACE2, affecting cleavage), I think the NTD inserts are doing the "something." [shared file(s): image.png]

[2021-03-12 18:09:46]

[Kristian Andersen]

Very cool Bob - you should put in reply on the virological post. So cool to see the pieces of the puzzle fitting in!

Btw, I'm busy... [shared file(s): Image from iOS.jpg]

[2021-03-12 18:35:14]

[Eddie Holmes]

Yes, great work Bob. However, we may need permission to use PRC31. What's that white stuff Kristian (no, not the stuff on the mirror, the stuff out the window)?

[2021-03-12 18:36:03]

[Eddie Holmes]

It's taken me all morning, but I've finally got a caption for the morphing photo:

[2021-03-12 18:36:43]

[Eddie Holmes]

"Yet another dangerous gain-of-function experiment" [shared file(s): Doc1.png]

[2021-03-12 18:42:46]

[Robert Garry]

Depends on the direction of the morphing though - Holmes to Baric to Daszak IMO def LoF.

[2021-03-12 18:46:03]

[Eddie Holmes]

Very true.

[2021-03-12 18:58:17]

[Robert Garry]

Actually a lot of evidence for natural spillover - let's start with the early market cases. Next BS is she seems to think they let undergrads into BSL3. [shared file(s): image.png]

[2021-03-12 19:02:53]

[Eddie Holmes]

Can't wait for her to deal with the smoking raccoon dog. I just don't know how she can keep writing this stuff day after day after day

[2021-03-13 06:42:18]

[Robert Garry]

Well Well - that didn't take long. The new Ebola outbreaks are "more likely" to be lab leaks, too. [shared file(s): image.png]

[2021-03-13 07:39:48]

[Kristian Andersen]

A lab leak of a previously engineered pathogen, I assume?

[2021-03-13 07:52:20]

[Robert Garry]

You would know...

[2021-03-13 09:27:19]

[Robert Garry]

<https://jvi.asm.org/content/89/19/10130> Perhaps an mystery solved about 2014 DRC outbreak?

[2021-03-13 09:32:06]

[Kristian Andersen]

Maybe, maybe not.. Andrew had some good points here:

<https://twitter.com/arambaut/status/1370509163512659968?s=21> (and in the linked blogpost - technical, but good).

[2021-03-13 12:50:17]

[Eddie Holmes]

The branch lengths to our Black Death Yersinia pestis sequences have always been too short. I bet they had shitty lab safety protocols in the 14th century.

[2021-03-13 16:53:15]

[Robert Garry]

Angie :shushing_face: [shared file(s): image.png]

[2021-03-13 23:14:32]

[Eddie Holmes]

Nice one! The University of Sydney are NOT going to release those emails for the FOI request. They believe that they will lead to more online abuse and they have a duty of care not to let that happen. Good. The Right to Know people will probably challenge it so let's see what happens.

[2021-03-14 07:08:34]

[Robert Garry]

We will have ample opportunity to reiterate that we deeply considered the "lab leak" hypothesis and found no evidence for it. RtK, Alina and DRASTIC will apply yet another layer of tinfoil and moan about yet another conspiracy and cover-up, but let them have at it.

[2021-03-14 07:41:18]

[Robert Garry]

https://www.skynews.com.au/details/_6240160351001 tells you all you need to know about Josh Rogin - selling books making \$ -same with head Parasite Jamie Metz!

[2021-03-14 09:59:22]

[Robert Garry]

Since the market is likely to become a hotbed of interest over the next few weeks this recent analysis seems important: <https://www.biorxiv.org/content/10.1101/2021.01.05.425339v3.full.pdf>

[2021-03-14 09:59:46]

[Robert Garry]

This paragraphs sticks out "Next, to address the question of whether those two sites are evolutionarily conserved, we generated a phylogenetic tree of the seven patient samples linked with the Huanan Seafood Wholesale Market (hereinafter named as the Market) and the related coronaviruses from animal reservoirs by nucleotide sequence alignment [14]. Interestingly, we found the most related coronaviruses from pangolins and bats showed consensus at the orthologous sites of 8782 base as T and 28144 base as C. A complete linkage at both sites was also observed in these highly related coronaviruses including the most closely related bat coronavirus RaTG13 (96.2% identical) (Fig. 1a). This result suggests that the T8782 and C28144 genotype existing in 19.1% of SARS-CoV-2 genomes is more conserved during evolution as an ancestral genotype. On the opposite, the samples from the seven patients demonstrate identical concurrent mutations on those two sites (T8782C and C28144T). Coincidentally, all seven patients had worked or visited the Market before the onset of illness. Also worth mentioning is that the patient of sample Wuhan/WH04/2020 did not visit the market but stayed in a hotel nearby between 23 and 27 December, 2019 [2,7]. Different from the aforementioned seven Market samples, the genotype of this patient sample showed no mutations on the two sites (i.e. T8782 and C28144), suggesting this patient had been infected from somewhere else in Wuhan instead of the Market. Noteworthy, the first sequenced SARS-CoV-2 genome, Wuhan-Hu-1 which was from a worker at the Market, also acquired the two point mutations [2]."

[2021-03-14 10:00:08]

[Robert Garry]

And this one:"Early cases reported from Wuhan was extremely critical to answer how the outbreak took place at the very beginning. In this study, we were able to collate 34 viral genomes sampled from Wuhan between December 24, 2019 to January 18, 2020, although the number of confirmed case by then were 121 according to Chinese officials (Fig. 4b). There were two distinct clusters of the 34 early samples. 30 out of 34 viral genomes were categorized into the M type (T8782C/C28144T) with a great extent of genetic diversity. Among these 30 genomes, 17 acquired extra mutations apart from two M type mutations resulting in 14 different genotypes. All of the 11 viral genomes linked with the Market (including 8 samples of patients who worked at the Market and 3 positive environmental samples

collected from the Market) were in this cluster [7]. Although the M type was the dominant type during the early outbreak of COVID-19 in Wuhan, the non-Market genotypes from four patients forms the second cluster that also co-existed with M type cluster at that time. Two of them were ancestral type and the other two had their own unique mutations."

[2021-03-14 10:28:57]

[Robert Garry]

<https://www.biorxiv.org/content/10.1101/2020.08.27.270637v1.full.pdf> The nS mutation T28144C: ORF8: T251C, L84S. Not trivial.

[2021-03-14 11:38:46]

[Andrew Rambaut]

From our nomenclature paper: <https://www.nature.com/articles/s41564-020-0770-5>

```At the root of the phylogeny of SARS-CoV-2 are two lineages that we simply denote as lineages A and B. The earliest lineage A viruses, such as Wuhan/WH04/2020 (EPI\_ISL\_406801), sampled on 5 January 2020, share two nucleotides (positions 8,782 in ORF1ab and 28,144 in ORF8) with the closest known bat viruses (RaTG13 and RmYN02). Different nucleotides are present at those sites in viruses assigned to lineage B, of which Wuhan-Hu-1 (GenBank accession no. MN908947) sampled on 26 December 2019 is an early representative. Hence, although viruses from lineage B happen to have been sequenced and published first8,9,10, it is likely (based on current data) that the most recent common ancestor (MRCA) of the SARS-CoV-2 phylogeny shares the same genome sequence as the early lineage A sequences (for example, Wuhan/WH04/2020). ```

[2021-03-14 11:40:56]

**[Andrew Rambaut]**

But actually the haplotype that was WA1 in Seattle (a traveller from Wuhan) is one SNP closer to the bat viruses and I think that may be the earliest sampled haplotype.

[2021-03-14 11:47:59]

**[Robert Garry]**

Yes - the authors rediscovered what you already taught. The smoking raccoon dog/grate data puts this into a somewhat new context.

[2021-03-14 11:57:09]

**[Robert Garry]**

<https://pubmed.ncbi.nlm.nih.gov/32912998/> So this paper takes on even more significance...

[2021-03-14 13:41:32]

**[Robert Garry]**

So - I am obviously struggling to get this straight - grate data ([high levels of virus in the sewer] suggests that lineage B SC2 infected raccoon dog or dogs and perhaps other animals were in the Market. These lineage B viruses spread to 30 or more ppl who were linked to the market and were already accumulating mutations. Lineage A virus differs from lineage B at positions 8,782 in ORF1ab and 28,144 in ORF8. Lineage A is more like bat viruses and had infected several other ppl in Wuhan, but not linked to this market - one of those ppl flew to Seattle and started the WA1 lineage. WA1 lineage died out in the US. WA1 is lineage A and has bat-like T8782 and C28144 plus another bat-like snp and therefore may be even closer to the MCRA than the other early sequenced lineage A viruses from Wuhan. WA2 (also lineage A) was introduced separately. WA1 did not give rise to WA2.

[2021-03-14 13:53:03]

**[Robert Garry]**

Lots of questions. 1. How different were the lineage B SC2s from the humans and environmental samples at the market? Market lineage B SC2s had apparently accumulated some mutations (the Chen paper says 14). 2. Did the SC2s from the environmental samples give rise to the samples in the early Wuhan patients linked to the market or perhaps is it the other way around or perhaps no way to tell? 3. Is it fair to say that lineage A likely gave rise to lineage B?

[2021-03-14 14:09:30]

**[Robert Garry]**



Seems to me - given the smoking raccoon dog - low Cts from the grate indicating the animals were infected that it is a LOT more likely that the animal or animals infected the humans in the market instead of the other way around. Most likely scenario for the 30 cases linked to the market is a human-to-human super-spreader type event. Just can't really see multiple ppl individually getting infected from a few caged animals.

[2021-03-14 14:28:37]

**[Robert Garry]**

Assuming a. human to animal transmission is an unlikely explanation for the smoking raccoon dog and b. that lineage A gave rise to lineage B, this suggests that the 2 or 3 snps that converted lineage A to B happened via animal-to-animal transmission in a batch of animals that includes some animals that ended up in the Hubai market and some animals that ended up elsewhere. The Hubai market animal initiated the lineage B human-to-human transmissions. The hypothetical group of other animals initiated the lineage A human-to-human transmission. The animal-to-animal transmissions that created the 2 or 3 snps that converted lineage A to B could have been completely in the wild or after the animals were trapped and hauled to market. If in the wild it means that lineage A and B viruses are circulating and it just happened that a lineage A and a lineage B animal were both were trapped at about the same time initiating separate SC2 outbreaks within weeks of each other. On the other hand I can easily see one infected animal infecting another during transport and separate distribution to a couple of markets in Wuhan.

[2021-03-14 14:33:22]

**[Robert Garry]**

Either this or the nefarious virologists at the WIV engineered two lineages of SC2 and in a moment of inspiration to cover up their genocidal plan decided to infect a bunch of animals in the Hubai market with lineage B SC2 and a bunch of other unsuspecting civilians in Wuhan with lineage A SC2.

[2021-03-14 15:05:36]

**[Robert Garry]**

<https://www.dailymail.co.uk/news/article-9359039/WHO-set-reject-Wuhan-lab-link-Covid-outbreak-instead-point-source-animal-market.html>

[2021-03-14 15:26:03]

**[Eddie Holmes]**

Cue outrage. Bob - I'll look at your other questions shortly.

[2021-03-14 16:24:59]

**[Robert Garry]**

Daily Mail is not too reliable. However, if I'm reading the signals from Koopmans and Daszak right, the smoking dog is gonna be big in the report.. I do think that the sequence - if they have it - of the environmental sample from the grate would be very good to have. Low Ct as Koopsman said there's a good chance they got sequence from it.

[2021-03-14 16:29:14]

**[Robert Garry]**

Just the fact that they got sequences at all from environmental samples (some of which they grow in culture) means that there was quite a bit of virus there. Hard to see how this much virus comes from probably more or less healthy humans taking a stroll in the market to pick up some food for dinner.

[2021-03-14 16:29:34]

**[Eddie Holmes]**

shared file(s): Screen Shot 2021-03-15 at 10.28.45 am.png

[2021-03-14 16:34:00]

**[Eddie Holmes]**

*[thread - ID: 2021-03-14 16:34:00]*

Under this scenario it's impossible to disprove anything.

[2021-03-14 16:37:34]

**[Robert Garry]**



Agreed - but as far as the rainbow goes you've got to be kidding - I talked to an NBC reporter - Denise Chow -last week for about an hour wherein I used the term "lab magic." Chow's credible and actually one of the two NBC reporters that were allowed to visit WIV last year. Chow - not a lab leak fan by any means. Pretty sure she was going to talk to Alina though - I dunno - I might have mentioned Alina was an idiot or something to that effect.

[2021-03-14 16:38:07]

**[Eddie Holmes]**

The question ought to be 'what evidence would proponents of the lab escape theory accept as disproving lab escape?'

[2021-03-14 16:45:50]

**[Robert Garry]**

SC2 in an animal should do it. Having a virus positive environmental sample from under a cage is damn close. No other way that virus could have gotten there except from the animals in the cage.

[2021-03-14 16:46:07]

**[Robert Garry]**

Need to think a bit more about the lineage A and B conundrum, but I think that too is consistent. Closer look at the Market associated environmental and human sample sequences in the context of the smoking dog will be revealing I think.

[2021-03-14 16:48:22]

**[Robert Garry]**

I've been very careful not to mention the smoking dog to any reporters yet, but looking forward to the opportunity when the report is dropped.

[2021-03-14 16:49:29]

**[Eddie Holmes]**

I agree - that you would do it. I would they accept any positive SC2 in an animal? Yes, best not mention the smoking dog yet...

[2021-03-14 19:21:22]

**[Robert Garry]**

*[thread - ID: 2021-03-14 16:34:00]*

@Eddie Holmes Agreed - She's also dissing Tony F for having the temerity to suggest that B and C don't change the fact that the virus came from nature.

[2021-03-14 19:23:58]

**[Robert Garry]**

*[thread - ID: 2021-03-14 16:34:00]*

@Eddie Holmes And are thus like a million or more times less likely than other human exposures to animals.

[2021-03-14 19:24:58]

**[Robert Garry]**

*[thread - ID: 2021-03-14 16:34:00]*

@Eddie Holmes Still - it wouldn't hurt to be careful with that tea Eddie.

[2021-03-14 19:34:18]

**[Eddie Holmes]**

*[thread - ID: 2021-03-14 16:34:00]*

@Eddie Holmes Totally! Plus ferret badgers, hog badgers (look them up) and Asian badgers are all present in that tropical garden we got the bats from. Spillover zoo.

[2021-03-15 00:27:26]

**[Andrew Rambaut]**

[thread - ID: 2021-03-14 16:34:00]

@Eddie Holmes Is `B` synthesising and rescuing the genome sequence?

[2021-03-15 00:29:49]

**[Andrew Rambaut]**

[thread - ID: 2021-03-14 16:34:00]

@Eddie Holmes Otherwise black arrow is the critical one that is not labelled or discussed - that is the chance that a sample is collected with human transmissible virus that is at high enough viral load and fresh enough that the virus is still alive.

[2021-03-15 00:30:36]

**[Eddie Holmes]**

[thread - ID: 2021-03-14 16:34:00]

@Eddie Holmes Not sure, but it involves passing the virus from people to humans.

[2021-03-15 00:34:16]

**[Andrew Rambaut]**

[thread - ID: 2021-03-14 16:34:00]

@Eddie Holmes I think the unlikeliness of getting a 'live' sample back to the lab from a collecting trip is a major unmentioned issue. And if we get into synthesising genomes and constructing viruses then that suggests a major research project that was secret for no good reason.

[2021-03-15 01:28:04]

**[Eddie Holmes]**

Swiss news about us: [https://www.nzz.ch/wissenschaft/coronavirus-genom-eng-mit-sars-cov-2-verwandter-vi\[...\]ren-analysiert-ld.1605598?mktcid=smch&mktcval=twpost\\_2021-03-12](https://www.nzz.ch/wissenschaft/coronavirus-genom-eng-mit-sars-cov-2-verwandter-vi[...]ren-analysiert-ld.1605598?mktcid=smch&mktcval=twpost_2021-03-12)

[2021-03-15 04:54:55]

**[Robert Garry]**

[thread - ID: 2021-03-14 16:34:00]

@Eddie Holmes Yes undiscussed black arrow very important- Very good points! You wouldn't have much incentive to try and culture until you knew there was a virus and had at least enuff sequence data to suggest it was interesting. Plus if you culture you tend to lose the FCS and the QTQNS landing pad. Culturing also is going to move you to BSL3 - no undergrads touching their faces. The black arrow moves it into tinfoil hat territory in that you then clearly are saying that they knew they had something and chose not to tell anyone.

[2021-03-15 04:55:46]

**[Robert Garry]**

Nice job by the swiss reporter!

[2021-03-15 05:10:58]

**[Robert Garry]**

[thread - ID: 2021-03-14 16:34:00]

@Eddie Holmes PLus - at the same time Alina is saying - well it's been over a year why haven't you found the reservoir, it must have come from a lab - she also is saying that we must all stop looking for the reservoir because that activity is too dangerous and we may start a new pandemic.

[2021-03-15 08:01:13]

**[Robert Garry]**

<https://www.globaltimes.cn/page/202103/1218349.shtml>

[2021-03-15 10:00:53]

**[Robert Garry]**

hmmmm<https://dailycaller.com/2021/03/15/ecohealth-stevens-amendment-complaint-wuhan-lab/>

[2021-03-15 10:07:16]

**[Robert Garry]**

<https://www.telegraph.co.uk/news/2021/03/15/world-health-organisations-appeasement-china-has-made-another/>  
Another screed from Alina's friend, coal-miner, climate change denialist and purveyor of city-sized soft core pornography.

[2021-03-15 10:08:02]

**[Robert Garry]**

This is their fall back - stop all research on viruses.

[2021-03-15 10:13:41]

**[Kristian Andersen]**

He's such an idiot - I just don't understand he continues to have a platform. Also, he seemed pretty convinced HIV came from the lab...

I have a copy of his book ("Genome"). I might do a ceremonial burning of it (it's shit too...). :fire:

[2021-03-15 10:34:17]

**[Robert Garry]**

BTW - very nice job on 60 minutes.

[2021-03-15 12:58:02]

**[Robert Garry]**

Still eagerly awaiting the WHO report. Hard to believe but Eddie's email about the smoking raccoon dog was only March 9. "the drain grates that the raccoon dogs were sitting on top of in your pictures correspond to the places in the market where they found the lowest CoV Ct values (all of this is still confidential but will be in the report I think). Seems reasonable that those guys were infected and shedding virus in their feces, as Koopmans thought it was highly unlikely that that level of CoV RNA would be in those grates from human sources." Coming to realize that the 2nd part of the email also interesting: "The WHO team also found frozen raccoon dog/ferret badger (they're unsure and I think are waiting for barcoding) carcasses still at the market, so it's possible that \*some of the frozen food detections they've had could have come from the same source farm or processing plant as the live animals\*." The \*bolded\* part would be another bullet fired from the smoking gun, if true. I've still got more questions: 1. Cases - I had to confirm that I was remembering correctly - were linked to the Huanan Market for over a MONTH. <https://www.nejm.org/doi/full/10.1056/NEJMoa2001316> Market closed and environmental samples from the Market taken 1Jan21. I don't think that high levels of virus would stick around on a grate for all that long a period of time. Does this mean based on when the cases showed up that there were infected animals that market for several weeks? [shared file(s): image.png]

[2021-03-15 13:07:41]

**[Robert Garry]**

Question 2: Given that the virus in the environmental samples most likely came from animals in the market [I agree with Koopmans on this key point], and that the environmental samples are in fact SARS-CoV-2 (lineage B) does this mean that SC2 already fully formed has been circulating in nature? I'm having a hard time coming to any other conclusion, but would like to talk down from that as a conclusion and hear other possibilities.

[2021-03-15 13:09:36]

**[Kristian Andersen]**

I don't understand the frozen food hypothesis. How did it get from bats to frozen foods and then to animals at the market? Doesn't make sense to me...

[2021-03-15 13:14:26]

**[Robert Garry]**

I'm not sure it has to come from bats to the frozen foods to the animals. In fact, looks to me like SC2 is already in those animals. If I understand the EgoHealth email to Eddie and what Koopsmans had leaked to the press over the past few weeks - she thinks that some of the frozen animal samples that are positive came from the same supplier as the supplier for the raccoon dogs. Some of the frozen meat also being raccoon dogs. Koopmans said it was likely that the meat itself was positive not the outside of the package.

[2021-03-15 13:15:53]

**[Kristian Andersen]**

Still seems very strange to me - a batch of, say, frozen raccoon dogs are positive, but so are live raccoon dogs at the market? Coming from the same supplier?

[2021-03-15 13:16:40]

**[Robert Garry]**

Exactly - that's what I think Koopmans is sitting on...

[2021-03-15 13:17:25]

**[Kristian Andersen]**

Well, if they have actual evidence of that, then it's a done deal. Not impossible, I guess, but seems strange.

[2021-03-15 13:20:23]

**[Robert Garry]**

I'm not sold on the frozen food thing either - far from it. But I think that the positive grate plus Eddie's raccoon dog pics are pretty nearly the same thing to actually have taken the swab directly from the animal's ass.

[2021-03-15 13:22:11]

**[Kristian Andersen]**

The grates, totally - and yes, raccoon dogs, or whatever other animal for that matter. Makes perfect sense.

But how that fits in with frozen foods, I don't understand. That said, Marion must have something good here, otherwise there's no way she'd go down that path - she's much, much too smart for that. There must be some actual evidence.

[2021-03-15 13:23:11]

**[Robert Garry]**

Then there is the whole lineage A and B = the animals in the Huanan market are lineage B, so how did lineage A get started? The NEJM paper says other case werelinked to other markets, but which ones and which were sequenced I don't know,.

[2021-03-15 13:26:11]

**[Robert Garry]**

My read as well -on Marion.

[2021-03-15 13:38:16]

**[Eddie Holmes]**

Yes, Marion is cautious so they must have something. Hope they release soon. I may have told you but I also heard that they had discounted the Dec 1 case and the earliest known one is now Dec 8. I also think I heard that while this patient had no link to the market his parents had some sort of link to another live animal market. Not sure is this is something or not.

[2021-03-15 13:45:32]

**[Robert Garry]**

Dec 8 is consistent with the graph from the CCDC NEJM paper.

[2021-03-15 13:46:57]

**[Robert Garry]**

Lots of questions for Kristian: [shared file(s): image.png]

[2021-03-15 13:52:09]

**[Eddie Holmes]**

Pathetic

[2021-03-15 14:09:18]

**[Kristian Andersen]**

I think there's \_a lot\_ of early unsampled diversity, which can help explain the A vs B split. Much focus turned to the Huanan market, where super spreading might have occurred, so we end up having very biased sampling early on.

[2021-03-15 14:20:04]

**[Robert Garry]**

That seems right. But is the diversity in unsampled humans, unsampled animals or perhaps both. Only A and B lineages made it through the bottleneck.

[2021-03-15 14:24:50]

**[Robert Garry]**

Another way to ask the questions: B came from A as Andrew said in the NatMicro paper. But did the split happen in an animal or after the human to animal transfer? Maybe doesn't really matter.

[2021-03-15 16:03:21]

**[Robert Garry]**

Daszak speaks:

<https://www.wbur.org/npr/977527808/who-points-to-wildlife-farms-in-southwest-china-as-likely-source-of-pandemic>

[2021-03-15 16:07:17]

**[Eddie Holmes]**

Fortunately this not the furin cleavage site [shared file(s): IMG\_1585.JPG]

[2021-03-15 16:18:25]

**[Eddie Holmes]**

They were made in China though

[2021-03-15 17:02:13]

**[Eddie Holmes]**

That NPR story is interesting...all pointing in the same direction

[2021-03-15 17:13:44]

**[Kristian Andersen]**

I read this channel and see (1) a rat looking thingie rolled up in a bamboo stick, and (2) socks with a furin cleavage site on them - made in China.

We have come a long way since we started this channel, gentlemen.

[2021-03-15 17:19:21]

**[Eddie Holmes]**

If only Billy could see all this?

[2021-03-15 17:23:21]

**[Kristian Andersen]**

:exploding\_head:

[2021-03-15 17:49:30]

**[Eddie Holmes]**

It's pretty amazing how much Billy hates you. He really thinks you're part of some deep conspiracy. It's just weird, crazy stuff.

[2021-03-15 17:51:32]

**[Kristian Andersen]**

Yeah, he's even fundraising so he can hate me even more. Happy to support people in their endeavors.

[2021-03-15 19:44:04]

**[Robert Garry]**

Alina responding to the bamboo rat npr article: [shared file(s): image.png]

[2021-03-15 19:49:48]

**[Robert Garry]**

Sorry Alina those samples had too much virus to be from casual shopper and they found the virus on a grate under Eddie's raccoon dogs. I don't think you can snark away those facts.

[2021-03-15 19:56:19]

**[Eddie Holmes]**

Beautifully set-up!

[2021-03-16 04:43:16]

**[Robert Garry]**

Alina has apparently stepped down from her self-appointed positions as detective, virus sequence integrity protector, whistleblower and truth teller about virologists. Timing seems peculiar. [shared file(s): image.png, image.png]

[2021-03-16 06:53:44]

**[Robert Garry]**

<https://www.barrons.com/news/covid-origins-report-postponed-likely-due-next-week-who-01615897510>

[2021-03-16 10:00:55]

**[Robert Garry]**

<https://journals.plos.org/plosbiology/article?id=10.1371/journal.pbio.3001115> Nice work

[2021-03-16 10:02:44]

**[Robert Garry]**

"While an undiscovered "facilitating" intermediate species cannot be discounted, collectively, our results support the progenitor of SARS-CoV-2 being capable of efficient human-human transmission as a consequence of its adaptive evolutionary history in bats, not humans, which created a relatively generalist virus."

[2021-03-16 12:34:02]

**[Eddie Holmes]**

Fascinating that Alina is stepping down from saving us. But if she thinks she can step away without any consequences she's mistaken. Same for a number of people. Next week for WHO then.

[2021-03-16 13:30:09]

**[Eddie Holmes]**

I've think we've all been there [shared file(s): Image from iOS.jpg]

[2021-03-16 13:32:21]

**[Kristian Andersen]**

Hahaha!

I can, however, confirm that I have \_not\_ been there. Just FYI.

[2021-03-16 13:35:36]

**[Eddie Holmes]**

My toaster even has a setting called 'a little bit more'. I can't believe I've been using it wrong all these years

[2021-03-16 13:43:03]

**[Kristian Andersen]**

... I have the same toaster... I will now look at that button differently.

[2021-03-16 13:52:29]

**[Eddie Holmes]**

Asking for a friend: what does ARTIC actually stand for? @Andrew Rambaut?

[2021-03-16 13:55:46]

**[Andrew Rambaut]**

Hmm. Can't remember.

[2021-03-16 13:56:14]

**[Andrew Rambaut]**

Any suggestions?

[2021-03-16 13:57:04]

**[Eddie Holmes]**

Is it rude? Journal editor wants it spelt out

[2021-03-16 13:57:52]

**[Andrew Rambaut]**

I think we thought we would come up with something but never got round to it.

[2021-03-16 13:58:17]

**[Eddie Holmes]**

Hilarious

[2021-03-16 15:02:22]

**[Robert Garry]**

I'm pretty sure it was the Scotch that influenced poor Eric to get "confused" about the toaster.

[2021-03-16 15:20:08]

**[Robert Garry]**

Well --- my only suggestion now is to eliminate \*T\*oaster for the T.

[2021-03-16 15:38:06]

**[Robert Garry]**

ARTIC Network: Amplicon Resources Tutorials Informatics of COVID-19 Network or Andrew Rambaut's Totally Ingenious COVID-19 Network, but definitely \*NOT\* Andrew Rambaut's Toaster Interested or Curious Network

[2021-03-16 15:57:17]

**[Robert Garry]**

<https://www.msnbc.com/ayman-mohyeldin/watch/who-report-on-covid-19-origins-expected-within-weeks-108171333677>

[2021-03-16 16:25:28]

**[Eddie Holmes]**

Thanks Bob. They are bigging this up. On the local level, I'm keen to rub Petrovksy's nose in it.

[2021-03-16 19:32:38]

**[Robert Garry]**

Looking forward to seeing all the DETAILS!

[2021-03-17 04:45:55]

**[Robert Garry]**

More bad poetry [shared file(s): image.png]

[2021-03-17 04:51:02]

**[Robert Garry]**

<https://www.zerohedge.com/covid-19/former-state-dept-lead-investigator-says-covid-19-escaped-wuhan-lab-may-have-been>

[2021-03-17 04:56:14]

**[Andrew Rambaut]**

Bioweapons :man-facepalming:

[2021-03-17 05:28:57]

**[Eddie Holmes]**

Total rubbish. Like the poetry.

[2021-03-17 05:45:32]

**[Andrew Rambaut]**

The poetry is Vagon

[2021-03-17 06:13:34]

**[Robert Garry]**

Love it! Haven't thought about Hitchhiker's Guide [Andrew you must be a fan] for a while. From the guide: "Here is what to do if you want to get a lift from a Vagon: forget it. They are one of the most unpleasant races in the Galaxy. \*Not actually evil\*, but bad-tempered, bureaucratic, officious and callous. They wouldn't even lift a finger to save their own grandmothers from the Ravenous Bugblatter Beast of Traal without orders – signed in triplicate, sent in, sent back, queried, lost, found, subjected to public inquiry, lost again, and finally buried in soft peat for three months and recycled as firelighters. The best way to get a drink out of a Vagon is to stick your finger down his throat, and the best way to irritate him is to feed his grandmother to the Ravenous Bugblatter Beast of Traal. On no account should you allow a Vagon to read poetry at you." Only difference - some of the DRASTICs are actually Evil.

[2021-03-17 06:23:33]

**[Andrew Rambaut]**

Big fan since the original BBC radio show (which is worth trying to find if it is available somewhere)

[2021-03-17 06:46:53]

**[Robert Garry]**

I am starting to think that a variation on the "intermediate host" may be a good explanation for a lot of the data. The new MacLean2021 paper very important. Doubtless SC2 is very pantropic [generalist]. No need to evoke a permanent reservoir in the wild. Several animals {raccoon dogs} could act as a "vector" simply transferring SC2 to humans from a bat in a one-off transfer. Animal-to-animal transfer of SC2 on Daszak's Animal Farms [another classic lit reference] or during transport to Wuhan could have resulted a couple of introductions into two Wet Markets in Wuhan (One with lineage A and the Huanan Market getting lineage B. [shared file(s): image.png])

[2021-03-17 06:48:12]

**[Robert Garry]**

The slide referencing PO1 is from one of the ~Vogons~ DRASTICs.

[2021-03-17 17:52:22]

**[Kristian Andersen]**

Relman is an idiot. Pure and simple.

I also learned that Rasmus Nielsen is apparently a coronavirus expert - which is peculiar, given that he doesn't actually work on viruses at all. But hey, aren't we all experts by now? Yeeeeeeees.

[2021-03-17 18:00:01]

**[Eddie Holmes]**

Kristian is referring to this: <https://undark.org/2021/03/17/lab-leak-science-lost-in-politics/>

[2021-03-17 18:00:31]

**[Eddie Holmes]**

Clearly Petrovsky just wants to hype his vaccine.



[2021-03-17 18:02:07]

**[Eddie Holmes]**

Correction. Failed vaccine.

[2021-03-17 18:04:13]

**[Kristian Andersen]**

He even managed to get a nice photo of himself holding the vaccine - I call that product placement.

Then again, the poor guy isn't receiving those fat CCP checks we are, so can't really blame him.

[2021-03-17 18:05:41]

**[Kristian Andersen]**

Some brotherly love on this retweet, I guess? [shared file(s): Screen Shot 2021-03-17 at 6.02.59 PM.png]

[2021-03-17 18:07:43]

**[Eddie Holmes]**

Good for Eisen. Petrovsky is a complete charlatan.

[2021-03-17 20:11:57]

**[Kristian Andersen]**

[https://twitter.com/jbloom\\_lab/status/1372383452197097473?s=20](https://twitter.com/jbloom_lab/status/1372383452197097473?s=20)

[2021-03-17 20:31:19]

**[Eddie Holmes]**

Wow

[2021-03-17 20:33:25]

**[Kristian Andersen]**

I mean - does he even \_check\_ the kind of shit he links to? [shared file(s): Screen Shot 2021-03-17 at 8.32.55 PM.png]

[2021-03-17 20:36:01]

**[Kristian Andersen]**

Those RdRp fragments - which were all released months before the pandemic - aren't even remotely closely related to SC2. Any quick glance at one of the trees on Twitter or, you know, a simple blast search would tell you as much.

Really, really disappointing he's gone down this route - not to mention the false equivalence here. Just complete bs.

I'm all for keeping an open mind and for investigating \_actual\_ evidence, but it's this kind of sloppiness from respected scientists that makes me furious.

[2021-03-17 20:36:16]

**[Kristian Andersen]**

"Central to being a good scientist is keeping an open mind when evidence is sparse, and as a "virus expert" who has followed this topic closely: it's clear in any objective assessment that both natural origins and accidental lab leak are plausible."

Well, look at the fucking data first. Properly.

[2021-03-17 20:36:19]

**[Eddie Holmes]**

I've just replied to one.

[2021-03-17 20:37:00]

**[Kristian Andersen]**

Haha, just saw - sneaky :wink:

[2021-03-17 20:38:32]

**[Eddie Holmes]**

Been pissing me off all day.

[2021-03-17 20:40:36]

**[Kristian Andersen]**

It's the same old shit recycled over, and over, and over, and over again and again. It's so frustrating. If these idiots would actually take a moment to look at the data themselves instead of grabbing bits from Twitter and shitty news articles.

[2021-03-17 20:41:47]

**[Kristian Andersen]**

Last time I pointed out one of Jesse's flaws (about "RaTG13 being dodgy") he said - oh, I haven't tried to assemble the genome myself yet... Well, before you accuse other people of scientific misconduct, it might be good to do the bare minimum first.

[2021-03-17 20:44:30]

**[Eddie Holmes]**

I hear you. Well let's remind him about this when the WHO report comes out.

[2021-03-18 21:47:34]

**[Eddie Holmes]**

I dunno, I seem to be getting angrier by the data. Alina is signing off saying that she is getting abuse and yet she is the one response for this and has made the worse claims. Makes my blood boil.

[2021-03-18 23:34:54]

**[Robert Garry]**

Total agreement here - it's frustrating in the moment, but a long game. FWIW I think fair game to take gloves off with Alina and Jesse for that matter- call conspiracy theories what they are {but - of course- back that up with science - they'll hate that}. IMO after sorting thru the bias and BS the undark article (plus the updates) expose Alina as the crank she is.

[2021-03-19 02:01:15]

**[Eddie Holmes]**

I just saw that Jesse follows Gilles Demaneuf who is confirmed conspiracy theorist and who has 'published' with Billy. Says it all.

[2021-03-19 06:12:55]

**[Kristian Andersen]**

Not just that - he's \_using\_ tweets from these conspiracy theorists as evidence to bolster his arguments: [https://twitter.com/jbloom\\_lab/status/1372383457108627457?s=20](https://twitter.com/jbloom_lab/status/1372383457108627457?s=20).

[2021-03-19 06:15:16]

**[Kristian Andersen]**

... and of course, the 'data' shown in those tweets are meaningless - they're SARS-like viruses, already published (before the pandemic) and are very far from SARS-CoV-2. Totally meaningless (as expected) - Jesse really should know that if he took a quick glance at the data or trees. But maybe he doesn't know how to interpret the data or he didn't bother to take a look. (or both...)

[2021-03-19 06:20:05]

**[Kristian Andersen]**

:thinking\_face: <https://www.biorxiv.org/content/10.1101/2021.03.18.436013v1>

(I have previously mentioned that VOCs may have originated in non-human species - and I have mentioned mice specifically - however, I find that pretty unlikely. This is intriguing though....)

[2021-03-19 08:15:14]

**[Robert Garry]**

"Raises the possibility of wild rodent secondary reservoirs" may not be the type of conclusion you really wanted to see.

[2021-03-19 09:03:00]

**[Kristian Andersen]**

Yeah - this has been something I have mentioned many times as a risk and it freaks the shit out of me.

[2021-03-19 09:10:33]

**[Robert Garry]**

IT's actually a VERY important study on a lot of levels! Still getting my head around Erica taking the CEO job at LJI [she'll be great] and the Cell reviews. And Elsa did not make it on the plane to Kuwait- RT to Houston wasted (arrived back into NOLA at 2 am). Speaking of wasted - my post-doc from Ukraine had to make an emergency trip back home - gifted me good bottle of Ukrainian vodka, which might improve my outlook if used properly.

[2021-03-19 09:47:37]

**[Robert Garry]**

Recent WSJ article - plus a sufficiently high resolution photo of the scheme that FoodSaftyPeter held up - you can see actually read this one - sorta. [shared file(s): How the WHO's Hunt for Covid's Origins Stumbled in China - WSJ.pdf, image.png]

[2021-03-19 12:32:24]

**[Eddie Holmes]**

@Kristian Andersen Where's that tweet where Jesse called RaTG13 dodgy?

[2021-03-19 12:45:51]

**[Robert Garry]**

JB said RaTG13 data are "messy at best" [https://twitter.com/K\\_G\\_Andersen/status/1346944025727619074](https://twitter.com/K_G_Andersen/status/1346944025727619074)

[2021-03-19 12:47:53]

**[Eddie Holmes]**

Perfect, thanks!

[2021-03-19 13:01:53]

**[Robert Garry]**

<https://republicans-energycommerce.house.gov/wp-content/uploads/2021/03/NIH-Investigation-COVID-origins.pdf>

[2021-03-19 13:40:08]

**[Eddie Holmes]**

What can NIH do that WHO can't?

[2021-03-19 14:03:30]

**[Kristian Andersen]**

This guy is so good. <https://twitter.com/acritschristoph/status/1372397220926869504?s=20>

[2021-03-19 14:03:43]

**[Kristian Andersen]**

Ripping Jesse a new one for being an idiot.

[2021-03-19 14:06:28]

**[Eddie Holmes]**

He's great!! Jesse was preaching about 'scientific content' and hasn't even bothered to look the data himself.

[2021-03-19 14:08:06]

**[Kristian Andersen]**

I need to hire him as a postdoc - he just slaughters the bullshit

[2021-03-19 14:09:25]

**[Eddie Holmes]**

He does!

[2021-03-19 15:13:32]

**[Eddie Holmes]**

That was some thread Kristian! Great stuff.

[2021-03-19 15:19:20]

**[Kristian Andersen]**

Thanks Eddie - you set me up :wink:.

I happen to like Jesse a lot, so I really hope he takes the time to rethink. If not, well, he'll remain an idiot then. I'm really surprised.

[2021-03-19 15:23:29]

**[Kristian Andersen]**

This guy!!!

<https://twitter.com/acritschristoph/status/1372692489962889216?s=20>

I would never dare to get into an argument with him. Bloody hell he knows how to break it down.

[2021-03-19 15:26:20]

**[Eddie Holmes]**

Yes, I've got no problem with Jesse either. But if he's going to set himself up as an expert and preach he needs to check what he is saying. Alex, though, wow.

[2021-03-19 15:26:22]

**[Kristian Andersen]**

Aaaahahahahaha.

I need to buy him a beer when the pandemic is 'over'. And then hire him as a postdoc. [shared file(s): Screen Shot 2021-03-19 at 3.25.32 PM.png]

[2021-03-19 15:30:38]

**[Eddie Holmes]**

Fantastic.

[2021-03-19 15:34:35]

**[Kristian Andersen]**

Let's see where this goes. <https://twitter.com/Ayjchan/status/1373036980590772249?s=20>

[2021-03-19 15:37:26]

**[Eddie Holmes]**

That was pretty insulting.

[2021-03-19 15:40:20]

**[Kristian Andersen]**

It's so funny - because she then gives the textbook definition of the difference between "assembly" and "alignment". Oh, REALLY??? Wow. It's her only reference point, since she's actually never done any work like this.

(and just to be clear - I \_do\_ know the difference.... Doh).

[2021-03-19 15:46:49]

**[Eddie Holmes]**

She's so dumb

[2021-03-19 17:12:58]

**[Robert Garry]**

She's got an agenda - call me a conspiracy theorist but i think she's picking up checks from Bannon.

[2021-03-19 17:49:24]

**[Robert Garry]**

*[thread - ID: 2021-03-19 17:49:24]*

Yuri is likely also picking up checks from Peter Thiel - then you have the booksellers. Actually, this is the day:  
[shared file(s): image.png]

[2021-03-19 17:50:18]

**[Robert Garry]**

I've seen this behavior before.

[2021-03-19 17:53:08]

**[Eddie Holmes]**

Wow, that's horrendous.

[2021-03-19 17:54:02]

**[Kristian Andersen]**

A tad touchy, much.

[2021-03-19 18:02:57]

**[Eddie Holmes]**

<https://media.giphy.com/media/3o7aTt0yoTEJdiJ5U4/giphy.gif>

[2021-03-19 20:08:11]

**[Eddie Holmes]**

<https://www.youtube.com/watch?v=f47TZepukuQ>

[2021-03-20 02:38:54]

**[Andrew Rambaut]**

Eddie's citations... did something happen in 2020? [shared file(s): image.png]

[2021-03-20 02:40:02]

**[Andrew Rambaut]**

Pretty stagnant in 2019 - is this why you started the pandemic?

[2021-03-20 05:32:09]

**[Robert Garry]**

It's possible. Even if there's a one in a trillion chance, WE must investigate. All the people linked by lines on Alina's ~wall-of-crazy conspiracy map~ enlightenment figure from God must be exposed for their roles in the deaths of millions.

[2021-03-20 05:51:06]

**[Robert Garry]**

Yuri agrees with Alina: Kristian is bad at alignments, but maybe not so bad as Eddie. Yuri has dug down this particular rabbit hole Soooooo deep that he's now literally in China. [shared file(s): image.png]

[2021-03-20 06:51:07]

**[Robert Garry]**

*[thread - ID: 2021-03-19 17:49:24]*

@Robert Garry Reminds me of Covidfaker. After his episode in the COVID spotlight and subsequent termination by NBC he spent the next year doing this: [shared file(s): image.png]

[2021-03-20 06:52:48]

**[Robert Garry]**

*[thread - ID: 2021-03-19 17:49:24]*

@Robert Garry You might ask about the feathers - it's not a permanent boa.

[2021-03-20 06:56:34]

**[Robert Garry]**

*[thread - ID: 2021-03-19 17:49:24]*

@Robert Garry It's St Michael the Archangel on his back protecting Covidfaker from Satan. Wiki: \*Michael\* leads God's armies against Satan's forces in the Book of Revelation, where during the war in heaven he defeats Satan.

[2021-03-20 07:10:04]

**[Robert Garry]**

*[thread - ID: 2021-03-19 17:49:24]*

@Robert Garry Can't make this stuff up.

[2021-03-20 07:31:30]

**[Robert Garry]**

Great reference to the Rolling Stones - Jagger clearly has his own demons but unlike some of the others [Alina, Yuri, Covidfaker] discussed herein is a true genus.

[2021-03-20 07:33:48]

**[Robert Garry]**

I am hoping Jessie dives in and comes to his senses. Alina is too far gone.

[2021-03-20 08:32:01]

**[Robert Garry]**

[https://www.acpjournals.org/doi/10.7326/M20-5008?url\\_ver=Z39.88-2003&rfr\\_id=ori%3Arid%3Acrossref.org&rfr\\_dat=cr\\_pub++0pubmed&](https://www.acpjournals.org/doi/10.7326/M20-5008?url_ver=Z39.88-2003&rfr_id=ori%3Arid%3Acrossref.org&rfr_dat=cr_pub++0pubmed&)"the real-world studies that detect viral RNA in the environment report very low levels, and few have isolated viable virus." In anticipation of the WHO report - which is likely to have a section about smoking racoon dogs - i think it's key. The most likely explanation for the high levels of virus on the grates under the animal cages is that the animals were infected. They were able to grow virus out of 2 of the environmental samples.

[2021-03-20 08:50:57]

**[Robert Garry]**

well done @Eddie Holmes <https://www.npr.org/sections/goatsandsoda/2021/03/19/979314118/next-pandemic-scientists-fear-another-coronavirus-could-jump-from-animals-to-hum>

[2021-03-20 08:59:09]

**[Andrew Rambaut]**

You can see why people want it to be a lab leak - this is much more scary.

[2021-03-20 09:14:06]

**[Kristian Andersen]**

I think we mentioned this on our very first call... Nature is way way more scary than lab.

[2021-03-20 09:18:31]

**[Robert Garry]**

Very good point - Daszak made a good one as well in the NPR - extrapolating the 3% serology to even a portion of the general population is a lot of sarbecovirus exposures - way more than a few lab ppl mist-netting at a few caves per year.

[2021-03-20 09:34:41]

[Kristian Andersen]

3% - that may well be every ~6 months given (a) exposures likely very low titer, and (b) seroreversion to CoVs. I think it's safe to say that a huge number of people are exposed to CoVs on a daily basis - and not just in China.

[2021-03-20 09:34:59]

[Andrew Rambaut]

~5% serology seems to be the baseline false positive for just about everything - see Ebola in Sierra Leone etc.

[2021-03-20 09:35:30]

[Kristian Andersen]

... in Africa :wink:. That 2-3% number actually has pretty good baselines

[2021-03-20 09:36:00]

[Kristian Andersen]

Baseline sampled in e.g., Wuhan - of all places.

[2021-03-20 09:36:29]

[Andrew Rambaut]

OK - baseline cross-reactivity with some sort of CoV

[2021-03-20 09:36:52]

[Andrew Rambaut]

See waste-water in Europe in 2019

[2021-03-20 09:40:06]

[Kristian Andersen]

The 2-3% serological studies were specifically for SARS-like CoVs, with good baselines - so they might well be accurate. But yeah, getting a positive hit on a CoV serological assay - without controlling very closely for background - you can get anything, anywhere.

[2021-03-20 09:42:02]

[Kristian Andersen]

Andrew - since you have a keen eye. Do you know which 'mystery' sequences and viruses Jesse is talking about? I'm quite confused. I think maybe he means these?

[https://twitter.com/K\\_G\\_Andersen/status/1373310963680571397?s=20](https://twitter.com/K_G_Andersen/status/1373310963680571397?s=20)

Clearly they must be fragments they have managed to successfully sequence, as they mention in the Nature addendum - so absolutely no mystery. Am I missing something?

[2021-03-20 09:43:44]

[Andrew Rambaut]

I was assuming it was those. Some RdRp PCR products I assume

[2021-03-20 09:44:18]

[Robert Garry]

Good to be discussing these points ahead of a likely burst of reporting with the release of the WHO report! I already have several reporters promising to call.

[2021-03-20 09:45:52]

[Kristian Andersen]

... and then this slide showing that they have managed to get some spike sequences too? Clearly very distant.

[shared file(s): EvVevMrXcAA\_GmP.jpeg]

[2021-03-20 09:46:51]

[Kristian Andersen]

Also this tree, but I suspect that the same I just linked to, and yes, probably RdRp. Same IDs, so clearly the same. And clearly, they don't have the full genomes (because, well, bloody hard to do) [shared file(s): Ew35lxKU8AAbXdw.png]

[2021-03-20 09:50:18]

**[Robert Garry]**

@Andrew Rambaut points well taken re cross-reactivity - even the best seroassays are not 100% - the paper we referenced in PO1 and the one Daszak is talking about did look for cross-rxty with other covs. <https://link.springer.com/article/10.1007/s12250-018-0012-7> cloned most of the known human covs and tested those as well as follow-up western blotting. my take is at least some sarbecovirus reactivity possible.

[2021-03-20 10:01:27]

**[Robert Garry]**

...and the cdc paper - which i cant find now - showing seroreactivity to SC2 pre-pandemic was crap.

[2021-03-20 10:07:25]

**[Robert Garry]**

More crap: <https://undark.org/2021/03/18/utterly-plausible-lab-leak-hypothesis/>

[2021-03-20 10:14:43]

**[Robert Garry]**

Reality: Every one of the zoo's panthers are equipped with chips. The instant the animal left it's perimeter, alerts were sounded and a team was sent to capture it before it escaped the zoo, The zoo has large fence around its perimeter as well.

[2021-03-20 10:29:40]

**[Robert Garry]**

[https://www.sciencemag.org/news/2021/03/major-coronavirus-variant-found-pets-first-time:black\\_cat::cat2::dog2:](https://www.sciencemag.org/news/2021/03/major-coronavirus-variant-found-pets-first-time:black_cat::cat2::dog2:) oh my.

[2021-03-20 10:31:31]

**[Robert Garry]**

So --- if it's true that SC2 a "generalist" virus, is it rapidly now becoming more of a generalist virus???

[2021-03-20 10:49:24]

**[Robert Garry]**

AS for the panthers there have been 125 panther attacks in the US in the past 100 years - 27 fatalities. All of the attacks were wild panthers - none had escaped from a zoo.

[2021-03-20 11:06:23]

**[Robert Garry]**

But there is a hypothetical chance that pathers could escape from a zoo, so best- i guess it will be argued - just to shut down all the zoos.

[2021-03-20 13:02:35]

**[Kristian Andersen]**

Andrew, I hope you at least gave him a breathing tube or cut a hole before you slammed that coffin shut. :coffin::hammer:

<https://twitter.com/arambaut/status/1373318276848234499?s=20>

[2021-03-20 13:58:58]

**[Robert Garry]**

WoW- that's fantastic! Way to go Andrew!

[2021-03-21 06:32:38]



[Robert Garry]

Next week - maybe not. Report turned over to Chinese Scientists in English on March 17th.  
<https://www.globaltimes.cn/page/202103/1218912.shtml>

[2021-03-21 06:35:17]

[Robert Garry]

Hypocrisy much? [shared file(s): image.png]

[2021-03-21 06:52:50]

[Robert Garry]

Billy and Sherri working together - also this Asher :clown\_face:. It's embarrassing to the US DoS (RAT-G13 plus Pango pop into humanized mice and then some magic = SC2). At least Steve B. and Miles G. admit to being drunk.  
[shared file(s): image.png]

[2021-03-21 07:25:19]

[Robert Garry]

The most detailed article on the coming WHO report so far: <https://www.bloomberg.com/news/articles/2021-03-20/contentious-hunt-for-covid-s-origin-points-to-china-animal-trade>

[2021-03-21 07:30:15]

[Robert Garry]

DD - spilling the beans? Perfect Place'

"When you visit the market, you realize that it's a perfect place for an outbreak to occur because it's crowded, lots of stalls, lots of animal products, and ventilation and drainage are a bit suboptimal," he said in an interview. "It's not surprising we had an explosion through there."

[2021-03-21 14:25:25]

[Eddie Holmes]

Dominic told me that might be a week or two yet and that they had some WHO meetings lined up this week. Colleague just found an alpha coronavirus in a pangolin so clearly these animals are highly susceptible. [shared file(s): pangolin  $\alpha$ -CoV.png]

[2021-03-21 14:36:27]

[Robert Garry]

Does it have a FCS?

[2021-03-21 14:41:30]

[Eddie Holmes]

They only have 3 kb at the moment. Not quite sure which bit. I'll investigate.

[2021-03-21 14:54:11]

[Robert Garry]

Raises a question as to whether pangolins are true reservoirs of multiple CoV lineages (possible) or just occasionally getting infected via spillovers - presumably from bats. Same question can be raised regarding SC1 vis civets and the occasional raccoon dog - are these species true SC1 reservoirs or occasional spillovers? Related question - have humans gone from being spillover hosts to now being Ebola virus reservoirs? I think you could argue either way.

[2021-03-21 15:02:52]

[Eddie Holmes]

I suspect there are reservoirs. We are now seeing multiple lineages over multiple years - with Tommy we have seropositives dating back to Malaysia a few years ago. Hopefully will get sequences very soon. The key point is that it won't just be bats and pangolins....

[2021-03-21 15:14:01]

[Robert Garry]

I agree, and glad that Tommy is working hard on this question - it's important. The argument that civets are a true reservoirs of SC1 hinges on the fact that they were involved in both SC1 outbreaks a year apart. Your key point is - well very key! SC1 and 2 both pan-tropic - maybe the pango CoVs are as well.

[2021-03-21 15:33:33]

**[Eddie Holmes]**

China Covid researchers 'in first cluster'

Virologist Shi Zheng-li, left, works with her colleague in the P4 lab of Wuhan Institute of Virology in central China's Hubei province in 2017. Picture: Getty Images

· SHARRI MARKSON  
INVESTIGATIONS EDITOR

- 6:06AM MARCH 22, 2021
- 180 \_COMMENTS\_

[2021-03-21 15:33:33]

**[Eddie Holmes]**

Wuhan Institute of Virology researchers working on coronaviruses were hospitalised with symptoms consistent with COVID-19 in early November 2019 in what US officials suspect could have been the first cluster.

The US is also examining whether the institute developed SARS-COV-2 while working on a coronavirus vaccine.

The US State Department's former lead investigator into the origins of COVID-19, David Asher, said the possibility could not be ruled out that the vaccine was being developed as an "antidote" to a bioweapon.

Mr Asher, who has served under both Republican and Democrat administrations, has previously led US government investigations into biological, chemical and nuclear proliferation in Iran and North Korea.

He said US intelligence that has now been declassified, along with information from public sources, has credibly confirmed that three workers from the Wuhan Institute of Virology fell sick in early to mid-November 2019, prior to the official start of the pandemic.

Their illness was consistent with both COVID-19 and influenza and, in his personal assessment, was the likely cause of the outbreak.

THEAUSTRALIAN.COM.AU12:05

Wuhan Institute of Virology 'highly probably' the source of COVID-19

The former lead investigator who spearheaded a taskforce for the US government into the origins of COVID-19 has declared the virus may have been the result of work done for a biological weapons program in Wuhan.

"There were multiple staff members who did have to go to hospital and appeared to have had conditions of COVID-19," he said. "You don't normally go to the hospital with influenza, especially a cluster of people. This is the most probable source of the outbreak."

It was possible, Mr Asher said, that there were clusters of COVID-19 prior to this outbreak in November, pointing to a spike in influenza in China in the autumn of 2019 that he said may have included coronavirus cases.

A week ago, Mr Asher told Fox News that in his opinion, COVID-19 may have been a bioweapon.

When asked by The Australian whether this was an active line of inquiry within the US government, he said: "Yes."

"There is a high probability the Chinese government was engaged in a weaponisation effort at the Wuhan Institute of Virology and other institutes involving coronavirus research," Mr Asher said. "Whether offence or defence, which is almost impossible to tell, it was 100 per cent undeclared and that is a serious violation of the Biological Weapons Convention and the WHO International Health Regs — to the extent it spilled out and over somehow."

Mr Asher said one theory on the table was that COVID-19 emerged during vaccine development, potentially even as an antidote to a bioweapon. "There's evidence certain scientists have found ... that there was adenovirus present in the sequences posted publicly," Mr Asher said.

The Wuhan Institute of Virology last month. Picture: AFP

"Adenovirus means that there was a vaccine present for COVID-19; that could indicate that this was a bio-defence project putting a vaccine together.

"People don't normally develop a vaccine for something they are working on. That doesn't make any sense ... to develop a vaccine in advance for something that would never see the light of day makes it sort of ridiculous but is totally consistent with a biological weapons program. They develop an antidote."

A WHO team member who visited Wuhan on the recent study tour, Marion Koopmans, had confirmed that "one or two" workers fell sick. Her view was that it was not unusual and she did not indicate any employees had been hospitalised.

The US State Department declassified intelligence in a statement dated January 15, 2021, where it was first revealed that Wuhan Institute of Virology workers had fallen sick in the autumn of 2019.

At the time, the information was dismissed by critics, as secretary of state Mike Pompeo was hitting out at China on his way out of office.

Former deputy national security adviser for the Trump administration Matt Pottinger has since confirmed that US intelligence agencies had authorised the release of the information contained in that statement.

Mr Asher's revelation that at least one Wuhan Institute of Virology employee required hospitalisation takes the information a step further.

While some scientists and politicians say COVID-19 likely emerged naturally, Mr Asher said in his assessment it probably came from a laboratory.

[2021-03-21 15:34:09]

**[Eddie Holmes]**

Sharri's piece.

[2021-03-21 15:39:30]

**[Robert Garry]**

When yuri says the

[2021-03-21 15:40:24]

**[Robert Garry]**

dude's biology knowledge is lacking - well u be the judge; [shared file(s): image.png]

[2021-03-21 15:42:11]

**[Eddie Holmes]**

Even the conspiracy theorists are not convinced.

[2021-03-21 15:42:18]

**[Robert Garry]**

Not impressed with Sharri. Mr Asher is definitely a clown.

[2021-03-21 15:43:07]

**[Eddie Holmes]**

Totally. What a shit story. She forgot the add the bit about all these people being SARS-CoV-2 antibody negative.

[2021-03-21 15:44:26]

**[Robert Garry]**

:woman-facepalming:must have been an over-sight on her part.

[2021-03-21 15:50:40]

**[Robert Garry]**

Not sure who is managing WHO, but these "delays" are self-inflicted wounds. They really should not be promising a report next week, then another week and then kick the can yet again. Feeding into the Parisites...

[2021-03-21 15:52:28]

**[Eddie Holmes]**

Agreed. WHO are just too bureaucratic. I'll mention this to Dominic.

[2021-03-21 16:01:28]

**[Kristian Andersen]**

Started out promising - and then just went off the rails.... If they could credibly show that three people at WIV got sick and needed to go to the hospital in November, then that would absolutely be troubling. However, the we started talking about adenoviruses and bioweapons - clearly just idiots doing what idiots do.

[2021-03-21 16:05:12]

**[Eddie Holmes]**

Mad shit.

[2021-03-21 16:09:21]

**[Robert Garry]**

Maddening that Biden admin seems to have at least partly bought into this shit.

[2021-03-21 16:41:07]

**[Robert Garry]**

Maybe someone should pass this on to Jessie.

<https://www.theatlantic.com/ideas/archive/2021/03/the-conspiracy-theorists-problem-isnt-what-they-believe/618285/>  
"The psychological traits that lead one down the conspiracy-theory rabbit hole are to some extent present in most of us. We all like to listen to people who agree with us. We are all prone to reject unwelcome evidence. We are all more engaged by dramatic stories than by gritty policy detail. And we all like to feel that we have insights into the world that others lack. Nobody likes to feel that they are being taken for a fool, so doubting early and often can seem like the smart thing to do. And if we want to think clearly about the world, skepticism is a good thing."

[2021-03-22 06:25:20]

**[Robert Garry]**

[www.usatoday.com/in-depth/opinion/2021/03/22/why-covid-lab-leak-theory-wuhan-shouldnt-dismissed-column/4765985001/?build=native-web\\_i\\_p](http://www.usatoday.com/in-depth/opinion/2021/03/22/why-covid-lab-leak-theory-wuhan-shouldnt-dismissed-column/4765985001/?build=native-web_i_p)

[2021-03-22 06:28:49]

**[Robert Garry]**

BSL3/4 labs are dangerous - shut them all down - don't build anymore and by all means stop going out into nature and bringing dangerous viruses back to such porous facilities.

[2021-03-22 06:29:47]

**[Robert Garry]**

Wait - OMG - you're telling me there are dangerous viruses out in nature?

[2021-03-22 07:52:59]

**[Kristian Andersen]**

Lipsitch just tweeted it (and Tami...) - I'm surprised it took Marc so long to post one of these articles... (I pinged him way back in February of last year to see if he had heard anything - he hadn't, but they had had a lot of conversations about "dangerous pseudotyped viruses" (it was clear he didn't know the difference - which is a little surprising to me))

[2021-03-22 07:53:08]

**[Kristian Andersen]**

shared file(s): Screen Shot 2021-03-22 at 7.50.54 AM.png

[2021-03-22 07:57:55]

**[Andrew Rambaut]**

So annoying it has been taken up by the GOF debate (which I have some sympathy with) - no one (except the real crazies) are suggesting this is GOF research surely?

[2021-03-22 08:01:31]

**[Kristian Andersen]**

Mixing up the two is deeply problematic - the NIH was asking me about this too a year ago and I made it clear that now wasn't the time to reignite the GOF debate since people get confused. I'm not sure even Marc understands the difference between GOF and basic research, but I'm sure he considers everything that went on at the WIV to be GOF (it's not - most GOF has been done in Baric's lab).

[2021-03-22 08:01:44]

**[Kristian Andersen]**

"most, if not all"

[2021-03-22 08:48:06]

**[Robert Garry]**

Actually it \*IS\* about conspiracy theories and China-bashing. The China-bashing is literally getting Asian-American's killed. For the antiGoF [yes it should be vetted and monitored, which it is] and antiBSL-3/4 [you bet they are regulated] crowd this is all about stirring up the pot again and reviving arguments that they lost. [shared file(s): image.png]

[2021-03-22 08:55:25]

**[Robert Garry]**

<https://www.bmj.com/content/372/bmj.n742.full>

[2021-03-22 09:39:31]

**[Robert Garry]**

!channel It gets worse: [shared file(s): Opinion \_ Did covid-19 escape from a Wuhan lab\_ The WHO report can't be the final word. - The Washington Post.pdf]

[2021-03-22 10:08:43]

**[Kristian Andersen]**

Twitter is on fire with scientists pushing for the lab leak theory too. Unlike everybody else, we can just sit and wait for that report and then amplify the message...

[2021-03-22 10:20:31]

**[Kristian Andersen]**

".... deserves intelligent discussion"

[Links to tweet about bioweapons programs] [shared file(s): Screen Shot 2021-03-22 at 10.17.02.png]

[2021-03-22 10:23:26]

**[Andrew Rambaut]**

Major mistake by WHO not getting that report out

[2021-03-22 10:46:57]

**[Robert Garry]**

Crap and bullshit are hard to counter with calm dispassionate science. Very disappointed that when faced with Alina's wall of crazy and it's DISINFORMATION that Jessie shrugs and calls discussion of SC2 as a "vaccine for a bioweapon" "deserved intelligent discussion." This is playing with fire. Move beyond politics my ass. If Trump were still President there is a very good chance - based on today's discussion and editorials in two major US "newspapers" that he and Pompeo would have already started military action against China.

[2021-03-22 10:59:13]

**[Robert Garry]**

Bush II had way less "evidence" than this for taking out Saddam Hussein.

[2021-03-22 11:00:43]

**[Kristian Andersen]**

Like Iraq, the US is now just making up evidence to suit their agenda. Hard evidence apparently not required - and a lot of prominent scientists seem to agree. Kinda sad, really.

[2021-03-22 11:11:59]

**[Robert Garry]**

The prominent scientists - like JB and ML - agreeing is the problem. Hard to dismiss them purely as cranks, but it's their bad priors in the way. Which leads me to suggest that this is pretty serious - WHO needs to consider releasing it's report immediately - either that or someone in the know needs to leak the story about Eddie's raccoon dogs and the grate.

[2021-03-22 12:34:47]

**[Eddie Holmes]**

I spoke to Dominic and he said that China are pushing back against the report hence the delay. ML has been lab escape from Day 1...in fact, he was one of the people that pushed Jeremy into contacting me last January.

[2021-03-22 12:40:21]

**[Kristian Andersen]**

shared file(s): Re: Coronavirus research in China

[2021-03-22 12:40:31]

**[Robert Garry]**

Not surprising that China is pushing back. Tedros probably made them put lab origins "must be investigated" or language to that effect.

[2021-03-22 12:40:33]

**[Kristian Andersen]**

shared file(s): Re: 2019-nCoV

[2021-03-22 12:40:57]

**[Kristian Andersen]**

shared file(s): Re: wondering if you have any further thoughts about the lab origin idea

[2021-03-22 12:41:24]

**[Kristian Andersen]**

shared file(s): Re: Fact-checking 22 Feb. New York Post article claiming the coronavirus leaked from a lab

[2021-03-22 12:45:01]

**[Kristian Andersen]**

Had some back and forth with Marc on this early last year :point\_up\_2:. Civil - but a lot of the stuff he discussed about the WIV research was naive (e.g., not realizing that pseudotyped viruses don't constitute a risk, not knowing many of these viruses are replication incompetent, etc.). Too much naiveté going on (from many, many scientists), which is really pissing me off.

It's starting to look like Iraq WMD, but this time driven, not by generals (they already concluded it didn't come from the lab), but political pundits and scientists. Troubling - at least the latter category should know better. I mean - Jesse Bloom just tweeted an article about covert bioweapons programs!!! And look at the people who chime in in agreement - it's shocking.

[2021-03-22 12:59:45]

**[Eddie Holmes]**

Yes, the Chinese military gets an academic institution in Wuhan which has a load of international experts advise on the construction of a BSL4 lab construct a bioweapon on a random bat coronavirus and let them publish on related viruses. That's definitely what happened.

[2021-03-22 13:03:37]

**[Kristian Andersen]**

Yes, definitely, and also, there's an A in both Wuh\*a\*n and L\*a\*b - I mean, what ARE the odds?? Lab leak = only logical conclusion based on available evidence.

[2021-03-22 13:06:24]

**[Eddie Holmes]**

And in sArs! Spooky.

[2021-03-22 13:08:27]

**[Kristian Andersen]**

SHIT!!!!!!!!!!!!!!

[2021-03-22 13:13:56]

**[Eddie Holmes]**

Secret And Risky Science - CoVert

[2021-03-22 13:14:44]

**[Robert Garry]**

That pretty much nails it Eddie!

[2021-03-22 13:17:03]

**[Eddie Holmes]**

Weaponising Infectious Viruses

[2021-03-22 13:17:20]

**[Eddie Holmes]**

It's all there if you look hard enough!

[2021-03-22 13:18:09]

**[Robert Garry]**

Right before our eyes all this time!

[2021-03-22 13:55:22]

**[Robert Garry]**

decent reporting:<https://www.scmp.com/news/china/science/article/3126473/jitters-china-who-counts-down-covid-19-origins-report-release>

[2021-03-22 13:58:42]

**[Eddie Holmes]**

Yes, Simone is sensible.

[2021-03-22 15:24:03]

**[Kristian Andersen]**

I love how she counter punches... [shared file(s): Screen Shot 2021-03-22 at 15.23.03.png]

[2021-03-22 15:31:40]

**[Eddie Holmes]**

:bomb:

[2021-03-22 15:46:21]

**[Robert Garry]**

Maybe for PO2 put her on instead of her former boss? Symmetry always kinda desirable.

[2021-03-22 15:47:28]

**[Robert Garry]**

Jessie needs to delete that tweet and put up an apology. Seriously.

[2021-03-22 15:48:06]

**[Kristian Andersen]**

Yeah, let's get Angie on PO2

[2021-03-22 15:50:16]

**[Robert Garry]**

Here's where Angie's little bit of info is very relevant. Is it so shocking that so many of the lab origins proponents can be linked to the Murdoch press?

[2021-03-22 15:55:36]

**[Robert Garry]**

Limeng Yan and our buddies Steve and Miles. [shared file(s): image.png]

[2021-03-22 15:56:20]



[Robert Garry]

Yes I know it's CCP propaganda, but A for effort!

[2021-03-22 16:05:28]

[Robert Garry]

Well he promptly deleted the tweet from Quillette, but it remains to be seen if there have been any other insights.  
[shared file(s): image.png]

[2021-03-22 16:09:16]

[Robert Garry]

Just for the record - Alina hasn't deleted here pinned disinformation tweet yet - although the undark article said she regretted/deleted the "genocide" tweet.

[2021-03-22 18:24:59]

[Kristian Andersen]

Pretty illuminating on how some of this bs came about.  
<https://twitter.com/GidMK/status/1374167352904884226?s=20>.

I'm \*shocked\* somebody like Jesse would tweet this - I mean\_, just\_ this weekend Eddie, Andrew, and myself reminded him to please check the actual sources and data. And now this. And it's not just Jesse...

[2021-03-22 18:51:56]

[Robert Garry]

Asher is a buffoon - he's literally talking about pangolins and bats \*mating\*.

[2021-03-22 19:00:23]

[Eddie Holmes]

Just extraordinary

[2021-03-22 19:04:38]

[Kristian Andersen]

I gotta say - if the emergence of SARS-CoV-2 really \_did\_ require a bat and a pangolin mating, then I would be firmly in the lab leak camp too...

So much idiocy.

[2021-03-22 19:05:14]

[Eddie Holmes]

But their skins are so thick!

[2021-03-22 21:20:21]

[Kristian Andersen]

Wait until the tinfoil hats get a hold of this information. I learned today that Scripps Research has a 1/3% royalty stream to the COVID-19 vaccines because we hold the patent on the "2P" mutation used to stabilize the spike protein - used in all the leading vaccines...

\$40m so far this year. Tinfoil hats explode. :exploding\_head:..

[2021-03-22 21:34:01]

[Eddie Holmes]

If that includes Sinovac you are going down

[2021-03-22 21:36:34]

[Kristian Andersen]

That one is an inactivated vaccine so if that has 2P, then definitely lab leak!



[2021-03-22 21:55:03]

**[Eddie Holmes]**

What about the Russian one?

[2021-03-22 22:02:50]

**[Kristian Andersen]**

:man-shrugging:

[2021-03-22 22:34:46]

**[Eddie Holmes]**

Putin's puppet has a nice ring to it

[2021-03-23 00:07:33]

**[Andrew Rambaut]**

*[thread - ID: 2021-03-23 00:07:33]*

Don't forget the \$5 of funding you got from me. Alina should add that as a line in her wall of crazy.

[2021-03-23 04:53:07]

**[Robert Garry]**

PO1 was indeed the perfect red herring to distract the sleuths and detectives from uncovering the plan.  
<https://www.youtube.com/watch?v=yIwMWpbv5Fk>

[2021-03-23 04:57:09]

**[Robert Garry]**

But the true genus was throwing out RaTG13 - look how long it took until anyone suspected that "we" had SC2 all along! We being all of us "chaos agents" on Alina's wall. \$40M not too bad Kristian!

[2021-03-23 05:19:16]

**[Andrew Rambaut]**

What do we make of this:

<https://www.biorxiv.org/content/10.1101/2021.03.22.436468v1.full.pdf>

[2021-03-23 05:38:14]

**[Robert Garry]**

Plausible - Indel Region 2 and 3 - very divergent between SC2 and GDpangocov.

[2021-03-23 05:39:03]

**[Robert Garry]**

NTD is the receptor binding domain of many CoVs.

[2021-03-23 05:43:35]

**[Robert Garry]**

Not on this topic but related to "the Plan." Spoke with Betsy McKay again late yesterday- reading between the lines I believe that our friend "Deep Throat" has surfaced again. She was aware of the email exchanges back in January - hinted that they had been shared with her from someone on the calls that thought "we" were a bit overly friendly to the lab leak.

[2021-03-23 05:47:50]

**[Robert Garry]**

Back to the interesting paper - important to keep in mind that enhanced replication in cell culture doesn't necessarily translate to enhanced pathogenesis. As Andrew you've noted - it's all about the timing...

[2021-03-23 06:12:23]

**[Andrew Rambaut]**

Shows how modular the spike is though.

[2021-03-23 06:56:34]

**[Kristian Andersen]**

*[thread - ID: 2021-03-23 00:07:33]*

@Andrew Rambaut Never saw that money from the institution. Bastards.

[2021-03-23 07:00:40]

**[Kristian Andersen]**

I think people are majorly underestimating how flexible and mutational tolerant the spike is.

[2021-03-23 07:37:17]

**[Robert Garry]**

*[thread - ID: 2021-03-23 00:07:33]*

@Andrew Rambaut Rich bastards! :grinning:

[2021-03-23 07:50:56]

**[Kristian Andersen]**

... as for Ralph DeepThroat, I don't think he's realizing that this actually helps us... Yes, as we said, we considered a lab leak a very real and serious possibility, no, that does not change our conclusions [add new stuff from WHO report].

[2021-03-23 07:59:11]

**[Robert Garry]**

Me thinks that Alina may be taking her "victory lap" a few news cycles too soon. [shared file(s): image.png]

[2021-03-23 08:01:20]

**[Robert Garry]**

Not sure what Andrew told Lipstich, but ML is still wrong - saying WIV had SC2 before the pandemic is a conspiracy theory plain and simple...

[2021-03-23 08:04:22]

**[Andrew Rambaut]**

Here is mine... <https://twitter.com/arambaut/status/1374253839063334913>

[2021-03-23 08:19:45]

**[Robert Garry]**

TOTALLY AWESOME: [shared file(s): image.png]

[2021-03-23 08:21:22]

**[Andrew Rambaut]**

ML side-skipped the bit about it being absolutely a conspiracy theory.

[2021-03-23 08:36:18]

**[Kristian Andersen]**

Naughty.

[2021-03-23 08:41:18]

**[Robert Garry]**

Need to point out at every opportunity what Andrew just said to ML. If your Lab Leak hypothesis says that WIV had SC2 [or SC2 lite] before the pandemic then it is a \*conspiracy theory\*.

[2021-03-23 09:12:09]

**[Robert Garry]**

Shi giving a talk over zoom - all of the Parasites are on. [shared file(s): image.png]

[2021-03-23 09:14:10]

**[Kristian Andersen]**

Are you on it Bob? Rutgers.... I'm sure Ebright (E-dumb will be his name) is miffed.

[2021-03-23 09:14:29]

**[Robert Garry]**

Yes - also Jesse Bloom logged in...

[2021-03-23 09:15:21]

**[Robert Garry]**

So is Alina

[2021-03-23 09:15:24]

**[Kristian Andersen]**

Hah, I can imagine. Keep us posted!

[2021-03-23 09:15:42]

**[Kristian Andersen]**

Screenshot of attendees?

[2021-03-23 09:21:07]

**[Robert Garry]**

Full of Parasites [shared file(s): image.png, image.png, image.png, image.png, image.png, image.png, image.png, image.png, image.png]

[2021-03-23 09:25:36]

**[Kristian Andersen]**

That truly is DRASTIC and friends. Although I don't see E-dumb or Yuri

[2021-03-23 09:27:54]

**[Robert Garry]**

Their questions are going to be something to watch for...

[2021-03-23 09:39:01]

**[Robert Garry]**

This will make them nuttier: [shared file(s): image.png]

[2021-03-23 09:59:35]

**[Robert Garry]**

More parasites showing up and a NYT reporter [shared file(s): image.png, image.png, image.png]

[2021-03-23 10:01:42]

**[Kristian Andersen]**

My goodness. Not exactly the A team, now, is it.

[2021-03-23 10:06:10]

**[Robert Garry]**

Wait- shouldn't we be shutting research down/ TOO DANGEROUS>>> [shared file(s): image.png, image.png]

[2021-03-23 10:07:47]

**[Robert Garry]**

She mentions - unreasonable speculation [shared file(s): image.png]

[2021-03-23 10:31:04]

**[Robert Garry]**

```The head Parasite Jamie Metzl asked her about the military working at WIV - she said she was the director - part of CAS - all research open and that information was incorrect. ```

[2021-03-23 10:31:59]

[Kristian Andersen]

Haha, there you go - and he's SUCH an idiot

[2021-03-23 12:25:16]

[Robert Garry]

They are so dishonest - purposefully misquoting Shi. [shared file(s): image.png, image.png]

[2021-03-23 12:26:48]

[Robert Garry]

Of course, it would not matter what Shi said - they would claim victory anyway.

[2021-03-23 12:50:52]

[Robert Garry]

Not sure what happened here - WashPost. [shared file(s): Where Are We in Finding the Coronavirus's Origin_ - The Washington Post.pdf]

[2021-03-23 13:36:54]

[Robert Garry]

I occurred to me that while we live in a country with freedom of speech it's not clear to me how the Metzl feels that it was appropriate to hijack Shi's scientific talk to promote his future books and speaking engagements.

[2021-03-23 13:44:54]

[Eddie Holmes]

Military research. So idiotic. The reality is that the only shot the west had at looking at WIV was the WHO trip and that was a one off. People like the WaPo can moan all they like but there's no way China will let another team in. All this posturing may sell books but it's game over when it comes to finding out what they had.

[2021-03-23 14:00:55]

[Robert Garry]

The SC2 positive grate under your raccoon dog cage is all I really care about at this point. Plus I am pretty sure I heard that most of the other SC2 positive environmental swabs were taken the stalls where they sold the live animals. That's a pretty big coincidence - the virus leaked from the WIV precisely all the way to that grate that had just been under a live animal that just happened to be in a market selling wild animals. I predict another move of the goalposts however - CCP must have planted the samples there.

[2021-03-23 14:32:10]

[Eddie Holmes]

Completely agree. Balls in WHO's court now.

[2021-03-23 15:04:04]

[Robert Garry]

<https://twitter.com/JamieMetzl/status/1374473337749958667>

[2021-03-23 15:07:17]

[Robert Garry]

shared file(s): image.png

[2021-03-23 15:08:55]

[Robert Garry]

The DoS materials mention some joint publications. Tell me how that translates to "secret."

[2021-03-23 15:13:31]

[Eddie Holmes]

Deranged

[2021-03-23 15:19:43]

[Kristian Andersen]

The idiots are running loose. And not just Jamie. [shared file(s): Screen Shot 2021-03-23 at 15.19.08.png]

[2021-03-23 15:20:37]

[Kristian Andersen]

Can somebody please tell me how this is _any_ different from natural emergence? Because it's associated with research activity? A very specific low probability event compared to the alternative scenario... It's so dumb.

[2021-03-23 15:22:01]

[Kristian Andersen]

Of course Alex is there to give Marc Lipsitch a statistics lecture...

Love this guy. [shared file(s): Screen Shot 2021-03-23 at 15.21.05.png]

[2021-03-23 15:23:38]

[Eddie Holmes]

He's so good

[2021-03-23 15:27:06]

[Kristian Andersen]

He really is - and I mean, a PhD student teaching one of the most prominent statisticians (at Harvard...) the basics of statistics is pretty, well, ballsy.

[2021-03-23 15:30:35]

[Robert Garry]

It's not snarky though - to his credit. It's delivered in a scientific way. Not like the total BS spewed out by a certain Broad Post-Doc [alignment/assembly tweet comes to mind].

[2021-03-23 15:31:13]

[Robert Garry]

ballsy>>>snarky

[2021-03-23 15:33:23]

[Kristian Andersen]

I like to do both, although, I probably do snarky more often these days. I think my response to Alina's "alignment && assembly" was firmly in the latter category

[2021-03-23 15:47:15]

[Robert Garry]

The guy that Pompeo is relying on for his information about WIV is the same guy (Asher) that thinks that pangolins mated with bats. Jamie is using "information" gathered by Asher and politicized by Pompeo to build all of his little straw men.

[2021-03-23 17:56:32]

[Eddie Holmes]

I have news...from Peter Daszak:

[2021-03-23 17:57:17]

[Eddie Holmes]

<https://twitter.com/klustout/status/1219078782549725184?s=20>

"Don't know if I ever sent you this, but it's a link to a CNN video of the Huanan market (allegedly) taken in Dec 2019 (allegedly). Report in last stages now. Your statement is in right now, the extra photos are not, but reference to your

paper is there. I'm going to dig deeper into this via the Lancet COVID Commission. Confidentially, the fact that China side has fought tooth and nail to remove as much of this stuff about live mammals at Huanan as possible, tells me they know this is the likely pathway. V. interesting tales for a glass when meetings start again...."

[2021-03-23 17:58:14]

[Eddie Holmes]

"No [the tiling stuff] - all that's out, but I'm going to pull it into the Lancet Covid Commission taskforce I'm running. We'll be following up on some of the WHO leads from the report, including on the live animals in the market issue. We're setting up interviews with key people - would you be willing to be one of them - anonymous or on the record. All good.

Report will likely be public Friday or Saturday. 8 hour negotiation with China today on language and details. Brutal - scheduled for a 1 hour meeting, starting at 5am my time... the tile patterning will go into Lancet Covid Commission work (report due near end of year). Also spoke to my FBI buddies and will get videos date stamped and geocoding checked etc. might do some stuff with tile measurements as well. It's almost as fun as actual science!"

[2021-03-23 18:00:42]

[Eddie Holmes]

He hasn't replied yet to my question about whether the viral load stuff at various markets sites will be in but I assume it must be otherwise it will be a waste of time. Sounds like this is all due to pushback from China which is why it is going into his Lancet report.

[2021-03-23 18:18:25]

[Kristian Andersen]

Interesting - and definitely a lot of raccoon dogs in that video - civet cats at the market too?

I really, really, really hope the viral load stuff will be in there - it's so critical!

[2021-03-23 18:21:18]

[Eddie Holmes]

It has to be!! Surely. That's the key evidence.

[2021-03-23 18:59:28]

[Robert Garry]

Any idea about what "tile patterning" means?

[2021-03-23 19:02:11]

[Kristian Andersen]

Yeah, what's that about

[2021-03-23 19:06:39]

[Eddie Holmes]

Sorry, that's confusing as I've removed my questions that are interspersed. They used the tile patterning in my photo to find the exact spot where the cage was (on the grate with the high CT value). I asked him if this "tile patterning" detective work was in the WHO report and he said no, it's Lancet Commission. I'm not sure what the 'tile measurements' are exactly...perhaps just more evidence the pics are bona fide. That video is pretty amazing.

[2021-03-23 19:09:44]

[Kristian Andersen]

That video - seems more high risk than handling a tube wearing full PPE. But maybe that's just me.

[2021-03-23 19:12:10]

[Eddie Holmes]

Yes, that was definitely the MOST risky place in Wuhan. No doubt whatsoever!!

[2021-03-23 19:24:44]

[Kristian Andersen]

That article Bob shared from Jason Gale is actually really good - just sticks to what we know and what we don't. <http://www.bloomberg.com/news/articles/2021-03-04/where-are-we-in-hunting-for-the-coronavirus-s-origin-quicktake>

[2021-03-23 20:00:04]

[Kristian Andersen]

This dude's cool too - I dig his style. [shared file(s): Screen Shot 2021-03-23 at 7.57.33 PM.png, Screen Shot 2021-03-23 at 7.57.42 PM.png]

[2021-03-23 20:01:52]

[Kristian Andersen]

The combo of being anti-lab leak, spot on when it comes to the science, while also playing bluegrass and being from Fort Worth, Texas, I don't know man... Gotta be a rare mix.

[2021-03-23 20:04:43]

[Eddie Holmes]

Yes, I've noticed him. I like him as well.

[2021-03-24 02:29:34]

[Eddie Holmes]

Peter says:

[2021-03-24 02:29:54]

[Eddie Holmes]

"The viral load measurements will be in there I believe, but buried and will need someone to dig them out. I'll talk with Marion and line that up, then let you know where it is."

[2021-03-24 02:57:28]

[Eddie Holmes]

"Re. the Ct values, I just spoke with Marion and we don't have the ct values, but the fact that they were able to pull out full genomes from the environmental swabs in the market (that's in the report) suggests the ct values must have been remarkably low..."

[2021-03-24 03:00:15]

[Eddie Holmes]

Real shame that they don't have the Ct values. This not quite doing to be as strong as we hoped.

[2021-03-24 04:40:54]

[Robert Garry]

<https://www.cp24.com/world/who-team-finds-signs-of-wider-covid-19-outbreak-in-wuhan-in-dec-2019-1.5309140>

[2021-03-24 04:47:16]

[Robert Garry]

So I think that I read that they were able to map the positive environmental samples on the map that PD is rolling up in the picture. We also heard that at least some of the samples 'mapped' to the live animal stalls, including the grate under Eddie's raccoon dogs.

[2021-03-24 04:53:20]

[Andrew Rambaut]

These are the environmental samples put on GISAID by George? All identical to Wuhan-Hu-1?

[2021-03-24 04:53:34]

[Robert Garry]

I agree that being able to culture live virus from the environmental samples means Cts in the mid to low 20s. Viable virus clearly - the complete (near complete) genomes from one pass on Vero cells are on GISAID. maybe the the Chinese database too.

[2021-03-24 04:54:32]

[Andrew Rambaut]

Makes me think that 'lineage A' was a different market (possibly A.1 - i.e., WA1 too).

[2021-03-24 04:55:11]

[Robert Garry]

YES! :100:

[2021-03-24 04:57:54]

[Robert Garry]

The lineage A and B is a big clue - argues against lab leak - otherwise the nefarious Shi and her henchmen seeded not one but 2 markets with two lineages to cover their tracks?

[2021-03-24 05:07:46]

[Andrew Rambaut]

Although they would argue that B in the market evolved from A and thus proves that the market was not the origin

[2021-03-24 05:08:02]

[Andrew Rambaut]

I.e., that WA1 was the actual lab escape

[2021-03-24 05:08:05]

[Robert Garry]

This is really SC1 all over again. Hard to find SC1 in the wild but occasionally you find clusters in animals brought to market. 95% bat viruses {are there closer ones?} found but SC2 only are found in civets, raccoon dogs and occasional badgers. These are animals brought to MARKET-what you do you find are clusters of infected animals. Such a SC2 cluster could have seeded the C19 pandemic - traders brought a group of animals to Wuhan - during transport SC2 lineage A spread - may have picked up the lineage B mutations. Lineage A animal sent to nonHuanan Market; Lineae B animal sent to Huanan market.

[2021-03-24 05:09:32]

[Robert Garry]

"WA1 was the actual lab escape" This is the crux of it!

[2021-03-24 05:10:32]

[Andrew Rambaut]

That's what I would argue if I was wearing a tin foil hat. It is 3 SNPs closer to RaTG13

[2021-03-24 05:10:46]

[Andrew Rambaut]

Cause that matters

[2021-03-24 05:11:53]

[Robert Garry]

You would have to argue that WA1 escaped from the lab - lit a mini-burst wherein it picked up the 3 lineage B mutations then by incredible coincidence landed in the Huanan market animal stalls where it really took off.

[2021-03-24 05:14:29]

[Robert Garry]

Agree that WA1 is very important!

[2021-03-24 05:27:03]

[Robert Garry]

IIRC there is published epi info that at least some of the lineage A cases frequented wet markets.

[2021-03-24 05:43:48]

[Robert Garry]

The civet viruses from the second SC1 outbreak differed by a few snps from the civet viruses that started the first large SC1 outbreak, which is of course not surprising.

[2021-03-24 05:45:50]

[Robert Garry]

<https://dailycaller.com/2021/03/23/shi-zhengli-denies-chinese-military-wuhan-lab/> Shi giving public seminars and getting badgered by Parasites. Metzl is the worse kind of opportunist.

[2021-03-24 05:59:54]

[Robert Garry]

Reminds me of the time I had just finished a talk on the Ebola outbreak at the 2015 Filo mtg. Described the death of 6 colleagues etc. A prominent virologist fueled by Covidfaker's lies stood up after my talk and told the audience he was starting an "investigation" in to our misdeeds. @Kristian Andersen will remember.

[2021-03-24 07:47:13]

[Robert Garry]

<https://www.globalsecurity.org/security/library/news/2020/06/sec-200613-globaltimes02.htm>

[2021-03-24 07:48:49]

[Robert Garry]

<https://www.indiatvnews.com/news/world/china-coronavirus-detected-large-quantity-of-wuhan-seafood-market-583312> Here's the money shot: "Thirty-one of the 33 positive samples were collected from the western zone of the market, where booths of wildlife trading concentrated.

The result suggests that the novel coronavirus outbreak is highly relevant to the trading of the wild animals, experts said.

The successful isolation of the novel coronavirus further substantiates that the Huanan Seafood Wholesale Market contains a large quantity of the novel coronavirus (2019-nCoV), according to the experts."

[2021-03-24 07:52:53]

[Robert Garry]

<https://epochtimes.today/chinas-official-narrative-on-wuhan-wet-market-contradicted-by-leaked-document/> [shared file(s): image.png]

[2021-03-24 07:53:20]

[Kristian Andersen]

Has anybody sequenced a genome from an environmental sample not from the market? E.g., from a home of somebody infected with SARS-CoV-2? If no, then that's pretty darn key - and it's been in front of us all this time...

[2021-03-24 07:54:10]

[Kristian Andersen]

Unrelated - I think Tami is about to get a hard earned lesson in the perils of logical fallacies. I'll go get me popcorn. [shared file(s): Screen Shot 2021-03-24 at 7.51.51 AM.png]

[2021-03-24 07:56:21]

[Robert Garry]

Epoch Times - so biased [shared file(s): [Exclusive] Secrets of Wuhan South China Seafood Market Testing _ New Coronavirus _ COVID-19 _ Virus Traceability _ Epoch Times.pdf]

[2021-03-24 08:54:35]

[Robert Garry]

GSAID has 398 samples from the environment - so it can be done. Haven't looked carefully [and the server is shutdown now] but most appear to be from waste water, which means that they are concentrating the samples a lot. Others from patient rooms which is not the same thing as an random patient walking through the market.

[2021-03-24 08:58:25]

[Kristian Andersen]

The patient room samples are the key ones - yeah, sewage - while pretty hard - can be done. I'll take a look this afternoon too - and ask Rob Knight who's been doing a lot of this stuff

[2021-03-24 09:01:11]

[Robert Garry]

I'd like to know if that map of the Huanan market is reliable. Same map that PD is folding up? ASsuming the red are the positive stalls - Seems to line up with other reporting and what George G said initially.

[2021-03-24 10:42:20]

[Robert Garry]

Wrong then - wrong now <https://www.nzherald.co.nz/world/landmark-study-virus-didnt-come-from-animals-in-wuhan-market/67Z6RTUKUQBUWMJJ74IJ3KIV7E/>

[2021-03-24 11:58:39]

[Robert Garry]

<https://www.independentsciencenews.org/commentaries/an-interview-with-richard-ebright-anthony-fauci-francis-collins-systematically-thwarted/>

[2021-03-24 11:58:59]

[Robert Garry]

E-dim

[2021-03-24 12:31:12]

[Eddie Holmes]

Surely that's defamation?

[2021-03-24 12:52:08]

[Kristian Andersen]

E-dim. Love it :wink:.

As for the surface samples. I enquired, and _my own lab_ has actually managed to get full genomes from surface samples... Ct values typically quite strong in the mid-twenties.

[2021-03-24 12:52:32]

[Robert Garry]

[thread - ID: 2021-03-24 12:52:32]

That was my exact thought. PD is arguably a public figure, which raises the bar quite a bit, but I'm with you. If you're a public figure you have to prove actual malice. I'd testify that YES this is actual malice.

[2021-03-24 13:00:11]

[Robert Garry]

Sure it's doable -which brings us to where the samples were collected. First thing is the market that sold live animals. Just a weird coincidence that that lab leak pops up in the market? Second in the part of the market with the live animals. If the map is correct and the live animals were kept in the circle - then I'd say that's pretty good forensic evidence [even without the grate]. [shared file(s): image.png]

[2021-03-24 13:17:06]

[Eddie Holmes]

Remembering that these samples were taken some time after animals/humans were removed and my not have used optimal procedures (as the virus had not even be identified at this point). As I got those sequences from Weifeng let me see if I can get any more data from him.

[2021-03-24 13:27:36]

[Robert Garry]

[thread - ID: 2021-03-24 12:52:32]

@Robert Garry A lot of what drives some of the DRASTICs is professional jealousy. Alina is still howling about verifying sequences etc. We got a lot of crap including the Filo15 guy who was going to investigate us because we were not part of the established VHF club. Deep Throat didn't think that we were "rona" enuff to write PO1.

[2021-03-24 13:42:04]

[Robert Garry]

<https://www.epochtimes.com/gb/20/5/31/n12150755>. THis is said to be a list of the environmental samples with the RT-PCR results - my chinese is not good enuff. [shared file(s): image.png]

[2021-03-24 13:44:22]

[Kristian Andersen]

Send it to Alina for translation? :wink:

[2021-03-24 13:45:21]

[Eddie Holmes]

I'll see what Weifeng says

[2021-03-24 13:45:26]

[Robert Garry]

That's a good idea - I was thinking of one of the Asst Profs in the Dept.

[2021-03-24 13:46:25]

[Eddie Holmes]

Better not send to A-loser

[2021-03-24 13:48:27]

[Robert Garry]

THis guy: from Wuhan [shared file(s): image.png]

[2021-03-24 13:50:32]

[Eddie Holmes]

Why not. A-loser was my E-dim version of Alina.

[2021-03-24 13:52:00]

[Eddie Holmes]

I'll forward that E-dim interview to Dominic to see if I can stir up some legal rage at WHO

[2021-03-24 14:32:13]

[Robert Garry]

From: "Li, Shitao" [REDACTED] >
Date: Wednesday, March 24, 2021 at 4:20 PM
To: Robert Garry [REDACTED] >
Subject: Re: Big favor - Chinese translate.

My pleasure.

First column is sample code. The second column is the location in the seafood market. The third column is where the sample was obtained, such as ground, blood, waste water etc. Ground surface (n=14), door (n=3), wall (n=1), gloves (n=1), sole (n=1), garbage collect truck (n=1), iron cage (n=1), trailer (n=2), freezer inner surface (n=1), fish pack surface (n=1), foam table (n=1), blood water (n=1), waste water (n=1), balance weight (n=1), wheel barrow (n=1).

The fourth column is the results of rRT-PCR. The fifth is DNA sequencing of N gene by PCR. The sixth column is DNA sequencing of S gene by PCR. The last column is second generation DNA sequencing. The number in these columns indicates how high the homology is. NA means not detectable or not performed.

If there are any questions, please let me know.

Regards,

Shitao

[2021-03-24 14:45:04]

[Robert Garry]

We know that garbage truck is one of the environmental samples for which there is a sequence. Iron cage stands out to me!

[2021-03-24 15:26:03]

[Eddie Holmes]

Ha, very interesting!

[2021-03-24 15:41:22]

[Eddie Holmes]

Does anyone understand this 'double mutant' thing from India? I really can't follow this statement: [shared file(s): ExO4ywTUcAEtVrr.jpg]

[2021-03-24 15:49:22]

[Eddie Holmes]

The statements regarding the 484 and 452 mutations sound crass to me.

[2021-03-24 16:51:53]

[Andrew Rambaut]

I think it just has 2 mutations E484Q and 452R

[2021-03-24 16:52:40]

[Andrew Rambaut]

They seem very confused

[2021-03-24 16:54:36]

[Eddie Holmes]

That's what I thought. The 'double mutation' thing is freaking out the headline writers.

[2021-03-24 17:19:32]

[Kristian Andersen]

BUT THAT'S THE POINT EDDIE!!!! DOUBLE MUTANT = FREAK OUT!!!!!!

[2021-03-25 06:29:38]

[Robert Garry]

<https://www.wsj.com/live-qa/ask-wsj-how-beijing-resisted-and-delayed-probe-into-covid-19-origins/690D1B5B-6EEF-402D-B585-431AABDAC705> Just liste ed to this - pretty much spot on.

[2021-03-25 08:42:00]

[Robert Garry]

Heard that WHO report will [likely] be published tomorrow, midday US time.

[2021-03-25 09:06:58]

[Kristian Andersen]

In case people are interested in some light "science" entertainment. [shared file(s): [TODAY 4PM PST] IMM Seminar Series: Professor George F. Gao]

[2021-03-25 09:24:11]

[Kristian Andersen]

This seems, well, like a lot of mutations. <https://www.krisp.org.za/publications.php?pubid=330>

[2021-03-25 09:45:15]

[Robert Garry]

That's insanity - from three people. Spread of SC2 in populations with high levels of immunosuppression - better get those ppl vaccinated.

[2021-03-25 09:49:45]

[Kristian Andersen]

HIV community?

[2021-03-25 10:00:57]

[Robert Garry]

The uncontrolled experiment is happening as we speak.

[2021-03-25 10:06:20]

[Andrew Rambaut]

Bonkers: [shared file(s): image.png]

[2021-03-25 10:13:18]

[Robert Garry]

no DouG?

[2021-03-25 10:48:21]

[Kristian Andersen]

Just nuts.

Simple question - why are we convinced this is _not_ happening in some animal reservoir?

[2021-03-25 10:50:56]

[Andrew Rambaut]

Why would it?

[2021-03-25 10:51:39]

[Andrew Rambaut]

It would be multiple lineages going into animal reservoirs and then popping back out again.

[2021-03-25 10:52:29]

[Andrew Rambaut]

Perhaps it is happening in HIV infected individuals?

[2021-03-25 10:57:11]

[Robert Garry]

I agree - unlikely. However, better vaccinate Noodle and Turbo just in case.

[2021-03-25 10:59:48]

[Robert Garry]

But yeah - untreated HIV infection seems like it would make a person a perfect incubator to generate variants.

[2021-03-25 11:42:22]

[Kristian Andersen]

I agree that human infection (maybe HIV infected individuals / immunocompromised) makes the most sense, however, that new paper on VOCs being able to infect rodents... Could be a huge undiscovered reservoir hiding too - because we aren't really looking outside humans. But I agree - much less likely, although I think we should be careful not to dismiss the possibility.

[2021-03-25 12:20:17]

[Robert Garry]

Should look for SC2 antibodies in pets of C19 households - it shouldn't be too hard to find C19 households with cats, dogs and even ferrets [ferrets are surprisingly popular]. Just contact some vets.

[2021-03-25 12:26:14]

[Robert Garry]

60 minutes decided to follow up their good story on variants with a crap story on lab leaks [shared file(s): image.png]

[2021-03-25 12:31:51]

[Kristian Andersen]

WTF!!!??? With Jamie - of all people? Really?

[2021-03-25 12:39:30]

[Robert Garry]

Yes - this is shit - unlikely to have much if any real pushback in the 60min report I'm guessing - He'll be pushing the fact that the Chinese military is Shi's puppet master.

[2021-03-25 12:40:46]

[Kristian Andersen]

They typically have good people on - how he is even remotely relevant to this discussion, I don't understand.

[2021-03-25 12:49:58]

[Robert Garry]

Here's a much higher resolution map of the Huanan seafood market. [shared file(s): image.png]

[2021-03-25 13:04:17]

[Robert Garry]

[thread - ID: 2021-03-25 13:04:17]

Now the update is that the WHO report is coming out next week.

[2021-03-25 13:10:15]

[Robert Garry]

At least Metzl's missing the opportunity to bash the actual report on 60min.

[2021-03-25 13:10:49]

[Robert Garry]

I think I can map the samples onto the map with a little help.

[2021-03-25 13:11:39]

[Kristian Andersen]

Getting a translation on that map and Ct values would be great

[2021-03-25 13:18:40]

[Robert Garry]

well maybe no ct values but we know which samples generated positive sequences - i guess of pcr products and which gave genomes at least partial by ngs. it's a pretty good surrogate. i'll try to get Shitao to help me before cob today.

[2021-03-25 13:19:58]

[Robert Garry]

[thread - ID: 2021-03-25 13:04:17]

@Robert Garry more unforced errors - it's how you lose a tennis match as i understand it.

[2021-03-25 13:27:57]

[Kristian Andersen]

There's clearly clustering of cases in some of the stalls - I'd like to know that those held raccoon dogs and/or civets... Or pangolins. Or whatever.

[2021-03-25 13:33:57]

[Robert Garry]

My guess is that's what Daszak's tiling project is trying to show along with Eddie's smoking raccoon dog pics. "Thirty-one of the 33 positive samples were collected from the western zone of the market, where booths of wildlife trading concentrated. The result suggests that the novel coronavirus outbreak is highly relevant to the trading of the wild animals, experts said. The successful isolation of the novel coronavirus further substantiates that the Huanan Seafood Wholesale Market contains a large quantity of the novel coronavirus (2019-nCoV), according to the experts."

[2021-03-25 13:34:20]

[Robert Garry]

Ask George Gao when you get him on Zoom at 4 your time!

[2021-03-25 13:37:17]

[Robert Garry]

Maybe get the Ct values too while you're at it :thinking_face:

[2021-03-25 13:51:57]

[Eddie Holmes]

All we can do now is wait for the WHO report - that will change the debate. I doubt George will say much of interest.

[2021-03-25 13:56:48]

[Eddie Holmes]

Zhang just told me that the Director of his institute in Shanghai just got the boot for protecting him last year. The Ministry of Health are keen for vengeance.

[2021-03-25 15:44:02]

[Robert Garry]

I have the translations for the map and the locations/identities of the positive samples. Will annotate the map and send thru.

[2021-03-25 15:50:38]

[Eddie Holmes]

Great!

[2021-03-25 16:41:54]

[Robert Garry]

Garbage truck - A33 - not located on map. Location of other samples here: [shared file(s): image.png]

[2021-03-25 16:44:41]

[Robert Garry]

The Q61, 64, 68, 69, 70 samples that include the iron cage are to me the most interesting. If I had to guess, I'd guess that's where Eddie's raccoon dog was.

[2021-03-25 16:55:37]

[Eddie Holmes]

Yes, definitely around there somewhere
I'll look carefully later

[2021-03-25 17:17:18]

[Kristian Andersen]

Interesting... I can see now why they keep talking about frozen foods....

[2021-03-25 17:34:13]

[Robert Garry]

Yeah - it's a seafood market, but I'm glad GG admitted that they were selling wild illegal animals there.

[2021-03-25 17:47:34]

[Kristian Andersen]

Yeah, sorry, missed the darn talk!

[2021-03-25 17:51:30]

[Eddie Holmes]

Ah, good for George.

[2021-03-25 17:52:00]

[Robert Garry]

I asked him a nice question about the animals in the market for you and complemented him on a good talk. NO Cts values however.

[2021-03-25 17:54:14]

[Robert Garry]

GG did talk about culturing the virus from one of the market samples and using it in other experiments.

[2021-03-25 19:32:36]

[Kristian Andersen]

This isn't fucking normal! [shared file(s): Screen Shot 2021-03-25 at 7.32.08 PM.png]

[2021-03-25 19:33:38]

[Kristian Andersen]

That's an N/S of >3

[2021-03-25 19:38:06]

[Kristian Andersen]

Ts/Tv of 1.8 - that is highly elevated Tv.

[2021-03-25 20:48:24]

[Kristian Andersen]

shared file(s): tanzania_variant_snps.xlsx

[2021-03-25 22:57:32]

[Kristian Andersen]

Update files here - some of these mutations are interesting. A few convergent mutations with B.1.1.7 / B.1.351 / P.1 (like Pooh and Eek) but also some of the usual suspects missing - Doug and Phil are missing, because it sprouted off a very basal lineage. However, N501Y and del3675-3677 also missing - I bet D614G is required for N501Y...

This is one messed up variant - although I'm not sure this is a particularly concerning set of mutations - but :man-shrugging: [shared file(s): Screen Shot 2021-03-25 at 10.52.33 PM.png, tanzania_variant_snps.xlsx]

[2021-03-25 23:20:34]

[Kristian Andersen]

... and finally, I should add - several of these mutations appear to be reversions back to bat virus.

I'll take a closer look tomorrow. But I'd _does_ bring me back to the speculation of a potential animal reservoir...

[2021-03-26 05:20:34]

[Robert Garry]

Alina unpinned her wall-of-crazy tweetorial. Now she just wants to debate @Kristian Andersen in a live forum - apparently to the death.

[2021-03-26 05:42:11]

[Andrew Rambaut]

I can't see any scenario of animal reservoir that would fit the phylogenetic tree of what we see globally

[2021-03-26 07:14:28]

[Kristian Andersen]

This, Bob? Cute.

She might not want to go ahead with that... :skull: [shared file(s): Screen Shot 2021-03-26 at 07.10.37.png]

[2021-03-26 07:16:31]

[Andrew Rambaut]

[https://www.bloomberg.com/news/articles/2021-03-26/former-cdc-chief-says-he-thinks-co\[...\] =social&utm_source=twitter&cmpid=socialflow-twitter-business](https://www.bloomberg.com/news/articles/2021-03-26/former-cdc-chief-says-he-thinks-co[...] =social&utm_source=twitter&cmpid=socialflow-twitter-business)

[2021-03-26 07:17:00]

[Kristian Andersen]

Hah. Well, not exactly the top scientist in the US, huh?

[2021-03-26 07:22:28]

[Kristian Andersen]

> I can't see any scenario of animal reservoir that would fit the phylogenetic tree of what we see globally
Agreed, however, it wouldn't necessarily be visible as I'm specifically talking about very rare events 'cooking' up some of the variants. E.g., in the Tanzania example, a lineage hopped into some animal, caused an epizootic (with no spill-back), and then at some point spilled back into human, causing onward human-to-human transmission. It'd be a rare event and I don't think it's super likely, but I'm not sure our current data is inconsistent with such a scenario?

[2021-03-26 07:31:25]

[Kristian Andersen]

Some strong science behind Bobby's conclusion though. [shared file(s): Screen Shot 2021-03-26 at 07.30.07.png]

[2021-03-26 07:37:06]

[Robert Garry]

Even his friends like Bob Gallo recognize that he's a :clown_face:

[2021-03-26 07:47:23]

[Andrew Rambaut]

"most infectious virus we know in humanity"? Ha - not even close

[2021-03-26 07:49:42]

[Kristian Andersen]

Can you believe it - he was the Director of the US CDC...

[2021-03-26 07:55:29]

[Robert Garry]

when you add *under Trump* it all makes perfect sense.

[2021-03-26 07:56:13]

[Kristian Andersen]

Can you believe it - he was the President of the US...

[2021-03-26 07:58:10]

[Robert Garry]

I wrote a little note to 60 Minutes about the upcoming Metzl interview. He's going to push the theory that SARS-CoV-2 is a product of military research at WIV.

[2021-03-26 08:01:39]

[Kristian Andersen]

Oh please, please, please let him do exactly that - it's going to make them look like idiots

[2021-03-26 08:23:58]

[Robert Garry]

Yes- my goal was to make them at least put up a bunch of disclaimers and actually label him as the idiot he is. Redfield is simply looking to be relevant for another news cycle after being a big part of the biggest public health fuckup in history.

[2021-03-26 09:20:58]

[Robert Garry]

FROM 60 minBob,

Thank you for your note. I assure you that neither Jamie Metzl nor anyone else in our piece alleges that the virus is the product of a bioweapons program. You should also know that we interview Peter Daszak at length in our segment about the animal to human pathway hypothesis that the WHO-led team has concluded is most likely.

RICH

[2021-03-26 09:52:11]

[Robert Garry]

Rich,

After listening to Shi's seminar, hearing Metzl's question to Shi and his follow-up quotes I'm still very concerned about the direction that Metzl is taking the "debate."

However, it's good know that there is balance from Peter Daszak.

And, I believe the WHO report actually will reset the conversation, despite the best efforts of Metzl and others to dismiss the report before it appears.

Best,

Bob G

[2021-03-26 09:53:00]

[Robert Garry]

That's the best I can do.

[2021-03-26 10:33:47]

[Kristian Andersen]

Good effort Bob - they're going with the false equivalence of course, but there's not much you can do to counter that with people like Lipsitch coming out saying it's fair game.

Jamie though... Why they interview him in particular, I don't know - he's exceptionally stupid.

[2021-03-26 10:39:58]

[Robert Garry]

Agreed - but to your point about "let him do exactly that" - if fact - he already did it whether or not it gets into the 60 Minutes piece. No doubt there will be opportunities to make the appropriate points since this whole Proximal Origins thing is not leaving the news cycles anytime soon.

[2021-03-26 10:41:08]

[Kristian Andersen]

My concern with 60 mins is that they might well edit the interview to make him look sane and insightful. That'd be a missed opportunity.

[2021-03-26 10:42:28]

[Robert Garry]

I was trying to avoid that - I suspect they are still editing the piece - hence my email to Rich Bonin.

[2021-03-26 10:59:20]

[Kristian Andersen]

@Andrew Rambaut - have you guys looked into this new variant some more? I don't understand all the mutations in ORF1ab - it seems very peculiar. Limited overlap with previous variants too.

[2021-03-26 11:36:52]

[Andrew Rambaut]

Recombinant?

[2021-03-26 11:37:18]

[Andrew Rambaut]

Will take a look later

[2021-03-26 11:55:26]

[Kristian Andersen]

Possibly, but many/most(?) of these mutations appear to be rare point mutations. It's a real franken lineage - very interesting.

[2021-03-26 12:28:21]

[Kristian Andersen]

I love our bluegrass playing Texas friend. [shared file(s): Screen Shot 2021-03-26 at 12.27.03.png]

[2021-03-26 12:58:45]

[Eddie Holmes]

<https://twitter.com/drtomfrieden/status/1375535968275607555?s=12>

[2021-03-26 13:06:02]

[Eddie Holmes]

<https://twitter.com/amymaxmen/status/1375538755654852615?s=12>

[2021-03-26 13:35:59]

[Eddie Holmes]

<https://www.latimes.com/world-nation/story/2021-03-26/china-outlines-covid-origin-findings-ahead-of-who-report>

[2021-03-26 13:40:28]

[Eddie Holmes]

Any moment by the sound of it

[2021-03-26 13:41:15]

[Kristian Andersen]

"400 pages"... Whelp.

[2021-03-26 13:42:17]

[Kristian Andersen]

The news has really latched onto the "it's so well adapted to humans" bit. It's so mind numbingly dumb my head hurts.

[2021-03-26 13:43:58]

[Eddie Holmes]

People just need to think it through

[2021-03-26 13:44:04]

[Robert Garry]

Yes - Redfield didn't help and Tony way too diplomatic - come on Dude.

[2021-03-26 13:47:31]

[Robert Garry]

Lab leak scenarios. The lab leak scenarios are the ones from the Paris Group letter authors (although the Paris Group letter itself left out some of the more – uhhh - “drastic” scenarios GoF, Bioweapons, Military). The yellow parts of both figures are parts of the pathway that we know DID happen, so any origin theory has to account for these.

The lab leak scenarios require that WIV had SARS-CoV-2 and did not tell anybody [secret database} or EVEN more unlikely had it but didn't know they had it.

More extreme versions require that WIV had undisclosed close progenitors of SARS-CoV-2 and in some scenarios pangolin coronaviruses. Then through manipulation of these secrete viruses via various lab activities they created SC2. Jamie Metzl thinks that the Chinese military may have been involved as well. IMO the lab activities that they describe to create SC2 from anything but a secret 99.8 percent virus or greater amount to bad sci fi. RaTG13 plus GD pangolin cov RBD plus a FCS does not create SC2.

The Paris Group letter also says that the SC2 captured by a laboratorian in nature or created in the lab full blown SARS-CoV-2 could have leaked from the lab in a laboratorian, an escaped in a lab animal or via waste or sewage.

None of the lab scenarios explain how most of the early cases were linked to at least 2 Wet Markets. Is it plausible that SC2 just happened to leak from a lab to a wet market, then added 3 snps and found its way to another wet market. I'm not sure how close to impossible you need to get to say that's impossible, but getting VERY close.

Nor do the lab leak hypotheses explain the lineage A to B shift (B lineage viruses are found in all the environmental samples at the Huanan market – which I believe that the WHO report will implicate animals or as well as all the ppl linked to the Huanan market . [shared file(s): image.png]

[2021-03-26 13:49:45]

[Robert Garry]

Simpler: [shared file(s): image.png]

[2021-03-26 13:50:57]

[Eddie Holmes]

Great work Bob. Totally agree. 400 pages is going to keep the parasite's yellow marker pages busy for a while.

[2021-03-26 13:52:01]

[Robert Garry]

Trying to help ppl think it through- great point Eddie!

[2021-03-26 13:52:04]

[Kristian Andersen]

Any version of this would have required a researcher to have walked into a bat cave and magically finding the next pandemic virus - only to get themselves infected, wearing PPE. They then covered it up, and so did the entire WIV. The virus then somehow ended up in a market - where they were trading wild animals from parts of China where similar viruses have previously emerged - and caused the first cluster of epidemiologically connected cases.

Sure, it's possible. However.

[2021-03-26 13:53:46]

[Kristian Andersen]

These people are throwing up so many different 'hypotheses' that they can no longer think straight (if ever they could). That includes A LOT of high profile scientists by now - funnily enough, none of them having worked on similar problems before.

[2021-03-26 13:54:52]

[Robert Garry]

Lineage A viruses were linked to wet markets too and those are ancestral. So the virus has to find one wet market - add 3 snps to become lineage B then find the Huanan market.

[2021-03-26 13:57:54]

[Robert Garry]

Here's the translation of that Table from the Epoch Times. [shared file(s): image.png]

[2021-03-26 13:58:49]

[Kristian Andersen]

Is there a higher res version? I have a hard time reading that

[2021-03-26 13:59:44]

[Robert Garry]

Hard time reading the Chinese or my scribbles?

[2021-03-26 14:04:15]

[Robert Garry]

Column B fish/shrimp, eel, seafood, wholesale, frozen seafood. Column C. ground, blood water, wheel barrow, balance, waste water, ground, door, ground, foam table, gloves, shoes, ground, ground. ground,. ground, ground, garbage truck, wall door, ground, fish package, door, ground , door, g, g, g, g, g, fridge inside, trailer, trailer, ground, remove feathers machine, CAGE!

[2021-03-26 14:06:02]

[Eddie Holmes]

[thread - ID: 2021-03-26 14:06:02]

Cage!

[2021-03-26 14:07:39]

[Kristian Andersen]

What are the columns?

[2021-03-26 14:07:59]

[Robert Garry]

Feel free to share any of the Huanan Market map/Epoch times tables with anybody including Daszak. Same goes for the lab leak and natural scenarios...

[2021-03-26 14:11:33]

[Robert Garry]

1. Sample number (ties to the map yesterday. 2, Location in the market basically number of the lane and stall number 3. type of sample or I guess where they swabbed. 4. PCR results. 5. sequencing of N pcr. 6. seqiecing of s PCR. 7 NGS percentages are I guess to Wu-1 -not sure.

[2021-03-26 14:13:15]

[Robert Garry]

A few of the column 2 stalls show what was sold in them. Looks like some of that data has been scrubbed or not entered - maybe WHO/Daszak has it

[2021-03-26 14:18:45]

[Robert Garry]

[thread - ID: 2021-03-26 14:06:02]

@Eddie Holmes Also if you go back to the map above the same stall where they got the most POSITIVE PCR samples and these most consistent NGS results.

[2021-03-26 14:22:01]

[Kristian Andersen]

So for the cage they have no PCR results, but they have sequencing results? I don't quite understand what the yellow/red cells with percentages mean.

[2021-03-26 14:28:12]

[Robert Garry]

True - that's strange- they must have tried to sequence everything and gotten some sequences from pcr negative samples. Q61 is the same- pcr negative ngs positive - I think we've seen this on occasion in some of the Lassa samples.

[2021-03-26 14:29:36]

[Robert Garry]

Here: <https://pubmed.ncbi.nlm.nih.gov/32457420/>

[2021-03-26 14:30:12]

[Kristian Andersen]

Nah - gotta have PCR results to get any sequencing results with this virus

[2021-03-26 14:30:34]

[Eddie Holmes]

Is there a WIV used lab animal stall?

[2021-03-26 14:30:35]

[Kristian Andersen]

For Lassa it's down to divergence - not so for this virus

[2021-03-26 14:31:26]

[Eddie Holmes]

Let's wait for the report - doubtless will be dealt with in detail

[2021-03-26 14:32:42]

[Eddie Holmes]

https://www.washingtonpost.com/local/md-politics/redfield-hogan-wuhan-coronavirus/2021/03/26/0d93dabe-8e63-11eb-a6bd-0eb91c03305a_story.html

[2021-03-26 14:32:53]

[Robert Garry]

Good point! Diversity yeah - the PCRS for IASV only 70-75% sensitive vs NGS.

[2021-03-26 14:38:26]

[Robert Garry]

WashPost editorial team needs to step aside too BTW. Here's the article in case you're locked out. [shared file(s): Hogan adviser Robert Redfield urged to step down over Wuhan virus remarks - The Washington Post.pdf]

[2021-03-26 14:41:31]

[Kristian Andersen]

@Andrew Rambaut - take a look at this alignment, comparing the Tanzania variant to the very early lineages, including the Malaysia one and WA1. This one appears to be closer to RaTG13, plus a bunch of private mutations (separately, I aligned to various B lineages, but didn't do this in a structured way).

Here's what I can gather so far on the mutations that are shared.

Ancestral (RaTG13), missing in Tanzania variant
18,060

Ancestral, private in Tanzania variant

190; 15,279; (23,012); 23,683

Ancestral, shared

8,782; (28,144) [shared file(s): tanzania_variant_snps.xlsx, tanzania_variant.geneious]

[2021-03-26 15:27:46]

[Eddie Holmes]

I think these are raccoon dogs...stacked in cages. [shared file(s): 20141029_152015.jpg]

[2021-03-26 15:39:01]

[Kristian Andersen]

Yours?

[2021-03-26 15:42:03]

[Robert Garry]

Sure looks like this animal to me! [shared file(s): image.png]

[2021-03-26 15:45:41]

[Eddie Holmes]

Yes, my photo from the market.

[2021-03-26 15:46:15]

[Eddie Holmes]

So, not just one animal in a cage on the floor.

[2021-03-26 15:49:12]

[Robert Garry]

Here's the photo from your CNN report - unverified footage they say but sure looks like the same animal species.

[shared file(s): image.png]

[2021-03-26 15:51:21]

[Eddie Holmes]

So, they've been selling these animals there for years. An accident waiting to happen.

[2021-03-26 15:59:22]

[Robert Garry]

<https://www.newsweek.com/humans-not-animals-likely-took-covid-virus-wuhan-contrary-chinas-claims-1578861>

"The science is also bad because it isn't based on any on-the-ground evidence. There were many cases of COVID-19 in Wuhan before the market outbreak. In addition, the only live animals in the market seem to have been *snakes, turtles, and frogs*, none of whom are potential carriers, and they all tested negative. Peter Daszak himself has admitted that all of the carcasses examined tested negative for SARS-CoV-2. Yes, you read that right: the theory is based on the fact that they didn't find any infected animals in Wuhan.

In any case, the director of China's Center for Disease Control dismissed the market theory last May, explaining that there was no connection and that the virus "existed long before" it was found in the market, which makes it *rather extraordinary that the WHO team chose to spend its limited time poking around the empty building (which had been closed, cleared and disinfected more than a year ago*)."

[2021-03-26 16:01:29]

[Robert Garry]

SAme Rowan Jacobson who wrote the Alina Chan crap for Boston Magazine, Could COVID-19 Have Escaped from a Lab?

The world's preeminent scientists say a theory from the Broad Institute's Alina Chan is too wild to be believed. But when the theory is about the possibility of COVID being man-made, is this science or censorship?

[2021-03-26 16:03:34]

[Robert Garry]

Maybe he'll correct his Newsweek article when Eddie's pics see the daylight.

[2021-03-26 16:04:24]

[Eddie Holmes]

That is one shit and very biased article! And then I noticed it was Rowan...I've had to block him. Useless.

[2021-03-26 16:16:15]

[Robert Garry]

<https://www.cbsnews.com/news/world-health-organization-covid-team-wuhan-china-coronavirus-origin-starts-work/>
Finally, during the WHO's mission to China, Daszak said the team found new evidence that these farms were supplying vendors at the Huanan Seafood Wholesale Market in Wuhan, where an early outbreak of COVID-19 occurred.

The market was shut down overnight on Dec. 31, 2019, after it was linked to cases of what was then described as a mysterious pneumonia-like illness.

"There was massive transmission going on at that market for sure," says Linfa Wang, a virologist who studies bat viruses at Duke-NUS Medical School in Singapore. He's also part of the WHO investigative team. Wang says that after the outbreak at the Huanan market, Chinese scientists went there and looked for the virus.

"In the live animal section, they had many positive samples," Wang says. "They even have two samples from which they could isolate live virus."

[2021-03-26 16:21:06]

[Robert Garry]

George's admission at the Scripps seminar that yes - they were selling erotic animals at the market - is important.

[2021-03-26 16:25:09]

[Kristian Andersen]

"erotic animals" :flushed:

[2021-03-26 16:28:22]

[Eddie Holmes]

Those zoonots are really sexy.

[2021-03-26 16:32:35]

[Robert Garry]

oop's :flushed:

[2021-03-27 06:34:21]

[Robert Garry]

::boom::boom::boom::boom::boom:<https://www.cbsnews.com/news/covid-lab-theory-robert-redfield-no-evidence/>

[2021-03-27 06:35:09]

[Robert Garry]

More of this!

[2021-03-27 07:06:01]

[Kristian Andersen]

I was not gentle....

[2021-03-27 07:12:58]

[Robert Garry]

No reason to be it's bullshit and in fact as the WashPost story said people are getting killed - kid gloves off for all of them, including especially Alina, Metzl, Lipstich, eDim, Jesse, Frieden. After Metzl has his 60 Minutes moment I am sure you (we) will be ready too!

[2021-03-27 07:29:15]

[Robert Garry]

In case you ahvn't seen:

<https://www.technologyreview.com/2021/03/26/1021263/bat-covid-coronavirus-cause-origin-wuhan/>

[2021-03-27 07:32:40]

[Robert Garry]

@Kristian Andersen does a great job with CBS of making the point about teh animals at the market that literally blow-up the lab leak theories.

"We know that the first epidemiologically linked cluster of cases came from the Huanan market and we know the virus was found in environmental samples — including animal cages — at the market," he said. "Any 'lab leak' theory would have to account for that scenario — which it simply can't, without invoking a major conspiracy and cover up by Chinese scientists and authorities."

[2021-03-27 07:34:42]

[Robert Garry]

Eddie's raccoon dogs plus the CNN video blow-up the assertion by Jacobson, Alina et al that there weren't any mammals at the Huanan Market.

[2021-03-27 07:38:36]

[Robert Garry]

Also good to point out that the fact that some of the earlier cases in Wuhan also had links to other Wet Markets - not a stretch to believe that a batch of infected or cross-infected animals was distributed from South China seeding Huanan and other markets.

[2021-03-27 07:40:23]

[Robert Garry]

Lineage A to B shift also key point of discussion IMO.

[2021-03-27 07:56:08]

[Robert Garry]

Here's another key point that @Eddie Holmes made a year ago and its stuck with me. The culling of the animals at the Huanan Market was a perfectly reasonable thing to do - in fact the correct thing to do from a Pubic Health standpoint. It was obvious that the market was a focus of spread so going in and disinecting and sacking the animals to save lives was the right move. Sure -in hindsight - we can lament the fact that it was a missed opportunity to directly swab infected animals. But, the epi so abundantly clear that they judged that wasn't necessary - shutting down the source of infections - and cases with links to the market showed up over one month - was a prudent move.

[2021-03-27 08:03:26]

[Robert Garry]

It's just my opinion, but i think we all need to get used to being "jerks" in the media over the next few weeks. [shared file(s): image.png]

[2021-03-27 08:04:38]

[Robert Garry]

Maybe another "frame-worthy" one?

[2021-03-27 08:16:14]

[Robert Garry]

Fox>60Minutes? 60 Minutes giving airtime for Metzl to cherry-pick US intelligence.

<https://www.foxnews.com/media/cnn-redfield-theory-coronavirus-wuhan-lab-evidence>"The U.S. intelligence community continues to believe the virus originated in animals and was not leaked from a lab."

[2021-03-27 08:40:51]

[Kristian Andersen]

To be honest, I would rather not be a jerk, however, when a former CDC director comes out and says "this came from the lab" without providing _any_ evidence whatsoever and perpetuating falsehoods, the gloves are off - just not acceptable. I turned down a bunch of interviews yesterday, but decided on providing comments to CBS because of them airing the 60m segment....

Totally agree on the importance of pointing out why they decontaminated the market - I have been saying the same since January 2020. Imagine if they hadn't done that... It's just idiotic to say that they did this "to cover up".

As for links to other markets in the beginning - @Robert Garry do you have any good articles on that? I'd like to dig a little deeper into the A/B split taking that into consideration...

[2021-03-27 08:49:26]

[Robert Garry]

Qun2020:- Worth revisiting in light of new info about lineages A and B. actually has the information that the lab leak group want to dismiss- the early cases were associated with other wet markets not just the Huanan Wet Market. [shared file(s): nejmoa2001316.pdf]

[2021-03-27 08:55:03]

[Robert Garry]

Here is the key Table about the early cases - All the Huanan Market cases lineage B. The other early ones linked to other wet markets lineage A. @Andrew Rambaut or @Eddie Holmes may have more detailed info. I tried to capture this in my natural origins diagram above. [shared file(s): image.png]

[2021-03-27 08:58:46]

[Robert Garry]

Of course A "ancestral" to B so any theory on early emergence has to capture the fact that both lineages associated with wet markets early on....

[2021-03-27 09:02:34]

[Robert Garry]

Other key fact - just to put it here- WA1 - a traveler from Wuhan to Washington State - lineage A had 3 ancestral snps per @Andrew Rambaut

[2021-03-27 09:07:56]

[Kristian Andersen]

Thanks Bob. I'll head to the desert for a few hours to clear my mind, but I'll comb through this carefully. And yes, agreed about WA1 and I actually speculated about that a while back - https://twitter.com/K_G_Andersen/status/1338993282148302848?s=20

[2021-03-27 09:34:00]

[Andrew Rambaut]

Interestingly also there is a Malaysian case with exactly the same WA1 haplotype (Malaysia... pangolins...). But probably coincidence.

[2021-03-27 09:45:25]

[Kristian Andersen]

Yup! Take a look at the alignment I shared yesterday... I think it's interesting

[2021-03-27 10:08:38]

[Robert Garry]

Do we know anymore details about the Malaysian and WA1 cases - seems key.

[2021-03-27 10:08:38]

[Robert Garry]

Do we know anything more about the epi of the Malaysian or WA1 cases - seems very key. [shared file(s): image.png]

[2021-03-27 10:19:42]

[Andrew Rambaut]

The Malaysian one you included has an additional SNP difference away from RaTG13 - I am pretty sure there was one that was identical to WA1 (but I did this analysis back in July so have lost all memory of it. Will dig out my notes.

[2021-03-27 10:21:53]

[Robert Garry]

<https://www.seattletimes.com/seattle-news/health/case-of-wuhan-coronavirus-detected-in-washington-state-first-in-united-states/> Here's the news article about WA1

[2021-03-27 10:34:07]

[Robert Garry]

It's 416886 from February 4, 2020 according to @Andrew Rambaut Dec 6.

[2021-03-27 10:35:52]

[Andrew Rambaut]

[thread - ID: 2021-03-27 10:35:52]

I don't know what to make of the Angolan/Tanzanian ones - need to get into a different head space for that.

[2021-03-27 10:54:48]

[Robert Garry]

I'm convinced based on serology that "something" with sarbecoviruses has been going on in Africa for a while. The rest of you have some appropriate "head space" to consider this. I have *no clue* myself, but what are the odds of a separate emergence of a deeper lineage A ancestor? Seems impossible to consider, but we live in a strange world. Are any other mutations in immunosuppressed patients "back to bat?"

[2021-03-27 11:57:09]

[Kristian Andersen]

[thread - ID: 2021-03-27 10:35:52]

@Andrew Rambaut I think there's something there...

[2021-03-27 12:12:18]

[Andrew Rambaut]

[thread - ID: 2021-03-27 10:35:52]

@Andrew Rambaut Reemergence from zoonotic reservoir would be the most extreme hypothesis

[2021-03-27 16:58:51]

[Andrew Rambaut]

OK - returning to this thread from Dec last year:
<https://andersenlab.slack.com/archives/GTGL6LY5C/p1607277127336700>

[2021-03-27 16:59:32]

[Andrew Rambaut]

Do we want to pursue this a bit more? Perhaps have something ready for the WHO report drop?

[2021-03-27 17:02:16]

[Kristian Andersen]

Yes, I think we do - because with the WHO report coming out, chances are we'll be hammering hard on the market. I'll play around with some stuff later too.

[2021-03-27 17:02:43]

[Andrew Rambaut]

We have a number of haplotypes that are definitely in Wuhan in Jan 2020 but I think only 3 with multiple instances (there are ones with a few unique mutations) - A (WH04 etc), B (Wuhan-Hu-1) and WA1 - we could root on each of these and do a beast tree and see which fits best.

[2021-03-27 17:04:07]

[Andrew Rambaut]

Test significance of being 1 base closer to RaTG13 - is it just chance? a reversion?

[2021-03-27 17:05:26]

[Kristian Andersen]

Worth (possible?) to test if midpoint fits the early data best too?

[2021-03-27 17:08:57]

[Andrew Rambaut]

I can't see anything obvious in that Tanzanian one - just lots of convergent stuff as you say. I assume they are 3 connected cases so probably some chronic case?

[2021-03-27 17:56:26]

[Kristian Andersen]

It shares the early unique SNPs with e.g. WA1 and has a couple of additional 'ancestral' ones. Plus a bunch of private mutations. It looks to me like a very old lineage that turned into a chronic infection (in humans or possibly not)

[2021-03-27 17:58:52]

[Kristian Andersen]

... but it requires some proper phylogenetics - i might try some stuff.

[2021-03-27 19:46:48]

[Robert Garry]

Putting this racist bullshit here because my guess is she deletes it: [shared file(s): image.png]

[2021-03-27 19:57:43]

[Robert Garry]

Sorry - more archiving - ignore please [shared file(s): image.png, image.png]

[2021-03-27 20:00:58]

[Robert Garry]

[thread - ID: 2021-03-27 10:35:52]

@Andrew Rambaut one for the time capsule - @Kristian Andersen we really do need to look for mo' bat covs [and human covs] in Africa.

[2021-03-27 20:07:49]

[Kristian Andersen]

Totally lost it. Tone deaf.

[2021-03-27 20:12:29]

[Robert Garry]

Actually, it's deeply offensive. Alina is totally without any shred of decency. I'm quite sure this violates several Broad policies.

[2021-03-27 20:14:37]

[Kristian Andersen]

[thread - ID: 2021-03-27 10:35:52]

@Andrew Rambaut We do..

[2021-03-27 20:15:17]

[Kristian Andersen]

Broad clearly doesn't give a flying fu**

[2021-03-27 20:17:20]

[Robert Garry]

My experience says that that will come back and bite them in the ass. We'll see.

[2021-03-27 20:54:22]

[Eddie Holmes]

She's totally lost it.

[2021-03-27 20:56:01]

[Eddie Holmes]

I assume that someone has been calling her racist?

[2021-03-27 20:58:54]

[Eddie Holmes]

'White people countries'. Extraordinary.

[2021-03-28 07:28:15]

[Robert Garry]

Ridley hopes to make bank on the CIVID book he's writing - Metzl, that idiot Rogan and several others as well - the more notorious they are the more books they hope to sell. eDIm, Fillipa and Lipstich has a lot of their professional capital invested in finding that BSL-4 labs and GoF research are deadly. Everyone has a Col. Of course - Daszak is an easy target for the Col charge, but others have real Cols as well- ad hominum attacks are not science. [shared file(s): image.png]

[2021-03-28 08:35:56]

[Robert Garry]

Ok -I'm game to answer this question. "Why is it ok to share videos of horrific animal trade in China - like @Kristian Andersen did with the CNN video-, but "fueling racist rhetoric" to discuss the facts that China has been engaging in so much cutting-edge research that lab leaks are a real possibility? Big difference - instances of lab leaks in the past have been known pathogens. What Alina, Metzl and the DRASTICs and Parisites are alleging has a major difference. The are alleging a conspiracy - perhaps with the Chinese military - that SC2 was being secretly worked on in the lab. This directly feeds into the overtly racist memes of the "China virus" etc. [shared file(s): image.png]

[2021-03-28 08:40:28]

[Kristian Andersen]

It might be worth pointing out that the video was from inside the Huanan market and shows several potential reservoir hosts... It's an actual data point - not unsubstantiated speculation that lends fuel to a racist agenda.

[2021-03-28 14:21:12]

[Eddie Holmes]

Exactly that. It is obvious that a large part of the lab escape doctrine is pure xenophobia.

[2021-03-29 06:42:31]

[Robert Garry]

Get ready - the WHO report has been leaked....

[2021-03-29 06:43:43]

[Andrew Rambaut]

:popcorn:

[2021-03-29 06:47:52]

[Kristian Andersen]

PDF?

[2021-03-29 07:11:10]

[Kristian Andersen]

Oh, got it from Jim... [shared file(s): origins.pdf]

[2021-03-29 07:31:29]

[Robert Garry]

<https://www.pnas.org/content/117/17/9241> How good is this analysis?

[2021-03-29 07:32:22]

[Robert Garry]

Some new info - no Eddie raccoon dog though.

[2021-03-29 07:37:48]

[Robert Garry]

They only have one lineage A virus in their early cases. S13

EPI_ISL_529213

Visitor to another market

26 Dec

30 Dec

4946 (ORF1a), 8782 (ORF1a), 28144 (ORF8)

S/A

[2021-03-29 07:38:00]

[Andrew Rambaut]

[thread - ID: 2021-03-29 07:38:00]

https://www.pnas.org/content/117/23/12522?utm_source=TrendMD&utm_medium=cpc&utm_campaign=Proc_Natl_Acad_Sci_U_S_A_TrendMD_0

[2021-03-29 07:38:30]

[Robert Garry]

Seems like a missed opportunity with WA-1

[2021-03-29 07:41:02]

[Robert Garry]

[thread - ID: 2021-03-29 07:38:00]

@Andrew Rambaut THANKS! - it didn't quite "smell" right to me, but I'm unqualified to judge specifically.

[2021-03-29 07:42:39]

[Robert Garry]

BIG QUESTION HERE- lot's of media inquiries - can I boot some of these to !channel - if they are "worthy." By worthy I mean top tier outlets?

[2021-03-29 07:43:54]

[Robert Garry]

[thread - ID: 2021-03-29 07:38:00]

@Andrew Rambaut Forster is mentioned in the report in several spots...

[2021-03-29 07:53:22]

[Andrew Rambaut]

[thread - ID: 2021-03-29 07:38:00]

@Andrew Rambaut It also got 'communicated' by an AAS member that is in the same department as the authors.

[2021-03-29 08:19:10]

[Robert Garry]

First impressions:

1. The report is very well done. Lot's of very detailed information some of which is new to me. Anyone that wants to claim that the report is lacking in details will be disappointed. I think that the onus on the lab leak proponents should be to focus on specifics as to what they feel was lacking in the report.

2. Intelligence reports that there were sick workers in WIV [and one person's wife died are disputed by the report: "The three laboratories in Wuhan working with either CoVs diagnostics and/or CoVs isolation and vaccine development all had high quality biosafety level (BSL3 or 4) facilities that were well-managed, with a staff health monitoring programme with no reporting of COVID-19 compatible respiratory illness during the weeks/months prior to December 2019, and no serological evidence of infection in workers through SARS-CoV-2-specific serology-screening." Saying there are intelligence reports to the contrary, but I [Pottinger on 60 Minutes] can't share then with the public is not credible. But important to be clear – if you think there were sick workers at WIV that's now by definition a conspiracy and cover-up.
3. The Molecular part is very well done and complete. Some missed opportunities I think with discussion of the WA-1 sequence (which seems ancestral) and the A-B transition. Still the linkage of the early cases to Markets and Other Markets in Wuhan is there and I believe implicit in their conclusions, but not stated.
4. They did not address the multiple claims that SC2 is an engineered bioweapon since this is not credible.
5. Part of the mission was to identify future directions, which they did an outstanding job of doing.
6. Stuck with their guns – lab leak not credible.
7. The extensive section of the negative results in all the animals tested will probably get the most attention by Lab leak proponents. This is actually the situation that happened with the first SARS. – wild caught animals were negative – they however were able to link human case to civets etc. and the civets to specific markets. This all went down the memory hole, but in terms of capturing wild animals (and not finding SC1) the result is the same.

[2021-03-29 08:35:43]

[Kristian Andersen]

Awesome summary Bob! I haven't had a chance to get my eyes on it yet - but hopefully soon...

[2021-03-29 10:34:23]

[Kristian Andersen]

[thread - ID: 2021-03-29 10:34:23]

Another Franken variant - from our Jordanian collaborator... [shared file(s): jordan_variant.png, EPI_ISL_1336652.fasta, jordan_variant_snps.csv]

[2021-03-29 10:58:59]

[Robert Garry]

Appendix page 194

[2021-03-29 10:59:23]

[Robert Garry]

shared file(s): image.png

[2021-03-29 11:05:54]

[Andrew Rambaut]

[thread - ID: 2021-03-29 10:34:23]

@Kristian Andersen A Jordanian group got in touch about that one. May be in Egypt too.

[2021-03-29 11:09:52]

[Robert Garry]

The raccoon dogs are in the report.

[2021-03-29 11:21:46]

[Robert Garry]

No discussion I saw other than this @Eddie Holmes quote.

[2021-03-29 11:34:05]

[Kristian Andersen]

[thread - ID: 2021-03-29 10:34:23]

@Kristian Andersen Okay, great. It might be worth coordinating about this since our Jordanian collaborator have been providing all the samples for the >95% dataset on GISAID that we sequenced here at Scripps. Edyth is currently taking the lead on analyzing that dataset, which isn't currently focused on variants - but might be worth

syncing up if there could be a larger study.

[2021-03-29 12:37:48]

[Eddie Holmes]

Can you send the Appendix Bob?

[2021-03-29 12:40:14]

[Eddie Holmes]

Seems that China pushed back on the inclusion of the raccoon dog stuff...plus I think Daszak wants to include it in his own Lancet report and get more of the glory!

[2021-03-29 12:40:19]

[Robert Garry]

Only if you deny where you got it :alien: [shared file(s): Annexes_20210328.pdf]

[2021-03-29 12:40:36]

[Robert Garry]

Annexes.

[2021-03-29 12:40:54]

[Eddie Holmes]

Thanks! I will indeed.

[2021-03-29 13:16:48]

[Robert Garry]

Dear Colleagues-

You are among thirty colleagues with an interest in the origin of SARS-CoV-2 who is receiving this email. Attached please find an Open Letter to the WHO with respect to the origin of the SARS-CoV-2 virus and the COVID pandemic.

The purpose of the Open Letter is to request that the WHO acknowledge five facts that scientists agree on and which support the conclusion that an accidental laboratory-acquired infection was responsible for the COVID pandemic.

The five undisputed facts are:

- COVID-19 wasn't smoldering in the community before the epidemic broke out, as was observed with previous coronavirus epidemics.
- Despite an intense search, neither the COVID virus, nor any close relative, has yet been found in nature, unlike prior natural zoonoses. The closest viral relative is from the laboratories of the Wuhan Institute of Virology, near the epicenter of the first cases.
- The COVID virus had little genetic diversity at the outset, unlike prior natural zoonoses. It was genetically pure, like a man-made vaccine.
- The COVID virus's powerful infectious trigger isn't found anywhere in its related viral group in nature but has been repeatedly inserted into viruses by laboratory scientists, including at the Wuhan Institute of Virology.
- The virus was highly adapted for infection of people from the start, unlike prior natural zoonoses.

I look forward to any comments you might have on this Open Letter, especially if there is scientific evidence (not speculation) which I have missed that should be included here or if you think something is misstated. If I receive your comments before this is published I will make changes, if appropriate.

Regards, Steve

--

Steven Quay, MD, PhD



Dr. Quay Website
Breast Cancer TEDx Talk
STAY SAFE #1 Amazon Medical Book



ORCID 2-D iD

[2021-03-29 13:17:22]

[Robert Garry]

Dr. Quay, I dispute each of your "facts."

[2021-03-29 13:18:14]

[Kristian Andersen]

Yeah, I got that too - complete nonsense from start to finish.

[2021-03-29 13:23:03]

[Eddie Holmes]

First impression on the report is that they have pulled their punches and that this is going to go on for years which is hugely depressing.

[2021-03-29 13:36:18]

[Robert Garry]

I agree with this read as well Eddie. They could have gone a lot further with the data they had. So much work put-in, some decent analyses and some useful stuff, but no real "punch lines." I can see where the fights took place - they did not want to admit that there were raccoon dogs or other such animals in the market because this too would put the "blame" on China and their eating habits. Much better I guess in their judgement to leave open the possibility SC2 came in on the frozen fish.

[2021-03-29 14:35:01]

[Robert Garry]

Here's the 60 Minutes transcript.
<https://www.cbsnews.com/news/covid-19-wuhan-origins-60-minutes-2021-03-28/>I'm pretty sure they disallowed Daszak from calling a conspiracy theory a conspiracy theory.

[2021-03-29 14:54:07]

[Kristian Andersen]

Such shit and biased reporting by 60 Minutes - I was not happy after watching. And I did right after the CNN documentary - which was exceptionally poor too (e.g., not a single challenge from Gupta on what e.g., Brix or Redfield were saying - even Fauci was disingenuous multiple times).

[2021-03-29 15:03:18]

[Andrew Rambaut]

[thread - ID: 2021-03-29 10:34:23]

@Kristian Andersen It was someone called Mustafa Ababneh, Associate Professor of Veterinary Virology, Jordan University of Science and Technology. I am not collaborating with them, they were just suggesting a lineage.

[2021-03-29 15:07:28]

[Andrew Rambaut]

[thread - ID: 2021-03-29 10:34:23]

@Kristian Andersen We have that variant in the UK too.

[2021-03-29 15:21:23]

[Kristian Andersen]

Ignoring Jamie for now, how can 60 Minutes let stuff like this go on air? No fact checking whatsoever?

Matt Pottinger: There was a direct order from Beijing to destroy all viral samples -- and they didn't volunteer to share the genetic sequences.

Matt Pottinger: There is a body of research that's been taking place conducted by the Chinese military in collaboration with the Wuhan Institute of Virology, which has not been acknowledged by the Chinese government. We've seen the data. I've personally seen the data.

Matt Pottinger: We don't know. It is a major lead that needs to be pursued by the press, certainly by the World Health Organization. Beijing is simply not interested in allowing us to find the answers to those very pertinent questions.

[2021-03-29 15:24:54]

[Kristian Andersen]

[thread - ID: 2021-03-29 10:34:23]

@Kristian Andersen Very interesting... I assume no pango lineage yet? One to watch, I guess.

[2021-03-29 15:31:05]

[Andrew Rambaut]

[thread - ID: 2021-03-29 10:34:23]

@Kristian Andersen C.36

[2021-03-29 15:31:36]

[Andrew Rambaut]

[thread - ID: 2021-03-29 10:34:23]

@Kristian Andersen (but it may be a sublineage of this which would make it C.36.1)

[2021-03-29 15:31:43]

[Andrew Rambaut]

[thread - ID: 2021-03-29 10:34:23]

@Kristian Andersen shared file(s): C.36.ml.tree.pdf

[2021-03-29 15:32:22]

[Andrew Rambaut]

[thread - ID: 2021-03-29 10:34:23]

@Kristian Andersen Need to work out where on this tree the VOCy mutations arise

[2021-03-29 15:32:31]

[Andrew Rambaut]

[thread - ID: 2021-03-29 10:34:23]

@Kristian Andersen But very 'Egypty' over all

[2021-03-29 15:33:44]

[Kristian Andersen]

[thread - ID: 2021-03-29 10:34:23]

@Kristian Andersen Oh, yeah, that does look very "Egypty". <https://outbreak.info/situation-reports?pango=C.36>

[2021-03-29 15:34:37]

[Kristian Andersen]

[thread - ID: 2021-03-29 10:34:23]

@Kristian Andersen .1 appears to be Canada? https://outbreak.info/situation-reports?pango=C.36.1&loc=USA&loc=USA_US-CA&selected=Worldwide

[2021-03-29 15:41:54]

[Andrew Rambaut]

[thread - ID: 2021-03-29 10:34:23]

@Kristian Andersen The blue clade has Spike L452R, Spike Q677H, Spike S12F and the green clade has some extras plus the 69/70 deletion [shared file(s): image.png]

[2021-03-29 15:48:57]

[Kristian Andersen]

[thread - ID: 2021-03-29 10:34:23]

@Kristian Andersen Ah, okay - so not all _that_ mutationally 'saturated'. That's a pretty big clade though - and I didn't quite realize how many mutations pop up in ORF1ab, although that's of course a very big gene.

[2021-03-29 15:49:57]

[Eddie Holmes]

Just chatting to Dominic now.

[2021-03-29 15:50:54]

[Robert Garry]

I started to write another email to Bonin pointing out the fact-free bullshit. We'll see where this goes - I'm thinking that Eddie is absolutely right about the pulled punches. We should take some of the worthy facts out of the report and write a punched up PO2 - just the facts - by that I mean the science.

[2021-03-29 15:52:21]

[Kristian Andersen]

It's kinda scary - I mean, Pottinger is directly accusing China of creating this virus for military purposes, yet, he doesn't need to provide any evidence at all?

[2021-03-29 15:52:31]

[Robert Garry]

Decided it wasn't worth to electrons to point out the crap - different agenda - just trying to get viewers.

[2021-03-29 15:52:57]

[Kristian Andersen]

Yeah, that's not journalism.

[2021-03-29 15:53:05]

[Kristian Andersen]

(same for the CNN documentary)

[2021-03-29 15:54:07]

[Kristian Andersen]

It's February, 2003 all over again. Although, I don't understand if Pottinger is just saying this shit or whether this is actually the position of the USG?

[2021-03-29 15:54:39]

[Robert Garry]

Plus both Pottinger and Metzl are getting their science-free information from Asher. My wife listened to Metzl for about two minutes and said - he's just like Joseph Fair. She was right about Covidfaker and she's right about Metzl.

[2021-03-29 15:59:13]

[Robert Garry]

Yes exactly - Saddam has the bioweapons - we need to bomb Iraq back to the stone age. Jamie's 9 sequences "But we do know that there were 9 viruses at least that were brought back. And it's extremely possible that among these viruses is a virus that's much more closely related to the SARS-CoV-2 virus. And when I put all those pieces together, I said, "Hey, wait a second, this is a real possibility. We need to be exploring it." - is November 2016 all over again and Hillarie's 30,000 mails and James Comey.

[2021-03-29 15:59:17]

[Kristian Andersen]

It's the same BS machine over and over again. Both of them seemed very convincing on 60 Minutes though - and it's clear it's part of their training in politics (the big giveaway is the smiling every time they make a point - I remember Matt Stremmler always did the same (from his years in politics...) and it's a very very effective way to build a human connection and get a point across. Peter D. totally outmatched here - with his serious stare and demeanor)

[2021-03-29 16:00:43]

[Robert Garry]

I almost felt sorry for PD - but he was not very well prepared for obvious questions and he also likely got heavily edited.

[2021-03-29 16:02:12]

[Kristian Andersen]

He got edited for sure, but one thing that stuck with me - he wasn't over-claiming anything. "Yup, we don't know", "Yup, that's to be done". Doesn't work to convince a lay audience, but it's sticking to what we know and what we don't.

[2021-03-29 16:04:14]

[Robert Garry]

Stahl had follow-up for each PD question designed to put him off balance and admit stuff he shouldn't have admitted. Surprising with all the media that he's not better at it. The follow-up to JM and MP were shocked looks on her face and gasps.

[2021-03-29 16:06:36]

[Kristian Andersen]

Yup - she clearly drank the Kool-Aid before the interview. Also, 2 lab leak 'theorists' vs 1 scientist. Fair balance? Nope - should have been 0 vs 3.

[2021-03-29 16:15:37]

[Eddie Holmes]

Annex D7 is very interesting

[2021-03-29 16:22:36]

[Eddie Holmes]

Had a long chat with Dominic: (i) he thinks that it could well be raccoon dogs or mink neither of which have been tested and that there was great push back from the Chinese about even investigating this idea. So, these animals have not been tested; (ii) he said that the WIV staff came across as totally open and honest. He said that privately Shi told them she was very worried about a lab escape and they did 2 internal audits and found nothing.

[2021-03-29 16:22:43]

[Kristian Andersen]

This? [shared file(s): Screen Shot 2021-03-29 at 4.22.14 PM.png]

[2021-03-29 16:23:42]

[Kristian Andersen]

"Shi told them she was very worried about a lab escape and they did 2 internal audits and found nothing".

This bit bothers me - and I mentioned this back when she made a similar comment to SciAm. It clearly shows she found it a likely explanation.

[2021-03-29 16:24:13]

[Kristian Andersen]

... but they again, she _would_ need to consider it a possibility - we did.

[2021-03-29 16:25:03]

[Eddie Holmes]

As did we Kristian. I think I would be more bothered if she had not considered the possibility. To me, she comes across as honest.

[2021-03-29 16:26:14]

[Eddie Holmes]

What do you make of that ACE2 stuff? If all their staff are negative then it's game over....unless there's been massive cover-up.

[2021-03-29 16:28:01]

[Kristian Andersen]

“her laboratory used recombinant viruses to test whether bat CoVs could use ACE2 to bind but used bat spike protein on *a bat-CoV backbone*, not human SARS”

Which backbone?

[2021-03-29 16:29:25]

[Kristian Andersen]

“*other researchers* engineered SHC014 spike so did not need isolates for mouse experiments. WIV began recombinant work in 2015 with WIV-1. It received ACE2 mice in 2016 and *started recombinant experiments with WIV +SHC014* in 2018 but did not finish them owing to the COVID outbreak”

This might all just be bad writing, but there's a lot of wiggle room in these statements. I'm not really sure how to interpret them.

[2021-03-29 16:32:15]

[Eddie Holmes]

Yes, I couldn't quite follow it either. I guess she means SCH014 which is a SARS-like virus. This accords with her comments to John Cohen that they were only working on SARS-like viruses.

[2021-03-29 16:32:52]

[Eddie Holmes]

Dominic also said that it clear that the intelligence services have nothing.

[2021-03-29 16:33:51]

[Kristian Andersen]

Yeah, maybe they're just referring to this? <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4797993/>

[2021-03-29 16:34:57]

[Kristian Andersen]

A lot of the conspiracy theories mention the “GOF Research” at WIV and how they made these scary recombinant viruses - but that work was in DeepThroat's lab, not at WIV - so maybe that's what they're pushing against.

[2021-03-29 16:35:10]

[Eddie Holmes]

Yes, that's the one.

[2021-03-29 16:36:02]

[Kristian Andersen]

Yeah, I think that's what they're saying - “we did stuff in bats, but the human conspiracy stuff isn't actually us”.

[2021-03-29 16:36:40]

[Eddie Holmes]

Agreed. And I believe them.

[2021-03-29 16:37:42]

[Eddie Holmes]

WHO will apparently hold a press conference overnight my time...I guess tomorrow morning yours.

[2021-03-29 16:51:21]

[Kristian Andersen]

... I better get on with reading that report then... Was too busy doing alignments and, you know, something akin to science :wink:

[2021-03-29 19:51:39]

[Kristian Andersen]

This figure from the report is pretty interesting - breeding of putative intermediate hosts all around Wuhan. [shared file(s): Screen Shot 2021-03-29 at 7.50.43 PM.png]

[2021-03-29 19:56:39]

[Kristian Andersen]

Pretty interesting as well... [shared file(s): Animal conclusions.png]

[2021-03-29 20:22:09]

[Eddie Holmes]

They don't mention raccoon dogs for sale nor have they tested them
Not sure if their trade is legal

[2021-03-29 20:23:10]

[Eddie Holmes]

Not sure about mink either

[2021-03-29 20:23:39]

[Kristian Andersen]

I'm still reading the appendices, but not a lot of information from the market - it seems like they definitely don't think it started there/

[2021-03-29 20:25:00]

[Eddie Holmes]

That's not how I read it

[2021-03-29 20:26:12]

[Kristian Andersen]

From the main report or the appendix?

[2021-03-29 20:26:22]

[Kristian Andersen]

(I haven't gotten to the main report yet...)

[2021-03-29 20:26:31]

[Eddie Holmes]

Both: I read it as uncertain but possible

[2021-03-29 20:29:45]

[Eddie Holmes]

There was clearly a ton of transmission that in the market and it wasn't the fruit and veg sellers

[2021-03-29 20:29:57]

[Kristian Andersen]

This figure is pretty interesting [shared file(s): Screen Shot 2021-03-29 at 8.29.31 PM.png]

[2021-03-29 20:30:14]

[Kristian Andersen]

The market is basically smack in the middle of the main cluster

[2021-03-29 20:30:57]

[Kristian Andersen]

That line that bisects the cluster is the main river - WIV is South-East of that river, Huanan market North-West

[2021-03-29 20:31:26]

[Eddie Holmes]

Interesting

[2021-03-29 20:31:38]

[Kristian Andersen]

I don't suppose they looked into movement patterns? It's sorta interesting that cases South-East have no connection to the market, while North-West do.

[2021-03-29 20:32:40]

[Kristian Andersen]

If only we had timing on these cases... Where are the early cases? South-East or North-West of the river?

[2021-03-29 20:34:10]

[Kristian Andersen]

Seems like North-West also primarily residential - at least from what I can get from Google Maps (naming of the districts within the city). [shared file(s): Screen Shot 2021-03-29 at 8.33.14 PM.png]

[2021-03-29 20:40:55]

[Eddie Holmes]

Good questions

My take on the whole thing is that they clearly think there's an intermediate host and they are holding up the market as an example of the trade that leads to this transmission

Daszak clearly thinks it the market which is why he sent me the video

There's a lot on the market in the main doc - 2 journos told me they had the same impression

[2021-03-29 20:44:38]

[Kristian Andersen]

Yeah, I get the sense that the Chinese are trying to deflect as much as possible away from the market, not being concerned with the lab leak because they know it didn't come from there. But it certainly isn't helping - the market, by far, seems like the most logical explanation.

[2021-03-29 20:47:17]

[Eddie Holmes]

That's it!! Both Daszak and Dominic told me the same - they don't like the market link because it makes them look 'dirty' and undermines their culture

[2021-03-29 20:48:18]

[Eddie Holmes]

Also, if Shi is lying so is Daszak and that would take monumental cajones

[2021-03-29 20:49:02]

[Kristian Andersen]

Yeah, I think they're concerned about potential "wild animal" farming and how that might have led to this - presumably big industry.

[2021-03-29 20:49:11]

[Eddie Holmes]

Totally

[2021-03-29 20:49:51]

[Kristian Andersen]

A little hmmm on this one though - here's a hybrid map I made. Look at that South-East cluster. I want to know dates. [shared file(s): Screen Shot 2021-03-29 at 8.48.06 PM.png]

[2021-03-29 20:50:18]

[Kristian Andersen]

Is there a different market around there too?

[2021-03-29 20:52:12]

[Kristian Andersen]

Ehhh, I think all university housing around there?

[2021-03-29 20:52:25]

[Eddie Holmes]

I read that as positive north, negative south?

[2021-03-29 20:53:12]

[Kristian Andersen]

No - blue = no connection to market, red = connection to market

[2021-03-29 20:53:15]

[Eddie Holmes]

Blue is negative?

[2021-03-29 20:53:25]

[Eddie Holmes]

Ah, sorry

[2021-03-29 20:53:43]

[Kristian Andersen]

All the cases south of the river are unrelated to the market - but in university housing around WIV as far as I can see.

[2021-03-29 20:54:20]

[Eddie Holmes]

Need dates as you say

[2021-03-29 20:54:28]

[Kristian Andersen]

Dates 100% needed on these - I want to see North cluster = first cases, South cluster = later cases

[2021-03-29 21:00:53]

[Kristian Andersen]

I'll keep digging...

[2021-03-29 21:01:17]

[Eddie Holmes]

You won't be alone

[2021-03-29 21:01:32]

[Kristian Andersen]

That's the problem - what I'm finding here, Steve Quay will also find.

[2021-03-29 21:03:02]

[Kristian Andersen]

Because the one insight he did have, was this. So he'll be doing what I'm doing right now. [shared file(s): Screen Shot 2021-03-29 at 9.02.29 PM.png]

[2021-03-29 21:03:19]

[Eddie Holmes]

That was going to the care under any circumstances
But there's nothing in this doc that makes a lab leak more likely

[2021-03-29 21:03:39]

[Kristian Andersen]

Good. I'll keep reading.. :wink:

[2021-03-29 21:06:55]

[Eddie Holmes]

So, people took a metro to 4 of the biggest hospitals in Wuhan, including the central one. And?

[2021-03-29 21:12:09]

[Eddie Holmes]

Tomorrow is going to be mad

[2021-03-29 21:20:52]

[Kristian Andersen]

I need some ammo from the report - so let's make sure we all post some of that!

[2021-03-29 21:21:13]

[Kristian Andersen]

I.e., not what I'm doing right now :wink:

[2021-03-29 21:24:18]

[Eddie Holmes]

I'm only taking questions about raccoon dogs

[2021-03-29 21:57:34]

[Kristian Andersen]

Thank fuck for this! Here are the dates - starts in the North and then spread South. In other words from the Market and across the city. Good old triangulation - with, of course, a heavy bias due to the market investigation, but still.
[shared file(s): Screen Shot 2021-03-29 at 9.56.07 PM.png]

[2021-03-29 21:58:58]

[Kristian Andersen]

I like this report - doesn't exactly smell like a cover up. Way, way, way too many people involved at multiple different levels - and it isn't exactly a clean report, which lends credence to it being scientific, because science is messy.

[2021-03-29 22:02:55]

[Eddie Holmes]

Phew. If your happy then that helps my nerves

[2021-03-29 22:08:50]

[Eddie Holmes]

Quay will have his compass out

[2021-03-29 22:09:06]

[Kristian Andersen]

For sure

[2021-03-30 06:40:24]

[Robert Garry]

Important work Gentlemen! Huanan Market and the Other market data are key. Also the smoking raccoon dog and other wild animals in the markets. Lab leak conspiracy theories have to ignore that fact that the majority of cases were linked to markets (plural) where animals susceptible to SC2 were/are sold. China may not like this spotlight on their traditional dining, preferring the frozen fish outa China memes, but give the WHO team credit for putting the data (like in @Kristian Andersen 11:57 post) in sufficient detail to allow others including !channel address the lab leak conspiracies.

[2021-03-30 08:24:42]

[Robert Garry]

PeterFoodSafety talking about GD sequences being "identical" to early Wuhan sequences. Is this true?

[2021-03-30 08:25:57]

[Kristian Andersen]

No

[2021-03-30 08:26:34]

[Kristian Andersen]

They are(ish) in the RBD

[2021-03-30 08:43:27]

[Robert Garry]

[https://www.who.int/director-general/speeches/detail/who-director-general-s-remark\[...\]-of-the-international-team-studying-the-origins-of-sars-cov-2](https://www.who.int/director-general/speeches/detail/who-director-general-s-remark[...]-of-the-international-team-studying-the-origins-of-sars-cov-2). The team also visited several laboratories in Wuhan and considered the possibility that the virus entered the human population as a result of a laboratory incident.

However, I do not believe that this assessment was extensive enough. Further data and studies will be needed to reach more robust conclusions.

Although the team has concluded that a laboratory leak is the least likely hypothesis, this requires further investigation, potentially with additional missions involving specialist experts, which I am ready to deploy. We will keep you informed as plans progress, and as always, we very much welcome your input. Let me say clearly that as far as WHO is concerned all hypotheses remain on the table.

[2021-03-30 09:00:45]

[Kristian Andersen]

I guess he had to say that - and I can't really disagree with that statement. As long as we stick to the science - and not bs speculation.

[2021-03-30 09:09:39]

[Robert Garry]

Agree - this sounds like pressure from ---- the Biden Administration.

[2021-03-30 09:34:56]

[Robert Garry]

Amy: <https://www.nature.com/articles/d41586-021-00865-8>"Plenty of animals were sold at the Huanan market. December 2019 records list poultry, badgers, rabbits, giant salamanders, two kinds of crocodiles and more. Chinese officials said that the market didn't sell live mammals or illegal wildlife, the report adds, but also references unverified media reports suggesting that it did, along with photos that Holmes published after a trip there in 2014, of animals such as live raccoon dogs."

[2021-03-30 09:35:09]

[Robert Garry]

Good job @Eddie Holmes

[2021-03-30 09:42:32]

[Robert Garry]

Jamie - not so much <https://www.msn.com/en-us/video/other/who-report-on-covid-19-origin-inconclusive-calls-for-further-studies/vi-BB1f7WB8?ocid=BingNewsSearch>

[2021-03-30 09:42:56]

[Robert Garry]

good lord

[2021-03-30 09:48:17]

[Kristian Andersen]

"Gag order on scientists". What KIND of COUNTRY would do something like that? Geez.

[2021-03-30 10:22:27]

[Robert Garry]

<https://www.nytimes.com/2021/03/29/world/asia/china-virus-WHO-report.html> "Jesse Bloom, an evolutionary biologist at the Fred Hutchinson Cancer Research Center in Seattle, said he was not convinced that a laboratory leak was extremely unlikely, after seeing a copy of the report." *He said he agreed that it was highly plausible that the virus could have evolved naturally to spread to humans, but he did not see any reasoning in the report to dismiss the possibility of a lab escape."

[2021-03-30 10:23:18]

[Kristian Andersen]

Jim is on my shit list from now on. [shared file(s): Screen Shot 2021-03-30 at 10.23.00 AM.png]

[2021-03-30 10:23:32]

[Kristian Andersen]

Not exactly the conclusion of the report now, is it?

[2021-03-30 10:24:50]

[Robert Garry]

Meanwhile: [shared file(s): image.png]

[2021-03-30 10:47:34]

[Robert Garry]

Tedros repoding in part to this 52 min ago

US and 13 other nations express "shared concerns" about WHO study on Covid-19 origins

From CNN's Jennifer Hansler

The governments of the United States, Australia, Canada, Czechia, Denmark, Estonia, Israel, Japan, Latvia, Lithuania, Norway, the Republic of Korea, Slovenia, and the United Kingdom jointly expressed concern about the World Health Organization (WHO) study into the origins of Covid-19 in China and called for independent and fully transparent evaluations with access to all relevant data in the future.

> "We join in expressing shared concerns regarding the recent WHO-convened study in China, while at the same time reinforcing the importance of working together toward the development and use of a swift, effective, transparent, science-based, and independent process for international evaluations of such outbreaks of unknown origin in the future," Tuesday's joint statement said.

"The mission of the WHO is critical to advancing global health and health security, and we fully support its experts and staff and recognize their tireless work to bring an end to the COVID-19 pandemic, including understanding how the pandemic started and spread. With such an important mandate, it is equally essential that we voice our shared concerns that the international expert study on the source of the SARS-CoV-2 virus was significantly delayed and lacked access to complete, original data and samples," the statement continued.

"We note the findings and recommendations, including the need for further studies of animals to find the means of introduction into humans, and urge momentum for expert-driven phase 2 studies," the statement said.

"Going forward, there must now be a renewed commitment by WHO and all Member States to access, transparency, and timeliness."

The statement noted that in a "serious outbreak of an unknown pathogen with pandemic potential, a rapid, independent, expert-led, and unimpeded evaluation of the origins is critical to better prepare."

The statement from the governments underscored "the need for a robust, comprehensive, and expert-led mechanism for expeditiously investigating outbreaks of unknown origin that is conducted with full and open collaboration among all stakeholders and in accordance with the principles of transparency, respect for privacy, and scientific and research integrity."

[2021-03-30 10:47:36]

[Robert Garry]

<https://www.cnn.com/world/live-news/coronavirus-pandemic-vaccine-updates-03-30-21/index.html>

[2021-03-30 10:58:21]

[Kristian Andersen]

Different takes on the same statement....

<https://www.state.gov/joint-statement-on-the-who-convened-covid-19-origins-study/#.YGNjEZA3zr0.twitter> [shared file(s): Screen Shot 2021-03-30 at 10.56.58 AM.png, Screen Shot 2021-03-30 at 10.57.07 AM.png]

[2021-03-30 10:58:39]

[Robert Garry]

Parasite letter - seems to me that most of things requested are actually in the report. [shared file(s): COVID OPEN LETTER FINAL 030421 (1) (1).pdf]

[2021-03-30 12:35:56]

[Robert Garry]

I'm wondering how the WHO team is feeling given the statement from Tedros?

[2021-03-30 12:47:56]

[Robert Garry]

[thread - ID: 2020-11-27 10:35:57]

@Andrew Rambaut This old thread seems more interesting today.

[2021-03-30 12:53:59]

[Kristian Andersen]

Miffed.

[2021-03-30 12:58:31]

[Kristian Andersen]

[thread - ID: 2020-11-27 10:35:57]

@Andrew Rambaut Hah, yeah - and Joel's paper adds some nice enough data to this.

<https://science.sciencemag.org/content/early/2021/03/17/science.abf8003>

[2021-03-30 13:03:01]

[Eddie Holmes]

100% politics now

[2021-03-30 13:15:33]

[Robert Garry]

Sad - science and politics are a toxic mix.

[2021-03-30 13:23:22]

[Kristian Andersen]

Following my little map yesterday and good 'ole triangulation, check out the excess mortality maps. [shared file(s): Screen Shot 2021-03-30 at 1.21.37 PM.png]

[2021-03-30 13:23:37]

[Kristian Andersen]

Let me zoom in for you [shared file(s): Screen Shot 2021-03-30 at 1.22.03 PM.png]

[2021-03-30 13:26:23]

[Kristian Andersen]

See how this starts North (right where Huanan market is) of the Yangtze river and then moves South (where WIV) is. This is exactly the same pattern we see from the confirmed case data. Just imagine the kind of effort it would take to fake this data as part of a cover up? Just not believable.

I'd say this a win for John Snow - triangulation has worked for a couple of hundred years, turns out it still works.

[2021-03-30 13:26:54]

[Robert Garry]

Same thing happened in the African-American communities in New Orleans - we should write a paper.

[2021-03-30 13:28:09]

[Kristian Andersen]

We should. I don't understand why this is not part of the report? (or is it - I'm still not all the way through....).

[2021-03-30 13:54:39]

[Eddie Holmes]

I think I need to avoid all media for 48 hours

[2021-03-30 13:56:04]

[Robert Garry]

I was thinking the same thing. However, I am curious as to what Fauci, Collins etc are going to say.

[2021-03-30 13:57:13]

[Kristian Andersen]

I'm specifically avoiding the media and just focusing on reading the report in depth... There's a lot of really good stuff in there - maybe I missed all of this in the published literature, but I'm learning A LOT about the early outbreak.

[2021-03-30 13:58:15]

[Robert Garry]

https://eeas.europa.eu/delegations/un-geneva/95960/eu-statement-who-led-covid-19-origins-study_en

[2021-03-30 13:58:30]

[Robert Garry]

EU somewhat better

[2021-03-30 16:20:26]

[Eddie Holmes]

Yes, better. I wonder whether the WHO think the effort was worth it? I'm not sure much more of this I can take. It's not about science any more.

[2021-03-30 16:31:56]

[Robert Garry]

Eddie you did great with the Amy M - Nature report. If this was the only article re the release of the report, I'd [nearly] declare victory. My guess is that Tedros - who can be all over the place - walks back his implicit criticism of the investigation. Truth will be told. Lab leak krewe including Lipstich and Bloom (sounds like a boutique) esp the latter need to actually take a look at the science.

[2021-03-30 16:43:28]

[Kristian Andersen]

The triangulation nails it for me - deaths and cases being two independent data points. While it doesn't _prove_ anything, it shows that the market (or something around there) was the nucleation point of the pandemic. Sure, it could have gotten from the lab to the market, buuuuuut.....

[2021-03-30 16:49:17]

[Eddie Holmes]

Yes, that's very instructive. Great work. I'm too tired to think about it right now.

[2021-03-30 16:57:29]

[Eddie Holmes]

Jesse obviously did not read Annex D

[2021-03-30 17:01:03]

[Kristian Andersen]

I don't think he read any of it.

[2021-03-30 17:44:33]

[Kristian Andersen]

Disgraceful. <https://www.wsj.com/articles/the-wuhan-whitewash-11617142921>

[2021-03-30 17:44:52]

[Kristian Andersen]

shared file(s): Screen Shot 2021-03-30 at 5.43.20 PM.png

[2021-03-30 17:47:13]

[Eddie Holmes]

Absolutely disgusting

[2021-03-30 17:49:33]

[Kristian Andersen]

It's as if they didn't read the report. Go figure.

[2021-03-30 20:48:44]

[Kristian Andersen]

She's good - and reading the whole thread should put a smile on your face.

https://twitter.com/angie_rasmussen/status/1376920532994551809?s=20

[2021-03-30 21:22:36]

[Eddie Holmes]

She nailed it. I've emailed Jeremy expressing my disappointment about Tedros's statements. I'll let you know what he says. If anything.

[2021-03-30 21:24:58]

[Eddie Holmes]

<https://twitter.com/mariabartiromo/status/1377049848151687172?s=12>

[2021-03-30 21:26:14]

[Eddie Holmes]

Nasty stuff

[2021-03-30 21:26:29]

[Kristian Andersen]

"Thank you Tucker Carlson" - there's something I will never say.

[2021-03-31 05:41:46]

[Robert Garry]

Here's the WSJ editorial - let's hope the WSJ science reporting is [continues to be] better. [shared file(s): The Wuhan Whitewash - WSJ.pdf]

[2021-03-31 06:10:54]

[Robert Garry]

Pompeo [shared file(s): image.png]

[2021-03-31 06:38:23]

[Robert Garry]

Of course the early obfuscation by China on H2H transmission has nothing at all to do with origins. Nevertheless, Redfield brought this up on 60min, so I think the everTrumpers are coordinating a political strategy. Yes indeed - WHO did a piss-poor job not challenging the H2H misinformation, which I blame on bad science advisors. Likewise, the whole "it's not a airborne virus" crap from WHO is another abject failure. This is a place where Angie and I diverge (she's more forgiving of WHO for not stating clearly that the virus is - well - a respiratory virus). I blame again WHO's "science" team that appears to have been populated by idiots. Unfortunately that "team" included Lina Moses who was in Geneva with GOARN advising. LM: a big fomite advocate as in in fomites are the main transmission route (see also Covidfaker). CDC under Redfield had numerous royal fuck-ups too, but much better to point the finger at the CCP and "running dogs."

[2021-03-31 11:57:27]

[Robert Garry]

<https://www.cnn.com/2021/03/31/health/lab-leak-coronavirus-theory-comic-book-scn/index.html>

[2021-03-31 12:04:29]

[Robert Garry]

I'm thinking this is my favorite article I've ever been quoted in of all time.

[2021-03-31 12:14:16]

[Kristian Andersen]

Haha, it's a good article - love the quotes Bob :wink:

[2021-03-31 12:17:15]

[Robert Garry]

She did a good job - was just chatting with Angie this morning too about the info in the report of more than one market being involved in the early cases - didn't know then we were going to be quoted together.

[2021-03-31 12:18:26]

[Kristian Andersen]

She's so good - I would never want to get into an argument with her. I'd be dead/

[2021-03-31 12:27:04]

[Robert Garry]

either that or you'd be wishing that you were.

[2021-03-31 12:32:26]

[Eddie Holmes]

Pompeo's tweet is extraordinary

[2021-03-31 12:50:06]

[Robert Garry]

Here's a report that is very pertinent to the Pompeo tweet. <https://www.pbs.org/newshour/show/who-report-says-covid-originated-in-bats-but-critics-claim-the-study-was-biased> Daszak does a very good job here IMO. Mile's Yu also in the report was Pompeo's main point man on China - deep seated familial hatred of CCP/China. I suspect that Alina's family has similar stores to tell.

[2021-03-31 12:57:40]

[Kristian Andersen]

Relman really is an idiot - I actually thought he was a good, solid scientist. Apparently not - doesn't understand "data" and "false equivalences". I guess he isn't alone. [shared file(s): Screen Shot 2021-03-31 at 12.56.43.png]

[2021-03-31 12:59:05]

[Robert Garry]

Agreed - Another one who didn't read/understand the report.

[2021-03-31 13:00:25]

[Eddie Holmes]

The evidence is pretty well laid out in Annex D

[2021-03-31 13:01:01]

[Robert Garry]

If you go to the end PBS actually does some real reporting - they quote 3 current White House staff to the effect that the Pompeo DoS "fact sheet" was cherry-picked out of a cacophony of noise.

[2021-03-31 13:02:03]

[Eddie Holmes]

One think we predict though was that having Daszak on has back-fired badly. What were they thinking?

[2021-03-31 13:18:18]

[Eddie Holmes]

All we can do is ignore all this noise and just try to focus on the science.

[2021-03-31 13:19:30]

[Kristian Andersen]

The noise is like a roaring highway though - and driven by some very high profile scientists. It's sad, really.

[2021-03-31 13:21:02]

[Eddie Holmes]

True, but there's no way that China will let another team in so ultimately it's all pointless

[2021-03-31 13:35:50]

[Robert Garry]

Is there a plan to "publish" a summary report? Is the WHO team going to do a joint publication? Seems like perhaps PO2 might now be in order.

[2021-03-31 14:18:04]

[Eddie Holmes]

Can't believe WHO will publish. There's also Daszak's Lancet Commission. PO2 is an idea...to focus tightly on the science. Can we plan this after Easter? I'll see where we are with the pangolins.

[2021-03-31 14:22:53]

[Robert Garry]

IIRC The Lancet thing is targeted for end of the year . Yes - after Easter GOOD! Lots of science has come since PO1.

[2021-03-31 14:26:19]

[Robert Garry]

BTW !channel one of these posters is coming to each of you [even Ian] - just need to find some appropriately large packaging. [shared file(s): IMG_1694.JPG]

[2021-03-31 14:38:31]

[Eddie Holmes]

Thanks @Robert Garry that's amazing!!

[2021-03-31 15:25:05]

[Kristian Andersen]

Haha, love the poster :zany_face:

[2021-03-31 15:58:22]

[Eddie Holmes]

Thank god for the South China Morning Post:

<https://www.scmp.com/comment/opinion/article/3127858/let-science-decide-origins-covid-19>

[2021-03-31 16:18:56]

[Kristian Andersen]

Good for them - WSJ should read this... "The theory needs to be laid to rest lest it distracts from scientific tracking of the virus" :clap:

[2021-03-31 16:21:15]

[Kristian Andersen]

It's :point_down: all over again, which I said in reply to Amy.

I think a lot of people don't (or don't want to) really understand how the WHO works or its mandate. There is so much focus on "WE MUST GO IN TO FULLY INVESTIGATE WIV!", while the more important study is a collaborative endeavor, focusing on the more likely scenarios.

I don't think the likes of Jesse understand this. Any of it.

[2021-03-31 16:26:21]

[Eddie Holmes]

Yes, totally agree. Clearly, a lot of the people who are currently mouthing off are failing to understand these basic points.

[2021-03-31 16:37:05]

[Kristian Andersen]

Yeah, especially the kind of attitude from Rasmus. Not a peep for weeks and then this is all you post about the report? Fuck off. It's fine that you disagree on the conclusions and we can argue the science / data, but an attitude like this is just terrible behavior. [shared file(s): Screen Shot 2021-03-30 at 10.56.58 AM.png]

[2021-03-31 16:55:46]

[Eddie Holmes]

He's totally out of his depth on this.

[2021-03-31 18:20:02]

[Eddie Holmes]

The WIV claim that (i) all their staff were PCR/antibody negative to SARS-CoV-2 and (ii) that they don't have a virus more closely related to SARS-CoV-2 than RaTG13. If those two facts are true then the WIV cannot be the source of SARS-CoV-2. If these facts are not true then the scientists at WIV are lying. It's as simple as that. And it's not just the Chinese govt that are misleading as Pompeo rants, but scientists at WIV who publish in top journals.

[2021-03-31 18:49:00]

[Robert Garry]

It's as simple as that. Could not agree more! Before the freaking pandemic they would have had zero motive to lie. On the contrary they would have had every incentive to publish ASAP on a new novel betacov related to SARS-CoV-1.

[2021-03-31 18:50:36]

[Eddie Holmes]

Exactly!!

[2021-03-31 19:00:15]

[Kristian Andersen]

Yup. And it's not just scientists at the WIV that would have to be lying - it's a whoooooole lot of other people too. Also key - "that they don't have a virus more closely related to SARS-CoV-2 than RaTG13" - it's not even that - they don't even have _that_ virus, only the sequence.

When we started looking into this there was no intel and hence it was more than appropriate to consider a lab leak a

possibility. However, after one year, there's still no intel - and we're finding related viruses all over the place. Had it really been a lab leak, I seriously doubt they would have been able to cover this up - if they did, great job, you graduated spook school.

[2021-03-31 19:04:11]

[Eddie Holmes]

Totally. If the State Dept/Security services have evidence of nefarious activities at the WIV then they should publish it. Please show the the results of all your security investigations. It's all very well bashing the WHO without releasing their own data. Put up or shut up.

[2021-03-31 20:52:58]

[Eddie Holmes]

This sor of thing doesn't help: <https://www.bbc.com/news/world-asia-china-56586655>

[2021-03-31 20:56:48]

[Kristian Andersen]

FFS. No, it really doesn't.

[2021-03-31 21:07:30]

[Eddie Holmes]

<https://apple.news/AXBY3IJHiQQGBLiL9id6EVg>

[2021-03-31 21:07:53]

[Eddie Holmes]

But this cheered me up

[2021-03-31 21:12:24]

[Kristian Andersen]

Haha, 'effing Aussies - even split between locker room humor, deadpan, sexism, and , at times, outright racism.

[2021-03-31 21:13:27]

[Eddie Holmes]

I know. Bless.

[2021-04-01 05:03:11]

[Robert Garry]

Just in time for April Fools Day - The Third Yan Report. Here's the interesting bit: "Contrary to the reviewer's comment, we have clearly specified conflict of interests of individuals involved in publishing the unfounded opinion piece, "The Proximal Origin of SARS-CoV-2"¹⁵. Specifically, among these authors, Dr. Ian Lipkin has been working with the CCP government since 2003. He has been honored by the CCP government with several prestigious awards^{17,18}, including one given to him in January 2020¹⁷, not too long before the publication of his misleading Nature Medicine opinion piece. *Dr. Edward Holmes*, another co-author of this article, has also been working closely with the CCP laboratories, including publishing two articles reporting fabricated pangolin coronaviruses and the RmYN02 bat coronavirus, respectively^{9,13}. It is noteworthy that two publications of fabricated pangolin coronaviruses (only one of them involves Holmes) were done in collaboration with scientists from the Academy of Military Medical Sciences (AMMS)^{9,11,19,20}. Dr. Holmes also holds two visiting/guest professor positions in China, one at Fudan University and the other at the Chinese Center for Disease Control and Prevention²¹. These conflicts of interests are factual and substantial. In addition, this influential Nature Medicine publication relied heavily on the fabricated viruses to form its argument for a natural origin of SARS-CoV-2¹⁵. It is both appropriate and necessary to exclude it in any valid analysis of the origin of SARS-CoV-2." [shared file(s): Combined_responses_1 (1).pdf]

[2021-04-01 05:06:41]

[Andrew Rambaut]

Shame they didn't focus on the butt lesions

[2021-04-01 05:10:42]

[Robert Garry]

BTW @Kristian Andersen is killing it re the nonYan report on that social media platform. Keep it up! The ref to Alina's paper was gold!

[2021-04-01 05:22:31]

[Robert Garry]

And to Kristian's tweets, "The Rooting Problem" is something we talked about before - even going back to one of Eddie's first Aussie seminar's. The fact that A and/or B show up in different markets is important.

[2021-04-01 05:58:05]

[Robert Garry]

<https://www.nature.com/articles/d41586-021-00877-4>

[2021-04-01 05:59:00]

[Robert Garry]

More good work @Eddie Holmes

[2021-04-01 11:26:31]

[Kristian Andersen]

Thank you!

<https://www.cnn.com/2021/04/01/opinions/who-covid-19-origins-report-opinion-kavanagh/index.html>

[2021-04-01 11:44:27]

[Kristian Andersen]

Agreed on the Nature article - a lot of good quotes from Eddie and it's clear our man is the only one who really gets it. "The priority should be to "follow the animals", starting at the Huanan market" - :100:, can't stress this enough.

David is typically good, but I have seen a lot of quotes like this "The details in the report were helpful, but didn't include much new information, says David Robertson" and it really bothers me - there's a ton of new stuff in the report and that just isn't highlighted enough. Sure, it doesn't answer the *big* question about origins, but it never could - but that doesn't mean it didn't add a lot of new knowledge and data. It clearly did - if you take the ten hours required to read it in detail....

[2021-04-01 13:10:20]

[Eddie Holmes]

I agree - there's a ton in there. I've not finished going through it yet. The Yan report is hilarious. Deranged. Also good to see that Petrofsky is the go to idiot.

[2021-04-01 13:31:32]

[Kristian Andersen]

I'm amazed Petrofsky is still being quoted - he's so dumb

[2021-04-01 13:40:44]

[Eddie Holmes]

Dumb and conflicted because just wants to hype his vaccine that no one cares about. Isn't it funny that conflicts of interest only go one way?

[2021-04-01 16:16:40]

[Eddie Holmes]

Just noticed this: <https://www.frontiersin.org/articles/10.3389/fmicb.2021.657439/full>

[2021-04-01 16:18:10]

[Andrew Rambaut]

N gene fragments?

[2021-04-01 16:20:50]

[Eddie Holmes]

I guess that's why it's in Frontiers in Microbiology

[2021-04-01 16:28:26]

[Eddie Holmes]

Useful information though.

[2021-04-01 16:31:05]

[Eddie Holmes]

Alina will need to update her wall of crazy.

[2021-04-01 17:28:37]

[Eddie Holmes]

The latest Yan report actually accuses Leon Poon of threatening to murder her

[2021-04-01 18:09:53]

[Robert Garry]

Where is Leslie Stahl when you need her? Gasp!

[2021-04-01 18:10:24]

[Robert Garry]

Now I'm going to have to read it!

[2021-04-01 18:22:21]

[Eddie Holmes]

No point ruining your Easter for this garbage. She just fires off on everyone. Insanity.

[2021-04-01 20:37:09]

[Eddie Holmes]

Fantastic work Kristian

[2021-04-01 20:37:39]

[Kristian Andersen]

... not done yet. My local shop just called me to say they're out of tinfoil and if I could please stop.

[2021-04-01 20:38:47]

[Eddie Holmes]

I'm hoping you get a special section in Yan #4.

[2021-04-01 20:40:06]

[Kristian Andersen]

Oh, I'll be disappointed if I'm the sole focus on Yan #4. Need my 15 mins of fame together with all the cool guys.

[2021-04-01 20:59:33]

[Eddie Holmes]

Thread getting some deserved positive vibes

[2021-04-01 23:42:52]

[Kristian Andersen]

I'm just going to archive this here - because, who knows, one might use it in a later argument with these idiots. I still can't believe Jesse follows this guy on Twitter - says a lot, really. [shared file(s): Screen Shot 2021-04-01 at 11.32.25 PM.png]

[2021-04-02 00:06:00]

[Eddie Holmes]

Love it. I like the way he agrees that no serious person thinks it was created in a lab. That removes a large chunk of the conspiracy theorists.

[2021-04-02 05:51:13]

[Robert Garry]

Indeed - thanks to Noodle for allowing you to do this. Love how MKoopmans just retweeted the whole thing- that's affirmation! Also engaging the tinfoil hat crowd well done as well. They just don't move the goal posts. They put in multiple new sets of goalposts and incessantly move those around as well.

[2021-04-02 06:16:31]

[Robert Garry]

@Eddie Holmes "follow the animals" (need that on a t-shirt) is going to be the new "it's the virus, stupid" (from the early days of AIDS). This referred to theories like those of Peter Duesberg et al. that HIV was harmless and "lifestyle" or some other factor caused the immunosuppression. "Follow the animals, stupid" also works for me.

[2021-04-02 09:16:51]

[Robert Garry]

@Kristian Andersen in addition to the amazing tweetorial you've apparently attracted the ire of Alina. She *really* needs to be outed for her bullshit about how GD pangocov, RmYN02 etc are fake. Chan not different than Yan - I'd argue worse since at least Yan attempts to put some science on the Table. When not dead wrong, Alina's arguments are science-fact free.

[2021-04-02 09:22:03]

[Kristian Andersen]

[thread - ID: 2021-04-02 09:22:03]

She's an idiot - I'm not going to engage in her bs as that will give it even further exposure. It's so, so, so dumb.

[2021-04-02 11:47:16]

[Robert Garry]

Pretty sure GVP is not going to kill everyone, but spending the GVP money on infrastructure and human surveillance better use of resources. [shared file(s): image.png]

[2021-04-02 11:59:13]

[Robert Garry]

[thread - ID: 2021-04-02 09:22:03]

@Kristian Andersen NO need to engage you're living rent-free in her head, obviously.

[2021-04-02 13:42:01]

[Eddie Holmes]

There's definitely a CoV in some of the new pangolin samples Tommy has. Not sure if you can read this: file:///User s/echolmes/Library/Containers/com.apple.mail/Data/Library/Mail%20Downloads/C0D37833-AA05-48C7-A39A-8FC BAA223333/blast.krona.html

[2021-04-02 13:44:48]

[Eddie Holmes]

Some interesting flavis as well, including hits to Langat virus which is tick-borne and from Malaysia which is where we think these animals may have come from (and these animals were collected some years before the pandemic). Pangolins are clearly very receptive to CoVs. Follow the animals.

[2021-04-03 06:39:56]

[Robert Garry]

If you're gonna go - might as well go big. "We must therefore understand that the individual personalities with whom we have problems (see Daszak or Andersen) are most likely *only small pieces* of a global project for the protection of people's trust in institutions, *the price? The biggest lie ever told*." <https://www.laboratoryleak.com/virus-politics/the-bigger-cover-up-in-history/>

[2021-04-03 06:42:15]

[Robert Garry]

"global project for the protection of people's trust in institutions" This "project" certainly does not pay very well.

[2021-04-03 06:55:49]

[Robert Garry]

Getting into the not so funny territory: [shared file(s): image.png]

[2021-04-03 08:34:08]

[Robert Garry]

Had to go back and check but my CNN interview with Maggie Fox preceded this interview:

<https://www.hudson.org/research/16790-covid-likely-came-from-wuhan-lab> Yes - Asher really did say without a touch of irony at the end: The "Chinese are creating superhuman warriors..." A real world twist on Marvel's Captain America, if I had to guess.

Asher is the guy who advised Pompeo on "origins."

Asher is also the ultimate source for the two lab leak "experts" Metzl [sci-fi genetics author, so a real expert] and Pottinger [member of Trump's NSC- interesting: https://en.wikipedia.org/wiki/Matthew_Pottinger] featured uncritically here: <https://www.cbsnews.com/news/covid-19-wuhan-origins-60-minutes-2021-03-28/>

I suppose it would be amusing if not for all the misinformation that still seems to be driving US policy at the moment.

[2021-04-03 09:12:50]

[Kristian Andersen]

Also [shared file(s): Screen Shot 2021-04-03 at 9.06.21 AM.png]

[2021-04-03 09:17:20]

[Kristian Andersen]

Just went in and reported these tweets - unbelievable that 60 Minutes gave this guy a platform. Bob, maybe worth sharing this with your 60 Minutes contact since this was _exactly_ what you warned about?

[2021-04-03 09:30:39]

[Robert Garry]

Agree - will do.

[2021-04-03 14:28:32]

[Eddie Holmes]

'Derision and obfuscation'? I didn't see a word of that in Kristian's thread.

[2021-04-03 14:42:54]

[Kristian Andersen]

Unbelievable - and to even suggest I'm doing this because it would "impact virology", Jesus fucking Christ.

In fact, it'd be great if this was a lab accident - that way our ready-to-go grants on bioterrorism would be a shoo-in with the NIH. These people...

[2021-04-03 14:47:25]

[Robert Garry]

Data analysis and science-based discussion - if you are a conspiracy theorist, then yes - that's the new derision and obfuscation.

[2021-04-03 14:49:43]

[Robert Garry]

Maybe there should be a rule that you actually have had to work in a lab - any lab - to be an expert of "lab leak." Being a bad Sci-Fi writer doesn't cut it for me.

[2021-04-03 14:50:09]

[Robert Garry]

Genesis Code: A Thriller of the Near Future Kindle Edition

by Jamie Metzl Blue Magic, the latest designer drug linked to a rash of overdoses, might explain the needle mark on the arm of a young woman found dead in her Kansas City apartment. But when Star reporter Rich Azadian digs deeper, the clues point to a far more explosive story: MaryLee Stock was a special protégée of evangelical megapastor and power broker Cobalt Becker, who is poised to deliver his followers and the presidency to a firebrand right-wing senator in the next election. When Azadian sets out to prove that MaryLee's death was no accident and she may have been carrying Becker's genetically enhanced baby, the stakes become life itself.

[2021-04-03 14:50:58]

[Robert Garry]

Eternal Sonata: A Thriller of the Near Future Paperback – October 23, 2018 In 2025 America, it's hardly news when a renowned octogenarian scientist dying of cancer disappears from a local hospice, but when Kansas City Star reporter Rich Azadian begins to dig, he discovers that other elderly scientists around the world have also vanished recently—all terminally ill and receiving the same experimental treatment from a global health company. His investigation leads him to the reclusive Noam Heller, a brilliant researcher exploring new technologies to reverse-age cancer and other cells. Using revolutionary stem cell treatments and snippets of DNA from rare, immortal Arctic jellyfish, his breakthrough promises the genetic equivalent of the fountain of youth.

[2021-04-03 14:51:03]

[Kristian Andersen]

It's interesting how all the biggest idiots are authors... I see a pattern.

[2021-04-03 14:54:35]

[Robert Garry]

Indeed - pattern recognition - it's why you are a successful scientist. It's also the only thing that an IQ test actually measures.

[2021-04-03 14:56:42]

[Robert Garry]

I'm wondering if the genetically enhanced baby in Metzl's novel is anything like the Captain ~America~ China that the CCP army is building.

[2021-04-03 15:30:29]

[Robert Garry]

And - what do you think? Could Yuri-freeze your pet's head-Deigin be the inspiration for "Noam Heller, a brilliant researcher exploring new technologies to reverse-age cancer and other cells." This seems like to be too much a similarity to just be a "coincidence."

[2021-04-03 15:32:16]

[Eddie Holmes]

That's hilarious

[2021-04-03 15:39:28]

[Eddie Holmes]

The difference between us and Metzl is that we would all agree it is a lab escape if there were convincing scientific evidence for it

[2021-04-03 15:40:26]

[Kristian Andersen]

Correct. And we continue to look very hard for it - it's just, well, there's nothing....

[2021-04-03 15:40:43]

[Robert Garry]

The problem of course is that there are :clown_face: like Asher (that Fox News interview with the Super-Soldiers above is really something to watch) that think yeah super villain virologist, Communist china, scary BSL-4 labs,

world domination - all adds up.

[2021-04-03 15:42:31]

[Robert Garry]

Or as Alina (note her fascination with magic and Harry Potter) would say - just connect the dots!

[2021-04-03 15:43:55]

[Robert Garry]

I'm convinced that Metzl and the other authors are just setting up their next block-buster novel - notoriety sell books.

[2021-04-03 15:44:41]

[Eddie Holmes]

Must be a book, with a movie option

[2021-04-03 15:55:33]

[Robert Garry]

Baker, Rowanson, and Ridley all fit that author mold. Then there are the ones on the take. That's Li-Meng Yan of Miles Gao/Steve Bannon fame and Matt Pottinger, who it does not take to much effort to link to Peter Thiel [not to mention Jeffery Epstein] and other Trumpist White Supremacists/I never want to die Billionaires.

[2021-04-03 15:57:07]

[Robert Garry]

Add Josh Rogan to the "sell a book" to the Trumpers crowd.

[2021-04-03 16:37:54]

[Robert Garry]

Add Yuri to that Peter Thiel on the take link.

[2021-04-04 22:52:44]

[Eddie Holmes]

I was just speaking to a journo who said that he was sent the Segreto & Deigin paper as evidence for lab escape by a member of the US State Department team working on the origin of the virus under Pompeo. He's no expert, but even he was able to remark "If that's the best they've got, it seems their theory is in trouble."

[2021-04-05 04:41:07]

[Robert Garry]

:100:

[2021-04-05 04:44:29]

[Robert Garry]

I read it thru as well - literally all Team Yuri have is speculation that the FCS arose via point mutagensis rather than insertion via passage in cell culture. That's it. Of course, then you'd need SC2 minus the FCS to --you know-- passage.

[2021-04-05 04:49:14]

[Robert Garry]

DoS member is either Asher [they're genetically engineering Super-Soldiers] or Pottinger [a few ppl maybe had ILI at WIV in 2019]. The journo has a big story - hope she/he realizes it.

[2021-04-05 05:03:01]

[Robert Garry]

Meanwhile Alina throwing yet again another pity party citing a "growing harassment on and off twitter." Maybe don't speculate on twitter and to journos that will listen that there is a worldwide cabal of scientists filling databases with fake betacov sequences, harass journal editors, write crap preprints in an area you are clueless in (it's perfected adapted to humans) and accuse world class scientists of lying, cover-up, conspiracy and - yes- genocide. How Broad allows this unethical behavior I'll never know. [shared file(s): image.png]

[2021-04-05 06:58:15]

[Kristian Andersen]

"Jeopardized my prospects in science". I bloody hope so!

[2021-04-05 07:17:55]

[Robert Garry]

Honestly. I'd advise her to find another career. If your first inclination when you find someone disagrees with you is to contact the journal and claim fraud, science is probably not the gig for you. Second, if you think you can wade into an area with no background, write a BS paper (that is wrong on many counts) and then believe that your "opinion" is *equa*I to ppl who have dedicated decades of study of similar problems, then you are too ~fucked up in the head~ stupid to be in science.

[2021-04-05 07:29:54]

[Robert Garry]

<https://www.nytimes.com/2021/04/03/health/coronavirus-variants-vaccines.html?referringSource=articleShare>

[2021-04-05 07:36:27]

[Robert Garry]

This is a very good article. "While most vaccines are effective against B.1.1.7, researchers are increasingly concerned about other variants that contain a mutation called E484K. (Scientists often refer to it, appropriately, as "Eek.")" Eek going mainstream! I guess some will complain about "inclusion." Gonna need some variants for: yikes, dang [better than DouG] and damn.

[2021-04-05 11:00:29]

[Kristian Andersen]

This is very good.

<https://www.medpagetoday.com/infectiousdisease/covid19/91932?trw=no>

[2021-04-05 11:34:11]

[Robert Garry]

Agreed - not as deep a burn as "worst CDC Director in hstory" or even it's like from a comic book, but good to see the well considered pushback.

[2021-04-05 11:39:05]

[Kristian Andersen]

We need both - very well argued from Stephen's side and it's probably better he doesn't go in for the knockout of a former CDC director... I'll keep throwing punches and reserve the right to call Redfield an imbecile and, yes, the most catastrophic CDC director of all times.

[2021-04-05 12:42:28]

[Kristian Andersen]

PREDICT ranked viruses likely to spill over...

Take a look at their list - let me know if you spot any, hmmmm, (very well) known sequencing artifacts / contaminants.

<https://spillover.global/ranking-comparison/>

[2021-04-05 13:18:10]

[Eddie Holmes]

Alina - what hypocrisy. That's what you get from spreading lies. Don't get me started on SpillOver - I reviewed this paper and have a counter article in the wings. It's nonsense. Can you tell me which ones you think are dodgy.

[2021-04-05 13:54:42]

[Eddie Holmes]

Many of the virus are from PREDICT. But if I look for these viruses online I see no record of them. For example, they mention Coronavirus PREDICT CoV-117 and Coronavirus PREDICT CoV-73 but I can't find any sequence or publication.

[2021-04-05 13:55:30]

[Kristian Andersen]

Yup. And in terms of contaminants - many of these show up frequently, especially things like the Human mastadenoviruses

[2021-04-05 14:01:23]

[Andrew Rambaut]

How is measles on this list?

[2021-04-05 14:06:45]

[Eddie Holmes]

Yes, it's just garbage.

[2021-04-05 14:19:00]

[Robert Garry]

No Bas-Congo Virus? Maybe I'm missing it. The only "human pathogen" discovered by PREDICT doesn't even make the list. How can that be?

[2021-04-05 14:55:11]

[Eddie Holmes]

<https://journals.sagepub.com/doi/10.1177/0300891620987756>

[2021-04-05 14:56:52]

[Eddie Holmes]

Apparently there is now concern about an early Italian serology study - oh what a surprise

[2021-04-05 14:58:52]

[Andrew Rambaut]

Hey Eddie - I have asked to pull my name off that daft WHO variant nomenclature paper. I am not going to be calling B.1.351 'Focanuba' any time soon... [shared file(s): image.png]

[2021-04-05 15:01:01]

[Eddie Holmes]

Shit. I didn't even read it. The last draft I saw never had this stuff in. Is this a joke?

[2021-04-05 15:06:44]

[Eddie Holmes]

Who devised this? Did Oli agree?

[2021-04-05 15:11:12]

[Andrew Rambaut]

This is Jens Kuhn's handywork I think.

[2021-04-05 15:12:51]

[Kristian Andersen]

[thread - ID: 2021-04-05 15:12:51]

Eddie, man, go focanuba yourself. But, please, don't go foc a nuba.

[2021-04-05 15:14:30]

[Robert Garry]

You right - it be some sorta Creole language. Alcanopa - I can't open [my mouth]. Focaunba - Fock -a - u brain [out]. Pomanycus - the po' man y cus all da time!

[2021-04-05 15:15:51]

[Robert Garry]

[thread - ID: 2021-04-05 15:12:51]

@Kristian Andersen Does this ave anything to do with toasters? Just asking for a friend.

[2021-04-05 15:16:37]

[Kristian Andersen]

[thread - ID: 2021-04-05 15:12:51]

@Kristian Andersen Not sure. But I hear it requires you to go down under.

[2021-04-05 15:18:07]

[Robert Garry]

[thread - ID: 2021-04-05 15:12:51]

@Kristian Andersen Northern Territory I presume.

[2021-04-05 15:18:39]

[Robert Garry]

I'

[2021-04-05 15:18:51]

[Robert Garry]

m guessing this doesn't turn out well...

[2021-04-05 15:20:11]

[Andrew Rambaut]

I can't believe the amount of energy spent on this. Mainly Tulio's fault.

[2021-04-05 15:20:11]

[Kristian Andersen]

Seems to be going quite well already. Al-ca-NOPA! :boom::partying_face:

[2021-04-05 15:20:50]

[Andrew Rambaut]

Nick thinks it should be Lomanycus

[2021-04-05 15:21:08]

[Kristian Andersen]

I approve

[2021-04-05 15:21:45]

[Kristian Andersen]

B.1.351 could be Rambo.

[2021-04-05 15:21:50]

[Andrew Rambaut]

I can't wait for this to get on twitter

[2021-04-05 15:22:24]

[Kristian Andersen]

Please give us at least a 30 min warning so we can line them up.

[2021-04-05 15:22:49]

[Eddie Holmes]

Andrew - I see your name is on the paper. Did you just email Frank asking to withdraw? I

[2021-04-05 15:22:55]

[Andrew Rambaut]

Yup

[2021-04-05 15:23:09]

[Eddie Holmes]

Ok, I had better do the same.

[2021-04-05 15:23:33]

[Andrew Rambaut]

But I have just noticed that it also says that 'Pango' is kind of officially endorsing it

[2021-04-05 15:24:46]

[Eddie Holmes]

It does...do you think the reviewers will just go, 'nah, fucking stupid'.

[2021-04-05 15:25:15]

[Kristian Andersen]

[thread - ID: 2021-04-05 15:25:15]

Pangos do actually like to foc a nubas so that makes sense.

[2021-04-05 15:25:50]

[Eddie Holmes]

Somewhat amusing that we have now created a nomenclature of concern.

[2021-04-05 15:28:17]

[Eddie Holmes]

"Labels will be chosen by WHO using lists produced by an algorithm that takes existing words, extracts useful syllables, and recombines them in a combinatorial fashion. The algorithm creates names that are novel (such as Alcanopa, Focanuba or Pomanyucus) but will be easier to remember and more practical to use than alphanumerical designations". Easier to remember and more practical.

[2021-04-05 15:28:28]

[Robert Garry]

[thread - ID: 2021-04-05 15:25:15]

@Kristian Andersen Is this what David - Captain China - Asher was referring to when he described Pangolins and Bats mating?

[2021-04-05 15:29:02]

[Andrew Rambaut]

[thread - ID: 2021-04-05 15:25:15]

@Kristian Andersen Pangos foccing a nuba was how this whole thing started

[2021-04-05 15:29:23]

[Robert Garry]

[thread - ID: 2021-04-05 15:25:15]

@Kristian Andersen Foc a nu[de] ba[t]

[2021-04-05 15:30:06]

[Andrew Rambaut]

Actually I should bring this name up with Frank:
https://en.wikipedia.org/wiki/Nuba_peoples

[2021-04-05 15:31:34]

[Eddie Holmes]

I think you should. Ridicule is minutes away.

[2021-04-05 15:41:48]

[Robert Garry]

I'm sure that the millions on twitter will have a field day. Not a good look for WHO.

[2021-04-05 15:48:44]

[Eddie Holmes]

I'm emailing Frank now

[2021-04-05 18:11:34]

[Eddie Holmes]

This one is interesting. I might be allowed back into China for a while: <https://www.smh.com.au/national/australia-paid-a-high-price-for-unsatisfying-report-into-global-tragedy-20210405-p57gke.html>

[2021-04-05 19:18:41]

[Robert Garry]

Brilliant Eddie - Well done!

[2021-04-05 19:41:00]

[Eddie Holmes]

He did a good job. Of course, I meant to say that I might NOT be allowed back into China...

[2021-04-05 20:02:00]

[Eddie Holmes]

Got this from another journo....very interesting:

[2021-04-05 20:02:02]

[Eddie Holmes]

I've been following the wildlife farms part of this from the start [and before that on other stories]. It does not appear there was much of an effort to check captive bred wildlife facilities. 31 farms in Hubei, with about 3,000 animals, were checked. 27,000 sample from "wildlife" across China, but a large part of that appears to be zoo animals if you check the annexes. There's one prefecture with about four counties in it in Western Hubei that had 290 farms and 450,000 animals alone at the start of the outbreak. Why would Chinese authorities not check more farms but prepared to shut down so many of them [on the raising for meat consumption side]? Anyone here you think would be able to address that?

I'm also confused by the WHO report from November which said their were live wild mammals present at the market prior to Dec. 31, 2019 and the latest study team report which takes the market authority and one Huanan manager's word for it that there were no live wild mammals at the market at that time.

The people who owned Huanan market owned a much larger market in Huangpi, offering similar products. I've not been given a satisfactory answer why this market wasn't investigated.

The owner of the Huanan market and this other market himself is quite problematic from a potential wildlife trafficking perspective, but I can't say much about what I know there at the moment. Just curious if you'd heard anything at all about the ultimate owner [his daughter runs the market, but he owns it]. They were there when the WHO team was there at Huanan, but apparently no one talked to them.

Got to get my kids to school. Happy to talk more if you are open to it.

Best,

Michael

Michael Standaert (■■■■)

Journalist & Writer
Shenzhen, China

[2021-04-05 20:06:21]

[Kristian Andersen]

Yeah, this is very interesting. I do think there's a lot missing from the "market" aspect of this whole story - did they or did they not have live mammals? Where exactly were animals sourced from? Were all those farms tested?

[2021-04-05 20:08:06]

[Eddie Holmes]

I wouldn't be at all surprised if they've already found out exactly where this virus comes from.

[2021-04-05 20:11:00]

[Kristian Andersen]

I wouldn't be surprised if they have some very strong clues... But whether they have fully nailed it, I'm not so sure.

I'm pretty convinced the obfuscation has to do with this though - they could care less about a lab leak, but if this is a result of wildlife farming and borderline illegal activities, then that's a problem domestically and internationally.

[2021-04-05 20:11:46]

[Eddie Holmes]

Exactly! I couldn't agree more.

[2021-04-05 20:17:02]

[Eddie Holmes]

Hoping to get some journals to dig into this.

[2021-04-05 20:19:08]

[Kristian Andersen]

Yeah, that's what we need - also, anonymous interviews with people who might have been at the market in November/December.

[2021-04-05 20:20:00]

[Eddie Holmes]

Totally. The whole WIV thing is a distraction from the real story.

[2021-04-06 02:33:08]

[Eddie Holmes]

More confidential stuff from this journo. All very curious:

[2021-04-06 02:34:10]

[Eddie Holmes]

"The other bigger market owned by the family that owns Huanan is interesting. I've been out there three times now. There are security guards at the office doors and all over the market. I was able to get in once and speak with a few vendors who had moved there from Huanan, but they didn't want to say much since I'm American.

Had you ever heard about the Huanan owner at all? He's basically known as a "respected thug" or "big brother" and has a lot of friends in high places in Wuhan. I've been investigating the 60 or so companies his family owns.

The parents of the first known case went to a wet market, but so far I've not seen the name of this place mentioned. There were of course a bunch of other cases around that time that weren't counted because they were never tested,

but likely Covid. Daszak mentioned this place in a couple interviews, but apparently they weren't told the name...*So please keep this to yourself for now.* He is/was a major, major gambler. I've got court documents from a case in Australia where he tried to sue a casino there since he lost so much several years back.

My big question now is whether he has ties to some of these Laos/Myanmar/Cambodia border zones where there's so much gambling and other illicit activity, including heavy wildlife trafficking. Know anyone expert in the activities in those zones?

If it was pangolins infected by bats, there are lots of these little "holding pens" on the pangolin underground railroad in China, often mixed in with other wildlife breeding. Was at one in Guangdong a couple years back where they had some, but apparently had just moved them a week or so before we got there. Everyone around that we spoke with knew they kept pangolins there.

[2021-04-06 03:07:23]

[Robert Garry]

This is *huge*. 10s of millions of animals - legal traffic/illegal traffick. Daszak said a \$70B industry. So many opportunities for CoV transfer*. As stated, "The whole WIV thing is a distraction from the real story."* More of a distraction is the notion that a few grad students/postdocs trapping bats is somehow equal in scope to this massive enterprise. It would also shock me to find that they actually shut down all the "farms." Maybe a few for "show." It would literally be the same \$\$\$ as shutting down all the cattle farms and ranches in the US.

[2021-04-06 03:09:57]

[Robert Garry]

"I'm also confused by the WHO report from November which said there were live wild mammals present at the market prior to Dec. 31, 2019 and the latest study team report which takes the market authority and one Huanan manager's word for it that there were no live wild mammals at the market at that time." not confusing at all - they scrubbed it.

[2021-04-06 03:33:35]

[Andrew Rambaut]

This is what the 'internet detectives' should be investigating!

[2021-04-06 04:08:36]

[Eddie Holmes]

I need to keep this guy on the case.

[2021-04-06 04:08:50]

[Robert Garry]

Same exact reasoning that PETA focuses on scientists instead of the food industry. Much easier to target ppl like Shi and Eddie than some faceless "cowboys."

[2021-04-06 04:09:08]

[Andrew Rambaut]

Also you are less likely to be knocked-off

[2021-04-06 04:09:18]

[Andrew Rambaut]

I mean, 'fall out a window'

[2021-04-06 04:09:23]

[Robert Garry]

yes - put some faces on the wildlife traffickers!

[2021-04-06 04:10:48]

[Robert Garry]

Yeah criminal enterprise - you bet the political types are connected and don't want to "fall out of windows" either.

[2021-04-06 04:15:35]

[Robert Garry]

Miles and Steve likely know a few too. Not a coincidence they push lab leak.

[2021-04-06 11:23:36]

[Robert Garry]

The DRASTIC boys think they found a pony. This smells like total Focanuba or perhaps even a bit of Alcanopa. Not my game, but my guess: Spillover level contamination. IF only they had found Bas-Congo virus. Unexpected novel Merbecovirus discoveries in agricultural sequencing datasets from Wuhan, China Daoyu Zhang 1 , Adrian Jones 2 , Yuri Deigin 3* , Karl Sirotkin4 , Alejandro Sousa5,6 , Kevin McCairn7 [shared file(s): Flavikins - cotton seqs.pdf]

[2021-04-06 13:37:21]

[Eddie Holmes]

Did they check for rodent reads? Tells me that there a lot of CoVs out there! Also, none of these are human pathogens and Fujian is not in Wuhan.

[2021-04-06 14:00:49]

[Eddie Holmes]

Someone will need to do a proper analysis of all these data sets to see what likely hosts are present. Obviously none of this is infectious.

[2021-04-06 14:04:41]

[Robert Garry]

Not ponys, but rats, mice etc. Not surprising to find rodents and other animals in fields. If they would have done the study on a field in Sierra Leone they likely would have found Lassa virus.

[2021-04-06 14:06:18]

[Eddie Holmes]

Exactly

[2021-04-06 15:18:45]

[Robert Garry]

@Kristian Andersen maybe we should send the rodent team to China - they might trap some interesting coronavirus containing rodents in those fields. After they trap West African pangolins for me of course.

[2021-04-06 15:59:10]

[Eddie Holmes]

Ape boy has just started following me on ResearchGate. I never use it, but I wonder if there is a way to block people? Alternatively, posting a fake project might be fun...

[2021-04-06 16:07:26]

[Eddie Holmes]

In other news, has anyone heard of a 48 nt deletion in the 3'UTR of B.1.1.7?

[2021-04-06 16:08:27]

[Andrew Rambaut]

We generally ignore the UTRs because they are often badly done

[2021-04-06 16:09:52]

[Andrew Rambaut]

Where are these B.1.1.7s?

[2021-04-06 16:10:03]

[Eddie Holmes]

New Jersey

[2021-04-06 16:10:24]

[Eddie Holmes]

Cluster of 6 with the same deletion

[2021-04-06 16:14:56]

[Andrew Rambaut]

Do you mean these 6? [shared file(s): image.png]

[2021-04-06 16:15:03]

[Andrew Rambaut]

With the ends missing?

[2021-04-06 16:21:40]

[Eddie Holmes]

I honestly don't know - someone from Princeton just asked me. They said they had 10 B117 and 6 were identical and had a deletion. Perhaps they just failed to get full length.

[2021-04-06 17:33:52]

[Eddie Holmes]

Daszak emailed me about the new DRASTIC paper. He's feeling the heat already.

[2021-04-06 17:47:05]

[Eddie Holmes]

I blocked the piece of shit: [shared file(s): Screen Shot 2021-04-07 at 10.44.09 am.png]

[2021-04-06 18:52:09]

[Kristian Andersen]

[thread - ID: 2021-04-06 18:52:09]

To the DRASTIC paper - just wait until they look through the GTEx dataset from the Broad and identify the hundreds of Bostonians who died of Ebola :scream:

[2021-04-06 18:55:13]

[Kristian Andersen]

Love this bit.

Somebody might want to tell them about the RT-PCR enzymes used for RNASeq....

This is so dumb. I appreciate the enthusiasm, but they might want to talk to experts before doing this crap. [shared file(s): Screen Shot 2021-04-06 at 6.54.07 PM.png]

[2021-04-06 19:07:37]

[Eddie Holmes]

Ha! Focanuba priceless.

[2021-04-06 19:09:17]

[Kristian Andersen]

I might steal this line for a future paper though - "Using a forensic bioinformatics approach [...]". That's pretty good...

[2021-04-06 19:11:25]

[Eddie Holmes]

They should have said Forensic Bioinformatics Investigation (FBI).

[2021-04-06 19:11:51]

[Kristian Andersen]

Fuck yeah!

Sorry, Focanuba!

[2021-04-06 19:12:58]

[Eddie Holmes]

It's Alcanopa. No worries.

[2021-04-06 19:50:50]

[Kristian Andersen]

Argh, pomanycus!

[2021-04-06 22:30:09]

[Eddie Holmes]

Yuri's paper claims to have found a bat CoV with a CMV promoter, a bovine growth hormone polyadenylation signal and a Hepatitis D virus ribozyme. Obvious things to add when you think about it. Definitely no assembly or BLAST issues.

[2021-04-06 22:36:15]

[Kristian Andersen]

He must have pissed his pants when he saw that.

[2021-04-06 22:38:19]

[Eddie Holmes]

Clever trick to add the HDV ribozyme you have to say though. No one would have thought of doing that.

[2021-04-06 23:09:01]

[Andrew Rambaut]

[thread - ID: 2021-04-06 18:52:09]

@Kristian Andersen There is definitely some MERS in the data we got from Vietnam rat butts. Could be related to being run on machines in Sanger a few months after doing MERS from Saudi Arabia.

[2021-04-07 04:34:23]

[Robert Garry]

I'm going with alien technology on that one. So advanced it looks like magic.

[2021-04-07 06:56:33]

[Kristian Andersen]

[thread - ID: 2021-04-06 18:52:09]

@Kristian Andersen No, Andrew, wrong - it's because of the covert military research they're doing in Vietnam. There's no simple explanation for stuff like this!

[2021-04-07 07:16:34]

[Robert Garry]

[thread - ID: 2021-04-06 18:52:09]

@Kristian Andersen Yip! I've seen the intelligence reports myself. We need a full *forensic* investigation. My understanding is that eDim, Relman, Alina, Jamie, Pottinger, Asher and Filipa are already on the case.

[2021-04-07 07:19:27]

[Robert Garry]

[thread - ID: 2021-04-06 18:52:09]

@Kristian Andersen Can't wait to see the Wall-of-Crazy on this one!

[2021-04-07 11:24:39]

[Robert Garry]

Parasite letter #2 - This time the NYTimes - Specific attack on Annex D. No Alina signature. [shared file(s): Paris 2.pdf]

[2021-04-07 11:45:17]

[Kristian Andersen]

OMG, their whole attacked on Annex D - so 'effing dumb. "These scientists didn't do their work _exactly as WE specified_ (retrospectively), hence it came from the lab!".

Not exactly the work of the A team.

[2021-04-07 12:47:25]

[Robert Garry]

What is way beyond dumb is the NYTimes giving them the platform to spew out this nonsense.

[2021-04-07 13:11:04]

[Kristian Andersen]

It's Jim again - cross him off the list of trustworthy journalists.

[2021-04-07 13:13:11]

[Robert Garry]

<https://www.thestreet.com/economonitor/news/covid-19-origins-science-and-media-facts-and-fantasies>

[2021-04-07 13:15:43]

[Robert Garry]

<https://www.usnews.com/news/world/articles/2021-04-07/scientists-call-for-new-probe-into-covid-19-origins-with-or-without-china>

[2021-04-07 13:27:27]

[Robert Garry]

https://en.wikipedia.org/wiki/Iraq_Survey_Group The second Parasite letter is way dumb - dumber than the ISG cause those people actually got to go into Iraq.

[2021-04-07 13:45:20]

[Eddie Holmes]

What a mess. Daszak told me yesterday that he is feeling the strain with all the relentless attacks, particularly on Fox. Not sure how he manages. I think Ape Boy is trying to work the Murdoch press hear to show that I am some sort of CCP operative. Amazing how few scientists of any relevance are in the parasite group. Claverie has always been an idiot.

[2021-04-07 13:53:27]

[Kristian Andersen]

It's mental - the stupidity is really getting to me and I can't imagine how Peter must feel. Trying to pin you as some sort of CCP operative is just nuts.

Who knew scientists would end up in this mess. Unreal.

[2021-04-07 15:13:48]

[Eddie Holmes]

In better news, Radio NZ are doing an investigation on DRASTIC Gilles to see why an employee of the Bank of New Zealand is working on COVID origins.

[2021-04-07 15:14:58]

[Kristian Andersen]

Haha, I didn't know he was with the Bank of NZ - that _is_ a very good question....

[2021-04-07 16:17:15]

[Eddie Holmes]

From Zhang "More works are needed for the intermediate hosts. Last year, Tian had collected a few of samples from raccoon dogs and others in the surrounding area of Wuhan when COVID-19 appeared. However, his work was stopped."

[2021-04-07 17:32:05]

[Kristian Andersen]

They know it's the farming....

[2021-04-07 17:34:57]

[Eddie Holmes]

It's definitely sounding that way...

[2021-04-07 18:16:01]

[Robert Garry]

From Gorman's "FAR AND BALANCED" "reporting." "Whereas many virologists and disease specialists want to collect and study viruses as a way to learn more and be more prepared for outbreaks, Mr. Metzl said he and others wanted more restrictions on virus studies.

"It absolutely makes sense to establish a global regulatory system overseeing aggressive work with dangerous or deadly pathogens everywhere," he said.

[2021-04-07 18:17:09]

[Robert Garry]

How did Jamie Metzl become the world 's authority on work on deadly pathogens?

[2021-04-07 18:17:59]

[Robert Garry]

"more restrictions on virus studies" Yeah that's the ticket!

[2021-04-07 18:21:24]

[Eddie Holmes]

More from the journo:

[2021-04-07 18:21:28]

[Eddie Holmes]

"Did you ever run into a person called Yang Guoxiang, Senior Engineer, Hubei Wildlife Epidemic Source and Disease Surveillance Center - he was on the China side of the China-WHO study team. Stopped by his rescue center yesterday but he wasn't around. The "ayi" at the gate was kind enough to give me his mobile number though.

This place is also a wildlife rescue center. It is also right next to the zoo. Some of these wildlife rescue centers in other parts of the country have been very problematic. There's been an ongoing case of an NGO in Beijing suing one of these places [they're affiliated with the Forestry and Grassland Administration, which handles wildlife protection AND use] in Guangxi. That center frequently "rescued" pangolins and then sent them out the back door to companies that procured licenses to hold/breed them. Most of the companies had nothing to do with wildlife. One was an energy company. Others were tied to TCM pharma. The people at the one on the outskirts of Shenzhen I went to before were very unfriendly when I stopped by a couple years ago and didn't want to talk about any of their activities. They did have a huge [and hugely weird] taxidermy exhibit ..."

[2021-04-07 18:21:48]

[Eddie Holmes]

Wild.

[2021-04-07 18:24:17]

[Kristian Andersen]

Hah - that's crazy.

[2021-04-07 18:24:51]

[Kristian Andersen]

> How did Jamie MetzI become the world's authority on work on deadly pathogens?
I'm glad he confirmed to Jim that this is all about shutting GOF down though - good to know.

[2021-04-07 18:46:03]

[Robert Garry]

It's more than just GOF research though. It's all work on deadly pathogens. I think that the fight over shutting down work on viruses is a fight worth having.

[2021-04-07 18:48:45]

[Kristian Andersen]

It's basically virology as a whole... That'll do some good, surely.

[2021-04-07 19:05:11]

[Eddie Holmes]

Other than reducing the burden of disease and increasing the lifespan of the human species what has virology done for us?

[2021-04-08 00:23:50]

[Eddie Holmes]

More from the journo:

[2021-04-08 00:24:00]

[Eddie Holmes]

> "And also at the private zoo DIRECTLY behind there. The zoo basically surrounds the property of the rescue center. It was shut on Jan 22, 2020, the day before Wuhan was locked down.

>

> Interesting tidbit - if you look into the zoo's company records

online <https://www.tianyancha.com/company/1249116838>, one of their three main investors is the company that runs this notorious tiger farm in

Guangxi: <https://www.theguardian.com/environment/2011/aug/25/us-diplomat-china-tiger-farm> and the director of the zoo is the same as the supervisor of the tiger farm."

[2021-04-08 06:11:09]

[Robert Garry]

Interesting stuff Eddie - focanuba - I believe this means "follow the animals," in the Kuhnian dialect.

[2021-04-08 06:14:06]

[Robert Garry]

As for the NYT Gorman BS - do you think any country is going to sign on to "a global regulatory system overseeing aggressive work with dangerous or deadly pathogens everywhere?" May be time for some virologists to speak up about crap like this: "Whereas many virologists and disease specialists want to collect and study viruses as a way to learn more and be more prepared for outbreaks, Mr. MetzI said he and others wanted more restrictions on virus studies."

[2021-04-08 06:15:05]

[Andrew Rambaut]

The USA doesn't sign up to anything international at all

[2021-04-08 06:43:05]

[Kristian Andersen]

When they say "international" what they mean is "everyone, except us".

[2021-04-08 07:34:29]

[Robert Garry]

It's totally unrealistic on many levels - shame should be heaped on the NYTimes for facilitating this noxious and dangerous idiocy.

[2021-04-08 07:40:09]

[Robert Garry]

And, that supplement to Parisite#2 on Appendix D7 is itself a masterwork in lying, BS and total misunderstanding.

[2021-04-08 08:05:19]

[Robert Garry]

<https://www.globaltimes.cn/page/202104/1220562.shtml> "Russian Security Council Secretary Nikolai Patrushev said in an interview with the Kommersant newspaper, "US-controlled biological laboratories appear here and there in the world on a permanent basis. Strangely enough, they appear mainly near Russian and Chinese borders." He said Russia has every reason to believe the US is developing biological weapons in labs." Hey - what about the Super-Soldiers?

[2021-04-08 08:06:01]

[Robert Garry]

I think they misspelled Dr. Andersen... [shared file(s): image.png]

[2021-04-08 08:08:00]

[Robert Garry]

Tell us about the potassium Kristian - Its symbol is K - just another coincidence?

[2021-04-08 15:50:42]

[Kristian Andersen]

Did Jim Gorman contact any of you about an upcoming story that he's doing with Carl? I told him I'd be willing to talk to him, but that I was exceptionally displeased with his latest drivel and non-scientific speculation - and that I'd only agree to talk if there would be no Metzl bullshit as part of the story.

[2021-04-08 16:02:39]

[Eddie Holmes]

Not me. More origins stuff? They're missing the real story.

[2021-04-08 16:04:15]

[Kristian Andersen]

shared file(s): two stories

[2021-04-08 16:04:57]

[Kristian Andersen]

shared file(s): Re: two stories

[2021-04-08 16:18:09]

[Eddie Holmes]

Ugh, not good. The whole GoF angle presupposes it comes from a lab. It will give a platform to Edim. It misses the key story.

[2021-04-08 16:28:59]

[Kristian Andersen]

Exactly - and that's what I'm trying to figure out. Is there a way in which this article could make it clear that the origin of the COVID-19 pandemic and GOF are totally separate discussions or are they going to mash them together? If it's the former, sure, if it's the latter - again - fuck off.

[2021-04-08 16:34:10]

[Eddie Holmes]

He's drunk the Kool-Aid

[2021-04-08 16:38:31]

[Kristian Andersen]

Yup, I believe he has.

[2021-04-08 17:45:18]

[Eddie Holmes]

These people are desperate truth-twisters: <https://usrtk.org/biohazards/foi-documents-on-origins-of-sars-cov-2-risks-of-gain-of-function-research-and-biosafety-labs/>

[2021-04-08 17:54:46]

[Kristian Andersen]

“US Right to Know”. Their deception starts with their bullshit name.

I hate the internet.

[2021-04-08 18:02:55]

[Eddie Holmes]

Totally

[2021-04-08 22:26:53]

[Eddie Holmes]

The vet/pathologist I work with sent me this. Flying fox with neurological order. We'll see if we can find the pathogen. The point being that the public find these poor sick animals and then bring them to the local wildlife rescue people who then bring them to vets. Plenty of opportunities for pathogen transmission. [shared file(s): short video bat 2.mp4]

[2021-04-08 22:45:06]

[Eddie Holmes]

And look at this shit: https://prometheusshrugged.substack.com/p/daszakbaricandfouciiohmy?r=ep9dv&utm_campaign=post&utm_medium=web&utm_source=copy

[2021-04-09 05:59:49]

[Robert Garry]

Thanks for all this - more grist for Rixley's book I guess. I've driven to Houston making yet another attempt to get Elsa (the German Shepard) to daughter █████ in █████ before Ramadan. I've also engaged GVN for a response to NYT/Metzl. How the guy who writes scary books and sci-fy novels about genetically engineered babies gets to be the authority on virology labs is a mystery to me. The pushback on shutting down virologists needs to be ruthless - gloves off.

[2021-04-09 06:56:00]

[Kristian Andersen]

:rolling_on_the_floor_laughing: <https://twitter.com/acritschristoph/status/1380420783990730753?s=21>

[2021-04-09 07:37:18]

[Robert Garry]

eDim - helpful [shared file(s): image.png]

[2021-04-09 07:38:26]

[Robert Garry]

They are public figures, but this crosses the line.

[2021-04-09 07:47:54]

[Kristian Andersen]

What's the link to that Tweet Bob? I was going to write to Rutgers to ask if they consider this acceptable behavior - this is a perfect example of exactly what I'm after.

[2021-04-09 13:52:17]

[Eddie Holmes]

Extraordinary. These people just don't care what they say or the consequences.

[2021-04-09 14:02:59]

[Robert Garry]

https://twitter.com/R_H_Ebright/status/1380183318893899778

[2021-04-09 14:04:21]

[Robert Garry]

This really is not acceptable behavior. Anyone that thinks Tony is part of the problem has not been paying attention for 40 years.

[2021-04-09 14:06:14]

[Kristian Andersen]

Bob - that's the link to the tweet I linked to - do you have the one with Tony = murder?

[2021-04-09 14:14:59]

[Eddie Holmes]

It's a reply to Scott Dworkin I think.

[2021-04-09 14:15:04]

[Kristian Andersen]

Found it - and just a selection from today... [shared file(s): Screen Shot 2021-04-09 at 2.07.23 PM.png, Screen Shot 2021-04-09 at 2.09.40 PM.png, Screen Shot 2021-04-09 at 2.10.08 PM.png, Screen Shot 2021-04-09 at 2.10.46 PM.png, Screen Shot 2021-04-09 at 2.11.31 PM.png, Screen Shot 2021-04-09 at 2.12.09 PM.png, Screen Shot 2021-04-09 at 2.13.25 PM.png]

[2021-04-09 14:15:29]

[Kristian Andersen]

Scrolling through his "tweets and replies" is pretty darn shocking

[2021-04-09 14:20:05]

[Eddie Holmes]

He can't be married, surely? Can you imagine what it is like chez Edim?

[2021-04-09 14:23:19]

[Kristian Andersen]

Living hell would be my best guess.

[2021-04-09 14:33:22]

[Eddie Holmes]

I can only hope he doesn't have a cat.

[2021-04-09 14:37:02]

[Eddie Holmes]

And I hope Jim Gorman knows the sort of people he's dealing with.

[2021-04-09 14:45:39]

[Kristian Andersen]

He _had_ a cat...

I'm talking to Jim on Monday - I'll go on background

[2021-04-09 15:13:37]

[Kristian Andersen]

How's this - writing to the President/VP/Secretary of the Board of Governors and the VP of academic affairs.

```Dear Colleagues,

I wanted to bring to your attention that Dr. Richard Ebright ([https://twitter.com/R\\_H\\_Ebright](https://twitter.com/R_H_Ebright)) has recently accused Dr. Anthony Fauci and other high ranking scientists as being "accessories to murder" on Twitter for which they "need to pay". [https://twitter.com/R\\_H\\_Ebright/status/1375954028920770569?s=20](https://twitter.com/R_H_Ebright/status/1375954028920770569?s=20) (also see attached).

Dr. Ebright is listed as a "Board of Governors Professor" from Rutgers University and given that he does not specifically state whether his statements and opinions are attributed solely to him, I wanted to inquire whether these statements are endorsed by your university?

More broadly speaking, Dr. Ebright has shown what I - and many of my colleagues and students - consider inappropriate behavior on Twitter (a selection from just scrolling his tweets today has been attached) and myself and several of my colleagues have had to block him as a result. Many (most) of his tweets involve personal insults and accusations of wrongdoing.

I have been contacted by multiple journalists recently, interested in a closer dissection of how science has played such a critical role in the COVID-19 pandemic and how many scientists have become highly engaged in public science communication - myself included. To balance how things as a whole have been working very well, I have considered including some of the 'darker' sides of the issue and Dr. Ebright is somebody who often comes up in conversations. Before potentially engaging with any of these journalists, I wanted to clarify if the Board of Governors find this type of online behavior from one of their star faculty acceptable?

Please let me know if you have any questions and thank you for your time.

Kind regards,  
Kristian```

[2021-04-09 15:35:18]

[Eddie Holmes]

Oh, love it. Clever.

[2021-04-09 17:16:24]

[Eddie Holmes]

[thread - ID: 2021-04-09 17:16:24]

Not exactly sure who is guy is but I like it: <https://www.youtube.com/watch?v=Z8YYDbdrS7M>

[2021-04-09 17:17:41]

[Eddie Holmes]

Stuart Weston, U Maryland (@StuartMWeston)

[2021-04-09 19:14:19]

[Eddie Holmes]

This has made my day: <https://pigathleticclub.com/products/wuhan-bats-rc-world-tour-tee>

[2021-04-09 21:22:25]

[Kristian Andersen]

I don't understand the internet. [shared file(s): Fwd: Two pictures of a prawn like insect, found in higher altitude areas, has good healing abilities for cough & cold.]

[2021-04-09 21:37:36]

[Eddie Holmes]

Off the scale whacko

[2021-04-09 21:45:03]

[Kristian Andersen]

[thread - ID: 2021-04-09 17:16:24]

@Eddie Holmes Watching it now - it's good.

[2021-04-09 21:46:35]

**[Eddie Holmes]**

[thread - ID: 2021-04-09 17:16:24]

@Eddie Holmes :+1:

[2021-04-09 21:56:15]

**[Kristian Andersen]**

[thread - ID: 2021-04-09 17:16:24]

@Eddie Holmes He gets quite a number of things wrong, but overall pretty good.

[2021-04-09 21:58:10]

**[Eddie Holmes]**

[thread - ID: 2021-04-09 17:16:24]

@Eddie Holmes Yes, he had a decent go.

[2021-04-10 09:21:48]

**[Robert Garry]**

Kristian - When the CCP army releases SARS7 on a pandemic weary post-apocalyptic world - where only its Super-Soldiers are immune - you will likely regret not following up on the miracle cure from the prawn-like insects.

[2021-04-11 08:07:40]

**[Kristian Andersen]**

[thread - ID: 2021-04-11 08:07:40]

This is not going to end well for George... [https://www.washingtonpost.com/world/asia\\_pacific/china-vaccine-efficacy-not-high-gao/2021/04/11/dafe3ab6-9a8f-11eb-8f0a-3384cf4fb399\\_story.html](https://www.washingtonpost.com/world/asia_pacific/china-vaccine-efficacy-not-high-gao/2021/04/11/dafe3ab6-9a8f-11eb-8f0a-3384cf4fb399_story.html)

[2021-04-11 09:41:05]

**[Robert Garry]**

<https://www.nbcnews.com/politics/meet-the-press/blinden-china-s-early-failure-covid-cooperation-helped-speed-pandemic-n1263749> Some progress with messaging about origins at DoS and separating the origin question from China's early lack of transparency and future course.

[2021-04-11 09:45:24]

**[Robert Garry]**

[thread - ID: 2021-04-11 08:07:40]

@Kristian Andersen Pretty sure we called that here - one reason the mRNA vaccines work is because they use a stabilized construct. Growing virus and then inactivating it basically destroys many of the key epitopes. This is settled science.

[2021-04-11 09:56:23]

**[Robert Garry]**

More false dichotomies from Ridley and Alina""There is still no sign of an original animal source of SARS-CoV-2 in Wuhan, or the rest of Hubei province. Horseshoe bats that live in the area have been extensively sampled for viruses for years without SARS-CoV-2-like viruses showing up. Therefore, the strongest connection between such viruses in Yunnan and the human outbreak in Wuhan is the WIV, and the fact that it had collected SARS-like viruses from the Mojiang mine."https://archive.is/C95s2#selection-1379.340-1379.766 They really are idiots...

[2021-04-11 10:39:14]

**[Kristian Andersen]**

"They really are idiots" - honestly, I think that's exactly right. To them, the fact that we haven't found a positive bat (or whatever) yet is somehow a mystery - anybody with \_any\_ level of experience in the field would know better. But they don't have any experience....

[2021-04-11 10:44:57]

**[Kristian Andersen]**

Fromt that NBC article - I cringe when I see this said by anybody from this country. I mean, introspection, maybe? It's embarrassing (not that I disagree - only, this coming from the US is hypocritical to the highest degree). [shared file(s): Screen Shot 2021-04-11 at 10.41.50 AM.png]

[2021-04-11 10:57:38]

**[Robert Garry]**

Agreed - if the pandemic had started in say Montana - near the Rocky Mountain Lab - do you think that the US would have allowed anything beyond a "tour and discussion." Nevertheless, this transparency question is important to recognize for what it is. It's also where Tedros - I think - was coming from when he also "criticized" the report. It's all about precedence, which is also what makes the Jamie/Alina meme of shutting down virologists so dangerous. The eDims and Filippas of the world are going to use this to achieve their goal of shutting down GoF research which they will define as any genetic manipulation of a virus.

[2021-04-11 14:16:16]

**[Eddie Holmes]**

Ridley and Alina published an article in The Australian (nasty Murdoch mag) here yesterday. I assume it was the same rubbish. So dumb.

[2021-04-11 14:18:41]

**[Eddie Holmes]**

Seems that he wants to be doctor to the stars. What he seems to have forgotten is that there is no community COVID in Australia and no hence limited COVID restrictions in most place. Masks are not mandatory. In New South Wales you are allowed up to 100 people in your home with no restrictions. Probably explains why half of Hollywood have moved here. Plus, you can get same day test results for free at any number of walk-in places.

[2021-04-11 14:52:47]

**[Kristian Andersen]**

Haha, that's awesome - I can see Butt Lesion being very pleased with this role... Take the \$500 / sample and have people go through the walk-ins...

[2021-04-11 15:19:36]

**[Robert Garry]**

Ha -BL gotta BL. Natalie P. is definitely back on the kale after putting on pounds/muscle to play Lady Thor. [shared file(s): image.png]

[2021-04-11 15:20:55]

**[Kristian Andersen]**

Buff! That's pretty impressive - I should go get some of that kale... Australian kale.

[2021-04-11 15:23:53]

**[Eddie Holmes]**

She's definitely been trying [shared file(s): Image from iOS.jpg]

[2021-04-11 15:27:18]

**[Robert Garry]**

Impressive that Disney/Marvel lets her do her own shopping.

[2021-04-11 15:34:18]

**[Robert Garry]**

And Eddie yes - the Ridley Alina article for Murdoch is a piece of work: But here is that transparency word again - "The lack of transparency surrounding the bat-virus projects is one reason the consensus on the origin of the virus has been slowly shifting. Today, a growing number of experts agreed when we put it to them that a lab leak remained a plausible hypothesis to be investigated. Another reason for this shift is that the market no longer appears to be the site where the pandemic began." Seriously - Ridley and Alina get to decide what the consensus on origin is?

[2021-04-11 15:51:54]

**[Eddie Holmes]**

They've obviously not looked at Kristian's maps either.

[2021-04-11 15:56:44]

**[Kristian Andersen]**

"Ignore all evidence that go against your claims". I see this a lot - trusting data when it's convenient (e.g., parts of the WHO report that agree with your viewpoint), but ignore everything else. Confirmation bias is a dangerous thing.

[2021-04-11 16:12:54]

**[Eddie Holmes]**

Exactly.

[2021-04-12 01:48:44]

**[Robert Garry]**

Anyone interested in evolution of viruses should probably just stop now along with all the other virologists. Yuri has figured out the billions of years. Behold: [shared file(s): image.png]

[2021-04-12 02:44:50]

**[Eddie Holmes]**

Jesus. Clueless. I thought you would enjoy this email I just got re: Rosanna. Warms the heart a bit: [shared file(s): Screen Shot 2021-04-12 at 7.42.37 pm.png]

[2021-04-12 05:18:00]

**[Robert Garry]**

Good to see this Eddie - Rosanna is a crank and a self-promoter like Yuri, eDim, Alina and many of the others. It will even out.

[2021-04-12 07:05:30]

**[Robert Garry]**

ACTUALLY IT IS STILL A CONSPIRACY THEORY

<https://www.minervanett.no/alina-chan-sars-cov-2-who/lab-origin-is-no-longer-a-conspiracy-theory/378436>

[2021-04-12 07:16:19]

**[Kristian Andersen]**

"I, for one, was very quickly labeled as a conspiracy theorist, in an attempted shut down of the debate".

Nope, you were labeled as such \_because\_ you are a conspiracy theorist - still are and has nothing to do with "shutting down the debate". Unsavory, indeed.

[2021-04-12 07:55:05]

**[Robert Garry]**

<https://www.nybooks.com/articles/2021/04/29/crispr-editing-humanity-future/> Let's add provocateur to the phenotype.

[2021-04-12 07:57:30]

**[Robert Garry]**

At least Metzl is upfront with calling Shi et al liars: [shared file(s): image.png]

[2021-04-12 07:59:03]

**[Robert Garry]**

Alina just whines about being called a conspiracy theorist - remarkable that she gets "journalists" [loosely defined to buy into that crap.

[2021-04-12 08:25:55]

**[Kristian Andersen]**

[thread - ID: 2021-04-12 08:25:55]

Speaking of journalists - I'm talking to Jim in a couple of hours and will tear into him for letting this conspiracy bs get into his paper. It'll be interesting to see how he reacts...

[2021-04-12 08:26:27]

**[Robert Garry]**

Well - she doesn't \*just\* whine - she spreads a shitload of misinformation, e.g. SC2 is perfectly adapted to humans, RaTG13, RmYN02 are fake etc

[2021-04-12 08:28:44]

**[Kristian Andersen]**

Not without cost, that's for sure....

[2021-04-12 08:36:27]

**[Robert Garry]**

then there is the whole Eddie et al are responsible for genocide thing - but she plays the victim very well (seen that behavior before).

[2021-04-12 08:59:50]

**[Robert Garry]**

[thread - ID: 2021-04-12 08:25:55]

@Kristian Andersen The Annex to Parisite Letter #2 is actionable libel.

[2021-04-12 09:03:05]

**[Kristian Andersen]**

[thread - ID: 2021-04-12 08:25:55]

@Kristian Andersen Yup.

[2021-04-12 09:42:42]

**[Robert Garry]**

Proves what I [don't] know. Heretofore I thought it was about the science. Now I find out too late that is all about controlling the narrative. Who {WHO} knew? [shared file(s): image.png]

[2021-04-12 09:48:30]

**[Kristian Andersen]**

Yeah, I saw that tweet yesterday - pretty shocking to put shit like this online.

[2021-04-12 12:28:16]

**[Robert Garry]**

eDim just hates virologists - it's pretty simple.

[2021-04-12 12:54:04]

**[Kristian Andersen]**

In which they don't mention the lab at all - good for them :wink:. (but they outline exactly what needs to be done...)

[https://www.thelancet.com/journals/laninf/article/PIIS1473-3099\(21\)00213-9/fulltext](https://www.thelancet.com/journals/laninf/article/PIIS1473-3099(21)00213-9/fulltext)

[2021-04-12 14:32:02]

**[Eddie Holmes]**

Great stuff!

[2021-04-12 14:35:02]

**[Eddie Holmes]**

I've worked out Sacha Baron-Cohen is one of the four people in Australia who need a COVID test. I've got a colleague to do all these, although I now sort of regret not getting involved because I think a Borat-style fake

whistleblower about the WIV could have been fun.

[2021-04-12 14:51:55]

**[Robert Garry]**

<https://nypost.com/2021/03/05/sacha-baron-cohen-deals-vaccines-to-celebs-in-hilarious-bit/> Vaccine dealer to the A-listers

[2021-04-12 15:09:44]

**[Eddie Holmes]**

Perhaps I can still do this!

[2021-04-12 15:13:37]

**[Robert Garry]**

I think that's a good idea. While you're at it pitch a movie deal. My guess is that SBC is planning a C19 movie of some sort. IMO SBC would make an excellent @Covidfaker. Few other actors could pull off that level of sleaze.

[2021-04-12 15:15:46]

**[Robert Garry]**

He might have to play multiple rolls thou. Who could master Yuri the dog head-freezer better than SBC?

[2021-04-12 15:17:38]

**[Eddie Holmes]**

Actually, Yuri could easily be an SBC character! I'd love to see him do eDim as well

[2021-04-12 15:18:15]

**[Robert Garry]**

Of course there is Billy aka Kevin - put a beard on SBC and he nails it. But yes SBC in a fat suit IS eDim.

[2021-04-12 15:19:25]

**[Robert Garry]**

The script practically writes itself.

[2021-04-12 15:21:48]

**[Eddie Holmes]**

It does!

[2021-04-12 16:30:25]

**[Kristian Andersen]**

Finally had some time to read the pangolin paper in Frontiers. It's a shit paper, but the findings seem solid enough - ~10% of tested pangolins (in a single zoo in Guangdong) positive for SARS(2)-like CoVs. That's pretty nuts. Total convenience sampling too and they didn't go after these specifically - I think pangolins might just be packed full of CoVs, which is bloody scary.

<https://www.frontiersin.org/articles/10.3389/fmicb.2021.657439/full>

[2021-04-12 16:33:15]

**[Kristian Andersen]**

SARS, of course, broke out in Guangdong. I wonder if we're blind because we're focusing so much on bats in Yunnan - is it possible these guys are coming from pangolins?

[2021-04-12 16:34:18]

**[Eddie Holmes]**

No doubt in my mind that pangolins are major reservoirs. That's what Tommy and Linfa see as well. And it won't just be bats and pangolins.

[2021-04-12 16:35:27]

**[Kristian Andersen]**

Wasn't there a zoo behind the Huanan market too? Any idea if they had pangolins?

[2021-04-12 16:36:09]

**[Eddie Holmes]**

I'll check with that reporter

[2021-04-12 17:20:13]

**[Eddie Holmes]**

This was from one of his earlier emails "If it was pangolins infected by bats, there are lots of these little "holding pens" on the pangolin underground railroad in China, often mixed in with other wildlife breeding. Was at one in Guangdong a couple years back where they had some, but apparently had just moved them a week or so before we got there. Everyone around that we spoke with knew they kept pangolins there."

[2021-04-12 17:21:38]

**[Kristian Andersen]**

Interesting....

[2021-04-12 18:30:16]

**[Robert Garry]**

We've got about 50 pangolin sized traps ready to put on the container and a team ready to trap them. Need to navigate the animal use regs, but it's trap, swab, tag (assuming we can find a soft spot) and release so will be interesting to see if West African pangolins have CoVs.

[2021-04-12 18:31:21]

**[Robert Garry]**

Draw a little blood too!

[2021-04-12 19:57:42]

**[Kristian Andersen]**

"Just from an Occam's razor standpoint...." :man-facepalming:

[https://www.mediaite.com/podcasts/the-interview-dr-sanjay-gupta-talks-vaccines-and-wh\[...\]-weight-to-informed-theory-that-covid-leaked-from-wuhan-lab/](https://www.mediaite.com/podcasts/the-interview-dr-sanjay-gupta-talks-vaccines-and-wh[...]-weight-to-informed-theory-that-covid-leaked-from-wuhan-lab/)

[2021-04-12 19:59:30]

**[Kristian Andersen]**

This part made me laugh out loud.

\_"He's an experienced virologist. He was also head of the CDC at the time this was happening, which means that in addition to everything that we know, he had access to raw data and raw intelligence that was coming out of China," Gupta told me. "My point is that it's a much more informed sort of thing for him to be saying than for anybody who may have expertise in virology, because he has a lot more knowledge and information that he has that maybe he can't share, but is informing his opinion."\_"

Sure. That Segreto and Deigin paper hot in his hand...

[2021-04-12 23:15:15]

**[Eddie Holmes]**

If Redfield has knowledge about anything I'd be impressed

[2021-04-13 04:46:44]

**[Robert Garry]**

It would be funny if it wasn't yet another attack on virologists. Redfield had the same intelligence that informed Pompeo. Also the same source for Matt Pottinger and Jamie Metz on 60 Minutes: David Asher, source of the 3 "sick" WIV employees in Nov19 and they same source who told Fox that the CCP Army is making "Super-Soldiers."

[2021-04-13 04:51:49]

**[Robert Garry]**

Another attack on a virologist. #1 WSJ best seller - all over conservative media. [shared file(s): image.png]

[2021-04-13 04:55:16]

**[Robert Garry]**

Judy Markovitz will be screaming plagiarism and she may have a point. You can buy the Fauci trashing book as a bundle with @Kristian Andersen friend's Alex pamphlets.

[2021-04-13 05:04:42]

**[Robert Garry]**

@Eddie Holmes friend Ian loves DRASTIC <https://unherd.com/2021/04/the-covid-dissidents-taking-on-china/>

[2021-04-13 05:13:15]

**[Robert Garry]**

U.S. Calls for Pause on Johnson & Johnson Vaccine After Clotting Cases  
<https://www.nytimes.com/2021/04/13/us/politics/johnson-johnson-vaccine-blood-clots-fda-cdc.html>

[2021-04-13 05:29:03]

**[Robert Garry]**

Alex B can't get out on the track fast enough to run a victory lap.

[2021-04-13 05:46:06]

**[Robert Garry]**

"\_My point is that it's a much more informed sort of thing for him to be saying than for anybody who may have expertise in virology,"\_ :clown\_face:

[2021-04-13 06:02:55]

**[Robert Garry]**

<https://slate.com/transcripts/Zm5kTHQvaXIKQlJZTDIJZHhOTTVJdTFvaWM1bDUzU2IZSHQxWG03Zkjhcz0=> More Alina garbage

[2021-04-13 06:03:42]

**[Robert Garry]**

Might be time for PO2

[2021-04-13 08:27:50]

**[Robert Garry]**

Or [failing to get a Boratg13 movie] a book on COVID-19 fakes, frauds and charlatans  
<https://khn.org/news/article/redfield-joins-big-ass-fans-which-promotes-controversial-covid-killing-technology/>

[2021-04-13 12:35:57]

**[Robert Garry]**

From Trump's Ass to Big Ass - seems appropriate.

[2021-04-13 14:20:04]

**[Andrew Rambaut]**

Joe Grove in Greg Towers group just showed some very interesting data (keep private please - it was on a closed call): [shared file(s): image.png, image.png, image.png, image.png]

[2021-04-13 14:21:06]

**[Andrew Rambaut]**

Essentially Wuhan with a GD Pango NTD has infectivity like B.1.1.7 - despite being the one bit of GD\_Pango that is recombinant and most divergent from SARS-CoV-2

[2021-04-13 14:22:09]



**[Andrew Rambaut]**

@Robert Garry Cited your indel regions as likely reason

[2021-04-13 14:22:46]

**[Andrew Rambaut]**

Will see if he has a preprint or something.

[2021-04-13 14:24:23]

**[Robert Garry]**

:+1: brilliant

[2021-04-13 14:26:15]

**[Eddie Holmes]**

eDim ain't gonna like those experiments!

[2021-04-13 14:27:34]

**[Eddie Holmes]**

*[thread - ID: 2021-04-13 14:27:34]*

Sounds like we ought to be looking for more pango viruses?

[2021-04-13 14:33:23]

**[Robert Garry]**

Yes - indeed! Also RpYN06 and PRC31 are essentially GD pango in the NTD so the important bits are definitely out there! [shared file(s): image.png]

[2021-04-13 14:35:45]

**[Robert Garry]**

Have been meaning to put this expanded alignment up as a supplement to Holmes 2021 - should do that at some point.

[2021-04-13 14:39:12]

**[Eddie Holmes]**

Very interesting. I'll see if any more pangolin viruses are on the go.

[2021-04-13 14:40:35]

**[Robert Garry]**

Looking at it this way you can see the relationships in the sarbecos pretty clearly. [shared file(s): image.png]

[2021-04-13 14:41:54]

**[Robert Garry]**

*[thread - ID: 2021-04-13 14:27:34]*

@Eddie Holmes On it! But hopefully others are as well.

[2021-04-13 14:42:54]

**[Andrew Rambaut]**

Really interesting but I haven't fully got my head around it - basically it means that the bat-like NTD is sub-optimal for humans, B.1.1.7 has converged on whatever the pangolin has as an adaptation to humans (given that B.1.1.7 is the most human adapted virus yet).

[2021-04-13 14:45:16]

**[Andrew Rambaut]**

So 69-70 deletion and the 144 deletion provide greater infectivity (and presumably when combined with 501Y RBD and 681H furin site) result in higher transmissibility.

[2021-04-13 14:49:56]

**[Andrew Rambaut]**

Other thing I got today was that the 3 nucleotide mutation in the middle of N that arose in the early Italian lineage probably create a new sgRNA - the resulting nucleotide sequence is complementary to the sgRNA transcription leader at the 5' end. That 3 nucleotide mutation had been bugging me for ages.

[2021-04-13 14:51:45]

**[Andrew Rambaut]**

The cool thing is that explains the N:D3L (also a 3 nucleotide mutation) in B.1.1.7 - Sheffield showed this probably enhances the recombination with the leader two - so it may be compensating to create more N

[2021-04-13 14:52:14]

**[Andrew Rambaut]**

Had a lovely afternoon of geeky genomic virology.

[2021-04-13 14:52:46]

**[Eddie Holmes]**

Intermediate host has a complex bat-pangolin recombinant?

[2021-04-13 14:55:06]

**[Andrew Rambaut]**

I think you could argue that the pangolin is actually less likely to be the intermediate for SC2. The original Wuhan was more bat like in its NTD and it took all the way to B.1.1.7 before it hit its stride (you also see the same mutations in chronic infections - so again that might explain the fitness jump to get there).

[2021-04-13 14:56:51]

**[Andrew Rambaut]**

There could be other NTD point mutations that provide a similar effect.

[2021-04-13 15:01:42]

**[Eddie Holmes]**

I think that's what I was I trying to say - that the intermediate host is a different species....but has a virus with a complex recombinant history, like SIVcpz.

[2021-04-13 15:04:08]

**[Eddie Holmes]**

Or that WIV weren't finished in their engineering job

[2021-04-13 15:09:17]

**[Robert Garry]**

Probably good to keep in mind that GX pango is very similar to SC2 in much of the NTD except IR2 where some of the magic may be happening.

[2021-04-13 15:10:00]

**[Eddie Holmes]**

Good point

[2021-04-13 15:29:11]

**[Andrew Rambaut]**

I think clearly WIV were really shit at creating SC2

[2021-04-13 15:30:37]

**[Andrew Rambaut]**

GX pango still not nearly as similar as RaTG13: [shared file(s): image.png]

[2021-04-13 15:32:58]

**[Andrew Rambaut]**

Just noticed that dip in early ORF1a - don't know why I didn't notice that before.

[2021-04-13 15:33:12]

**[Andrew Rambaut]**

Looks very similar to the RBD dip

[2021-04-13 16:06:03]

**[Robert Garry]**

interesting region at the amino acid level as well.

[2021-04-13 16:17:06]

**[Kristian Andersen]**

Very interesting stuff! Might be worth looking at reversions - do we see more of those in the NTD vs the rest of the spike / genome?

[2021-04-13 16:17:07]

**[Andrew Rambaut]**

*[thread - ID: 2021-04-13 16:17:07]*

I assume RmYN02 doesn't drop away like that.

[2021-04-13 16:19:13]

**[Andrew Rambaut]**

@Kristian Andersen Actually they did some reversions and and mutants as will but but I didn't grab a screenshot so I can't remember the details. I will see if he will send the slide deck or is going to be preprinting soon.

[2021-04-13 16:20:51]

**[Kristian Andersen]**

*[thread - ID: 2021-04-13 16:20:51]*

Cool beans!

And I should add - we all need more afternoons of geeky genomics!

[2021-04-13 18:31:04]

**[Robert Garry]**

*[thread - ID: 2021-04-13 16:20:51]*

@Kristian Andersen Yeah - really cool - looking forward to the preprint!

[2021-04-13 20:49:01]

**[Eddie Holmes]**

Just got this from Deep Throat in China "I hear that multiple groups has entered Yunnan, wiping every single butts of bats (other animals as well)". Well, they're looking...

[2021-04-14 01:27:16]

**[Robert Garry]**

<https://virological.org/t/spike-protein-mutations-in-novel-sars-cov-2-variants-of-concern-commonly-occur-in-or-near-indels/605> Speaking of "reversions" re @Andrew Rambaut geeky thread above. Tommy Lam - in our virological post - noted that passage of GX pangocov on Vero cells resulted in an insertion in Indel Region 2 - precisely at the H69/V70 deletion in B117.

[2021-04-14 01:34:09]

**[Andrew Rambaut]**

Yes - Joe cited that post in his talk and used the same Indel Region notation - I just didn't capture that slide.

[2021-04-14 07:25:45]

**[Robert Garry]**

[thread - ID: 2021-04-13 16:17:07]

@Andrew Rambaut <https://pubmed.ncbi.nlm.nih.gov/29128390/> RmYN02 doesn't vary from SC2 as much as RaTG13 in the "dip"- but some variability - It's the "hypervariable region" also rich in glutamic acid.

[2021-04-14 07:52:22]

**[Robert Garry]**

COVID COMMISSION PLANNING GROUP <https://millercenter.org/covidcpg> The Planning Group is directed by Philip Zelikow, who was executive director of the 9/11 Commission and the earlier, privately organized, Carter-Ford Commission on Federal Election Reform. Leading experts on the \*Johns Hopkins\* team include Amesh Adalja, Anita Cicero, Lisa Cooper, Gigi Gronvall, Tara Kirk Sell, Jennifer Nuzzo, Caitlin Rivers, Joshua Sharfstein, Eric Toner, and Crystal Watson. Senior advisers to the Covid CPG include veteran investigators and experts drawn from across several disciplines, including Michael Callahan, an expert on infectious disease and vaccine development at Massachusetts General Hospital; Nicholas Christakis of Yale University and author of *Apollo's Arrow*; Ruth Faden, founder of the Johns Hopkins Berman Institute of Bioethics; Julie Gerberding, chief patient officer and executive vice president at Merck and former CDC director; Margaret "Peggy" Hamburg, former New York City health commissioner and FDA commissioner; Alexander Lazar of the MD Anderson Cancer Center at the University of Texas; \*Marc Lipsitch of Harvard's T.H. Chan School of Public Health\*; Anup Malani at the University of Chicago; J. Stephen Morrison, senior vice president and director of the Global Health Policy Center at the Center for Strategic and International Studies; Michael Osterholm, director of the Center for Infectious Disease Research and Policy at the University of Minnesota; \*microbiologist David Relman of Stanford University\*; Kristin Urquiza, co-founder of Marked By COVID; and Rajeev Venkayya, a former biodefense official and head of global vaccines at Takeda.

The Covid CPG is currently organized around planning nine task forces, laying the foundation for a future commission to investigate:

- \*Origins and prevention\*, including debates about the origins of this pandemic; analysis of the virus and its variants; and the rising danger of future pandemics

\*Lipstich and Relman - not a good sign\*

[2021-04-14 11:39:40]

**[Robert Garry]**

IF they are going to debate the origins of SC2 with this line-up it might get a bit one-sided and not on the side of the good guys.

[2021-04-14 12:54:01]

**[Kristian Andersen]**

[thread - ID: 2021-04-14 12:54:01]

Looking at this group of people, I don't see any expertise to actually answer questions about origins - nobody with relevant experience.

[2021-04-14 13:16:06]

**[Kristian Andersen]**

".... we also strongly support his exercise of academic freedom and freedom of speech".

Can't help but laugh. I really hope I get a chance to talk to a journalist about this at some point... [shared file(s): RE: Dr. Ebright]

[2021-04-14 13:27:01]

**[Robert Garry]**

[thread - ID: 2021-04-14 12:54:01]

@Kristian Andersen Exactly

[2021-04-14 13:28:04]

**[Eddie Holmes]**

Unless that commission have new data - which of course they don't - it's going to be a complete waste of time

[2021-04-14 13:36:22]

**[Eddie Holmes]**

I propose we set up a new commission to investigate all the commissions

[2021-04-14 13:36:31]

**[Robert Garry]**

I hope K you get to talk to a journo or 2 - On that topic Jamie trying to keep in the news <https://jamiemetz.com/10-questions-for-zhao-lijian/> Each of the 10 questions predicated on the grand conspiracy that Shi had SC2 and is covering up and lying. Meanwhile Jamie, Pottinger etc getting the softballs on Fox News and journo's like Slate apparently unable to ask Alina a hard question. Makes me want to vomit.

[2021-04-14 13:41:55]

**[Eddie Holmes]**

So, is the idea that they knew there was a lab leak in September and took down their databases then, but didn't actually tell anyone or do anything for 3 months? Seriously?

[2021-04-14 13:42:21]

**[Kristian Andersen]**

"Unable to ask a hard question" - that was essentially what I told Jim - that I was deeply disappointed that he never challenged ANY of his subjects with a single relevant question.

[2021-04-14 13:42:35]

**[Kristian Andersen]**

Yes, Eddie. That's what happened.

[2021-04-14 13:46:15]

**[Eddie Holmes]**

Madness. Methhead is also completely wrong about RaTG13.

[2021-04-14 13:56:47]

**[Eddie Holmes]**

Fascinating biology though: those supposed cases at WIV were in November, which means that the initial incubation period was 2 months from the initial lab leak. What an amazing virus.

[2021-04-14 13:57:46]

**[Kristian Andersen]**

Anything is possible, you know.

[2021-04-14 14:17:32]

**[Robert Garry]**

Doesn't have to make any logical sense - just has to sound ominous. No science involved at all. I'm convinced that all or most of the Parisites and their sycophants (like Lipstich and Relman) couldn't care less about origins - they are simply looking to be in the news and/or re-litigate old lost battles.

[2021-04-14 15:03:43]

**[Robert Garry]**

[https://www.msn.com/en-us/money/markets/intelligence-community-actively-investigat\[...\]lab-as-possible-covid-19-origin/ar-BB1fEYdo?ocid=BingNewsSearch](https://www.msn.com/en-us/money/markets/intelligence-community-actively-investigat[...]lab-as-possible-covid-19-origin/ar-BB1fEYdo?ocid=BingNewsSearch) The spooks have absolutely less than nothing - including a clue.

[2021-04-14 15:19:22]

**[Robert Garry]**

And, someone ? has decided that keeping "pressure" on China over "transparency" is good politics or policy or both.

[2021-04-14 15:19:56]

**[Robert Garry]**

Science and logic be damned - so sad.

[2021-04-14 15:38:49]

**[Eddie Holmes]**

So they were doing covert military GOF work but had an online database of the viruses they were using

[2021-04-14 15:45:27]

**[Robert Garry]**

1. \*Secret WIV Links to Military Research:\* Despite the WIV presenting itself as a civilian institution, the WIV has collaborated on publications and secret projects with China's military. The WIV has engaged in classified research, including laboratory animal experiments, on behalf of the Chinese military since at least 2017.

[2021-04-14 15:45:45]

**[Kristian Andersen]**

[thread - ID: 2021-04-14 15:45:45]

"The United States has criticized China for a lack of transparency at the start of the pandemic and condemned China for spreading baseless conspiracy theories about COVID-19 originating with the U.S. military".

But I guess we're in our full right to do the same, correct? Because, you know, we're the US, dammit!

[2021-04-14 15:46:51]

**[Robert Garry]**

~T~WIV also published super-secret scientific papers with the CCP army - in the science journals.

[2021-04-14 15:46:55]

**[Kristian Andersen]**

Here's what we got: "Rubio, the vice chairman of the committee, said an accidental lab escape was "plausible" and pointed to some reasons why he thought so, including that "researchers at the Wuhan Institute of Virology have demonstrated from their publication record that they were skilled at techniques in which they genetically modified bat coronaviruses," as well as that viruses such as SARS have escaped from Chinese labs in the past and that U.S. diplomats warned about subpar biosafety standards at the Wuhan lab in 2018".

So to your point Bob, nothing.

[2021-04-14 15:50:58]

**[Eddie Holmes]**

Always a good idea to get your covert GOF work peer-reviewed.

[2021-04-14 16:15:04]

**[Robert Garry]**

[thread - ID: 2021-04-14 16:15:04]

Ludicrous - but that's not stopping Alina and DRASTIC from taking a victory lap. Berenson and the antivaxxers also whopping it up about J&J. Mark on your calendar April 14, 2021 as the highpoint for both :clown\_face: colonies.

[2021-04-14 16:21:53]

**[Robert Garry]**

But - AB is selling some "books." That is if you consider 39 pages a book. Bullshit, outrageousness, contrarianism sells... [shared file(s): image.png]

[2021-04-14 16:23:06]

**[Kristian Andersen]**

That guy is such a waste of time - loved the Atlantic expo on him.

[2021-04-14 16:25:57]

**[Robert Garry]**

Oh for sure - He gonna ride that all the way to the bank thou. The ppl reading his Fox News blessed pamphlets don't also read the Atlantic. But, speaking of the freaking Atlantic where is Ed Yong when you actually need him?

[2021-04-14 16:30:21]

**[Robert Garry]**

[https://www.nytimes.com/2021/04/14/world/europe/western-vaccines-africa-hesitancy.ht\[...\].segment\\_id=55584&te=1&user\\_id=5311bb81c6139baf62a17ce856181bc8](https://www.nytimes.com/2021/04/14/world/europe/western-vaccines-africa-hesitancy.ht[...].segment_id=55584&te=1&user_id=5311bb81c6139baf62a17ce856181bc8) The US will get its vaccines - that's not a problem the problem is the parts of the world where you can't afford or deliver a mRNA vax.

[2021-04-14 16:32:16]

**[Eddie Holmes]**

[thread - ID: 2021-04-14 16:15:04]

@Robert Garry Noted

[2021-04-14 16:32:48]

**[Robert Garry]**

[thread - ID: 2021-04-14 15:45:45]

@Kristian Andersen Please alert me if ONE journalist points out the hypocrisy - I'd settle for 1.

[2021-04-14 16:34:49]

**[Kristian Andersen]**

Ed's busy with giraffes.

<https://www.theatlantic.com/magazine/archive/2020/04/how-to-tackle-a-giraffe/606787/>

[2021-04-14 16:35:01]

**[Kristian Andersen]**

Can't really blame him to be honest.

[2021-04-14 16:35:48]

**[Kristian Andersen]**

[thread - ID: 2021-04-14 15:45:45]

@Kristian Andersen There aren't any - I talked to Jim about this very issue too. Seemed unfazed.

[2021-04-14 16:39:24]

**[Robert Garry]**

[thread - ID: 2021-04-14 15:45:45]

@Kristian Andersen Truth will out and the tide will turn - but painful in the moment.

[2021-04-14 16:46:57]

**[Kristian Andersen]**

[thread - ID: 2021-04-14 15:45:45]

@Kristian Andersen I'm here for the long-game.

[2021-04-14 16:48:01]

**[Kristian Andersen]**

[thread - ID: 2021-04-14 15:45:45]

@Kristian Andersen The pandemic has taught me a few important things about "Americans" - one being that most Americans can't think past three months. I don't understand that.

[2021-04-14 22:35:51]

**[Eddie Holmes]**

I missed this one: <https://www.tandfonline.com/doi/full/10.1080/22221751.2020.1733440>

[2021-04-15 03:20:29]

**[Eddie Holmes]**

From Weifeng "Tracing the origins of SARS-CoV-2 is completely in chaos. Zhengli has sampled more bats and identified a new lineage among the Sarbecovirus subgenus. I did not know what other animal sampling is going on.

None of my collaborators told me they were performing such studies."

[2021-04-15 04:54:43]

**[Robert Garry]**

Good to hear. All it will take is to follow the [right] animals. It's a long game - at the part in every comic book movie where the villains appear to have gained the upper hand and prematurely claim victory. [shared file(s): image.png, image.png]

[2021-04-15 06:52:14]

**[Kristian Andersen]**

The WMDs! The WMDs - they found them!!

[2021-04-15 06:56:52]

**[Robert Garry]**

*[thread - ID: 2021-04-15 06:56:52]*

Same sad story repeats. <https://www.cnet.com/features/how-the-coronavirus-origin-story-is-being-rewritten-by-a-guerrilla-twitter-group/#ftag=COS-05-10aaa0j>

[2021-04-15 06:59:12]

**[Kristian Andersen]**

Reddit said it well - "The COVID19 subreddit removed Drastic content because it does not class the group as "reputable authors with relevant expertise.""

[2021-04-15 07:22:50]

**[Eddie Holmes]**

What a little shit that Jackson Ryan is. I'm going to complain about this.

[2021-04-15 07:31:14]

**[Robert Garry]**

"Holmes, the virologist at the University of Sydney, has collaborated closely with researchers in China and co-authored a highly cited Nature Medicine paper supporting the natural origin theory in March 2020. Bostickson has dubbed him a "Chinese puppet," and others have suggested that Holmes, with researchers working at the Wuhan Institute of Virology including Shi Zhengli, conspired to keep the origins of the pandemic a secret. Holmes has blocked many of the Drastic members on Twitter because member's tweets have descended into personal attacks." Well this is in fact shit. Ryan is from Sydney right?

[2021-04-15 07:32:23]

**[Robert Garry]**

It's hard to count the number of journalistic ethical standards this violates.

[2021-04-15 07:40:52]

**[Kristian Andersen]**

He is a little shit. Accusing Angie of lying too.

[2021-04-15 07:48:11]

**[Robert Garry]**

I'm not certain about Australian libel laws but that paragraph is getting pretty damn close.

[2021-04-15 07:58:54]

**[Eddie Holmes]**

I'm so fucking angry but it's 1 am here and I need to sleep. He says that the attacks on Rosanna are lies but makes no such qualification for me. There will be hell to pay tomorrow. I've never had contact with Shi in my life.

[2021-04-15 08:02:50]

**[Kristian Andersen]**



I'll probably email him - but not worth losing sleep over. Safe it for the first cup of coffee tomorrow morning. Or beer :beer:

[2021-04-15 08:06:32]

**[Robert Garry]**

It's pure garbage.

[2021-04-15 08:25:11]

**[Kristian Andersen]**

Total garbage - unbelievable.

[2021-04-15 12:07:07]

**[Kristian Andersen]**

Reading that article again pissed me off more than I expected. So I wasted some time. [shared file(s): Clarification on recent CNET article]

[2021-04-15 12:15:00]

**[Robert Garry]**

Not a waste of time - well done!

[2021-04-15 12:18:20]

**[Kristian Andersen]**

I mean - the idiot included Eddie being "a Chinese puppet" among many other things. That's a really, really low point for journalism.

[2021-04-15 12:24:12]

**[Robert Garry]**

It's a hit piece. Claims to be a science writer - hates people that can actually do science. You did a good job of pointing out the sophistry, which describes the entire article.

[2021-04-15 12:35:47]

**[Robert Garry]**

Again well done. What a real journalist would do is ask the straightforward questions; "Can you please clarify (a) if you are accusing Drs. Holmes and Zhengli of lying," "Just to clarify - are you saying Dr. Rasmussen is lying?" and Do you agree with these statements by "Bostickson...?" No journalist has done the same of Alina, Jamie, Relman etc.

[2021-04-15 13:14:31]

**[Kristian Andersen]**

@Andrew Rambaut - do you have any insights about vaccine "breakthroughs" from your data? We just picked up four - three B.1.1.7 and one P.1 with one of the B.1.1.7s having Eek (first time we have seen that here). B.1.1.7 is high frequency by now, so not all that surprising to see it, although 3/4 and one with Eek is outside of what we might expect. P.1 is also circulating, but likely <5%, so picking that one up in a breakthrough also isn't great.

[2021-04-15 13:20:36]

**[Andrew Rambaut]**

I have heard they are 'enriched' for 484K but not significantly so. I am actually trying to get access to the data stream

[2021-04-15 13:23:06]

**[Kristian Andersen]**

It's my biggest fear that a few months down the line we're going to see many (many!) of these and I can't convince myself that it's \_not\_ going to happen. I have an unhealthy habit of refreshing the epi curve from Israel, which has been a huge success for vaccines. I want to keep it that way - but I can't shake this sense of doom (which is just part of being Kristian Andersen, I think...).

[2021-04-15 13:23:08]

**[Andrew Rambaut]**

I think the best way to test it is to compare positives in recently vaccinated (i.e. < 21 days) vs > 21 days as that will control for demographics

[2021-04-15 13:23:33]

**[Kristian Andersen]**

Yeah.

[2021-04-15 13:24:30]

**[Andrew Rambaut]**

Breakthrough are not everything though. Vaccination may still reduce probability of onwards transmission.

[2021-04-15 13:24:41]

**[Kristian Andersen]**

Definitely

[2021-04-15 13:25:13]

**[Andrew Rambaut]**

I would like to numbers down to single figures as quickly as possible though

[2021-04-15 13:26:17]

**[Kristian Andersen]**

No question the vaccines put a huge damper on everything, but I'm thinking about the long game of variants vs immunity. Clearly immunity from natural infection isn't working very well in places like Brazil, Iran, India, RSA, etc. It's unclear to me if that's because of a difference in how strong immunity is between infection vs vaccine, or whether it's just a question of time.

[2021-04-15 13:55:30]

**[Robert Garry]**

Not too soon to be thinking V2 of the vaccines - yeah this is going to be a long game. May hit >1M cases per day in the world not too long from now...

[2021-04-15 13:57:16]

**[Andrew Rambaut]**

We are already - I am on a committee for recommending the candidates to be developed.

[2021-04-15 13:58:02]

**[Andrew Rambaut]**

Currently recommending B.1.351 and B.1.1.7+E484K are taken forward - keeping options open for more.

[2021-04-15 14:12:26]

**[Andrew Rambaut]**

@Eddie Holmes and @Kristian Andersen - you guys have talked to Anjana Ahuja for Jeremy's book? How was it?

[2021-04-15 14:26:21]

**[Kristian Andersen]**

Just imagine what the 'variant' landscape is going to look like in three years from now if we don't dramatically decrease transmission... We're going to have huge number of co-circulating lineages - now's the time to ensure that doesn't happen...

Yeah, Anjana was great and I had a fun chat with her - worth talking to her as she knows a lot of the background.

[2021-04-15 14:37:53]

**[Eddie Holmes]**

Yes, she's good. It's going to be a great book.

[2021-04-15 14:40:44]

**[Eddie Holmes]**

@Kristian Andersen Just read you email. It's great! Thanks. I've just let Jackson have it with both barrels incl. the USyd legal team. Here's the actual statement from me about the miners (what was in an email to him that I did not know was going to be quoted and he never told me this): "The researchers at the WIV state that they have not closer virus to SARS-CoV-2 than RaTG13, and RaTG13 is clearly not the source of SARS-CoV-2 (it's far too distant). To me, these statements ring true because they would have very likely already published the sequence of any such virus if it had existed, particularly a virus that they would then do more work on. As such, the miners story tells us nothing about the emergence of SARS-CoV-2."

[2021-04-15 14:42:34]

**[Kristian Andersen]**

And you are absolutely right - "the miners story tells us nothing about the emergence of SARS-CoV-2". I definitely hope legal takes this on - libel, no question.

[2021-04-15 14:44:29]

**[Kristian Andersen]**

*[thread - ID: 2021-04-15 06:56:52]*

@Robert Garry Archiving a PDF version here. [shared file(s): How the coronavirus origin story is being rewritten by a guerrilla Twitter group - CNET.pdf]

[2021-04-15 14:46:34]

**[Eddie Holmes]**

I'm keen to see his response.

[2021-04-15 14:52:50]

**[Robert Garry]**

Zhengli also stated in a public talk a month or so ago - the one in which Metzl harangued her about the CCP army - that the eight or nine distantly related coronaviruses they found in the mine and just haven't yet worked up are are part of an upcoming publication. More disappointment for Metzl et al who believe are these mine viruses are smoking guns.

[2021-04-15 14:54:38]

**[Kristian Andersen]**

I'm pretty sure it's these - distantly related. [shared file(s): Ew35lxKU8AAbXdw.png]

[2021-04-15 14:55:41]

**[Eddie Holmes]**

All very good points

[2021-04-15 14:59:38]

**[Robert Garry]**

You could add to the litany of lies that Jackson, Metzl, DRASTIC etc are accusing Zhengli of is the negative serology of her own staff after they had Ab assay up and running.

[2021-04-15 16:01:16]

**[Robert Garry]**

But this is probably nothing compared to the lies that Alina, Metzl eDim, Relman etc are feeding the journos about us "virologists." Here's Billy's latest on Eddie (with a little help from Alina). [shared file(s): image.png]

[2021-04-15 16:03:08]

**[Robert Garry]**

Whatever is showing up in the articles like Jackson's is no doubt tame/watered down compared to the stories that the Internet Sleuths are feeding anyone that will listen.

[2021-04-15 16:25:20]

**[Eddie Holmes]**

Billy's in for a surprise when the new pangolin data is published

[2021-04-15 16:41:04]

**[Andrew Rambaut]**

You can send him this link when it is:

<https://www.youtube.com/watch?v=5Z9p4RJC1pM>

[2021-04-15 17:11:37]

**[Eddie Holmes]**

On the case: [shared file(s): Screen Shot 2021-04-16 at 10.10.58 am.png]

[2021-04-15 17:32:03]

**[Kristian Andersen]**

Good!

[2021-04-15 17:47:59]

**[Eddie Holmes]**

My parts of the story are going to be corrected. It's still a piece of shit story, but at least I won't be defamed.

[2021-04-15 17:53:38]

**[Robert Garry]**

Yes - still shit.

[2021-04-15 17:55:23]

**[Kristian Andersen]**

One of the worst.

[2021-04-15 18:29:05]

**[Eddie Holmes]**

*[thread - ID: 2021-04-15 18:29:05]*

No surprise that Ape Boy fails to remember that the first Guangdong pangolin CoV was published BEFORE the pandemic started. And we are accused of lying?

[2021-04-16 04:49:57]

**[Robert Garry]**

<https://www.cnn.com/2021/04/15/politics/covid-origin/index.html>

[2021-04-16 04:52:57]

**[Robert Garry]**

"There are some scientists who believe the lab theory. Dr. Robert Redfield, a former head of the US Centers for Disease Control and Prevention who led the center during the first year of the outbreak as a member of the Trump administration, told CNN's Dr. Sanjay Gupta in March that his personal opinion, one he admitted is not shared by everyone, is that the virus originated in a lab.

\*Comic-book theory of Covid.\* Scientists who study viruses in the field are extremely skeptical of this view.

"That's the way it would be in a movie or some sort of a thriller or a comic book," Robert Garry, of Tulane, told CNN's Maggie Fox after Redfield shared his views. Garry helped write a study published in March of last year that showed the virus arose naturally."

"Science will eventually figure it out," Redfield said.

That's right. It won't be US intelligence agencies that determine where the virus came from. But there is definitely a feeling in the US intelligence community that China isn't trying very hard to get to the bottom of it."

[2021-04-16 04:57:21]

**[Robert Garry]**

"Spies vs. scientists" is now a thing.

[2021-04-16 05:14:41]

**[Robert Garry]**

Apparently - I haven't seen it - Tucker is also disparaging me because I called out Fox News for their comic book-like RaTG13+pango scenario.

[2021-04-16 05:46:42]

**[Robert Garry]**

*[thread - ID: 2021-04-15 18:29:05]*

@Eddie Holmes The timing of all of the sequence information on sarbecoviruses is really the most definitive proof that SC2 is not a product of engineering, cell culture passage or GoF research.

[2021-04-16 06:19:49]

**[Kristian Andersen]**

Crazy town.

[2021-04-16 11:05:30]

**[Kristian Andersen]**

@Robert Garry - thoughts on some of these mutations in the "Indian" B.1.617 variant? The three spike mutations at 154, 452, and 484 certainly appear immune related. [shared file(s): Screen Shot 2021-04-16 at 11.04.11 AM.png]

[2021-04-16 11:12:07]

**[Kristian Andersen]**

Interestingly, B.1.617 doesn't have the deletion in ORF1a, but it has a mutation very close by - I wonder if it might be having the same effect.

[https://outbreak.info/compare-lineages?pango=B.1.1.7&pango=B.1.351&pango=P.1&pango=\[...\]pango=B.1.617&gene=ORF3a&gene=N&gene=ORF1a&gene=S&threshold=75](https://outbreak.info/compare-lineages?pango=B.1.1.7&pango=B.1.351&pango=P.1&pango=[...]pango=B.1.617&gene=ORF3a&gene=N&gene=ORF1a&gene=S&threshold=75) [shared file(s): Screen Shot 2021-04-16 at 11.10.13 AM.png]

[2021-04-16 11:23:50]

**[Robert Garry]**

It's the corridor that was discussed above. PhiL and DouG (or similar mutations) open a door and the virus walks down to improve infection of humans. So the corridor involves: NTD front face: e.g. E154K (Eek, Jr?) or others, one or couple of RBD mutants (enhanced binding/immune escape) and a FCS enhancing mutation. Throw in the nsp6 loop deletion or another mutation near and you've got amore efficient virus.

[2021-04-16 11:26:46]

**[Kristian Andersen]**

Eek, Jr - love it :wink:.

the del3675/77 is the nsp6 deletion, correct?

[2021-04-16 11:31:18]

**[Robert Garry]**

I think that's correct. Also, the nonbat "mutations in" Spike (A372 - knocks out a glycosylation site and H519) likely give SC2 a leg up - ie maybe makes it more pan-tropic. Of course need to mention the PRRA nonbat insertion too.

[2021-04-16 11:39:30]

**[Robert Garry]**

I think this is the NSP6 mutation in B.1.617 [shared file(s): image.png]

[2021-04-16 11:48:11]

**[Kristian Andersen]**

Which one in that figure?

[2021-04-16 11:58:08]

**[Robert Garry]**

T80A if I have counted right. The other NSP mutations are in A.23.1. NSP6: L98F, M83I, M86I. A.23.1 used Q613H and Y346H to open the door instead of PhiL and DouG.

[2021-04-16 12:09:50]

**[Robert Garry]**

WELL it's T77A - I didn't count right the first time.

[2021-04-16 12:12:20]

**[Robert Garry]**

shared file(s): image.png

[2021-04-16 12:23:58]

**[Kristian Andersen]**

Interesting - 77 is pretty buried, so may not really play a role.

[2021-04-16 12:32:44]

**[Robert Garry]**

Actually I think that TM domain is probably doing some "business." I wouldn't discount some sort of "channel" activity so the T to A change could make a difference.

[2021-04-16 12:33:47]

**[Robert Garry]**

Remodeling lipids is another possibility.

[2021-04-16 13:28:50]

**[Eddie Holmes]**

Attacked by Tucker Carlson - badge of honour Bob. China are definitely not trying hard to get the bottom of the lab because they've ruled that out already.

[2021-04-16 13:38:29]

**[Kristian Andersen]**

I think they're perfectly contend with the Americans running around in circles and falling over themselves talking about lab escapes.

[2021-04-16 13:43:46]

**[Robert Garry]**

Good points!

[2021-04-16 13:50:14]

**[Eddie Holmes]**

I agree!

[2021-04-17 06:39:31]

**[Robert Garry]**

Having "conquered" the "origin" of SC2 DRASTIC turns its "arsenal" on another possible "lab leak." Seemingly it's timely to relitigate the CHAT-OPV hypothesis. If there's just a 1% chance HIV is a "lab leak" shouldn't we shut down all the virologists? [shared file(s): image.png]

[2021-04-17 06:51:51]

**[Robert Garry]**

It was Tom Curtis of The Rolling Stone that birthed the notion that HIV was a "lab leak." The last paragraph is prophetic - blame the virologists. "Like Salk and Sabin, Koprowski had the best intentions: He wanted to eradicate a debilitating and deadly scourge. But with what we know now, it's clear there was a certain hubris involved in the rough-and-ready campaigns to conquer polio. There is evidence that all three pioneers used vaccines inadvertently contaminated with viruses from a species dangerously close to our own. If the Congo vaccine turns out not to be the

way AIDS got started in people, it will be because medicine was lucky, not because it was infallible." [shared file(s): Curtis-OriginOfAIDS-RollingStone.pdf]

[2021-04-17 06:55:56]

**[Robert Garry]**

Hmmm - "A STARTLING NEW THEORY ATTEMPTS TO ANSWER THE QUESTION 'WAS IT AN ACT OF GOD OR AN ACT OF MAN?'"

[2021-04-17 07:22:15]

**[Robert Garry]**

*[thread - ID: 2021-04-17 07:22:15]*

Last paragraph of Alina's Slate Podcast: "We have all of these virus hunting programs spread everywhere, especially in developing countries. They're worth hundreds of millions of dollars. And it's not just that many, many groups of scientists all draw from this money. There's a disincentive for them to advocate for an investigation into origins because it could shift the perception of their work as life-saving, as pandemic-preventing, to one that could actually result in a pandemic and in lives lost."

[2021-04-17 08:05:19]

**[Robert Garry]**

Spys vs. Scientists - as viewed by Russian media (TLDR: bottom line: Daszak has Col)  
<https://www.rt.com/op-ed/521314-us-spies-covid-lab/>

[2021-04-17 10:15:59]

**[Robert Garry]**

*[thread - ID: 2021-04-17 07:22:15]*

@Robert Garry Have to admit that the more I read this kind of shit the angrier I get. Seriously, I can't think of many scientists working in BSL-4 and doing fieldwork that are doing this for the money.

[2021-04-18 06:53:05]

**[Robert Garry]**

More false equivalence. Auf Deutsch [translated here]. Notable for some bad cartoons and an @Kristian Andersen exchange with the Wiz. [shared file(s): Coronavirus\_ War es ein Laborunfall\_ Das Ra■tsel um den Ausbruch.pdf]

[2021-04-18 07:59:02]

**[Kristian Andersen]**

"Daszak and Andersen are both very active on Twitter. [...] As soon as someone makes himself known who brings the laboratory theory into play, he is covered by the two with comments that are mostly somewhere between smug and disparaging."

:joy:. I love to think of the Grand Wizard and myself as the Natural Origin Police. This is so dumb.

If you look at eDim, however, you'll probably find that he tweets hundreds of times a day, chiming in as the Lab Leak Police - it's unbelievable how much time he waste on Twitter.

[2021-04-18 08:00:37]

**[Kristian Andersen]**

I love that the main diss on our paper is this:

"How is it possible that Sars-CoV-2 can dock onto human cells so perfectly after such a short period of time? Is this actually as amazing as some claim, or is the phenomenon also known from other Sars viruses?"

Well, wait until they see that pangolin data and I think we have an answer...

[2021-04-18 08:24:17]

**[Robert Garry]**

No one is calling for the Parisites, DRASTIC, Asher/Pottinger/Pompeo etc to provide any science, beyond \*hey look\* there's a coronavirus lab in Wuhan. They got nothing except that, some very selective data cherry-picking and

accusations that some of the most productive virologists on the planet are liars.

[2021-04-18 08:28:12]

**[Robert Garry]**

The basis for asher's super-soldier crap here:<https://jamestown.org/program/chinas-military-biotech-frontier-crispr-military-civil-fusion-and-the-new-revolution-in-military-affairs/>

[2021-04-18 08:35:02]

**[Kristian Andersen]**

At least we're not Peter Daszak. Imagine having to deal with this level of (high level) bullshit? I can't imagine what his life must be like...

<https://republicans-energycommerce.house.gov/wp-content/uploads/2021/04/EcoHealth-Alliance-Letter.pdf>

[2021-04-18 09:18:51]

**[Robert Garry]**

I think that these same Republican people if they are really serious should demand release of the intel about the supposed sick people at WIV in November and the covert military activities, including animal experiments, conducted for the CCP army.

[2021-04-18 09:19:40]

**[Robert Garry]**

Also, ~Deep Throat~ Baric escapes all the attention?

[2021-04-18 09:22:52]

**[Robert Garry]**

And, yeah the CCP is indeed making the US look like fools regarding this lab leak nonsense. They have no incentive whatsoever to release any info about - for example - the actual species of animals - raccoon dogs etc - that were actually being sold at the market.

[2021-04-18 09:25:03]

**[Robert Garry]**

I assume as Eddie has alluded to that the Chinese are swabbing a lot of animal butts etc. This is clearly in their own best interests, but it's a long slog. Truth will out.

[2021-04-18 09:27:16]

**[Kristian Andersen]**

All very true.

[2021-04-18 12:55:49]

**[Eddie Holmes]**

Well, on the bright side, that's the end of the GVP

[2021-04-18 13:07:45]

**[Eddie Holmes]**

Daszak is a bull-shitter and a charlatan and should have had the common sense to realise that his position on the WHO commission was compromised. But he's not liar and he's not involved in a cover-up. He is genuinely looking for the animal origin and he is shaken by this.

[2021-04-18 14:47:29]

**[Eddie Holmes]**

<https://www.telegraph.co.uk/global-health/science-and-disease/wuhan-officials-identified-huanan-market-pandemic-risk-least/>

[2021-04-18 14:48:08]

**[Eddie Holmes]**



She did good

[2021-04-18 14:54:15]

**[Kristian Andersen]**

Agreed - good one. And such a simple theory...

[2021-04-18 14:58:12]

**[Eddie Holmes]**

Who would have thought it?

[2021-04-18 14:59:45]

**[Kristian Andersen]**

*[thread - ID: 2021-04-18 14:59:45]*

:man-shrugging:

[2021-04-18 17:30:08]

**[Eddie Holmes]**

<https://twitter.com/georgiaaquarium/status/1383814554581307394?s=12>

[2021-04-18 17:39:55]

**[Robert Garry]**

Wow! Otters - asian otters no less - more evidence that SC2 is perfectly adapted for humans - oh wait - otters - maybe not.

[2021-04-18 17:44:32]

**[Robert Garry]**

*[thread - ID: 2021-04-18 14:59:45]*

@Kristian Andersen Sensational @Eddie Holmes just what was needed - Thank you!

[2021-04-18 17:45:21]

**[Eddie Holmes]**

*[thread - ID: 2021-04-18 14:59:45]*

Back to tile one

[2021-04-18 17:46:38]

**[Kristian Andersen]**

Otters.... The host range of this thing - just nuts.

[2021-04-18 17:50:13]

**[Eddie Holmes]**

It is! It's a total generalist.

[2021-04-18 18:56:33]

**[Kristian Andersen]**

Is there any other virus / pathogen like it? I can't really think of another virus with this broad a host range, but I might well be wrong.

[2021-04-18 21:16:48]

**[Eddie Holmes]**

*[thread - ID: 2021-04-18 21:16:48]*

I can't quite think of one: canine parvovirus infects many carnivores, and RABV infects bats and carnivores, but they are still not quite as broad as SC2.

[2021-04-18 21:37:55]

**[Eddie Holmes]**

In today's mail...I can never escape [shared file(s): IMG\_1628.JPG]

[2021-04-19 04:18:24]

**[Robert Garry]**

Clearly what's needed in the situation depicted is a complete forensic investigation. Every record must be turned over to an international body of accountants, law enforcement officials, architects and engineers. Or, they could just call a ~virologist~ plumber.

[2021-04-19 04:24:14]

**[Andrew Rambaut]**

I love to imagine that some targeted advertising system thinks you have a leak because you keep talking about it

[2021-04-19 04:31:17]

**[Robert Garry]**

Of course the question arises: Act of God or Act of man? And what are the odds that such a leak would occur in a city where there are plumbers?

[2021-04-19 04:41:27]

**[Robert Garry]**

If there is only a small chance that the leak is due to plumbers we need to shut them all down. They are all liars and we can't trust anything they say anyway. Some are even from foreign countries.

[2021-04-19 04:48:40]

**[Robert Garry]**

Not only that - plumber's are known to be very sloppy with their PPE. [shared file(s): image.png]

[2021-04-19 06:05:05]

**[Robert Garry]**

As for Alina - here's one of her biggest lies: [shared file(s): image.png]

[2021-04-19 06:37:47]

**[Robert Garry]**

I guess this is in response to @Eddie Holmes devastating Telegraph article.

[2021-04-19 07:03:57]

**[Robert Garry]**

*[thread - ID: 2021-04-18 21:16:48]*

@Eddie Holmes Yes - SC2 range a pretty big swath of the mammalian family tree. [shared file(s): image.png]

[2021-04-19 07:08:12]

**[Robert Garry]**

*[thread - ID: 2021-04-18 21:16:48]*

@Eddie Holmes Here's a good recent article on host range. [https://wwwnc.cdc.gov/eid/article/27/4/20-3945\\_article](https://wwwnc.cdc.gov/eid/article/27/4/20-3945_article)

[2021-04-19 07:10:22]

**[Robert Garry]**

*[thread - ID: 2021-04-18 21:16:48]*

@Eddie Holmes Betacoronavirus 1 of which OC43 is a member has an incredible host range as well.

[2021-04-19 07:27:57]

**[Robert Garry]**

*[thread - ID: 2021-04-18 21:16:48]*

@Eddie Holmes <https://pubmed.ncbi.nlm.nih.gov/11332477/> Even turkeys.

[2021-04-19 07:31:22]

[Robert Garry]

<https://yurideigin.medium.com/stop-lying-angie-dr-angela-rasmussens-public-lies-and-slander-7fcf73ea6c8> And, then Yuri. @Kristian Andersen just be glad that you were "nice" to this crank.

[2021-04-19 07:32:36]

[Robert Garry]

Ok to disparage us though. [shared file(s): image.png]

[2021-04-19 08:49:32]

[Robert Garry]

And, what IF - anything being possible - we also get a whistleblower account that says that the WIV was also exploring not only with putting in the FCS, but using a 12 base out-of-frame insertion that adds a proline - yes a proline - as well as creating o-linked glycosylation sites? IOWS a WIV virologist had figured out how to make a pitch perfect mimic of natural insertions in sarbecoviruses that share the same previously unknown and seemingly idiosyncratic FCS structures found in three other [so 4/5] betacoronavirus subgenuses. [shared file(s): image.png]

[2021-04-19 08:50:30]

[Kristian Andersen]

What if?

[2021-04-19 08:55:28]

[Robert Garry]

It's all about Eddie's dagger right in the heart of the Lab Leak hypothesis. Impossible to \_honestly\_ wave away the fact that 2/3 of the early cases were associated with wet markets, just like the two SARS1 outbreaks. Alina is not an honest person.

[2021-04-19 13:23:49]

[Eddie Holmes]

Totally predictable they would come up with something like that following the Telegraph article and of course they by-pass the main issue. But the article about Angie is insane. Just mad. All we've had from that lot is slander. They're clearly suffering from some delusional disorder.

[2021-04-19 13:35:39]

[Robert Garry]

AS eDim says it's all about the narrative. Science be damned.

[2021-04-19 13:51:37]

[Robert Garry]

Good to see the Telegraph article cloned into other British Newspapers. Angie called Yuri's manifesto Turner Diaries-ese. Turner Diaries is a fictional portrayal of a dystopian future apparently intended as some sort of aspirational blueprint for White Supremacists. It's probably not the comparison I would have made {but I don't trust myself with a "loaded twitter account" either so who knows}. OTOH Yuri and his Lab Leak buddies call anyone who published a paper with anyone from China a tool of the CCP. He calls Shi and a host of others liars. Kinda does sound racist to me, too.

[2021-04-19 14:06:07]

[Eddie Holmes]

There's an inherent racism in so much of this.

[2021-04-19 14:19:36]

[Eddie Holmes]

Who am I a PR machine for? The #1 reaction I've got from the Telegraph story is 'you're not going back to China then'.

[2021-04-19 14:32:22]

[Robert Garry]

Pure garbage from Billy aka the down-on-his-luck, male sex organ-obsessed, failed "neuroscientist," blogging from his mum's basement and hoping for handouts from strangers.

[2021-04-19 14:42:57]

**[Eddie Holmes]**

He's just a nasty piece of work

[2021-04-19 17:42:29]

**[Eddie Holmes]**

*[thread - ID: 2021-04-19 17:42:29]*

This paper puts the risk into perspective. 11 cases of animal spillover of triple-reassortant swine H1N1 influenza A in humans that did not take off. All visited pig farms or fairs. [shared file(s): Shinde.NEJM09.pdf]

[2021-04-19 17:49:59]

**[Eddie Holmes]**

*[thread - ID: 2021-04-19 17:49:59]*

Bless. [shared file(s): Screen Shot 2021-04-20 at 10.47.30 am.png]

[2021-04-19 18:05:16]

**[Robert Garry]**

Probably one of the aliases of a DRASTIC member or Parisite.

[2021-04-19 18:41:27]

**[Eddie Holmes]**

I think this one is bona fide thicko Aussie.

[2021-04-19 18:43:06]

**[Eddie Holmes]**

CNet story has been corrected: <https://www.cnet.com/features/how-the-coronavirus-origin-story-is-being-rewritten-by-a-guerrilla-twitter-group/#tag=COS-05-10aaa0j>

[2021-04-19 18:45:51]

**[Kristian Andersen]**

Good. But he's still a prick and the article is still complete hogwash.

[2021-04-19 18:57:55]

**[Eddie Holmes]**

Totally.

[2021-04-19 18:59:30]

**[Kristian Andersen]**

*[thread - ID: 2021-04-19 18:59:30]*

He snug in other changes too - e.g., this "According to the Seeker's thesis find, which includes the opinion of China's foremost SARS expert, this is simply untrue" used to read "According to the Seeker's thesis find, this is simply untrue."

[2021-04-19 19:03:58]

**[Eddie Holmes]**

He's a piece of shit.

[2021-04-20 03:21:22]

**[Robert Garry]**

Very good to have the "record" at least partly corrected. That's important. Still, it's a truism that "nobody" see the corrections. Reminds me of the :clown\_face:s in the Trump admin who did a victory dance when they forced CDC to publish false info about SC2. Not about truth or science, but the narrative.

[2021-04-20 04:35:44]

**[Robert Garry]**

*[thread - ID: 2021-04-19 18:59:30]*

@Kristian Andersen Not so "simple" really. He's accusing Shi - who actually is China's foremost coronavirus expert - of lying.

[2021-04-20 04:36:33]

**[Robert Garry]**

*[thread - ID: 2021-04-19 18:59:30]*

@Kristian Andersen I'm guessing no reply to your email Kristian.

[2021-04-20 04:46:08]

**[Robert Garry]**

*[thread - ID: 2021-04-19 17:42:29]*

@Eddie Holmes Important - I'd forgotten about this! Yes -most spillovers die quickly.

[2021-04-20 04:53:01]

**[Robert Garry]**

*[thread - ID: 2021-04-19 17:49:59]*

@Eddie Holmes Big fan of DRASTIC - should probably get out of Mom's basement more.

<https://twitter.com/bomberdan63>

[2021-04-20 05:17:07]

**[Robert Garry]**

Other "what if" news:

<https://www.sfgate.com/streaming/article/hulu-true-crime-sasquatch-murder-cannabis-farmers-16104896.php>

[2021-04-20 06:32:55]

**[Robert Garry]**

It's remarkable to me that a post-doc who bludgeoned her way into the conversation on "origins" by claiming: 1. naively that SC2 has a unusual mutational frequency; 2. is well-adapted to humans; 3. international sequence data bases are filled with fraudulent virus sequences to support a natural origin, and 4. that world-class virologists are engaged in a conspiracy and cover-up/genocide is now somehow an expert in SC2 genomics. :face\_vomiting:  
[shared file(s): Covid-19 Surge in India Risks Breeding Variants the Nation Can't Track - WSJ.pdf]

[2021-04-20 07:44:55]

**[Robert Garry]**

She's not BTW.

[2021-04-20 08:12:13]

**[Kristian Andersen]**

In other mutation news, Gytis just shared his post on what's now B.1.620 - that is one crazy franken lineage too. Bloody hell. <https://github.com/cov-lineages/pango-designation/issues/54>

[2021-04-20 08:16:58]

**[Robert Garry]**

Unreal

[2021-04-20 09:26:40]

**[Robert Garry]**

Here's a leopard getting infected it seems with B117: Virus name: hCoV-19/leopard/Czech Republic/4102-5/2021  
Accession ID: EPI\_ISL\_1497614 SC2 is adapting to humans, but seemingly not "giving up on" being pan-tropic.

[2021-04-20 10:07:39]

**[Kristian Andersen]**

Non-specifically increasing affinity for mammalian ACE2 receptor....

[2021-04-20 10:12:26]

**[Robert Garry]**

Perhaps - curious to see the genomes of the otter SC2s - I'm guessing N501T or Y453F. Maybe some changes in NTD as well.

[2021-04-20 13:20:07]

**[Andrew Rambaut]**

""I am a reporter at Science and my colleague Martin Enserink suggested I reach out to you. I am trying to evaluate the importance of this new preprint: <https://www.biorxiv.org/content/10.1101/2021.04.16.440141v1?rss=1%22> and am hoping that you can take a quick look at it and give me your reaction to it. Toward that end, I've included some questions below, but we can also talk by zoom if that's more convenient.

Please let me know right away that this message has reached you and how you can help.

Many thanks. Stay safe, and sane.

Elizabeth Pennisi  
Science

Do I call you and evolutionary biologist? If not, then what?

What impresses you about this paper and why?

What is the most important new insight it provides on the origin of this variant?

How strong is the evidence that this variant may have arisen in dogs? Are you convinced? Why or why not?

What are your current thoughts about the origin of this variant?

What are the biomedical implications of this paper?

Any other thoughts?

Thanks again,  
Liz""

One for you Kristian - animal reservoir. However quick look suggests total balloux. Seems they have mutations accumulating backwards in time.

[2021-04-20 13:25:39]

**[Kristian Andersen]**

Yeah, she emailed me too - looks like complete bs.

[2021-04-20 13:25:48]

**[Kristian Andersen]**

(only read the abstract...)

[2021-04-20 13:37:37]

**[Eddie Holmes]**

And me. Shite.

[2021-04-20 13:38:33]

**[Eddie Holmes]**

I'll tell her not to waste time on it and let the reviewers deal with it.

[2021-04-20 15:20:00]

**[Kristian Andersen]**

Nice tree in that preprint. [shared file(s): Screen Shot 2021-04-20 at 2.25.20 PM.png]

[2021-04-20 15:20:15]

**[Kristian Andersen]**

Extra points for being symmetrical.

[2021-04-20 15:24:11]

**[Eddie Holmes]**

Oh, fuck, that's a classic. I told her to leave it and she said would.

[2021-04-20 15:25:12]

**[Kristian Andersen]**

I told her the same

[2021-04-20 15:25:14]

**[Andrew Rambaut]**

I did the same.

[2021-04-20 15:25:18]

**[Andrew Rambaut]**

And Oli

[2021-04-20 15:25:22]

**[Andrew Rambaut]**

And Nick Loman

[2021-04-20 15:25:26]

**[Kristian Andersen]**

Peer review completed.

[2021-04-20 15:25:40]

**[Kristian Andersen]**

Fuck. These journalists!!

[2021-04-21 07:57:04]

**[Robert Garry]**

DRASTIC thinks Nelly was a mouse mutation engineered into circulating SC2 by the CCP army to take out the UK. That theory is based on <https://science.sciencemag.org/content/369/6511/1603.full>

[2021-04-21 08:01:03]

**[Kristian Andersen]**

I'm surprised it took them so long to speculate about lab origins of the variants. Way more likely (but still highly unlikely...) than the initial spillover.

[2021-04-21 08:10:33]

**[Andrew Rambaut]**

Yes. They waited for an imported case from London, engineered in all the mutations and then shipped it back to Kent to release it.

[2021-04-21 08:10:59]

**[Andrew Rambaut]**

Probably in a dog

[2021-04-21 08:13:12]

**[Robert Garry]**

Maybe even a special genetically-engineered Superdog? That Trump era intel really needs to be released ASAP.

[2021-04-21 08:17:35]

**[Robert Garry]**

OTOH - it's perhaps not \_too\_ crazy to think that SC2 could find it's way into and get established in other perhaps high density species. Low hanging fruit - shutting down mink farming seems prudent.

[2021-04-21 08:18:39]

**[Kristian Andersen]**

Yup

[2021-04-21 08:18:42]

**[Andrew Rambaut]**

The the thing if you have a new persistent reservoir you should be seeing on going spill over from it.

[2021-04-21 08:19:19]

**[Andrew Rambaut]**

All B.1.1.7 seems to be neatly derived from the early kent virus

[2021-04-21 08:19:29]

**[Andrew Rambaut]**

(apart from the recombinants)

[2021-04-21 08:20:46]

**[Andrew Rambaut]**

However, if DRASTIC is going down this route (that B.1.1.7 was actually constructed) they are just revealing themselves to be the nutters they are to the people who have been taking them seriously.

[2021-04-21 08:21:01]

**[Andrew Rambaut]**

Let them dig their hole. Give them a spade

[2021-04-21 08:38:48]

**[Kristian Andersen]**

For the animal epizootic - I agree that we should see violations of tree structure if new mutations kept cropping up and spilling over from an animal reservoir. Thing is though, looking at the mink example from Denmark, the virus was flowing freely between the two hosts, making it impossible to figure out what was mink derived and what was human. We saw convergent evolution between DK and NL mink, so that made us believe mutations fixed in the mink population - so I'm not convinced we can \_rule out\_ a potential animal reservoir for e.g., B.1.1.7? Clearly, almost all (>99.99%) new B.1.1.7 infections are caused by human-to-human, but can we rule out that there isn't also a persistent non-human reservoir too? Could be small and limited, and of course, the virus would move from humans into that reservoir too.

I agree, definitely not as likely as the alternative hypothesis, but this thing keeps surprising me, so I hate ruling things out...

[2021-04-21 08:42:22]

**[Andrew Rambaut]**

So much convergence and parallel mutations and spike mutational 'bursts' now I think we have to move beyond trying to find a special explanation for B.1.1.7

[2021-04-21 08:43:25]

**[Kristian Andersen]**

True.



[2021-04-22 05:17:41]

**[Robert Garry]**

Angie fights back <https://www.nature.com/articles/s41591-021-01314-9>

[2021-04-22 05:18:38]

**[Robert Garry]**

Concerted attack on AR by DRASTIC - Yuri claims he's the victim.

[2021-04-22 05:30:08]

**[Robert Garry]**

And in related news - Alina still with the attacks on Eddie and the Pango papers - but - of course - call her out for her bullying and she plays the victim. Gullible journos eat it up or in the case of some (e.g. Jackson Ryan) get into the act as well. Truly Focanuba. [shared file(s): image.png, image.png]

[2021-04-22 05:52:20]

**[Andrew Rambaut]**

I got this last night:

```Dear Dr. Rambaut,

I hope this message finds you well. I am writing from the PLOS Publication Ethics team to ask if you might be able to help advise us on a pending post-publication case involving the above PLOS Pathogens article.

Several concerns have been raised about the article, including about apparent overlap or redundancy with other publications and about the availability of the underlying data. The authors have worked with us to address these issues, and based on the outcome of these discussions we have prepared the attached notice draft. However, before we proceed further or decide whether this would be suitable for a Correction (vs. a different type of editorial notice), we are seeking to have the underlying data reviewed. The underlying data were not provided or evaluated during the pre-publication peer review, and the outcome of this post-publication case will depend on whether the data support the reported results and conclusions, and whether they fully address PLOS' Data Availability requirements.

The data in question include pangolin SARS-CoV-2 sequencing data available through NCBI as well as gap-filling amplicon and contig sequencing datas provided in the attached files. In essence, we are seeking expert input as to whether the dataset provided is complete (per community data reporting standards for this type of study, and per the results reported in the article), whether the data are overall satisfactory, and whether the data provide clear and adequate support for the article's results and conclusions. If there are any concerns about the dataset or how the data align with the reported claims, we would also appreciate input on whether the issue could be addressed via a Correction or whether it has substantial implications for the reliability and/or validity of the article's conclusions.

One of the PLOS Pathogens Editors-in-Chief suggested you may be able recommend possible reviewers (e.g. bioinformaticians or viral genomics researchers) who could help with this data review. Do you have any suggestions? Alternatively, if you would be able to help review the data yourself, we would also be truly grateful for that level of support.

Thank you in advance for any help you can offer at this time. If you have any questions about this case or this request, please email me and I would be happy to provide any clarifications.

Thank you for your time and consideration. I look forward to hearing from you.

Best regards,
Renee

Renee Hoch, Ph.D.
Senior Editor, Team Manager Publication Ethics

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Case Number: [REDACTED]

ref: _00DU0lfis_5004PTABOET:ref``

Anyone know what this is about? Anyone want me to suggest them?

[2021-04-22 05:52:50]

[Andrew Rambaut]

Refers to this paper: RE: "Are pangolins the intermediate host of the 2019 novel coronavirus (SARS-CoV-2)?" (<https://doi.org/10.1371/journal.ppat.1008421>)

[2021-04-22 06:09:00]

[Robert Garry]

Timely - since Alina is directing more BS at @Eddie Holmes new pango paper - who would have thought pangos could carry more than one respiratory pathogen? Pretty sure this is more Alina bullying - guessing she sent a new round of letters to PLOS and Nature. @Kristian Andersen answered this on virological. *Vegard Eldholm & Ola B Brynildsrud* _Norwegian Institute of Public Health_ also weighed in. The horse is dead, but Alina keeps beating it. PLOS should do more than just say the data is ok - it should call out the Alina crap.

[2021-04-22 06:38:36]

[Kristian Andersen]

Probably just need to reassemble the virus genomes from the provided data - happy to do it @Andrew Rambaut

[2021-04-22 09:48:37]

[Robert Garry]

Rossana (Yuri's "co=pilot") too - make no mistake RS is accusing us (PO authors) of malfeasance. [shared file(s): image.png, image.png]

[2021-04-22 10:16:18]

[Kristian Andersen]

Idiots. Plain and simple.

[2021-04-22 11:37:32]

[Robert Garry]

[https://www.unibas.ch/en/News-Events/News/Uni-Research/Conspiracy-theories-and-cogn\[...\].html?pk_campaign=UN_20210407_Verschwoerungstheorien](https://www.unibas.ch/en/News-Events/News/Uni-Research/Conspiracy-theories-and-cogn[...].html?pk_campaign=UN_20210407_Verschwoerungstheorien)

[2021-04-22 11:38:05]

[Robert Garry]

Turns out most people are idiots. [shared file(s): image.png]

[2021-04-22 11:38:25]

[Robert Garry]

Or they have been misled by our "leaders."

[2021-04-22 12:00:09]

[Kristian Andersen]

Not surprised by this - and honestly, polling scientists on the first two questions, I'm not sure it would change much.

[2021-04-22 12:18:08]

[Robert Garry]

Sadly - you are likely correct. Should point them to your pinned tweet. Also - this was in Switzerland and Germany. US public much more skewed. Start off with all Trump voters 46% in category 1.

[2021-04-22 12:31:21]

[Robert Garry]

Fortunately all scientists have NOT been fooled. "Nature is clearly a cauldron for intense and dangerous coronavirus evolution." [shared file(s): [14761645 - The American Journal of Tropical Medicine and Hygiene] The Origin of COVID-19 and Why It Matters.pdf]

[2021-04-22 12:32:58]

[Robert Garry]

"It should be clarified that theories about a hypothetical man-made origin of SARS-CoV-2 have been thoroughly discredited by multiple coronavirus experts.^{21,28,29}"

"It is also highly unlikely that SARS-CoV-2 was released from a laboratory by accident because no laboratory had the virus nor did its genetic sequence exist in any sequence database before its initial GenBank deposition (early January 2020). China's laboratory safety practices, policies, training, and engineering are equivalent to those of the United States and other developed countries,³² making viral "escape" extremely unlikely, and of course impossible without a viral isolate present. SARS-CoV-2 shares genetic properties with many other sarbecoviruses, lies fully within their genetic cluster, and is thus a virus that emerged naturally."

[2021-04-22 12:52:47]

[Kristian Andersen]

Yup - and that's a good article.

[2021-04-22 12:53:38]

[Kristian Andersen]

[from people who would know]

[2021-04-22 12:54:16]

[Robert Garry]

Really love the "Nature is clearly a cauldron for intense and dangerous coronavirus evolution" bit.

[2021-04-22 12:56:55]

[Kristian Andersen]

Yeah. And this was written before we saw all the crazy new viruses and variants as of late - nature really is frightening.

[2021-04-22 12:59:31]

[Eddie Holmes]

<https://www.microbiologyresearch.org/content/journal/jgv/10.1099/jgv.0.001586>

[2021-04-22 13:00:49]

[Eddie Holmes]

It's a respirovirus. The clue is in the title. Nothing to do with SC2 at all.

[2021-04-22 13:02:51]

[Robert Garry]

Who would have imaged that any one animal could be infected with more than one respiratory virus?

[2021-04-22 13:04:16]

[Eddie Holmes]

Is she so dumb as to not realise that 'respirovirus' is a taxonomic name?

[2021-04-22 13:09:42]

[Robert Garry]

Yes - actually dumber.

[2021-04-22 13:11:22]

[Eddie Holmes]

Yes, she's clearly behind that PLoS request. Like @Andrew Rambaut I was also asked by PLoS to look at that paper yesterday. I declined because I said that I would be classed as having a conflict of interest.

[2021-04-22 13:15:25]

[Kristian Andersen]

I'm not quite sure what she's trying to say - that first they said it was SARS-CoV-2 and then later repackaged the paper when they realized it was a respirovirus?

[2021-04-22 13:17:39]

[Eddie Holmes]

Just spectacularly stupid

[2021-04-22 13:19:34]

[Eddie Holmes]

They'd already reported the respirovirus in the pangolins. This was just a follow-up study.

[2021-04-22 13:19:52]

[Andrew Rambaut]

Someone reply to her with this link:

<https://letmegooglethat.com/?q=respirovirus>

[2021-04-22 13:20:03]

[Robert Garry]

Liu P, Chen W, Chen JP. Viral metagenomics revealed Sendai virus and coronavirus infection of Malayan pangolins (*Manis javanica*). *Viruses* 2019;11:979.

[2021-04-22 13:20:34]

[Eddie Holmes]

There you go.

[2021-04-22 13:22:04]

[Robert Garry]

Where is a good journalist when you need one?

[2021-04-22 13:28:04]

[Eddie Holmes]

<https://www.scmp.com/news/china/diplomacy/article/3130470/coronavirus-chinese-expert-rails-against-tedros-and-wuhan-lab>

[2021-04-22 13:31:21]

[Robert Garry]

Tedros did this in a ham-handed way. Not sure what was in his head (pressure from other countries maybe), but if I had been on the study would definitely have been pissed off.

[2021-04-22 13:59:09]

[Eddie Holmes]

Agreed. He was just so keen to get the US back into the fold.

[2021-04-22 16:00:18]

[Robert Garry]

Yes indeed - really need to get the White House and DoS up to speed on the - I'm sure you know - the actual science instead of the :hankey:. We are on the wrong side of the politics, but the right side of reality.

[2021-04-22 16:01:15]

[Robert Garry]

The ASTMH article a good start. Much more needed to counter the BS.

[2021-04-22 16:03:54]

[Kristian Andersen]

I'm talking to the WH (again....) next week. We'll see.

[2021-04-22 16:11:05]

[Robert Garry]

We may need to get more pro-active. We're not in the "majority" opinion. Gonna take some leadership.

[2021-04-22 16:24:56]

[Eddie Holmes]

The ASTMH story makes the simplest point that I've made so many times before: if they had a cool bat CoV, particularly one with a FCS, they would have definitely published it prior to the pandemic. No bigger driver than a high impact paper.

[2021-04-22 16:42:14]

[Robert Garry]

Absolutely spot-on @Eddie Holmes - Shi et al, are damm serious scientists. Yes -I get it- a lot of ppl hate the CCP for good reason. BUT - WTF have we been doing over the past 4 or 5 decades? Chinese, Taiwanese, other Asian scientists were trained in the best US, European and Australian labs. I remember "training" with C-C King aka Dana King - she was a freaking mess in graduate school, but went back to Taiwan and is now a [lower case] "god" of Taiwan virology. WE built this. It's should not be about ideology, the CCP or political BS.

[2021-04-22 16:52:45]

[Eddie Holmes]

Totally. I've not seen C-C for a few years now. She's great!

[2021-04-22 16:55:21]

[Robert Garry]

Virology - it's like a small town to grow up in...

[2021-04-23 02:11:49]

[Eddie Holmes]

From journo in Wuhan "This from the wildlife rescue center is interesting. These places are potentially as or more dangerous for spreading animal disease than wet markets if there is that big a mix of wildlife present, potentially diseased wildlife since they've been rescued. This place is within the park, as is that wildlife zoo [connected to the notorious tiger farm in Guangxi], and all overseen by the Hubei Provincial Forestry Bureau.

Statement from 2012: http://lyj.hubei.gov.cn/jhyjzx/kpyd/201912/t20191210_1731975.shtml The Provincial Wildlife Rescue Center is located in the picturesque and beautiful Wuhan Jiufeng National Forest Park. It covers an area of 73.5 acres and has a green coverage rate of over 80%. Since its establishment, the center has rescued and rescued more than 129,000 heads of 89 species of national key protected wild animals, such as golden monkeys, black bears, pythons, and gray cranes, such as golden monkeys, black bears, pythons, and gray cranes. It has carried out more than 150 release activities and released more than 121,000 animals (A herbarium has been established, and an animal science education base has been established in Changqing Primary School. At present, there are more than 185 wild animals of 12 species in the park, with 68 wild animal specimens.

They also released this about regulations for collecting, storing and transporting animal disease samples. http://lyj.hubei.gov.cn/jhyjzx/kpyd/202012/t20201228_3133761.shtml Were they storing disease samples on sight? Wonder how biosecure the place was?"

[2021-04-23 02:14:09]

[Eddie Holmes]

He's certainly right about rescue centres (which is of course where the pangolins ended up). We have them here as well, hence that bat video I sent the other day. The idea that we can prevent people from interacting with wildlife is ridiculous.

[2021-04-23 02:33:23]

[Andrew Rambaut]

Also the Large Bat Collider

[2021-04-23 03:03:36]

[Eddie Holmes]

Oh, forgot the bat collider. The journo is finding that this whole wildlife industry is run by some very dodgy people "The pangolins often end up at these places then are "transferred" out to "licensed breeders" who often really have no reason to have pangolins, at least in Guangxi and one other provincial rescue center I know that's been looked into by NGOs here.

I keep coming up with potentially problematic people in the layers around this park/wildlife zoo/rescue center. For example, the VP of the Forestry University in Hubei, who is also the legal rep for the whole park, was given a party warning in September 2019 over a large scale misuse of subsidies. The head of the center himself who is also at that same university may have been an investor in a wildlife farm in Yunnan, his name shows up in the records, but need to make sure it's the exact same person."

[2021-04-23 05:38:59]

[Robert Garry]

Really important stuff here Eddie! Important question: why isn't Linfa's ACE2 blockade of binding [ACE2BOB] assay not be deployed in the animals? Serology much better than NAT/NGS - which obviously only detect virus during the infection period - to find a reservoir species.

[2021-04-23 16:46:06]

[Eddie Holmes]

Totally agree that this assay - and things like VirScan - are the way to go, but Linfa is shutout of the Chinese system. He's looking for samples but these are coming from other countries in SE Asia. This is the key problem: there are great assays available, but there's no evidence they are actually using them. It's very unclear what they are actually doing in China.

[2021-04-23 16:46:28]

[Eddie Holmes]

One more from the journo: "Think I previously mentioned this Enshi area out in Western Hubei where there were at least 290 wildlife farming operations and 450,000 animals, right? It was one of the earliest places I saw that wildlife farms were shut down when I was monitoring all that last January into February. Appears there were people out there selling live pangolin in 2018 and were busted, but only got suspended sentences and minimal fines ranging from \$500 USD and below. https://www.sohu.com/a/332872438_695387 Would need to Google translate it. Really hate these Chinese media reports on criminal cases since they never publish full names, so hard to backtrack to specific individuals. It appears that what was seized in Lichuan, Enshi in 2019 was taken to Wuhan in an armoured vehicle on Mar. 1, 2020, for investigation into the outbreak, but that's all I've found on that: http://lyj.hubei.gov.cn/bmdt/dfly/202003/t20200306_2174072.shtml It was taken to the provincial public security department though, and not apparently to any scientific investigation, at least on the surface of the story linked above.

There's a huge 60km cave system out that way, probably bigger if it hasn't been fully explored. Bats carrying coronavirus were more common in Hubei than assumed according to a dissertation paper of a student of Shi Zhengli's that I've seen. They only were able to test bats for that paper in one part of Hubei, pretty close to Wuhan."

[2021-04-24 05:32:52]

[Robert Garry]

Yes indeed - VirScan data would be valuable too. We're seeing high levels of exposure to sarbeco and merbecovirus in Sierra Leoneans by serology (including neutralization)- not sure where this will lead us. Your journo is on to something for sure - Daszak said wildlife farms were \$70 billion industry and I believe him - equivalent to the American cattle industry. It would surprise me if wildlife trade of that magnitude just got wiped out in one fell swoop. Doesn't seem like they actually stopped selling civets after SARS1, but I dunno. Lab leak idiots pushing their nonsense is total BS. DRASTIC actually should be DISTRACT, because that is precisely what they are doing. We need a worldwide investigation of wildlife trade and wild coronaviruses, not some bs "forensic" investigation of WIV.

[2021-04-24 08:12:38]

[Robert Garry]

Chinese mink farms? [shared file(s): Origin of Covid-19_ the trail of Chinese minks is strengthening.pdf]

[2021-04-24 14:57:34]

[Eddie Holmes]

Certainly a possibility. I'll ask Weifeng if he knows anything. He's based in Shangdong.

[2021-04-25 05:25:12]

[Robert Garry]

More on the top secret (albeit published in peer-reviewed journals) at WIV conducted with the CCP military. <https://www.dailymail.co.uk/news/article-9507749/How-scientists-Wuhan-lab-helped-Chinese-army-secret-project-animal-iruses.html>

[2021-04-25 05:31:02]

[Robert Garry]

Jamie says that it's important that he sells more books - the books must be sold:<https://www.france24.com/en/live-news/20210422-who-seeks-next-steps-in-covid-origins-probe>

[2021-04-25 05:37:04]

[Robert Garry]

<https://www.hawley.senate.gov/hawley-braun-introduce-bill-requiring-biden-declassify-wuhan-lab-leak-intelligence>
Somehow it's seems for diff reasons I'm agreeing with this pile of shit. [shared file(s): image.png]

[2021-04-25 14:22:22]

[Eddie Holmes]

Birrell is such a knob. So nice of China to make their pictures available. He should into the military association at NIH. I've seen David Morens - Tony Fauci's right hand man - in uniform plenty of times.

[2021-04-25 16:07:02]

[Robert Garry]

sure - shut down Porten Down, usamriid etc. too dangerous. i'm sure the russians, koreans, iranians and yes even china will reciprocate.

[2021-04-26 00:32:57]

[Eddie Holmes]

What's the feeling about B.1.617: is it genuinely increasing transmissibility or is it just riding the wave of the massive number of cases in India?

[2021-04-26 00:37:47]

[Andrew Rambaut]

B.1.617 is split into B.1.617.1 (with E484Q) and B.1.617.2 (without) and both seem to be coming up along with a lot of other stuff. But there are no sequences since the start of April and the sequencing is quite geographically hetrogenous. My guess is that most of it is B.1.1.7.

[2021-04-26 00:38:48]

[Andrew Rambaut]

It seems there are a lot of sequences that are not being put on GISAID:
<https://science.thewire.in/health/variant-first-identified-in-uk-is-behind-delhis-covid-19-surge-ncdc-chief/>

[2021-04-26 00:41:51]

[Eddie Holmes]

That's really interesting.

[2021-04-26 01:40:15]

[Andrew Rambaut]

Weirdly B.1.617.2 is coming up a lot in recent travel related international cases (with connection to India) but very little in Indian GISAID genomes so likely somewhere missing from surveillance.

[2021-04-26 02:22:28]

[Eddie Holmes]

Let's hope they can get their sequencing together. Indian scientists are submitting a ton of papers to bioRxiv.

[2021-04-26 06:50:13]

[Kristian Andersen]

I believe they're sequencing a lot - just not being shared.

[2021-04-26 08:54:49]

[Robert Garry]

Perfectly sums up DISTRACT, Alina and the other Parisites. [shared file(s): COVID Has Created a Perfect Storm for Fringe Science - Scientific American.pdf]

[2021-04-26 09:23:21]

[Kristian Andersen]

How very true -and of course, true of the broader issues too.

The "distinguish scientists from science" is often important - although I typically also like to add "scientists vs experts" - not necessarily the same thing.

[2021-04-26 21:33:39]

[Kristian Andersen]

As for the pangolin CoV genome...

I wasted a good four hours today. :clap::clown_face: [shared file(s): readme.txt]

[2021-04-26 22:33:37]

[Eddie Holmes]

Thanks for doing that! So sad that you even have to bother.

[2021-04-27 05:00:36]

[Robert Garry]

It's important Kristian. Alina's assertion that the world's sequence databases are corrupted via an international conspiracy to obscure the origins of SARS-CoV-2 takes a wooden stake to the heart.

[2021-04-27 05:00:48]

[Robert Garry]

Meanwhile I took part in a little stab at another set of conspiracy theorists.

<https://www.snopes.com/fact-check/pfizer-neurological-damage/> "In February 2021, anti-vaccine activist and conspiracy theorist Robert F. Kennedy Jr. shared a Facebook post purporting to describe "new research" published by "veteran immunologist" J. Bart Classen in a journal named Microbiology & Infectious Diseases. The study in question asserted to have found evidence that Pfizer's COVID-19 vaccines could cause neurological degenerative diseases. In April 2021, the right-wing National File promoted this same study, describing the research as "credible" — apparently basing this conclusion on nothing more than the fact that it appears in what looks to be a legitimate scientific journal."

[2021-04-27 05:34:04]

[Robert Garry]

Alina also needs to be called out for her bullshit and distraction. [shared file(s): image.png]

[2021-04-27 12:52:01]

[Robert Garry]

Follow the animals... [shared file(s): U.S. Aims to Shape New Phase of WHO-Led Probe Into Origin of Covid-19 - WSJ.pdf]

[2021-04-27 13:10:29]

[Eddie Holmes]

That's an important article Bob - tacit administration by the intelligence community that they have nothing. They seem to be putting the correct hypothesis first.

[2021-04-27 13:32:26]

[Robert Garry]

Indeed - there is a bill re China that's working it's way thru Congress that would require the release of the "intel." I'm all for it. Move on from the DISTRACTIONS - get a real plan for following the animals - do the science.

[2021-04-27 13:49:09]

[Kristian Andersen]

Looking forward to reading that article. I was on a call with folks from the White House oversight committee this morning talking about all of this stuff - they're still pretty focused on lab escapes, but definitely see the need for "follow the animals". Hopefully they came away from that conversation realizing that one is much more likely and much more important to really 'investigate' than the other.

The intelligence community ain't got nothing. Zip.

[2021-04-27 14:07:47]

[Eddie Holmes]

The "oversight" committee is well named them.

[2021-04-27 14:12:29]

[Robert Garry]

We had four years where the clowns were literally in charge (think Asher). Couple that with the desire to be "strong" on China," early misinfo and transparency "issues," and you can see where they are coming from. The slog is uphill.

[2021-04-27 18:44:55]

[Kristian Andersen]

Are we starting to think maybe P681H/R could be a bad boy? Looking at the most recent variants, assuming B.1.617 might plausibly be both more transmissible and escape some level of immunity, the latter comes down to L452R and the NTD, while the former may be linked to P681R (it doesn't have N501Y).

P681H/R absent from both P.1 and B.1.351 (I'm getting increasingly more convinced 351 isn't more transmissible, but I'm less sure about P.1). [shared file(s): Screen Shot 2021-04-27 at 6.42.05 PM.png]

[2021-04-27 18:45:51]

[Kristian Andersen]

If looking outside the spike, what do we know about N? An interest pattern around position 203/204/205 here [shared file(s): Screen Shot 2021-04-27 at 6.39.40 PM.png]

[2021-04-27 18:46:28]

[Kristian Andersen]

Could N be involved in transmissibility?

Live link here: [https://outbreak.info/compare-lineages?pango=B.1.1.7&pango=B.1.351&pango=P.1&pango=\[...\]gene=ORF7a&gene=ORF7b&gene=ORF8&gene=N&gene=ORF10&threshold=75](https://outbreak.info/compare-lineages?pango=B.1.1.7&pango=B.1.351&pango=P.1&pango=[...]gene=ORF7a&gene=ORF7b&gene=ORF8&gene=N&gene=ORF10&threshold=75)

[2021-04-27 18:47:08]

[Kristian Andersen]

Interferon?

[2021-04-27 19:18:06]

[Eddie Holmes]

I had at chat with the genomics people here yesterday and they said that most of the people who are coming into our hotel quarantine system from India have B.1.1.7. Apparently 20% on one flight were infected.

[2021-04-27 19:19:53]

[Robert Garry]

"Could N be involved in transmissibility?" yes - I'll take a look.

[2021-04-27 19:40:52]

[Kristian Andersen]

20%... I think we see an example of what can happen if you give B.1.1.7 (and possibly 617) free reign. Pure devastation - the reports are terrifying.

[2021-04-27 20:30:14]

[Kristian Andersen]

So much bs in this one.

Phase I and II trials for vaccines against novel viruses we don't know anything about? Other than, of course, they're the most likely ones to cause future pandemics. Suuuuuure.

"Step two is something like Operation Warp Speed for the pandemics of the future. Once scientists have the resources to identify and track viruses with the gravest pandemic potential, a consortium of countries led by the U.S. should fund Phase 1 and Phase 2 trials around the world to test new vaccines against them."

<https://www.theatlantic.com/ideas/archive/2021/04/how-pandemic-proof-world/618682/>

[2021-04-27 22:12:19]

[Eddie Holmes]

More from the journo. The billion dollar question is whether any of the animals in all this are being tested?

[2021-04-27 22:12:30]

[Eddie Holmes]

"Google tranz of a story below about how a lot of the meat byproduct gets churned back into the restaurant industry, similar to what the HSI had found. I've been able to document four mink farms in Hubei, and a musk rat farm I thought that was mink [closed Jan 17, 2020, mysteriously].

On another couple of notes - there is a pangolin breeding operation just two hours drive north of Wuhan. It's connected to some companies here in Shenzhen that trade in plastics internationally, so going to look into that here, as well as a TCM company up in Hubei. Scales are often imported mixed into bags of wires and plastic pieces according to some of the seizure stories I've seen in the past. May be nothing though.

In Yunnan I've been able to document 16 pangolin breeding operations that were active before the outbreak. There are a couple that are in or close to Yongde County which supplied bamboo rat meat to the Huanan market, according to the China-WHO study report. Almost ALL of these are mixed breeding operations susceptible to cross infections. Here's a sample:

1. Pangolin breeding; livestock breeding and sales
2. Breeding and sales of civet cat, bamboo rat, porcupine, wild boar, pangolin, muntjac, pheasant, turtledove, hare.
3. Artificial breeding of muntjac, sika deer, wild goose, golden pheasant, pangolin, forest musk deer, porcupine.
4. farming of pigs, cattle, sheep, donkeys, fish, pangolins, hedgehogs, bamboo rats, chickens;
5. just pangolin, company cancelled in September 2020,
6. black bears, brown bears, red deer, egrets, swans, pangolins, mandarin ducks, bamboo rats, porcupines, peacocks, livestock, poultry , Aquatic products breeding and sales;
7. pangolin, livestock, poultry breeding and sales
8. Black bear, brown bear, red deer, sika deer, egret, swan, pangolin, mandarin duck, bamboo rat, porcupine, peacock, livestock, poultry, and aquatic products breeding and sales
9. YONGDE pangolins are domesticated, propagated, and sold; pigs, chickens, cattle, and sheep are raised and sold
10. breeding and sales of cattle, porcupines and pangolins;
11. patent for artificial pangolin breeding
12. [near Yongde] breeding of cattle, sheep, pigs, chickens, and bees; breeding and sales of bamboo rats, muntjac and pangolins;
13. [near Yongde] chicken, duck, goose, pig, cow, sheep, donkey, bee Breeding; bamboo rat, deer, and pangolin

breeding and sales

14. breeding and sales of pigs, chickens, cattle, sheep, porcupines, and pangolins;

15. roe deer, Muntjac, civets, wild boars, bamboo rats, porcupines, colorful pheasants, blue peacocks, pangolins, breeding, sales

16. just pangolin, and tied to a case where trafficked pangolin were turned over to the company by forestry officials a couple years back

Processing of meat from mink, fox, raccoon dog, etc. in Hebei:

*<https://www.google.com/maps/place/Changli+County,+Qinhuangdao,+Hebei,+China/data=!4m2!3m1!1s0x358c93e16cdb9c4d:0xe5f6376b0d6672f1?sa=X&ved=2ahUKEwjowuWzk5nwAhUHkZQKHQUpDRUQ8gEwFXoECC8QAQ> *

<https://www.163.com/news/article/F4O0EFEL0001899O.html>

In the past few days, many departments have issued announcements banning any form of wildlife trading. Many places are also quarantining places for raising and breeding wild animals. However, according to a reporter from China Business News, there are still loopholes in "refusing to eat game".

Many people in the industry reported to CBN reporters that for *many years, wild animal flesh such as fox, mink, and raccoon meat from farms* has been sent to meat joint factories or small workshops to be processed into grilled sausages or ham sausages. In some professional journals, there are even expert guidance on how to process the meat of these wild animals into delicious foods and put them on the market.

Secrets in the industry?

Changli County, Hebei Province has nearly 30 years of fox, raccoon, and mink breeding foundation. The fur industry has become a local characteristic industry. The total amount of breeding has remained at about 8 million, accounting for one-tenth of the country. The total output of raccoon skin ranks first in the country. .

Changli County is also the country's largest leather trading center, with an annual trade of 15 million skins and 500,000 live skins, and an annual output value of 8 billion to 10 billion yuan. Changli County was once awarded the titles of "China Fur Industry Base" and "Hometown of Raccoon Raising Dogs" by the Specialty Products Society of the Chinese Agricultural Society. The entire county has formed a complete industrial chain of mink and raccoon breeding, breeding of fine breeds, feed and veterinary medicine, commerce, processing, and logistics.

In an earlier interview with China Business News, a person in charge of a farm said: "Some people buy fur, and some people want meat, and send it to the meat joint factory." When the reporter asked further, the other party seemed a little nervous and just said, "This is Secrets known in the industry".

[2021-04-27 22:30:56]

[Kristian Andersen]

Some interesting stuff in there for sure - some a little more cooky...

What's interesting about the mink farming - I asked George about that back in March/April, 2020 and he pretty much dismissed it out of hand, saying "those farms are not in Hubei, but much further away where they had no COVID". I wonder if that's really true - and clearly, there may be other farming as well.

[2021-04-27 22:34:19]

[Eddie Holmes]

If that's their logic no wonder they've not found the origin

[2021-04-28 04:47:42]

[Robert Garry]

Atlantic article - could have been worse - at least no mention of GVP.

[2021-04-28 04:52:24]

[Robert Garry]

Farming the mink, raccoon dogs, etc, etc, etc - so many opportunities for spillover. Follow the animals...

[2021-04-28 05:02:36]

[Andrew Rambaut]

I agree, Kristian, with Pooh being involved in the transmissibility - have thought it from the beginning - too much of a coincidence that B.1.1.7 had a FCS mutation (back when it was very rare). Now with all the other 681 mutations coming up (and 677 possibly).

Certainly looks like B.1.351 is not as transmissible as B.1.1.7 and probably not P.1 either - they have not invaded

into new areas in the same way. We are looking at whether the FCS mutations are cropping up / spreading in populations with moderate NPI (i.e., like the English November lock-down where schools were still open etc). Total lock down clearly works against B.1.1.7 as much as any and it is possible that no-NPI doesn't really benefit B.1.1.7 because it has a shorter (but stronger and earlier) infectious period.

[2021-04-28 05:03:02]

[Robert Garry]

:clown_face: on :clown_face: Billy aka Kevin - on to something? [shared file(s): image.png]

[2021-04-28 05:05:05]

[Robert Garry]

PooH or PooR both bad - would be very surprised if both don't enhance cleavage R>H probably.

[2021-04-28 05:07:46]

[Robert Garry]

<https://thenationalpulse.com/news/scientists-debunking-lab-leak-theory-linked-to-ccp/>

[2021-04-28 06:02:51]

[Eddie Holmes]

I was invited to that meeting. Bloody glad I didn't go.

[2021-04-28 06:51:44]

[Andrew Rambaut]

Seen this one? Nelly, Pooh and Eek (plus a mutation at 144)

<https://github.com/cov-lineages/pango-designation/issues/57>

[2021-04-28 06:55:20]

[Andrew Rambaut]

'neglected' -

https://twitter.com/angie_rasmussen/status/1387397186372005893

[2021-04-28 06:55:52]

[Andrew Rambaut]

Perhaps Sputnik V will just spread round the world of its own accord?

[2021-04-28 06:56:25]

[Kristian Andersen]

Wait, what????

[2021-04-28 07:00:05]

[Kristian Andersen]

[thread - ID: 2021-04-28 07:00:05]

@Andrew Rambaut - here's the B.1 lineage. A few in the US: [https://outbreak.info/situation-reports?pango=B.1&p;mutS=S%3AN501Y&p;mutS=S%3AE484K&p;mut\[...\]=AR346K&p;mutS=S%3AP681H&p;loc=USA&p;loc=USA_US-CA&p;selected=Worldwide](https://outbreak.info/situation-reports?pango=B.1&p;mutS=S%3AN501Y&p;mutS=S%3AE484K&p;mut[...]=AR346K&p;mutS=S%3AP681H&p;loc=USA&p;loc=USA_US-CA&p;selected=Worldwide)

[2021-04-28 07:00:19]

[Robert Garry]

```

```1 msdngpqnr napritfggp sdstgsnqng ersgarskqr rpqglpnnta swftaltqhg
61 kedlkfprgq gvpintnssp ddqigyrra trirggdgdg mkdlsprwyf yylgtgpeag
121 lpygankygi iwwategaln tpkdhigtrn pannaaiqlq lpqgttlpkq fyaegsrggs
181 qassrssrs rnssrnstpg ssRGTSparm agnggdaala lllldrlnql eskisgkqgq
241 qqgqvtkks aaeaskkprq krtatkaynv tqafgrgpe qtqgnfgdqe lirqgtdykh
301 wpqiaqfaps asaffgmsri gmevtpsgtw ltytgaidk dkdpnfkdv illnkhiday
361 ktfppteppk dkkkkadetq alpqrqkkq tvllpaadl ddfskqlqqs mssadstqa```

```

Nucleocapsid sequence. Like Lassa N and several other RNA virus nucleoproteins there is a 2-domain structure.

The N-term domain binds RNA. The C-term domain mediates dimerization. In btwn the two domains is a linker. In SC2 the linker is arginine serine (RS) rich. It is "intrinsically disordered" and therefore does not show up in the X-ray or cryo structures. 203-205 sequence RGT is near the end of the linker. The linker is highly phosphorylated - therefore probably regulates N function - the mutations could impact those functions which could affect assembly, virus load or virus distribution etc and yes this will impact transmissibility.

[2021-04-28 07:01:53]

**[Andrew Rambaut]**

*[thread - ID: 2021-04-28 07:00:05]*

@Kristian Andersen I think this one is interesting because it has almost nothing else other than Phil and Doug from before and then the 4 spike mutations

[2021-04-28 07:02:18]

**[Andrew Rambaut]**

*[thread - ID: 2021-04-28 07:00:05]*

@Kristian Andersen It is like a really pure constellation.

[2021-04-28 07:02:40]

**[Kristian Andersen]**

*[thread - ID: 2021-04-28 07:00:05]*

@Kristian Andersen Agreed. We have started seeing a lot of B.1, so we'll be on the lookout.

[2021-04-28 07:04:04]

**[Kristian Andersen]**

That Sputnik V stuff is crazy AF. I wonder if the Ad26 is competent too? Ad5 is pretty prevalent, so while certainly a problem, less so. Ad26 on the other hand...

[2021-04-28 07:11:17]

**[Robert Garry]**

more grist for the anti-vaxxers and other opportunists

[2021-04-28 07:32:33]

**[Robert Garry]**

"Perhaps Sputnik V will just spread round the world of its own accord?" NOT a bad idea - in an evil/not evil mad scientist kind of way.

[2021-04-28 07:42:02]

**[Andrew Rambaut]**

Yeah - it is obviously one way of manufacturing vaccine.

[2021-04-28 07:42:17]

**[Kristian Andersen]**

Might accelerate vaccination efforts in hard-to-reach areas... Good plan, Russia.

[2021-04-28 07:43:09]

**[Andrew Rambaut]**

Do you think Russia are just going for the win on number of vaccinations?

[2021-04-28 07:45:16]

**[Kristian Andersen]**

Clearly. It's going to be hard to track, although they could have created an epitope for MADE-IN-RUSSIA so we can keep tally via ELISA.

[2021-04-28 09:15:48]

**[Andrew Rambaut]**

Could easily encode a copyright message in the synonymous mutations

[2021-04-28 09:18:17]

**[Kristian Andersen]**

.. it's been done before...

[2021-04-28 09:20:36]

**[Andrew Rambaut]**

Put an nice insertion in somewhere that translates to PUTIN

[2021-04-28 14:48:13]

**[Eddie Holmes]**

More Soyuz than Sputnik

[2021-04-28 17:07:36]

**[Eddie Holmes]**

More from the journo. The tip-off bit is the most interesting:

[2021-04-28 17:07:44]

**[Eddie Holmes]**

"Right now I'm looking at possibly five separate reports for The Guardian. The first one, about The Boss of the Huanan market, is coming together. The second would be about that zoo. Others may focus specifically on mink, all these different pangolin farms, etc.

\*I am looking for someone who could comment on why it would be important for this person to speak to the media or at least have a more public inquiry into his activities.\* He's basically being shielded by the government from speaking with the press. I also think that the market was tipped off and possibly moved animals out before authorities arrived. There were some hints about this in early Chinese media reports before they started to be censored."

[2021-04-28 17:56:20]

**[Robert Garry]**

"possibly moved animals out" Yes - George Gao strongly implied the same at his Scripps seminar. Many ppl are in the know. More power to your journo! These are the whistleblowers that need to come forward [there is no WIV whistleblower - not one].

[2021-04-28 17:57:24]

**[Eddie Holmes]**

Agreed. This could help change the narrative on origins.

[2021-04-28 20:03:00]

**[Eddie Holmes]**

Was George's talk at Scripps recorded?

[2021-04-28 20:06:38]

**[Kristian Andersen]**

Don't think so, but let me check.

[2021-04-28 20:11:43]

**[Eddie Holmes]**

Thanks!

[2021-04-29 07:37:05]

**[Robert Garry]**

And re talks - a very nice one @Eddie Holmes - DISTRACT krewe with their usual accusations, distractions and other usual nonsense. [shared file(s): image.png]

[2021-04-29 07:39:57]

**[Kristian Andersen]**

“Strenuous zoonotic supporter” - I think we need to give Eddie a plaque with that inscribed. :trophy:

[2021-04-29 07:48:38]

**[Robert Garry]**

I'll get to work on the plaque - "Zoonot" for short?

[2021-04-29 07:59:15]

**[Andrew Rambaut]**

I for one fully support zoonoses as they keep me in work and high-profile papers.

[2021-04-29 13:53:03]

**[Eddie Holmes]**

Perhaps we could have an annual Zoonot award for strenuous supporting over the year.

[2021-04-29 13:58:50]

**[Kristian Andersen]**

Reminds me of when Bob and I nominated @Andrew Rambaut for the Research Parasite Awards. With a paragraph like this, I don't understand how he didn't win

```Prof. Rambaut has many years of brilliant research parasitism - never having produced a single (real) dataset in his life!! To really rub it in, he's also the creator of many successful software packages (including, BEAST, FigTree, Tracer, TreeStat, and TempEst (formerly Path-O-Gen)) used by other Research Parasites, which facilitates parasitism by making it easy to find interesting stuff in other people's data. Via his software and publications, he has therefore managed to infiltrate the whole scientific community like a senioered cuckoo with novel insights, brilliant data analyses, and just overall parasitism. As data producers we resent that and our only consolation is that he hasn't really been able to place his manuscripts in any of the proper journals. The ones we have picked above were published in a journal called 'Nature', which is kinda a lame name (how vague can you possibly be?) for a journal trying to publish anything of real scientific importance.``` [shared file(s): rambaut\_dudas.pdf]

[2021-04-29 13:59:48]

[Kristian Andersen]

__“As data producers we resent that and our only consolation is that he hasn't really been able to place his manuscripts in any of the proper journals”.__

Damn straight.

[2021-04-29 14:01:58]

[Eddie Holmes]

Richly deserved. I've seen quite a few contenders for junior parasite though.

[2021-04-29 14:03:14]

[Kristian Andersen]

Correct.

May they never be able to publish their drivell.

[2021-04-29 14:30:18]

[Eddie Holmes]

Got GIPA #3 yesterday. GIPA #1 is going to court which seems daft as if it only a few emails between myself and George Gao although there is one fruity where I urge him not to punish Zhang. I'm not sure if this would have any consequences. Our emails are #2.

[2021-04-29 16:32:24]

[Eddie Holmes]

More guff:

<https://www.jle.com/en/covid19-the-who-mission-report-struggles-to-trace-the-origins-of-the-SARS-CoV-2-epidemic>

[2021-04-29 17:29:13]

[Kristian Andersen]

More like drivél. So many logical fallacies in there...

[2021-04-29 17:31:07]

[Eddie Holmes]

Yes, drivél

[2021-04-29 17:31:16]

[Kristian Andersen]

In better news. I got an award from Bobby Boy :wink::muscle: [shared file(s): Image from iOS.jpg]

[2021-04-29 17:34:31]

[Eddie Holmes]

Oh, fantastic. I

[2021-04-29 17:34:46]

[Eddie Holmes]

I'll need to find the perfect spot for mine.

[2021-04-29 22:48:50]

[Eddie Holmes]

[thread - ID: 2021-04-29 22:48:50]

"An insertion of four amino acids in the SARS-CoV-2 spike protein occurred during its emergence from an animal reservoir and created a suboptimal furin CS" [shared file(s): s41564-021-00908-w.pdf]

[2021-04-30 05:07:10]

[Robert Garry]

Important paper!

[2021-04-30 05:14:37]

[Robert Garry]

This "letter" another steaming pile of garbage: <https://jamiemetzl.com/wp-content/uploads/2021/04/Open-Letter-to-the-World-Health-Organization-and-the-Members-of-its-Executive-Board-1.pdf>

[2021-04-30 05:23:23]

[Andrew Rambaut]

[thread - ID: 2021-04-29 22:48:50]

‘suboptimal’ :+1:

[2021-04-30 06:32:52]

[Robert Garry]

Very important point - IF you were engineering in a FCS why use an out-of-frame insertion, add a freaking proline in front (unless you somehow were aware that that would help create the mystical O-linked glycans) and put in a minimal/suboptimal FCS (RXXR, instead of the optimal RXRR)? PooH and PooR are still trying to "get it right."

[2021-04-30 06:35:21]

[Robert Garry]

[https://www.lemonde.fr/planete/article/2021/04/30/origines-du-sars-cov-2-des-scienti\[...\]gnent-a-l-oms-d-eclaircir-le-s-zones-d-ombre_6078611_3244.html](https://www.lemonde.fr/planete/article/2021/04/30/origines-du-sars-cov-2-des-scienti[...]gnent-a-l-oms-d-eclaircir-le-s-zones-d-ombre_6078611_3244.html)

[2021-04-30 07:00:37]

[Andrew Rambaut]

I should say that 'suboptimal' in terms of cleavage may be optimal in terms of transmission (i.e., getting the right level of viral shedding in the right tissues at the right time given the behaviour of the human population) . But no way someone would be able predict that and until you tried it you would never know.

[2021-04-30 07:19:09]

[Kristian Andersen]

"until you tried it" - oh, but Andrew....

[2021-04-30 07:56:57]

[Robert Garry]

or serially passaged it on ferrets.

[2021-04-30 11:40:05]

[Kristian Andersen]

@Andrew Rambaut - do any of you have a read on what's going on in India? I see a lot of anecdotal 'data' of vaccinated people (doctors) getting infected, but I can't get a read on how reliable that data is. With the crop of vaccines in India and B.1.617 I'm concerned, but I don't really know what to make of it - people are _much_ too quick to dismiss both the variant and breakthroughs though (with no data).

[2021-04-30 12:02:41]

[Andrew Rambaut]

I am not sure I do know what is going on. The biggest rise we have seen in imports from India is in the B.1.617.2 lineage (which has 484E). But this isn't much in the Indian sequencing. I assume that is because their sampling is really skewed (probably geographically).

[2021-04-30 12:06:40]

[Kristian Andersen]

Yeah, there's a massive lack of sequencing in-country. We also picked up B.1.617.2 yesterday - I think a lot of travel cases with that one (and B.1.1.7 - but may skew towards 617)

[2021-04-30 12:06:50]

[Kristian Andersen]

And more so than I'd expect.

[2021-04-30 12:37:41]

[Andrew Rambaut]

yes - we are getting almost all B.1.617.2 in travel cases - I assume it is big in a city that is not covered by sampling but has lots of international travel (Mumbai?)

[2021-04-30 12:38:38]

[Andrew Rambaut]

But it shows the 'double mutant' is not what matters. It could be the P681R of course.

[2021-04-30 12:41:32]

[Kristian Andersen]

P681R for sure - for transmissibility. However, T19R, L452R, T478K, and possibly D950N likely adding significantly to immune 'phenotype'.

[2021-04-30 12:43:31]

[Kristian Andersen]

I wonder what Tulio has been up to... [shared file(s): Screen Shot 2021-04-30 at 12.43.07 PM.png]

[2021-04-30 14:13:19]

[Eddie Holmes]

It's extraordinary that Jamie's letter still rattles on about RaTG13. When will they learn? They also want to know why Shi didn't mention the FCS in her 1st Nature paper...well no one spotted that until about 2 weeks after the sequence release. Initially, it was just about getting the sequence out as quickly as possible.

[2021-04-30 14:30:14]

[Eddie Holmes]

Shi must have been hoping that no one would notice it.

[2021-04-30 14:37:21]

[Robert Garry]

It's the same pile of shit and garbage. Filled with accusations of conspiracies, cover-ups, unmanaged Col, widespread falsification of data and lies. Yet, call this a conspiracy theory and they somehow become the aggrieved parties. Also based on poor understanding of basic virology and biology. Simply a massive distraction - it is a wonder that serious journos consider this "credible."

[2021-04-30 14:38:54]

[Eddie Holmes]

Perfect summation Bob!

[2021-04-30 14:39:11]

[Kristian Andersen]

Yeah, I thought they maybe had something new - and then I saw the first line of their "demands"....
:face_with_rolling_eyes:

[2021-04-30 14:39:32]

[Kristian Andersen]

I _do_ wish Shi would put that fucking database back up though - I don't understand what that is about.

[2021-04-30 14:40:15]

[Kristian Andersen]

DISTRACT keeps milking that one and they get credit for it every time.

[2021-04-30 14:48:30]

[Eddie Holmes]

It may not be Shi. I agree that it's not a good look and could easily be fixed. Although, I do like the idea of the Chinese military putting the viruses they are working on in a publicly accessible database (and presenting their as posters at a conference while in uniform).

[2021-04-30 14:51:08]

[Andrew Rambaut]

Open Science like all the hipsters are doing

[2021-04-30 14:52:04]

[Andrew Rambaut]

[thread - ID: 2021-04-30 14:52:04]

Hey @Robert Garry I got the poster today. Many thanks! [shared file(s):
CF45E72C-980B-482C-A12C-C5216D485945_1_105_c.jpeg]

[2021-04-30 14:52:11]

[Kristian Andersen]

The issue is - it goes with their narrative that they were digging around mines and in fact already had the virus in the lab

[2021-04-30 14:55:27]

[Eddie Holmes]

Oh there's an amazing conspiracy if you want to see it. I can't see WIV releasing any info as it will be a loss of face.

[2021-04-30 14:56:05]

[Kristian Andersen]

Presumably if SARS-CoV-2 was in their database they'd just delete it...

[2021-04-30 14:56:48]

[Kristian Andersen]

And yeah, I agree - they have nothing to gain and everything to lose since I'm sure if they released it, DISTRACT would just move the goal post - as they always do. Still bothers me though.

[2021-04-30 15:00:18]

[Eddie Holmes]

You're totally right: ALL the data needs to be released. But I don't think they are doing it to cover-up, I think they are doing it for pride.

[2021-05-01 05:37:11]

[Robert Garry]

Alina did not sign this letter either, but her BS is in it. "Based on the raw data provided, it has unfortunately not been possible to *assemble* the RaTG13 genome sequence," the researchers lamented." <https://healthpolicy-watch.news/unlock-mysteries-of-hidden-sars-cov-databases-bat-viruse...>ientists-call-on-who-member-states-to-reshape-virus-hunt/ It's not been possible because ppl like Alina don't know how to do it.

[2021-05-01 05:50:56]

[Robert Garry]

[thread - ID: 2021-04-30 14:52:04]

@Andrew Rambaut Awesome computer - HP-80?

[2021-05-01 06:08:08]

[Robert Garry]

The more the Parasites talk the more they reveal their true agendas. Head Parasite Jamie got his big break on the Rogan podcast - Rogan by his own account is a Fucking Moron - and btw not qualified to talk about vaccines.
[shared file(s): image.png]

[2021-05-01 06:37:39]

[Andrew Rambaut]

[thread - ID: 2021-04-30 14:52:04]

@Andrew Rambaut HP-87

[2021-05-01 06:39:36]

[Andrew Rambaut]

[thread - ID: 2021-04-30 14:52:04]

@Andrew Rambaut I have vague plans to implement a bioinformatics pipeline on it and then publish it.

[2021-05-01 06:45:57]

[Andrew Rambaut]

[thread - ID: 2021-04-30 14:52:04]

@Andrew Rambaut Got hooked on HP calculators as a teenager with a cast-off HP-11c from my dad (who was an engineer). My current desktop calculator is an HP-46 like this:

[2021-05-01 06:47:15]

[Andrew Rambaut]

[thread - ID: 2021-04-30 14:52:04]

@Andrew Rambaut shared file(s): image.png

[2021-05-01 07:38:55]

[Kristian Andersen]

https://www.washingtonpost.com/opinions/global-opinions/how-did-the-pandemic-begin-its-time-for-a-new-who-investigation/2021/04/30/e1a2e702-a9dc-11eb-8c1a-56f0cb4ff3b5_story.html

[2021-05-01 08:21:50]

[Andrew Rambaut]

Qualified?

[2021-05-01 08:25:41]

[Kristian Andersen]

Hah - losly defined....

[2021-05-01 08:26:47]

[Kristian Andersen]

I'd argue the first mission had exceptionally qualified people... but what do I know - COI and all.

[2021-05-01 12:20:30]

[Andrew Rambaut]

Exactly - the one thing they definitely were was qualified.

[2021-05-01 12:36:13]

[Andrew Rambaut]

https://twitter.com/GuptaR_lab/status/1388422656907780096

[2021-05-01 12:49:29]

[Kristian Andersen]

Yeah, saw that and A LOT of people jumping to conclusions due to confirmation bias. Good to see, but several key mutations missing in his constructs so no idea how representative it is of 617s actual effect - let's hope it is, but this data is not very solid.

[2021-05-01 14:20:51]

[Andrew Rambaut]

[thread - ID: 2021-05-01 14:20:51]

Yup. But I think the straight difference between Eriq and Erik is interesting.

[2021-05-01 22:40:58]

[Eddie Holmes]

This one is priceless: <https://iv.iarjournals.org/content/35/3/1313.long>

[2021-05-01 22:41:38]

[Eddie Holmes]

"Since a coronavirus variant with great similarity to SARS-CoV-2 was also found in a pangolin, Chinese researchers proposed that this armadillo could be an intermediate host (*27*). But how is the virus supposed to get from the bats that catch their food - insects and spiders - in flight at night into the pangolin, whose natural home is Malaysia, and from there into the human lungs? The explanation looks like a hapless assignment of blame."

[2021-05-02 06:30:03]

[Kristian Andersen]

.... definitely lab then! :man-shrugging::skin-tone-2:

[2021-05-02 07:12:02]

[Robert Garry]

[thread - ID: 2021-05-01 14:20:51]

@Andrew Rambaut Indeed - removing the negative charge different than flipping to a positive charge. Whatever changes in structure these mutations induce are gonna be "very" different.

[2021-05-02 07:13:38]

[Robert Garry]

"hapless assignment of blame." Zero sense of irony.

[2021-05-02 07:41:23]

[Robert Garry]

That's a lot of space dust: <https://wgno.com/news/5200-tons-of-cosmic-dust-fall-to-earth-each-year/>

[2021-05-02 07:47:31]

[Kristian Andersen]

I like to think of it as planet farts.

[2021-05-03 05:12:23]

[Robert Garry]

THIS IS NOT PRETTY: Nicholas Wade:

https://medium.com/@nwade_44486/origin-of-covid-following-the-clues-6f03564c038

[2021-05-03 05:14:04]

[Robert Garry]

"The Daszak and Andersen letters were really political, not scientific statements, yet were amazingly effective."

[2021-05-03 05:15:25]

[Robert Garry]

"And that's it. These are the two arguments made by the Andersen group in support of their declaration that the SARS2 virus was clearly not manipulated. And this conclusion, grounded in nothing but two inconclusive speculations, convinced the world's press that SARS2 could not have escaped from a lab. A technical critique of the Andersen letter takes it down in harsher words."

[2021-05-03 05:16:50]

[Robert Garry]

"A second statement which had enormous influence in shaping public attitudes was a letter (in other words an opinion piece, not a scientific article) published on 17 March 2020 in the journal Nature Medicine. Its authors were a group of virologists led by Kristian G. Andersen of the Scripps Research Institute. "Our analyses clearly show that SARS-CoV-2 is not a laboratory construct or a purposefully manipulated virus," the five virologists declared in the second paragraph of their letter.

Kristian G. Andersen, Scripps Research

Unfortunately this was another case of poor science, in the sense defined above."

[2021-05-03 05:35:24]

[Robert Garry]

Yes - this guy: https://en.wikipedia.org/wiki/Nicholas_Wade calling us out for poor science.

[2021-05-03 05:39:36]

[Robert Garry]

Based on the length of this Medium piece this asshole appears to be about to vomit out another thinly veiled racist tome "based" on a piss poor understanding of genetics.

[2021-05-03 08:26:25]

[Kristian Andersen]

Jon Cohen just emailed me about it, asking if I was "going to respond". It's laughable - in fact, Wade reached out to me a while back with some questions and I decided not to answer them because "Yeah, he's obviously a big shot, but the questions are just dumb. I'd have to explain all of evolution to him and not just his sub-questions". Just take a look at the questions he emailed over... [shared file(s): Screen Shot 2021-05-03 at 8.25.23 AM.png]

[2021-05-03 08:29:06]

[Kristian Andersen]

Love this bit. I'm pretty darn sure Kristian Andersen took a serious look at SARS2 origin / lab leak before our good friend Yuri. But hey, bad science, right.

The piece is shockingly bad - as naive as the questions Wade emailed me in September of last year. [shared file(s): Screen Shot 2021-05-03 at 8.23.55 AM.png]

[2021-05-03 09:08:25]

[Robert Garry]

@Kristian Andersen Please do respond to JC. Wade is a fool - and, an old fool at that, which makes him the worst kind. I'm pretty sure this "origins" tirade is in some way payback for the terrible reviews that his racist human genetics book got from - you know- actual geneticists. Maybe he didn't like your response to his Sept email.

[2021-05-03 09:32:13]

[Kristian Andersen]

Yeah, I wrote back to JC - I'm kinda hoping that one day Jon will be the one writing a proper science journalistic expo on the origins...

I let my comms department get back to Wade - might well have pissed him off.

[2021-05-03 09:47:26]

[Robert Garry]

"proper science journalistic expo on the origins" - that would be long overdue!

[2021-05-03 10:59:13]

[Kristian Andersen]

I'm priming Jon.... Let's see.

[2021-05-03 11:16:14]

[Robert Garry]

JC's a smart guy - I think he gets it....

[2021-05-03 13:34:07]

[Eddie Holmes]

Wade wrote to me at the same time - we discussed it on this channel. I gave him a few vague answers and then declined to reply. He's clearly a nasty old racist. Doubtless he has a book on the way. The claim that our paper is political is obviously stupid. I wouldn't respond directly.

[2021-05-03 14:01:29]

[Robert Garry]

[thread - ID: 2021-05-03 14:01:29]

I would have lost this bet: Melinda would dump Bill (or visa versa) before Melania dumped the Donald.
<https://www.geo.tv/latest/348600-bill-and-melinda-gates-confirm-divorce-say-they-will-end-their-marriage>

[2021-05-03 14:06:41]

[Eddie Holmes]

[thread - ID: 2021-05-03 14:01:29]

@Robert Garry It will be interesting to see the settlement

[2021-05-03 14:52:16]

[Kristian Andersen]

[thread - ID: 2021-05-03 14:01:29]

@Robert Garry Yeah, what the hell - I'm really surprised about this, although Bill must be exceptionally tiring to be around 24/7....

[2021-05-03 15:11:26]

[Robert Garry]

[thread - ID: 2021-05-03 14:01:29]

@Robert Garry Apparently, Bill just wants to play on-line bridge 24-7.

[2021-05-03 15:52:25]

[Robert Garry]

Z Division

<https://wjla.com/news/nation-world/exclusive-classified-study-found-covid-19-could-have-originated-in-chinese-lab>.
I'm guessing Z Division is where we brew up our current version of super-soldiers.

[2021-05-03 15:58:45]

[Kristian Andersen]

Hah - "Z Divison". Love it. I like to think of us as being the "A Team" - much cooler, really.

[2021-05-03 15:59:11]

[Robert Garry]

The intel community has no evidence whatsoever that remotely suggests that WIV had SC2 before the pandemic.

[2021-05-03 16:02:41]

[Kristian Andersen]

Nope. None. And look at the title "Classified study found COVID-19 _could_ have originated in Chinese lab". Sure, it could - however, likely didn't. Anything is possible - but in science we need actual data.

[2021-05-03 16:20:28]

[Eddie Holmes]

Reminds me of a classic British TV show called 'Z Cars'. I hope the Z Division play the same iconic music at the start of each day (interesting factoid is that Everton FC in UK still play this tune when they run onto the pitch):
<https://www.youtube.com/watch?v=rWflrCrwUSw>

[2021-05-03 16:27:57]

[Eddie Holmes]

Random thought. Weifeng identified 24 bat CoVs in 1100 hectare area. So, if people, such as the China CDC, have been sampling bats in Yunnan and other Chinese provinces then they must be detecting coronaviruses. That's a racing certainly. But there is no information in the public domain on what they have found. Hence, they must be sitting on data.

[2021-05-03 16:33:28]

[Kristian Andersen]

I don't have a sense of how evenly distributed CoVs are, so it's likely that there are 'pockets' of very high density, while most pockets have none/little. That said, I'm sure there's more data to be shared....

[2021-05-03 16:36:16]

[Eddie Holmes]

I'm 100% certain of it. I bet they have a shit load of data. Question is whether it will ever see the light of day.

[2021-05-03 16:40:04]

[Kristian Andersen]

Well, if they have data now, what's to say they didn't have shit load of data prior to the pandemic...?

Asking for a friend... :wink:

[2021-05-03 16:41:57]

[Eddie Holmes]

No, they weren't looking then. The China CDC had no interest in this until after the pandemic started.

[2021-05-03 17:06:50]

[Kristian Andersen]

Ah, I see what you're saying - yes, sampling has increased by _a lot_, I'm sure. Will be interesting to see what they find - probably a fuck ton of SARSr-CoVs so we have additional reason to be concerned....

[2021-05-03 18:08:51]

[Eddie Holmes]

Fuck ton.

[2021-05-03 19:24:05]

[Eddie Holmes]

And to prove to point we've just found a beta-CoV in an Aussie bat.

[2021-05-03 19:31:49]

[Kristian Andersen]

Ohhhhhh, the plot thickens.... Wait until the tinfoil hats find out that Eddie Holmes found a related virus in his backyard... :thinking_face::man_in_business_suit_levitating:

[2021-05-03 19:46:43]

[Eddie Holmes]

Even better if it had a FCS. Can you imagine? Still characterising it. Could be in the subgenus Nobecovirus.

[2021-05-03 20:01:02]

[Robert Garry]

Betting on a FCS at the S2' site.

[2021-05-03 20:03:12]

[Robert Garry]

These betas - like the proverbial box of chocolate. Each a different flavor. Each adding a few new pieces to the puzzle.

[2021-05-03 20:06:19]

[Kristian Andersen]

Eddie - Jeremy's MI6 friend?

<https://twitter.com/LBC/status/1388809199786893312>

[2021-05-03 20:14:27]

[Kristian Andersen]

"I'm not a scientist..." [goes into completely bogus 'scientific' explanation about virus RNA].

Classic.

[2021-05-03 20:25:28]

[Eddie Holmes]

[thread - ID: 2021-05-03 20:25:28]

Dearlove is a knob of long-standing. He was ranting to the Telegraph about this ages ago: he was discussing the Norwegians ("he is nonsense!"). Jeremy's friend has a double-barrelled name and is female. MI5 I think.

[2021-05-03 20:26:23]

[Kristian Andersen]

Oh, okay, so not actually James Bond / 007. Good.

[2021-05-03 20:34:29]

[Eddie Holmes]

Package from NoLa has just been delivered!

[2021-05-04 00:41:34]

[Andrew Rambaut]

[thread - ID: 2021-05-03 20:25:28]

@Eddie Holmes Dame Eliza Manningham-Buller?

[2021-05-04 00:41:46]

[Andrew Rambaut]

[thread - ID: 2021-05-03 20:25:28]

@Eddie Holmes Which is quite a name...

[2021-05-04 01:31:14]

[Eddie Holmes]

[thread - ID: 2021-05-03 20:25:28]

@Eddie Holmes That's the one.

[2021-05-04 04:49:29]

[Robert Garry]

[thread - ID: 2021-05-03 20:25:28]

@Eddie Holmes So this really is a Borat movie?

[2021-05-04 08:36:39]

[Robert Garry]

Secrets of peer review:

<https://www.minervanett.no/angus-dalgleish-birger-sorensen-coronavirus/the-fight-for-a-controversial-article/362519>

[2021-05-04 08:55:27]

[Kristian Andersen]

Aaaaahahahaha, "The authors suspect foul play and political considerations". Nope - but as I said, "Andersen last week told Sky news that Sørensen's and Dalgleish's work was "complete nonsense, unintelligible, and not even remotely scientific – leading the authors to make unfounded and unsupported conclusions about the origin of SARS-CoV-2""

[2021-05-04 08:55:39]

[Kristian Andersen]

Playing the victim - they're good at that.

[2021-05-04 09:04:52]

[Robert Garry]

Yes - they are all aggrieved parties - especially Alina. Her nonsense [can't assemble RatG13, pangoviruses; SC2 perfectly adapted etc] not better than Sørensen's and Dalgleish's "work." Journalists supporting this crap are culpable.

[2021-05-04 10:52:49]

[Kristian Andersen]

Interesting A lineage franken variant we just picked up in Jordan - travel associated case from Sudan. Interesting evolutionary stuff going on on the African continent... [shared file(s): Screen Shot 2021-05-04 at 10.51.46.png]

[2021-05-04 11:26:09]

[Andrew Rambaut]

I think we have seen that one in the UK with links to Egypt

[2021-05-04 11:27:31]

[Andrew Rambaut]

I think there is a long hidden history which accounts for most of the ORF1ab changes

[2021-05-04 11:40:10]

[Kristian Andersen]

Need to check this against the Tanzania one - quite interesting

[2021-05-04 12:25:22]

[Robert Garry]

"Interesting evolutionary stuff going on on the African continent..." Yes indeed - "interesting evolutionary stuff," "long hidden history," low case loads in SubSaharan Africa, possible large pool of pre-existing (cross-reactive) immunity. Definitely need to sort out what is going on in Africa....

[2021-05-04 13:19:03]

[Eddie Holmes]

And breathe. It's all going to be ok - the cladists have nailed it:
<https://onlinelibrary.wiley.com/doi/full/10.1111/cla.12454>

[2021-05-04 13:24:07]

[Kristian Andersen]

Total techno babble. Love it.

I'm convinced. "total evidence analysis under the parsimony optimality criterion". Total Evidence Analysis - I need to remember that one for a future paper.

[2021-05-04 13:33:07]

[Andrew Rambaut]

Daniel Janies has spent years trying to do genomic epi only using parsimony and only publishing in Cladisics. It is a weird cult.

[2021-05-04 13:41:08]

[Eddie Holmes]

Must be comforting though: nothing is true until it is demonstrated with cladistics. Means you can ignore 99.99% of other papers.

[2021-05-04 13:43:11]

[Kristian Andersen]

Ignoring 99.99% of papers might not be a bad strategy...

[2021-05-04 15:59:22]

[Kristian Andersen]

1k+ retweets.

<https://twitter.com/LawrenceSellin/status/1387612423365046279?s=20>

[2021-05-04 16:37:51]

[Eddie Holmes]

Absolutely insane. At least Jeremy's book will put the record straight.

[2021-05-04 16:38:28]

[Eddie Holmes]

Will Scripps make a statement?

[2021-05-04 16:38:40]

[Kristian Andersen]

:man-shrugging:

[2021-05-04 16:45:53]

[Kristian Andersen]

For those tinfoil hats saying we never seriously considered a lab leak, I just found this old beauty from May of last year... Parts of it a little cringe worthy and certainly some overstatement, but starting at 7:45....

<https://www.youtube.com/watch?v=O7BBsrFIRvA&t=602s>

[2021-05-04 16:46:02]

[Eddie Holmes]

'Retired Army' - two of the most revealing words in the English language

[2021-05-04 16:46:45]

[Kristian Andersen]

I had no idea this was online. Good reference point.

[2021-05-04 16:48:07]

[Eddie Holmes]

It is!

[2021-05-04 16:48:53]

[Kristian Andersen]

I have been listening to myself at 2x speed - I can't really hear the difference between 1x and 2x... :zany_face:

[2021-05-04 16:49:15]

[Eddie Holmes]

The irony is that I actually alerted the Australian intelligence agencies!

[2021-05-04 16:49:34]

[Kristian Andersen]

Yup - same.

[2021-05-04 16:50:26]

[Eddie Holmes]

Looking forward to Jeremy's book!

[2021-05-04 16:52:28]

[Kristian Andersen]

When is it coming out?

[2021-05-04 16:56:29]

[Eddie Holmes]

[thread - ID: 2021-05-04 16:56:29]

No idea. I've read a load of chapters. It's really good. Our bits are right out of a Le Carre novel.

[2021-05-04 22:29:06]

[Eddie Holmes]

The silver-tongued 'Bomberdan' is at it again: [shared file(s): Screen Shot 2021-05-05 at 3.28.09 pm.png]

[2021-05-05 05:18:13]

[Robert Garry]

Yeah - it's ugly out there: [shared file(s): image.png]

[2021-05-05 06:57:32]

[Kristian Andersen]

People really are idiots... Although, I kinda like the idea that we're somehow the masterminds behind a cabal of senior virologists controlling other poor, lesser, scientists.

[2021-05-05 07:20:58]

[Robert Garry]

<https://www.unz.com/runz/american-pravda-covid-19-its-impact-and-origins-after-one-year/?showcomments#comments> The best is last: (1) Rogue elements within our large national security apparatus probably affiliated with the Deep State Neocons decided to inflict severe damage upon the huge Chinese economy using biowarfare. The plan was to infect the key transport hub of Wuhan with Covid-19 so that the disease would invisibly spread throughout the entire country during the annual Lunar New Year travels, and they used the cover of the Wuhan International Military Games to slip a couple of operatives into the city to release the virus. My guess is that only a relatively small number of individuals were involved in this plot.

(2) The biological agent they released was designed primarily as an anti-economy rather than an anti-personnel weapon. Although Covid-19 has rather low fatality rates, it is extremely contagious, has a long pre-symptomatic infectious period, and can even spread by asymptomatic carriers, making it ideally suited for that purpose. Thus, once it established itself throughout most of China, it would be extremely difficult to eradicate and the resulting efforts to control it would inflict enormous damage upon China's economy and society.

(3) As a secondary operation, they decided to target Iran's political elites, possibly deploying a somewhat more deadly variant of the virus. Since political elites generally tend to be elderly, they would anyway suffer far greater fatalities.

(4) The deadly SARS and MERS outbreaks in East Asia and the Near East had never significantly spread back to America (or Europe), so the plotters wrongly assumed that the same would be the case with Covid-19. Anyway, since "international organizations always ranked the US and Europe as having the best and most effective public health systems for combating any disease epidemic", they believed that any possible blowback damage would be very minor.

(5) Only a small number of individuals were directly involved in this plot, and soon after the disease was successfully released in Wuhan, they decided to further safeguard America's own interests by alerting the appropriate units with the Defense Intelligence Agency, probably by fabricating some sort of supposed "intelligence leak." Basically, they arranged for the DIA to hear that Wuhan was apparently suffering a "cataclysmic" disease outbreak, thereby leading the DIA to prepare and distribute a secret report warning our own forces and allies to take appropriate precautions.

(6) Unfortunately for these plans, the Chinese government reacted with astonishing determination and effectiveness, and soon stamped out the disease. Meanwhile, the lackadaisical and incompetent American government largely ignored the problem, only reacting after the massive outbreak in Northern Italy had gotten media attention. Since the CDC had botched production of a testing kit, we had no means of recognizing that the disease was already spreading in our country, and the result was massive damage to America's economy and society. In effect, America suffered exactly the fate that had originally been intended for its Chinese rival.

[2021-05-05 08:08:20]

[Robert Garry]

[thread - ID: 2021-05-04 16:56:29]

@Eddie Holmes I remember well the first conversation I had with with @Kristian Andersen re the new virus in Wuhan - I had just landed in the NOLA Airport. I'd sent him something about the FCS (which had kept me up that night) and the first thing he told me was to find a spot where I couldn't be overheard. So yes - very cloak and daggerish.

[2021-05-05 08:18:13]

[Kristian Andersen]

[thread - ID: 2021-05-04 16:56:29]

@Eddie Holmes Haha, I remember that - good times. Well, "good" in the nerdy sense.

[2021-05-05 09:36:20]

[Andrew Rambaut]

Curious: [shared file(s): image.png]

[2021-05-05 09:36:32]

[Andrew Rambaut]

shared file(s): image.png

[2021-05-05 09:37:03]

[Andrew Rambaut]

(I didn't click on the link)

[2021-05-05 09:41:08]

[Kristian Andersen]

Click it!!!

[2021-05-05 10:22:24]

[Andrew Rambaut]

Malware to crack my computer and get access to all the incriminating messages from CCP.

[2021-05-05 10:25:55]

[Robert Garry]

May be better to just revert to using your HP-87. Probably good to go for another 30-40 years at least.

[2021-05-05 10:27:40]

[Robert Garry]

<https://academic.oup.com/mbe/advance-article/doi/10.1093/molbev/msab118/6257226> "We have made available the proCoV2 genome sequence in FastA format at <http://igem.temple.edu/COVID19>, which is the same as the NCBI reference genome with base differences corresponding to $\alpha 1 - \alpha 3$ mutations at positions 18060, 8782, and 28144, as discussed in the main text. In this mutation graph, COI for each variant is shown next to the arrow.

[2021-05-05 10:27:51]

[Robert Garry]

Lineage A?

[2021-05-05 10:33:47]

[Kristian Andersen]

No, B. I'm perplexed by that paper - didn't read it in detail, but I don't think they can really do what they do. So many reversions observed during the pandemic and associated dates and biases in sequencing early on likely majorly bias interpretation. @Andrew Rambaut, did you get a chance to read it?

[2021-05-05 10:37:07]

[Andrew Rambaut]

I couldn't face it. I would just get annoyed

[2021-05-05 10:42:23]

[Kristian Andersen]

Agreed. It's a very interesting question, but exceptionally hard to answer - working on some very early attempts with Joel + Marc.

[2021-05-05 12:13:29]

[Kristian Andersen]

Wait, I think the "ProCov" is an A lineage - false classification on my end... That said, I'm not sure I trust the sequence at all - it's basically WA1 with a couple of additional (random?) mutations and then, mysteriously, quite a number of indels. :man-shrugging:

[2021-05-05 14:19:12]

[Kristian Andersen]

This should be interesting [shared file(s): upcoming letter]

[2021-05-05 14:29:24]

[Eddie Holmes]

Would definitely be interesting to see it. Don't like the passive aggressive bit about the UK papers breaking the embargo.

[2021-05-05 14:32:05]

[Kristian Andersen]

Yeah, I don't know what that embargo comment was about...

I don't expect much from the letter - probably the same uninformed speculation Relman put in PNAS. Which would be very disappointing.

[2021-05-05 14:33:35]

[Kristian Andersen]

If they focus it on "... but they were working in mines and there's this weird FCS", I swear to God, I will not be gentle. Not a good career move on my end if it comes to that, but if it's the same old speculation with no science, well, so be it.

[2021-05-05 14:35:50]

[Eddie Holmes]

I can't think there will be any new science. Would could there be. I bet it will be about the 8 mystery sequences. I'll scream if it rattles on about RaTG13.

[2021-05-05 14:37:57]

[Kristian Andersen]

Yeah, there's no scientific basis, so I'm curious - I'm all for "keeping our eyes open", but not if they justify that an investigation must be done because of e.g., RaTG13. We'll see.

Kinda funny this'll be in journal called "Science".... :wink:

[2021-05-05 14:48:16]

[Robert Garry]

• There's a pretty big difference between a perspective and a letter. *Perspectives* (up to 1000 words plus 1 figure) highlight recent exciting research, but do not primarily discuss the author's own work. They may provide context for the findings within a field or explain potential interdisciplinary importance. Perspectives that comment on papers in Science should add a dimension to the research and not merely be a summary of the experiments described in the paper. Although many Perspectives that comment on research published in Science are solicited, we welcome inquiries regarding new advances and fresh insights. As these are meant to express a personal viewpoint, with rare exceptions, Perspectives should have no more than two authors. *Letters* (up to 300 words) discuss material published in Science in the last 3 months or issues of general interest. Letters should be submitted through our Manuscript Submission and Information Portal ([*https://cts.sciencemag.org*](https://cts.sciencemag.org)). Letters may be reviewed. The author of a paper in question is usually given an opportunity to reply. Letter submissions are acknowledged upon receipt by Science's automatic system, but letter writers are not always consulted before publication. Letters are subject to editing for clarity and space. Letters rejected for print publication may be posted as eLetters.

[2021-05-05 14:49:50]

[Robert Garry]

So yeah - reading my own post -it's probably a letter not a perspective. "Perspectives should have no more than two authors."

[2021-05-05 14:52:28]

[Robert Garry]

Wondering who the other authors are? eDim, Lipstich. Surely they wouldn't put Alina or Metzl. Other Parisites?

[2021-05-05 14:53:29]

[Kristian Andersen]

I would be delighted if they put Metzl on. Alina is a likely one - she really got into Jesse's head.

[2021-05-05 14:54:23]

[Kristian Andersen]

It'd be great if they'd put something specific in there - whatever that might be. That way it's much easier to pick apart. If it's aimless speculation, well, then all one can say is "nothing new in there".

[2021-05-05 15:10:20]

[Robert Garry]

You would expect that if _Science_ is going to publish an ostensibly peer-reviewed letter that there would need to be something specific there. Yes - please Alina's RaTG13 and Pangovirus are fake and SC2 is perfectly adapted BS. If it's Relman then GoF is gonna be in there. Very disappointed in Jessie Bloom - he admitted he hadn't looked at the science very closely - now he's going in.

[2021-05-05 15:20:43]

[Eddie Holmes]

I hope they say that RaTG13 is the closest relative of SARS-CoV-2 and that the pangolin viruses are dodgy. That will clearly show that they've not been listening.

[2021-05-05 15:21:28]

[Robert Garry]

Even thou Gorman is and should be on your shit list - I hope you agreed to look at the letter. I wouldn't play nice with Lab Leakers - they all have something else going on.

[2021-05-05 15:30:09]

[Kristian Andersen]

I told Jim I'd take a look. I'll share when I have it.

[2021-05-05 15:35:14]

[Robert Garry]

Good! <https://www.pbs.org/newshour/show/who-report-says-covid-originated-in-bats-but-critics-claim-the-study-was-biased> Relman is in this interview - and imo - this is probably the GW's best interview. Relman is just going to throw up the same arguments he made here and in the PNAS article.

[2021-05-05 15:35:27]

[Andrew Rambaut]

It would be good to get some comments from people who aren't us - though.

[2021-05-05 15:38:28]

[Robert Garry]

THat's a real good idea. Maybe some of these folks: <https://pubmed.ncbi.nlm.nih.gov/32700664/>

[2021-05-05 15:46:08]

[Eddie Holmes]

This comment from Daszak is the key one:

[2021-05-05 15:46:13]

[Eddie Holmes]

- *Dr. Peter Daszak:*
- Yes, I have been speaking to them for 15 years. If they had found a virus that was high, of high interest that they were working on, they would have told me before the outbreak, because that's what we were doing before the outbreak.
- We shared information on a weekly basis. Yes, some of them answer up the party chain, but they also are scientists. If there is something that the intelligence agencies know that they could supply to the WHO team, they would supply it and we will look at that.

[2021-05-05 15:48:25]

[Eddie Holmes]

Daszak is a total charlatan BUT I'd certain he would have known about what was being done at WIV and it talking to him I'm 100% certain he has no knowledge of anything of note at the WIV. Either that or he's the best liar ever with balls is titanium.

[2021-05-05 15:48:51]

[Kristian Andersen]

First time I heard the PBS interview with Relman - did he actually _read_ the report?

[2021-05-05 15:51:37]

[Eddie Holmes]

He clearly never looked at the Annexes.

[2021-05-05 15:52:58]

[Kristian Andersen]

Nope. If people want to disagree with the conclusions, data, or methodology, fine - but to say that there's "no data" very clearly shows that somebody didn't actually look at the report. It's flat out false.

[2021-05-05 16:28:37]

[Robert Garry]

It is a lie. It's meant to distract. It's also easier than arguing the science.

[2021-05-05 22:18:23]

[Eddie Holmes]

From Daszak today:

[2021-05-05 22:18:35]

[Eddie Holmes]

shared file(s): Screen Shot 2021-05-06 at 3.17.43 pm.png

[2021-05-06 04:58:10]

[Robert Garry]

Dazsak is right. The journalists are falling for the internet sleuths/maligned post-doc bullshit. More like lies to power but the effect is the same.

[2021-05-06 05:19:20]

[Robert Garry]

It might be worth putting in either a counter letter or perhaps better a technical comment in response to Relman and Bloom.

[2021-05-06 05:19:29]

[Robert Garry]

Technical Comments (up to 1000 words, 2 figures or tables, 15 references, and no Supplementary Materials), are published online and critique the core conclusions and/or methodology of research published in *Science* within the previous 3 months.

[2021-05-06 05:42:38]

[Robert Garry]

"When I first saw the furin cleavage site in the viral sequence, with its arginine codons, I said to my wife it was the smoking gun for the origin of the virus," said David Baltimore, an eminent virologist and former president of the California Institute of Technology, often known as CalTech. "These features make a powerful challenge to the idea of a natural origin for SARS2," he said. (1) This is a quote added to Wade's piece in The Bulletin.

[2021-05-06 05:44:36]

[Andrew Rambaut]

And the WIV has recently sent a firmware update to give it 618R using 5G mobile phones

[2021-05-06 07:02:47]

[Kristian Andersen]

Peter emailed me yesterday as well - I'll talk to Eben today. He seems pretty desperate....

We all picked up on that FCS, Baltimore - but then we dug a little deeper... Those codons - if they were so unusual don't you think they would have reverted by now?

[2021-05-06 07:24:56]

[Robert Garry]

There were rumors last year that Baltimore's wife [REDACTED] died - I dunno - DB probably heard horror stories about CCP from [REDACTED], but also misses the "spotlight."

[2021-05-06 08:21:55]

[Robert Garry]

<https://news.yahoo.com/menu-china-virus-market-rats-live-wolf-pups-111650959.html> "A price list circulating on China's internet for a business at the Wuhan market lists a menagerie of animals or animal-based products including live foxes, crocodiles, wolf puppies, giant salamanders, snakes, rats, peacocks, porcupines, camel meat and other game -- 112 items in all.

"Freshly slaughtered, frozen and delivered to your door," said the price list for the vendor, "Wild Game Animal Husbandry for the Masses".

Gao Fu, director of the Chinese centre for disease control and prevention, said in Beijing on Wednesday that authorities believe the virus likely came from "wild animals at the seafood market" though the exact source remains undetermined."

[2021-05-06 08:29:26]

[Robert Garry]

<https://mustsharenews.com/wuhan-market-animals-menu/>

[2021-05-06 08:29:39]

[Robert Garry]

Civet cats on menu. [shared file(s): image.png]

[2021-05-06 08:51:38]

[Andrew Rambaut]

Centipedes go really nicely with squirrels.

[2021-05-06 09:37:37]

[Robert Garry]

Surely, but I'm not sure what the best wine pairing would be. Maybe a complex wine like a Barolo or a Shiraz or you could opt for a Pinot Noir.

[2021-05-06 12:35:45]

[Kristian Andersen]

This is good.

<https://twitter.com/HansonM90/status/1389481573167288325?s=20>

[2021-05-06 13:10:11]

[Eddie Holmes]

More from Daszak: "There is hope though - I'm in regular contact with zhengli and they're sequencing genomes from the positives in our samples and working on papers to publish them. She tells me that we can sample in China and I just think we have to keep every channel open. I wish more people@would speak out against the lab leak bs here - relman and ebright have no data or analysis to add, but they're talking with press@every day & that story is too enticing for reporters to resist at the moment"

[2021-05-06 13:24:22]

[Kristian Andersen]

Spot on. Sadly.

[2021-05-06 13:26:05]

[Kristian Andersen]

I just finished talking to Katherine / Vanity Fair - exhausting to say the least. It's PROVE A NEGATIVE, PROVE A NEGATIVE, PROVE A NEGATIVE, over and over again. I walked her through how there's such a thing as "likelihood" in science - while two hypotheses may be _possible_ there's a difference in how _likely_ they are. I'm

not sure she got it.

So I asked her to prove to me that the 2020 election wasn't stolen. :man-shrugging:

[2021-05-06 13:36:16]

[Robert Garry]

Once they've drunk the kool-aid they are gone. It's the little guys (internet sleuths and post-doc turned detective) vs the high-powered pointy-headed academics sucking off the government tit and getting filthy rich. Covidfaker knew how to beat this drum like a champion.

[2021-05-06 14:04:18]

[Eddie Holmes]

Nicely put Bob. Ultimately, China have to be more open with the data.

[2021-05-06 18:38:05]

[Eddie Holmes]

Next to my Yunnan elephant [shared file(s): IMG_1633.JPG]

[2021-05-06 18:59:35]

[Robert Garry]

Looks great Eddie!

[2021-05-06 19:00:31]

[Eddie Holmes]

It's great! Thanks so much.

[2021-05-06 19:14:08]

[Kristian Andersen]

Haha. Now, put that CCP award next to it and we have a perfect setup.

[2021-05-06 19:59:37]

[Eddie Holmes]

More from Daszak. I'm not sure if I'm comforted by the 15,000 bat samples in the freezer: "I keep making the point that the US taxpayer paid for us to collect 15,000+ bat samples that are now in freezers in Wuhan, and because of this fake cold-war we can't officially control the work on them. Zhengli's doing the right thing - we're acting just like we were when the NIH grant was up and running, but if they decided not to answer my emails or wechats, we've got no leverage. Dumb politics."

[2021-05-06 20:09:17]

[Kristian Andersen]

15,000 bat samples in the freezer.... Awesome. :wink:

[2021-05-06 20:10:09]

[Kristian Andersen]

Also - just found this oldie but goodie. I believe the likes of eDim and Alina have forced me into a more extreme position.... Which I'll continue to defend! :punch:

<https://andersenlab.slack.com/archives/GTGL6LY5C/p1591918962047400>

[2021-05-06 20:18:23]

[Eddie Holmes]

I remember that well! By the way, there are no prior publications of Shi using FCSs are there? So, if this were from the lab it would their first use on the mystery virus they've told no one about.

[2021-05-06 20:23:03]

[Kristian Andersen]

I don't think so - that's kinda what I'm trying to figure out...

[2021-05-06 20:24:24]

[Kristian Andersen]

I'm getting a TON of shit because of Wade's article, so I need to look a little closer at all of this - just for my own sake. I'm not going to respond to Wade, but I have colleagues at UCSD telling me that _they_ have been receiving Wade's article from _their_ colleagues. Some twisted shit.

[2021-05-06 20:25:48]

[Eddie Holmes]

Yes, ignore Wade. I wonder if they've (Shi) ever even published a natural bat CoV with a FCS?

[2021-05-06 20:28:37]

[Kristian Andersen]

Probably the closest example: <https://pubmed.ncbi.nlm.nih.gov/26063432/>

[2021-05-06 20:30:28]

[Kristian Andersen]

No engineering in this one, but also about cleavage. <https://pubmed.ncbi.nlm.nih.gov/31801868/>

[2021-05-06 20:32:43]

[Eddie Holmes]

I'm surprised this virus didn't emerge in Raleigh.

[2021-05-06 20:35:29]

[Kristian Andersen]

Yeah, me too.

[2021-05-06 20:40:04]

[Eddie Holmes]

Quickly on Wade: pretty amazing that he accuses us of bad science when he ignores ALL the counter data.

[2021-05-06 20:41:29]

[Kristian Andersen]

Yup. I expect RelBloom will do the same.

[2021-05-06 20:42:06]

[Kristian Andersen]

When it comes to Baric fiddling with viruses, this, of course, is the mother of all papers...
<https://www.nature.com/articles/s41591-020-0924-2>

[2021-05-06 20:42:22]

[Kristian Andersen]

Well, this <https://www.nature.com/articles/nm.3985>

[2021-05-06 20:52:59]

[Eddie Holmes]

And it shows the key point: you use a standard backbone when you do this GOF work. And surely Shi would have done the same as she collaborated with Baric? And surely she would have asked Baric for advice but there's nothing in his emails?

[2021-05-06 20:55:30]

[Kristian Andersen]

Yup. Exactly.

[2021-05-06 20:55:52]

[Eddie Holmes]

First experiment to stick the SC2 RBD in a mouse adapted strain.

[2021-05-06 20:57:57]

[Kristian Andersen]

Yeah - very likely, but depends on the purpose of the experiment.

[2021-05-06 21:08:05]

[Kristian Andersen]

And just for reference - here are those beautiful feline CoVs with an identical FCS motif. It's out there... [shared file(s): Screen Shot 2021-05-06 at 9.07.11 PM.png]

[2021-05-06 21:21:34]

[Eddie Holmes]

Yes, I've used this one in talks

[2021-05-06 21:21:41]

[Kristian Andersen]

Sometimes I fucking love science. One of Wade's biggest arguments is that (and this is an oldie but goodie...) the FCS is strange because it has those two CGG codons coding the arginines. Now, take a look at the Feline CoVs - first R is coded by CGG too. Totally sinks that entire argument. [shared file(s): Screen Shot 2021-05-06 at 9.19.12 PM.png]

[2021-05-06 21:22:45]

[Eddie Holmes]

Perfect!!

[2021-05-06 21:23:06]

[Eddie Holmes]

Don't you love nature!!

[2021-05-06 21:23:31]

[Kristian Andersen]

Looking at the CGG codon itself and how often it's used:

Common cold CoVs: 4%

SARS: 5%

SARS2: 3%

SARSrCoVs: 2%

Totally sinks the argument.

[2021-05-06 21:24:32]

[Eddie Holmes]

Hilarious!

[2021-05-06 21:25:14]

[Kristian Andersen]

And one more - if CGGCGG had been 'strange' in SARS-CoV-2, we would see plenty of synonymous mutations (R has six codons). What do we see if we analyze the ~1.5 million genomes? CGG is found in 99.84% of all sequences at that site. Not exactly unstable.

I can go to bed now. I'll spend some time on the rest of his arguments tomorrow. Just because it's fun...

[2021-05-06 21:25:56]

[Eddie Holmes]

Great job! Get some rest.

[2021-05-07 05:24:11]

[Robert Garry]

```iNQTdIfefvNhTQprrrrSSntqnvqty```

The cat FCS is actually even more SC2 like. It has a QTQTNSP "like" [QTN are polar uncharged amino acids] landing site prior to the FCS and the two SERINES are predicted O-linked glycan sites. As you said @Kristian Andersen - an act of nature not an act of man [or woman].

[2021-05-07 05:44:36]

**[Robert Garry]**

<https://scitechdaily.com/tracing-covid-back-to-origin-many-variant-strains-were-already-present-before-the-first-known-cases-identified-in-china/>

[2021-05-07 05:46:00]

**[Robert Garry]**

I'm not convinced.

[2021-05-07 06:21:43]

**[Robert Garry]**

Here is Wade's quote on the FCS. "Viruses have all kinds of clever tricks, so why does the furin cleavage site stand out? Because of all known SARS-related beta-coronaviruses, only SARS2 possesses a furin cleavage site. All the other viruses have their S2 unit cleaved at a different site and by a different mechanism." It's of course a "clever trick," and misleading at best. Other betacoronaviruses (MERS, HKU5, HKU1, OC43, HKU24 <https://www.sciencedirect.com/science/article/pii/S1873506120304165>; <https://virological.org/t/naturally-occurring-indels-in-multiple-coronavirus-spikes/560>) and a plethora of other viruses (flu, HIV, paramyxoviruses to name just a few) use FCS in the same way as SC2.

[2021-05-07 06:21:45]

**[Robert Garry]**

<https://www.buzzsprout.com/1016881/8471236>

[2021-05-07 06:22:30]

**[Robert Garry]**

A year and a half after a pandemic crippled Countries and killed more than 3 million people, more and more evidence the Chinese are blocking data of experiments called Gain of Function in the Wuhan Institute of Virology.

Was Covid19 an experiment, that leaked out of the lab that was routinely engaged in strengthening Corona Virus? And experts say the denials by the Chinese are becoming increasingly unbelievable.

On Back Story Host Dana Lewis talks to Science writer \*Nicholas Wade,\* who has written a long essay arguing that the "lab leak" hypothesis is more plausible than the "natural origin" theory.

And, Gilles Demaneuf who has signed a letter from 24 scientists from around the world has demanding a new investigation into the origins of covid and specifically demanding the WHO look into the lab in Wuhan. Demaneuf is a data analyst from DRASTIC, an international team of scientists and analysts attempting to fill in the gaps on Covid's origins.

[2021-05-07 06:29:33]

**[Robert Garry]**

Also when Wade added the Baltimore quote he deleted this tidbit - apparently tipped off how stupid it was by Alina. [shared file(s): image.png]

[2021-05-07 06:56:28]

**[Kristian Andersen]**

I'm SO glad he included that quote from Baltimore because it's a specific statement about why he is convinced it came from the lab. The rest of the lot never get to specifics, but Baltimore did.

And of course, we can look at actual data to completely take down that argument. No, the 2020 election wasn't stolen.

[2021-05-07 10:36:32]

**[Kristian Andersen]**

@Andrew Rambaut / @Eddie Holmes have you guys thought about VOC/VOI type of stuff in extension to your pango lineages? Separate, of course, but kinda in the same spirit. We need to come up with something better for outbreak.info and we're struggling a little - and certainly don't want to duplicate efforts. We have thought about setting up a voting system and have a large 'board of advisors', but would be better to hook into other systems already in place.

IMO, the way PHE does it is the way to go and I think we'll just defer to PHE for VOC classifications. However, we have politics to deal with and the CDC has a different set of VOCs - which I don't agree with. We can of course also have a way in which people can use whatever list they prefer, but it gets messy - would be much better to have a single system (which is why pango is so important - because we're moving towards exactly that across the entire "variant" space).

[2021-05-07 14:35:01]

**[Andrew Rambaut]**

We should talk - I think we should have labels for VOC/VOIs that are separate from lineages. We have been discussing this at the WHO for a while but as you can imagine it is a mess. The WHO is obsessed with there being 3 nomenclatures (Pango, Nextstrain and GISAID) whereas in fact no one uses the other 2. They imagine that their names will become standard but it is not clear they understand what they are trying to label.

The important thing is to realise you are labelling a constellation not a lineage or clade (i.e., it is not synonymous with Pango). This is what PHE has got right - B.1.1.7+E484K is a VOC even though it will never be a lineage because it has occurred &gt; 10 times independently. Potentially the same VOC could arise multiple times in different parts of the world.

[2021-05-07 14:37:13]

**[Andrew Rambaut]**

We are adding a thing into Pangolin that as well as calling a lineage will also call a VOC/VUI based on a set of definition files.

[2021-05-07 14:38:58]

**[Andrew Rambaut]**

The other thing I think we need with VOC/VUI definitions is to have a 'type' genome. The example (preferably early) genome to act as a reference.

[2021-05-07 14:39:35]

**[Kristian Andersen]**

Okay, great - we can probably pull from that then. We just made a quick decision to move over to PHE designations for VOCs - we'll peg ours to the most current list from them. Problem is, it'll piss off the CDC - but they're behind the curve and we need to do the right thing. Everybody is already moving over to Pango lineages and it's time that GISAID/NextStrain designations go the way of the dodo. Hopefully VOC/VUI can be standardized around a similar 'community' driven effort as Pango.

[2021-05-07 14:40:17]

**[Kristian Andersen]**

And YES to type genome - I have been bugging our team for introducing exactly that feature for weeks. Are you planning on having this reflected somewhere?

[2021-05-07 14:42:58]

**[Andrew Rambaut]**

We should collaborate on this - we have some githubs and the idea would be to store the definition JSON files we could all pull off.

[2021-05-07 14:43:25]

**[Kristian Andersen]**

Let's. Do you have a Slack channel set up? We should have Laura and Karthik join on our side

[2021-05-07 14:44:19]

**[Andrew Rambaut]**

I can do a slack share link into the Pango Slack

[2021-05-07 14:44:56]

**[Kristian Andersen]**

Cool - that'd be great

[2021-05-07 14:45:32]

**[Andrew Rambaut]**

Can you give me their email addresses here?

[2021-05-07 14:46:03]

**[Andrew Rambaut]**

Which email do you use for slack?

[2021-05-07 14:46:49]

**[Kristian Andersen]**

[REDACTED]

[2021-05-07 14:47:10]

**[Kristian Andersen]**

Laura/Karthik might suggest a couple of others join too, but this is the core team.

[2021-05-07 14:50:36]

**[Andrew Rambaut]**

OK. Easily done. Invitations sent.

[2021-05-07 14:52:01]

**[Andrew Rambaut]**

By the way, WHO is planning to call them 'alpha', 'beta', 'gamma' etc. which is probably a good a system as any but we could still influence this.

[2021-05-07 14:52:28]

**[Andrew Rambaut]**

I hate the PHE names because they look so similar.

[2021-05-07 14:54:50]

**[Kristian Andersen]**

Yeah, alpha, beta, gamma could work - we talked about the need for different "levels" and the ability to move between groups (e.g., "CA" variant moving from VOC (which it should never have been...) down to a lower classification).

The PHE names are indeed bad - I always have to cross-reference back to the table also displaying the pangolin names (but as you say, we need to label constellations, not necessarily lineages).

[2021-05-07 15:02:33]

**[Andrew Rambaut]**

Yes - that is what we can put in the JSON definition files. We could have current PHE classification, WHO, CDC etc. Linking to lineages (possibly more than one - but probably not) where it is found.



[2021-05-07 15:05:03]

**[Andrew Rambaut]**

We also planned to have a big table of the individual mutations with information about evidence for phenotypic effect etc. (some spike ones are there in 'mutations.csv' but we have all been too busy to work on this). The COG mutation dashboard has a lot: <http://sars2.cvr.gla.ac.uk/cog-uk/>

[2021-05-07 15:08:34]

**[Kristian Andersen]**

Oh, nice - we have been talking about data layers like that too - a lot of interest on the NIH to incorporate immunological data (which, I agree, is key).

[2021-05-07 16:23:26]

**[Kristian Andersen]**

Have any of you read the Wade article in a little more detail? I'm still going through it, but it's shockingly bad - I mean, almost every single paragraph contains complete falsehoods and misunderstandings(/representations?) of basic scientific concepts. I only skimmed it previously, but reading through this, I'm totally stumped. It's as if he has never read a biology book.

[2021-05-07 16:47:47]

**[Eddie Holmes]**

I tried, but it made me so angry that I could literally feel my blood pressure begin to rise to dangerous levels so I had to stop. I just can't read this shit otherwise it will kill me. Baltimore's quote is hilarious. I bet he was on the phone with Jesse.

[2021-05-07 16:49:33]

**[Kristian Andersen]**

I'm honestly laughing reading this - it's completely absurd.

[2021-05-07 16:49:46]

**[Kristian Andersen]**

It's dangerous though - I mean: [shared file(s): Screen Shot 2021-05-07 at 4.48.22 PM.png]

[2021-05-07 16:50:08]

**[Kristian Andersen]**

shared file(s): Screen Shot 2021-05-07 at 4.49.59 PM.png

[2021-05-07 16:50:52]

**[Eddie Holmes]**

Good points on the VOC/VOI stuff. I think the WHO proposal is simply about politics, particularly trying to avoid the association with particular places (which the press will totally ignore). The greek names is ok I guess and not a focanuba. All a bit pointless.

[2021-05-07 16:50:54]

**[Kristian Andersen]**

And, of course, this (too long for screen shot...) [shared file(s): Screen Shot 2021-05-07 at 4.50.27 PM.png]

[2021-05-07 16:52:34]

**[Kristian Andersen]**

@Robert Garry - I think it might be worth reaching out to GVN to see if they want to respond to this. I can't take the lead on something like this, but it's quite serious when a journalist as high profile as Wade (despite him being an idiot) is calling for people to "blame" virologists for the COVID-19 pandemic. It's shocking, frankly.

[2021-05-07 16:56:56]

**[Eddie Holmes]**

Perhaps ASM/ASV would be better. Need to avoid the response from the loose-knit community. There's so much hate in Wade's article it's hard to know where to begin.



[2021-05-07 17:02:23]

**[Kristian Andersen]**

True. Might also just be better to leave it - it's shockingly hateful.

I'm wondering if I should ping Jesse to warn him about this article since his Science commentary will be mixed up with Wade's article AND Jesse may well not read the Wade piece in detail and not realize what it actually says.

[2021-05-07 17:14:13]

**[Eddie Holmes]**

No, Jesse has made his own bed - let him lie in it

[2021-05-07 17:17:04]

**[Eddie Holmes]**

My advice is to do nothing: just focus on doing the best science you can  
Jesse is old enough to look after himself

[2021-05-07 17:19:48]

**[Kristian Andersen]**

Yeah, fair points. And yeah - I'll let this one lie (although I will talk to Jon next week, although not about the Wade piece specifically)

[2021-05-07 17:23:50]

**[Eddie Holmes]**

Good plan

The only way through this in the long term is getting more data. I'm doing my best on that front. Focus on the science. The rest is noise.

[2021-05-07 17:27:55]

**[Kristian Andersen]**

Couldn't agree more.

It's really shocking to see a former NYT journalist write something this hateful though - with completely flawed 'science' thrown in. Plenty of scientists are sharing this article - I'm wondering if they're realizing exactly what he wrote...

Oh well. Time for beer.

[2021-05-08 05:43:30]

**[Robert Garry]**

Let's see if RelBloom actually say anything specific tomorrow. I'm betting on more of the same nonspecific arm waving - look:face\_with\_rolling\_eyes: there's a lab [a big one with spacesuits] in Wuhan and they did [maybe dangerous] experiments with [gasp] coronaviruses.

[2021-05-08 05:47:58]

**[Robert Garry]**

Important article here: <https://www.nytimes.com/2021/05/07/opinion/coronavirus-airborne-transmission.html>

[2021-05-08 06:03:52]

**[Robert Garry]**

The airborne story is a big one IMO. And, a reminder that when it comes to science that truth takes longer to spread - but it does find a way. [shared file(s): image.png, image.png, image.png]

[2021-05-08 06:31:11]

**[Robert Garry]**

I'm hoping RelBloom do something like Relman did here: <https://www.pnas.org/content/117/47/29246> "Some have argued that a deliberate engineering scenario is unlikely because one would not have had the insight a priori to design the current pandemic virus (\*3\*). This argument fails to acknowledge the possibility that two or more as yet

undisclosed ancestors (i.e., more proximal ancestors than RaTG13 and RmYN02) had already been discovered and were being studied in a laboratory—for example, one with the SARS-CoV-2 backbone and spike protein receptor-binding domain, and the other with the SARS-CoV-2 polybasic furin cleavage site. It would have been a logical next step to wonder about the properties of a recombinant virus and then create it in the laboratory. Alternatively, the complete SARS-CoV-2 sequence could have been recovered from a bat sample and viable virus resurrected from a synthetic genome to study it, before that virus accidentally escaped from the laboratory. The third scenario, seemingly much less likely, involves laboratory manipulation or release, with the clear intention of causing harm."

[2021-05-08 06:32:29]

**[Robert Garry]**

Relman (2020) speculated that closer relatives of SARS-CoV-2 than RaTG13 existed at WIV that have not been revealed to the world. However, if such a precursor existed at WIV it would have been logical to reveal its existence, instead of RaTG13, as that would have immediately confirmed the zoonotic nature of COVID-19.

[2021-05-08 17:04:45]

**[Eddie Holmes]**

Well, it won't contain new data that's for sure.

[2021-05-09 05:42:01]

**[Robert Garry]**

Angie vs Wade and Alina [Alina takes the bait]. <https://twitter.com/Ayjchan/status/1391005869161259011>

[2021-05-09 06:08:55]

**[Robert Garry]**

They are ALL writing books - she's among the worst of the journos, but I add points for at least admitting she believes it's all cover-up and conspiracy. [shared file(s): image.png]

[2021-05-09 06:58:55]

**[Kristian Andersen]**

*[thread - ID: 2021-05-09 06:58:55]*

Oh Alina...

I might jump in a little later.

[2021-05-09 07:51:28]

**[Robert Garry]**

That would be good. Hit her hard - gloves off! We cut some of the stuff Angie alluded to from Holmes 2020 (virological): "Based on a lower substitution rate for SARS-CoV-2 compared to the earliest isolates of SARS-CoV, Zhan, Davidson and Chan (2020) concluded that it was possible that SARS-CoV-2 had been pre-adapted for human growth in the laboratory. However, there has also been limited sampling early in the COVID-19 outbreak, precluding observation of an early period of increased generation of variants followed by purifying selection (Park et al., 2015). It is not unusual for related viruses to have substitution rates that vary in the range seen by Zhan, Davidson and Chan (2020). For example: the rates of nucleotide substitution in the four serotypes of DENV—range from  $4.55 \times 10^{-4}$  (DEN-1) to  $11.58 \times 10^{-4}$  (DEN-3) substitutions per site, per year (Twidy, Holmes, Rambaut, 2003)."

[2021-05-09 07:53:05]

**[Robert Garry]**

I have a feeling that Wade and RelBloom are going to get a lot of attention.

[2021-05-09 11:18:36]

**[Robert Garry]**

*[thread - ID: 2021-05-09 06:58:55]*

@Kristian Andersen good jump @Kristian Andersen - Characterization of hateful racist Wade BS is spot-on.

[2021-05-09 11:19:17]

**[Kristian Andersen]**

[thread - ID: 2021-05-09 06:58:55]

@Kristian Andersen It's exactly what it is.

Will tackle the FCS shortly - because I kinda wanted to look more closely at that and it's cool...

[2021-05-09 14:16:36]

**[Eddie Holmes]**

Yes, they will get a lot of attention. I look forward to Sharri's book. Bless. I'll get the lawyers ready now. Angie's tweet made my day! Can you send me Alina's reply as I've been blocked.

[2021-05-09 15:23:34]

**[Kristian Andersen]**

shared file(s): Screen Shot 2021-05-09 at 3.22.58 PM.png, Screen Shot 2021-05-09 at 3.23.10 PM.png

[2021-05-09 15:24:04]

**[Kristian Andersen]**

Furin thread: [https://twitter.com/K\\_G\\_Andersen/status/1391507230848032772?s=20](https://twitter.com/K_G_Andersen/status/1391507230848032772?s=20)

Tip to when people block you - just open the URL in an 'incognito' window and you can see it.

[2021-05-09 15:30:17]

**[Eddie Holmes]**

Thanks! When she said 'shocking quote' I don't think she really understood the context. She and Wade need to look into how the virus is so adapted to mink. Perhaps they were using minkanised-mouse lines??

[2021-05-09 15:39:37]

**[Eddie Holmes]**

Just seen your thread - amazing. I've been off Twitter for a month.

[2021-05-09 15:40:15]

**[Kristian Andersen]**

"minkanised-mouse lines". Haha, yup, that's it. Definitely. :wink:

[2021-05-09 17:29:59]

**[Robert Garry]**

[thread - ID: 2021-05-09 06:58:55]

@Kristian Andersen Awesome job @Kristian Andersen - as I've said before I think you're getting the hang of the twitter thingee!

[2021-05-09 18:13:49]

**[Kristian Andersen]**

[thread - ID: 2021-05-09 06:58:55]

@Kristian Andersen Took me hours - so dumb, but I have been wanting to look at this a little more carefully for a while so I guess this gave me an excuse. Makes Baltimore look really dumb... You gotta wonder if he really said/meant that.

[2021-05-09 19:55:58]

**[Eddie Holmes]**

Looks like KGA broke the internet :facepunch: Our boy Alex nicely put eDim down as well.

[2021-05-09 20:02:14]

**[Kristian Andersen]**

Alex did indeed - so good. What a dumb comment from eDim too - straight out of the intelligent design crowd.

[2021-05-09 20:04:31]

**[Eddie Holmes]**

I know. Desperate stuff.

[2021-05-09 22:55:04]

**[Andrew Rambaut]**

New t-shirt slogan from an Angie tweet: "Basic as fuck"

[2021-05-09 23:03:42]

**[Andrew Rambaut]**

or punk band name

[2021-05-09 23:11:42]

**[Eddie Holmes]**

Let's hope Mrs Baltimore saw Kristian's thread. I'm sure she'll enjoy taking him down a notch or two.

[2021-05-10 01:07:37]

**[Andrew Rambaut]**

Technically Baltimore's comment could be true - he may well have said that to his wife [REDACTED]  
[REDACTED]).

[2021-05-10 01:08:08]

**[Andrew Rambaut]**

(but you probably knew that).

[2021-05-10 01:18:30]

**[Eddie Holmes]**

Yes, she's the DI person. Great work.

[2021-05-10 01:19:30]

**[Andrew Rambaut]**

Presumably knows way more about FCSs than DB

[2021-05-10 01:20:25]

**[Andrew Rambaut]**

I like to think that Baltimore mansplained it to her

[2021-05-10 01:40:54]

**[Eddie Holmes]**

Nobelsplaining is even worse.

[2021-05-10 05:39:35]

**[Andrew Rambaut]**

shared file(s): image.png

[2021-05-10 07:07:46]

**[Robert Garry]**

WSJ - a mixed bag of reporting opinion. eDim tweets get press. [shared file(s): China, Fauci and the Origins of Covid - WSJ.pdf]

[2021-05-10 08:16:54]

**[Kristian Andersen]**

.... and here it is (haven't read it) [shared file(s): bloom-05-14-21.pdf]

[2021-05-10 08:24:13]

**[Andrew Rambaut]**

Fuck. Worobey is on it

[2021-05-10 08:25:01]

**[Andrew Rambaut]**

Baric

[2021-05-10 08:25:18]

**[Kristian Andersen]**

Yup, some relevant people on it - those two being the main two

[2021-05-10 08:26:09]

**[Kristian Andersen]**

Have you talked to Worobey about any of this previously? There's nothing in the letter itself, but clearly it lays out a false balance

[2021-05-10 08:26:52]

**[Andrew Rambaut]**

No. I wouldn't have expected him to get embroiled in this (particularly after the whole Ed Hooper stuff)

[2021-05-10 08:28:03]

**[Kristian Andersen]**

Yeah, I was very surprised to see him on here - and disappointed.

[2021-05-10 08:30:58]

**[Andrew Rambaut]**

I was thinking more about the false equivalence stuff - perhaps we need a really good figure. Something not like this:

[2021-05-10 08:31:38]

**[Andrew Rambaut]**

shared file(s): 2390701C-054C-4D1C-B9DB-1273AC4475CA\_1\_105\_c.jpeg

[2021-05-10 08:31:50]

**[Robert Garry]**

Baric - aka Deep Throat- is on because Po1 got too much press and we're not really coronavirologists.

[2021-05-10 08:36:11]

**[Andrew Rambaut]**

Basically you have gazillion bat viruses. A small fraction of these are human/civet/raccoon dog transmissible but you have millions of these and any transmissible viruses will jump. These will then jump to humans. You have numbers and time on your side. The alternative is a lab samples, say, 10,000 bats (all from a few locations). That sample has to contain the human transmissible one (but it will not be selecting for it, unlike the carnivore reservoir), it has to stay viable as a virus and infect one person (out of a handful that may be working with the samples). Also the one human infectious virus (out of 10,000 has to be the one to stay viable and infect the lab worker.

[2021-05-10 08:37:02]

**[Andrew Rambaut]**

If you have zero evidence that SC2 was in the lab then you are left with this vanishingly small prior probability.

[2021-05-10 08:44:40]

**[Robert Garry]**

? [shared file(s): image.png]

[2021-05-10 08:54:24]

**[Andrew Rambaut]**

t proportion of bat viruses that are carnivore/human transmissible  
e number of exposures between bats and carnivores (over all locations, and over decades)

$p(h)$  probability of human infection per carnivore outbreak

$p(p)$  probability of pandemic arising per human infection

$p_{\text{zoonotic}} = t \times e \times p(h) \times p(p)$

$t$  is very small but  $e$  is very large

For the lab scenario

$N$  = number of samples collected by the lab

$p(i)$  = probability a sample remains infectious

$p(l)$  = probability of a lab infection

$s$  = number of scientists handling material

$p_{\text{lab}} = t \times N \times p(i) \times (1 - [1 - p(l)]^s) \times p(p)$

In this one,  $t$  is very small, all of the  $p()$  are  $\ll 1$  and  $N$  is not that big

[2021-05-10 09:05:48]

**[Robert Garry]**

Brilliant! Math>>>Figure

[2021-05-10 09:10:48]

**[Andrew Rambaut]**

I forgot to add in  $p(f)$  = probability that WIV is fibbing

[2021-05-10 09:12:02]

**[Kristian Andersen]**

Love it @Andrew Rambaut - and yes, this is what we need. For the ones above  $e \gg N$  and  $p(i)$  is also very low - probably  $\sim 1\%$ .  $p(l)$  can be calibrated based on previous lab escapes and is also low - much less than  $1\%$ , but let's keep it at that.  $p(h)$  we can calibrate based on sero surveys, using a one year seroreversion - so  $2\%$  of population in certain areas.

[2021-05-10 09:12:39]

**[Kristian Andersen]**

According to The Seeker, nobody in their right mind would consider  $p(f) \gg 0$ .... :wink:

[2021-05-10 09:13:27]

**[Kristian Andersen]**

Worth plotting some of this out?

[2021-05-10 09:13:53]

**[Andrew Rambaut]**

$p(h)$  may be close to  $1$  - if there is an outbreak in a farmed carnivore population.

[2021-05-10 09:15:34]

**[Kristian Andersen]**

Yeah,  $p(h)$  definitely high -  $p(p | h)$  specifically for SARS-CoV-2 also high because of the features of the virus.

[2021-05-10 09:33:42]

**[Kristian Andersen]**

Here's Jim's email - note the sly comments from Relman. Unsurprising (and not something I'll comment on - if he wants to specify exactly what's unsupported in our letter, I'm happy to address it. Usual bs). [shared file(s): lab investigation letter]

[2021-05-10 09:52:43]

**[Kristian Andersen]**

Seems like she learned a few lessons: <https://twitter.com/Ayjchan/status/1391753059504738308?s=20>

However, we then end up on this conclusion... It's just dumb. [shared file(s): Screen Shot 2021-05-10 at 09.49.40.png, Screen Shot 2021-05-10 at 09.51.51.png]

[2021-05-10 09:53:43]

**[Kristian Andersen]**

And this fucking fake statistics about the likelihood of see CGG\_CGG. It's intelligent design / irreducible complexity all over again.

[2021-05-10 11:13:40]

**[Kristian Andersen]**

Gus is leaving USAMRIID - interesting....

[https://www.mountsinai.org/about/newsroom/2021/biopreparedness-expert-gustavo-palacios\[...\].gthening-research-collaborations-with-department-of-defense](https://www.mountsinai.org/about/newsroom/2021/biopreparedness-expert-gustavo-palacios[...].gthening-research-collaborations-with-department-of-defense)

[2021-05-10 11:15:01]

**[Robert Garry]**

Lot of RIID folks already gone....it's a shame in many ways...

[2021-05-10 13:30:04]

**[Eddie Holmes]**

That letter to Science doesn't actually say anything.

[2021-05-10 13:32:47]

**[Kristian Andersen]**

Nope. But definitely breaking news.

[2021-05-10 13:36:37]

**[Eddie Holmes]**

I think it's FOMO for a lot of authors. Appalled by Worobey being on there. I can't see how this will possibly lead to anything.

[2021-05-10 13:48:49]

**[Eddie Holmes]**

Baric is just trying to cover his ass. Pathetic. The last paragraph is basically 'hey, we're not racists'.

[2021-05-10 13:53:58]

**[Kristian Andersen]**

"Not racists, however, the Chinese scientists, authorities, and public health officials are lying"

[2021-05-10 13:58:43]

**[Eddie Holmes]**

But we Americans know better.

[2021-05-10 14:02:04]

**[Robert Garry]**

There are some clearly false musings: "Although there were no findings in clear support of either a natural spillover or a lab accident, the team assessed a zoonotic spillover from an intermediate host as "likely to very likely," and a laboratory incident as "extremely unlikely" [(4), p. 9]. Half true - as @Kristian Andersen has tweeted there are some clear findings in support of natural origin.

[2021-05-10 14:06:37]

**[Robert Garry]**

"Public health agencies and research laboratories alike need to open their records to the public." Let the record show that these scientists are accusing Tony Fauci and Francis Collins of being culpable in the alleged cover-up. This is the same talking point of the Republicans in their letter to the WH.

[2021-05-10 14:07:06]

**[Kristian Andersen]**

Correct. False equivalence. All the data we have so far supports a natural origin - the only one missing is the intermediate host. Which may or may not exist and also wouldn't satisfy the likes of eDim.

[2021-05-10 14:07:44]

**[Kristian Andersen]**

I laughed when I saw ""Public health agencies and research laboratories alike need to open their records to the public."" I mean, how naive are these people?

[2021-05-10 14:07:56]

**[Kristian Andersen]**

I assume David will personally go collect the lab books himself?

[2021-05-10 14:08:39]

**[Robert Garry]**

Self-serving and hypocritical: "We should show the same determination in promoting a dispassionate science-based discourse on this difficult but important issue." Don't call us racist for accusing leading Chinese scientists of cover-up and conspiracy.

[2021-05-10 14:11:13]

**[Robert Garry]**

It truly was written by Alina "I'm just asking questions" Chan. Disappointing that there were so many supposedly serious scientists with FOMO.

[2021-05-10 14:12:29]

**[Eddie Holmes]**

Exactly. Makes me puke.

[2021-05-10 14:14:50]

**[Robert Garry]**

I'm with you Eddie - very disappointing.

[2021-05-10 14:18:12]

**[Robert Garry]**

Now they have \_Science\_ throwing it's considerable cachet behind Lab Leak . And spreading the nonsense that the WHO report had no clear findings in support of natural origin - the opposite is true.

[2021-05-10 14:18:20]

**[Kristian Andersen]**

Interesting - shortened version of Wade's article in the NY Post. This time omitting the criticism of yours...

<https://nypost.com/2021/05/09/theory-that-covid-escaped-from-a-lab-may-not-be-far-fetched/>

[2021-05-10 14:26:15]

**[Robert Garry]**

Too bad - would have "loved" to have seen @Kristian Andersen on the cover of the Post. [shared file(s): image.png, image.png, image.png, image.png]

[2021-05-10 14:26:52]

**[Robert Garry]**

It's such a reputable rag.



[2021-05-10 14:33:06]

**[Kristian Andersen]**

*[thread - ID: 2021-05-10 14:33:06]*

The Grand Wizard will likely get the honors - he's in New York too so I'm sure he'll enjoy the attention. "Sneaky Pete" will be the title.

[2021-05-10 14:42:35]

**[Eddie Holmes]**

I wonder what WHO will say? Ultimately, though, it's all pointless as I can't for a nanosecond see any detailed investigation of that they want ever occurring. Is there anyone more hypocritical than Ralph Baric?

[2021-05-10 14:45:51]

**[Kristian Andersen]**

What they're saying here:

"The information, data, and samples for the study's first phase were collected and summarized by the Chinese half of the team; the rest of the team built on this analysis."

... the Chinese fiddled with the data.

[2021-05-10 14:55:35]

**[Robert Garry]**

Indeed - it's subtle. Intended to sound nefarious, but how else would the data have been collected? Nevertheless they are definitely accusing Shi et al of malfeasance not to mention killing to date over 3M people.

[2021-05-10 15:00:25]

**[Robert Garry]**

*[thread - ID: 2021-05-10 14:33:06]*

@Kristian Andersen So just Don the prick's favorite cover? Sneaky Pete rips below the belt jab? Size Matters?  
[shared file(s): image.png]

[2021-05-10 15:07:09]

**[Kristian Andersen]**

*[thread - ID: 2021-05-10 14:33:06]*

@Kristian Andersen Haha.

[2021-05-10 15:07:30]

**[Kristian Andersen]**

*[thread - ID: 2021-05-10 14:33:06]*

@Kristian Andersen Oh, and his cap says "NORWAY".... Hmmmmmm. Suspicious.

[2021-05-10 15:08:04]

**[Kristian Andersen]**

lchannel - trying to write something to Jim. Thoughts on this?

```This is on background - the letter doesn't add anything and the title is literally "Investigate the origins of COVID-19", which I think we can all agree on and is already being done. I can give you an on-the-record comment below, but there's nothing in the letter other than a false equivalence, no data, no testable hypotheses, and no added knowledge. As for the "investigation" they're proposing (remember, what the WHO did wasn't an "investigation" - it was a mission. The WHO doesn't have the mandate, nor do they have the resources for an "investigation"). The authors don't specify how such an investigation would be conducted and stating that "Public health agencies and research laboratories alike need to open their records to the public. Investigators should document the veracity and provenance of data from which analyses are conducted and conclusions drawn, so that analyses are reproducible by independent experts." is hopelessly naive. I obviously agree that that would be great, but it's pure utopia and shows a clear lack of understanding the reality of the situation (none of the authors have direct experience working on emergence/outbreaks). As for the WHO mandate, if you haven't read this article, I can

highly recommend

it: <https://www.cnn.com/2021/04/01/opinions/who-covid-19-origins-report-opinion-kavanagh/index.html>.

On-the-record - I agree with the authors that both hypotheses are possible, although as the WHO and others have concluded, not equally likely. To this day, no evidence has been presented to support a lab leak, which remains grounded in speculation. Instead, available data, including those derived from epidemiological, ecological, clinical, and genomic investigations, are consistent with a natural emergence of SARS-CoV-2 from a zoonotic reservoir, as has been observed so many times in the past.``

[2021-05-10 15:13:07]

[Robert Garry]

[thread - ID: 2021-05-10 14:33:06]

@Kristian Andersen Indeed - Norway exports frozen fish some of which is quite tasty.

[2021-05-10 15:13:46]

[Eddie Holmes]

Great work Kristian! Perfect. No need to say anything more.

[2021-05-10 15:17:23]

[Robert Garry]

[thread - ID: 2021-05-10 14:33:06]

@Kristian Andersen Apparently Sneaky Pete likes the small Norwegian sardines. [shared file(s): image.png]

[2021-05-10 15:21:07]

[Robert Garry]

Agreed - reminding him that in fact there is a LOT of available data in clear support of a natural spillover - contrary to this group of - I dunno - "Americites."

[2021-05-10 18:17:08]

[Eddie Holmes]

Nice words from Jon Cohen.

[2021-05-10 22:24:30]

[Eddie Holmes]

If Deep Throat really is a Baric then he's a total low life

[2021-05-10 22:30:57]

[Kristian Andersen]

It's him - I'm sure.

[2021-05-10 22:31:37]

[Eddie Holmes]

Me too

[2021-05-10 22:32:20]

[Eddie Holmes]

[thread - ID: 2021-05-10 22:32:20]

Perhaps Jon should publish that letter

[2021-05-10 22:33:05]

[Eddie Holmes]

Email rather

[2021-05-10 22:34:37]

[Eddie Holmes]

Would really cause some confusion...

[2021-05-11 02:45:17]

[Eddie Holmes]

Was chatting to some of WHO people about the RelBloom thing today...their reaction is :man-facepalming:

[2021-05-11 02:45:54]

[Eddie Holmes]

I also had a very interesting chat with my Deep Throat in China. Got the following:

[2021-05-11 02:46:23]

[Eddie Holmes]

"No evidence so far indicate that the WIV has the virus in storage."

[2021-05-11 02:46:44]

[Eddie Holmes]

"I think George is leading the effort and BGI is help with all the sequencing works. That's the national team, although other team are also working on similar project, but with smaller scale. There has been huge effort on environments (wet market in Wuhan) and wild-life animals (all over China, including bats and pangolines). I myself is involved in these some of the work (one with pangoline and the other with the Gamey taste animals), but nothing relavent is found at this stage. And I haven't heard anything interesting from others either. George previously wanted me to involve in the data analyses, and promised to send the hard disk, but they never arrived. So I guess he is having second thoughts."

[2021-05-11 02:47:10]

[Eddie Holmes]

Plus this awesome figure: [shared file(s): Fig 1 Hv20210510v2.pdf]

[2021-05-11 02:48:16]

[Eddie Holmes]

So, nothing found yet but great they are looking so hard. Can't see any evidence for mink or raccoon dog testing though.

[2021-05-11 02:53:01]

[Robert Garry]

That's super interesting @Eddie Holmes Yes indeed I'm glad they are looking so hard!

[2021-05-11 02:53:07]

[Robert Garry]

I was typing this: JC is one of a handful of science journo that could get this right. He's probably non to happy _Science_ is publishing this crap. I find it interesting they give a Editorial credit to Jennifer Sills. On further reflection of RelBloomshit the the two things that piss me off the most are: 1. the assertion that there is "no clear evidence" for natural origin in the WHO report and 2. "Not racists, however, the Chinese scientists, authorities, and public health officials are lying." 1 is an argument from authority meant to demean a scientific conclusion they don't like and confuse ppl, while 2 is a self-serving plea to ignore the fact that they are proposing a massive cover-up and conspiracy.

[2021-05-11 02:55:17]

[Eddie Holmes]

My strategy now is try and do as much with China as I can get an insight into what the fuck is going on. Totally agree with your take Bob. #2 is really, really sleazy.

[2021-05-11 02:56:23]

[Eddie Holmes]

That they are looking so bloody hard suggests to me that they clearly think it is natural. Why bother if it's engineered?

[2021-05-11 02:56:47]

[Robert Garry]

It will be interesting to see what Daszak, Koopsman and others have to say about RelBloomshit. Surely they are not going to sit still and agree about the "no clear evidence."

[2021-05-11 02:58:43]

[Eddie Holmes]

Surely not. All the WHO team have seen it.

[2021-05-11 03:01:28]

[Robert Garry]

"My strategy now is try and do as much with China as I can get an insight into what the fuck is going on." More power to you on this!

[2021-05-11 04:51:59]

[Robert Garry]

[thread - ID: 2021-05-10 22:32:20]

@Eddie Holmes It's really something - yeah Jon publish it. [shared file(s): image.png]

[2021-05-11 05:05:57]

[Robert Garry]

[thread - ID: 2021-05-10 22:32:20]

@Eddie Holmes A random thought - why is eDim not a signer of RelBloomshit? Going direct at NIH OD Collins maybe too radical? Any journo that really wanted to sink in teeth would find the motherload. [shared file(s): image.png]

[2021-05-11 05:36:30]

[Robert Garry]

"We should show the same determination in promoting a dispassionate science-based discourse on this difficult but important issue." They want a determined but dispassionate science-based discourse on the topic that WIV was doing GoF research with the CCP army on a secret progenitor of SC2. Like I said this is starting to really piss me off. I may put my scenario diagrams up on virological.

[2021-05-11 08:38:17]

[Robert Garry]

[thread - ID: 2021-05-10 22:32:20]

@Eddie Holmes

https://www.rawstory.com/rand-paul-vs-anthony-fauci-hearing-2652950727/?utm_source=push_notifications It's getting hot out there!

[2021-05-11 08:45:54]

[Robert Garry]

Add references and GO????? Early appearance of two distinct genomic lineages of SARS-CoV-2 in different Wuhan wildlife markets suggests SARS-CoV-2 has a natural origin

Robert F. Garry^{1,2}

Introduction

Our previous commentary on the Proximal Origins of SARS-CoV-2 (Andersen et al., 2020) concluded that, "SARS-CoV-2 is not a laboratory construct or a purposefully manipulated virus (Andersen et al., 2020)." The possibility of a laboratory release or Lab Leak was also considered, but it was determined that a natural origin of SARS-CoV-2 is much more likely. Recently, a team of scientists under the auspices of the World Health Organization (WHO) reached similar conclusions (WHO Report, 2021). Other groups have speculated that SARS-CoV-2 may be the result of undisclosed research on SARS-CoV-2 or a close progenitor and accidental

release [Relman, 2020; Parisite 1, 2]. Some Lab Leak proponents have suggested that SARS-CoV-2 may be the product of laboratory passage of a progenitor virus in cell culture or animals, or Gain-of-Function research [ref]. New data presented by the WHO study provides clear findings in support of the Natural origin of SARS-CoV-2.

Results

The study of SARS-CoV-2 origins conducted by the WHO team provided important new data regarding the role of wildlife markets in the emergence of SARS-CoV-2. The large Huanan seafood market, which also sold wildlife and wildlife products, was a focus of early attention because it was linked to the majority of early cases of COVID-19 in Wuhan. The WHO report documented that early cases were not only linked to the Huanan market, but that other early cases were linked to different markets that sold wildlife or wildlife products. Among the first 168 diagnosed cases of COVID-19 in Wuhan with onset date prior to December 31, 2019 and a known history of exposure to wildlife markets 55.4% (93/168) reported such exposures. Of the 168 cases, 28% (47/168) had only been to the Huanan market, 22% (38/168) had exposure to another wildlife market and 4.7% (8/168) had exposure to the Huanan market and another market (ref table).

The genetic lineages of SARS-CoV-2 associated with early cases in Wuhan were documented in the WHO report. Previously, Rambaut et al, (2020) noted that at the root of the phylogeny of SARS-CoV-2 are two lineages designated lineage A and B. Early lineage A viruses, include SARS-Cov-2 isolate EPI_ISL_529213 sampled on 30Dec19 from a person linked to a wildlife market different than the Huanan market (Table 7, S13, WHO report 2021). Linage A viruses share two nucleotides (T8,782 in ORF1ab and C28,144 in ORF8) with the bat viruses RaTG13 and RmYN02 and other sarbecoviruses. It is likely that the most recent common ancestor (MRCA) of SARS-CoV-2 shares the same genome sequence as these early lineage A sequences (Rambaut et al., 2020). Different nucleotides (C8,782 in ORF1ab and T28,144 in ORF8) are present at those sites in viruses assigned to lineage B, such as SARS-CoV-2 isolate Wuhan-Hu-1 (GenBank accession no. MN908947, Table 7, S13, WHO report,) sampled from the Huanan market on 30Dec19. All virus positive samples from the Huanan market, from vendors or customers of the market or from environmental samples, contained SARS-CoV-2 of lineage B. There was limited genetic diversity in the lineage B samples from the Huanan market, which is consistent with the market as a site of a super-spreader event. Lineage A and Lineage B viruses spread throughout Wuhan and to other countries [ref]. [shared file(s): image.png, image.png]

[2021-05-11 08:45:54]

[Robert Garry]

Competing hypotheses have been put forward to explain the emergence of SARS-CoV-2. Natural spillover directly from a bat or via an intermediate host could have occurred via several different scenarios (Fig. 1). Likewise, several variations of the Lab Leak hypothesis have been proposed (Fig. 2). A dispassionate science-based discourse on the topic of the origin of SARS-CoV-2 must account for this new data revealed by the WHO study showing: 1. multiple markets were linked to the early cases, and 2. divergence of SARS-CoV-2 into lineages A and B was an early occurrence. These facts are represented by yellow boxes in each figure.

Proponents of Lab Leak theories speculate that SARS-CoV-2 or a close progenitor was present in the Wuhan Institute of Virology or another Wuhan virology lab before the start of the COVID-19 pandemic and the appearance of the first cases in Wuhan (Fig. 2). It has been proposed that SARS-CoV-2 was released either via an infected laboratory worker, an escaped lab animal or via waste disposal (Parisite 1, Relman 2020). Pangolins carry and appear to be naturally infected with at least two lineages of sarbecoviruses [ref]. The Guangdong strain of pangolin coronavirus carries a receptor binding domain that is highly similar to the RBD of SARS-CoV-2. Some proponents of the Lab Leak theory have speculated the RBD of GD pangolin was recombined via genetic engineering with the backbone of an undisclosed sarbecovirus to produce SARS-CoV-2. Alternatively, it has been suggested that an undisclosed close progenitor of SARS-CoV-2 was passaged on human cells or experimental animals (such as humanized mice) in gain of function type experiments to adapt for human replication (Segreto and Deigin, 2020). The direct role of the Chinese military in conducting classified research on sarbecoviruses at the WIV has also been proposed (DoS). In Lab Leak scenarios diversification of SARS-CoV-2 to its two separate early lineages A and B would have had to occur in the laboratory setting. Lab Leak scenarios must also account for the fact that the majority of early cases were associated with different wildlife markets in Wuhan. [shared file(s): image.png, image.png]

[2021-05-11 08:45:54]

[Robert Garry]

Discussion

Lab Leak scenarios are inconsistent with several established facts regarding the origin of SARS-CoV-2. The majority of early cases were linked to different markets that sold wildlife or wildlife products in Wuhan. All theories of the origin of SARS-CoV-2 must account for the linkage to different market engaged in wildlife trade. Theories on SARS-CoV-2 must also account for the fact that two distinct lineages of SARS-CoV-2 were distributed at different Wuhan wildlife markets. Scenarios where an infected laboratory worker, an escaped lab animal or faulty waste

disposal spread not one but two lineages of SARS-CoV-2 specifically to different wildlife markets are difficult to rationalize.

The original SARS outbreaks in 2003 and 2004 were linked to the wildlife trade [ref]. In contrast to Lab Leak theories, linkage of the origin of SARS-CoV-2 to wildlife or the wildlife trade provides several plausible scenarios for the appearance of SARS-CoV-2 at different wildlife markets. It fully accounts for the fact that the majority of early Wuhan COVID-19 cases were linked to different wildlife markets in a straightforward manner. It also provides a simple explanation for the fact that two different lineages of SARS-CoV-2 were linked to markets. Divergence of SARS-CoV-2 to lineages A and B is likely to have occurred prior to the transport of infected animals to Wuhan. Subsequently, the infected animals were distributed to different wildlife markets.

Proponents of the Lab Leak theory will point out that none of the animals sold at the Huanan Market tested positive for SARS-CoV-2 (WHO Report, 2021). Although mentioned in the WHO Report, but not discussed in detail, several independent sources indicate that wildlife species susceptible to SARS-CoV-2, including civets and raccoon dogs, were sold at the Huanan market (Holmes, CNN, other). Similar species were likely to have been available to purchase at other wildlife markets in Wuhan. Certain species of animals may have been removed after the appearance of the first COVID-19 cases and the linkage of COVID-19 cases to the market, but prior to the closure of the Market on January 1, 2020. It should also be noted that environmental samples that did test positive were associated with the portion of the market where wildlife or wildlife products were sold. A temporal analysis of the early human cases at the Huanan market confirms the pattern of spread from the areas of the market where wildlife products were sold to other parts of the market. (WHO report, 2021).

A hybrid variation of the Natural and Lab Leak scenarios suggests that SARS-CoV-2 is a natural virus that infected a scientist while doing field work or after being brought back to a laboratory where it was stored or propagated and then released accidentally (Relman, 2020; Baker, 2020). Compared to the millions of worldwide encounters of humans with wildlife (in the wild or on wildlife farms), including the trapping of bats for food, the exposures of limited numbers of scientists doing field work is miniscule compared to the numbers of humans exposed in nature or during wildlife trade. Thus, this hybrid scenario is of very low probability. It also fails to explain how two lineages of SARS-CoV-2 came to be distributed at the different wildlife markets.

Conclusions

New data compiled by the WHO team regarding the presence of distinct lineages of SARS-CoV-2 in different Wuhan wildlife markets are inconsistent with a laboratory-based origin of SARS-CoV-2.

Acknowledgments

Kristian G. Andersen, Edward C. Holmes and Andrew Rambaut provided essential input and discussion. Work on emerging viruses in the Garry Laboratory is supported by the National Institutes of Health, the Coalition for Epidemic Preparedness Innovations, the Burroughs Wellcome Fund, the Wellcome Trust, the Center for Disease Prevention and Control, and the European & Developing Countries Clinical Trials Partnership.

References [shared file(s): image.png, image.png]

[2021-05-11 08:46:20]

[Robert Garry]

Tony needs some back-up.

[2021-05-11 09:12:50]

[Robert Garry]

!channel The Senate hearing - just WOW - Fauci - holding his own BUT. Every Republican hitting about GoF and WIV.

[2021-05-11 09:28:54]

[Kristian Andersen]

Can't watch that kind of bs, but not surprised.. It's sad.

Bob, I'll take a look at :point_up_2:later today

[2021-05-11 09:46:54]

[Robert Garry]

Rand Paul asked TF about Ralph Barrett [sic] at UNC. That was classic...

[2021-05-11 12:49:05]

[Robert Garry]

Alina complaining that Tucker put words in her mouth. <https://twitter.com/Ayjchan/status/1392167148185923594>
HMMMMM A lesson I never really learned too well. "Never wrestle with pigs. You both get dirty and the pig likes it."

[2021-05-11 12:59:58]

[Kristian Andersen]

"I've never said that SARS-CoV-2 / COVID-19 virus was designed for human-to-human transmission."

I don't know man - she might not have said those words directly, however, she has pretty much said this very thing over and over again...

[2021-05-11 13:07:00]

[Robert Garry]

Yip - over and over and over.

[2021-05-11 13:09:44]

[Eddie Holmes]

Serves her right. The Aus govt have just announced that our borders will be closed until mid-2022 so I won't be going to a CCP holiday camp any time soon.

[2021-05-11 13:12:52]

[Andrew Rambaut]

Mid 2022? Is that instead of vaccinating?

[2021-05-11 13:21:20]

[Eddie Holmes]

The vaccine roll-out is going really slowly....glacial. People feel safe on our isolated island with no COVID. It's obviously ridiculous because we'll never eradicate the virus and so will have to bite the bullet at some point, but closed borders and no COVID is a huge vote winner. Totally fucks the universities though.

[2021-05-11 13:28:53]

[Robert Garry]

Sucks - US has literally more vaccine than they know what to do with, but few Republicans want to take it because - who knows why? - Fauci is a bad man?

[2021-05-11 13:31:06]

[Andrew Rambaut]

If you open a travel corridor with China (who have zero covid, obviously) then you will be sorted.

[2021-05-11 13:40:30]

[Eddie Holmes]

Perhaps I just should suggest that online? Cheap flights to Xinjiang.

[2021-05-11 13:45:03]

[Andrew Rambaut]

Students into Unis, Profs off to China for all expenses jollies as guests of CCP

[2021-05-11 13:47:57]

[Eddie Holmes]

Everyone's a winner!

[2021-05-11 13:49:00]

[Robert Garry]

Makes sense - China and Australia probably the safest spots on the planet, excepting the really really cold bits.

[2021-05-11 13:57:25]

[Eddie Holmes]

[thread - ID: 2021-05-11 13:57:25]

@Andrew Rambaut did you look at the gamey taste price list in that figure I sent? Some great BBQ opportunities.

[2021-05-11 14:18:54]

[Eddie Holmes]

Dominic's view on that Science letter - which I suspect is the WHO teams view - is that it is lightweight and has no understanding of how things work in China

[2021-05-11 14:25:11]

[Kristian Andersen]

The letter is hopelessly naive.

[2021-05-11 14:25:55]

[Eddie Holmes]

Hopelessly

[2021-05-11 14:44:36]

[Robert Garry]

I could be wrong but from what I gather few have any idea what it's like to work in any foreign country whatsoever (unless you count North Carolina).

[2021-05-11 14:46:21]

[Robert Garry]

Certainly most are naive when it comes to outbreaks....but very disappointed that Worobey decided to go FOMO.

[2021-05-11 14:52:44]

[Andrew Rambaut]

[thread - ID: 2021-05-11 13:57:25]

@Eddie Holmes Yes. Centipede tastes just like shrimp I have heard (probably).

[2021-05-11 15:28:09]

[Eddie Holmes]

They will come to regret this.

[2021-05-11 15:48:07]

[Robert Garry]

a littre cleanerEarly appearance of two distinct genomic lineages of SARS-CoV-2 in different Wuhan wildlife markets suggests SARS-CoV-2 has a natural origin

Robert F. Garry^{1,2}



Introduction

Our previous commentary on the Proximal Origins of SARS-CoV-2 (Andersen et al., 2020) concluded that, "SARS-CoV-2 is not a laboratory construct or a purposefully manipulated virus." The possibility of a laboratory release or Lab Leak was also considered, but it was determined that a natural origin of SARS-CoV-2 is much more likely. Recently, a team of scientists under the auspices of the World Health Organization (WHO) reached similar conclusions (WHO, 2021). Other groups have speculated that SARS-CoV-2 may be the result of undisclosed research on SARS-CoV-2 or a close progenitor and accidental release [Felman, 2020; Butler et al., 2021]. It has also been suggested that SARS-CoV-2 may be the product of laboratory passage of a progenitor virus in cell culture or animals, or Gain-of-Function research. New data presented by the WHO study provides clear findings in support of the natural origin of SARS-CoV-2.

Results

The study of SARS-CoV-2 origins conducted by the WHO team provided important new data regarding the role of wildlife markets in the emergence of SARS-CoV-2. The large Huanan seafood market, which also sold wildlife and wildlife products, was a focus of attention because it was linked to the majority of early cases of COVID-19 in Wuhan. The WHO report documented that early cases were not only linked to the Huanan market, but that other early cases were linked to different markets that sold wildlife or wildlife products. Among the first 168 diagnosed cases of COVID-19 in Wuhan with onset date prior to December 31, 2019 and a known history of exposure to wildlife markets 55.4% (93/168) reported such exposures. Of the 168 cases, 28% (47/168) had only been to the Huanan market, 22% (38/168) had exposure to another wildlife market and 4.7% (8/168) had exposure to the Huanan market and another market (Annex E2, Table 1 of WHO, 2021).

The genetic lineages of SARS-CoV-2 associated with early cases in Wuhan were documented in the WHO report. Previously, Rambaut et al, (2020) noted that at the root of the phylogeny of SARS-CoV-2 are two lineages designated lineage A and B. Early lineage A viruses include SARS-Cov-2 isolate EPI_ISL_529213 sampled on 30Dec19 from a person linked to a wildlife market different than the Huanan market (Molecular Epidemiology Table 7, sample 13 in WHO, 2021). Linage A viruses share two nucleotides (T8,782 in ORF1ab and C28,144 in ORF8) with the bat viruses RaTG13 and RmYN02 and other sarbecoviruses. It is likely that the most recent common ancestor (MRCA) of SARS-CoV-2 shares the same genome sequence as these early lineage A sequences (Rambaut et al., 2020). Different nucleotides (C8,782 in ORF1ab and T28,144 in ORF8) are present at those sites in viruses assigned to lineage B, such as SARS-CoV-2 isolate Wuhan-Hu-1 (GenBank accession no. MN908947, Molecular Epidemiology Table 7, sample 06 in WHO, 2021) sampled from the Huanan market on 30Dec19. All virus positive samples from the Huanan market, from vendors or customers of the market or from environmental samples, contained SARS-CoV-2 of lineage B. There was limited genetic diversity in the lineage B samples from the Huanan market, which is consistent with the market as a site of a super-spreader event. Lineage A and Lineage B viruses spread throughout Wuhan and to other countries (Rambaut et al., 2020; Worobey et al., 2020).

[2021-05-11 15:48:07]

[Robert Garry]

Competing hypotheses have been put forward to explain the emergence of SARS-CoV-2. Natural spillover directly from a bat or via an intermediate animal host could have occurred via several different scenarios (Fig. 1). Likewise, several variations of the Lab Leak hypothesis have been proposed (Fig. 2). A dispassionate science-based discourse on the topic of the origin of SARS-CoV-2 must account for this new data revealed by the WHO study showing: 1. multiple markets were linked to the early cases, and 2. divergence of SARS-CoV-2 into lineages A and B was an early occurrence. These facts are represented by yellow boxes in each figure.

Figure 1. Natural scenarios of SARS-CoV-2 origin.

Natural spillover directly from a bat or via an intermediate host may have involved trade in wildlife susceptible to SARS-CoV-2, either trapping and hunting of wildlife in nature or farming of "wildlife species." There is now clear evidence that SARS-CoV-2 is capable of effective spread, not only in humans, but to a diverse group of mammals (Garry, 2020). The multi-market aspect of the early outbreak can be explained by distribution of SARS-CoV-2 infected animals to more than one market (Fig. 1). In Natural scenarios diversification of SARS-CoV-2 to lineages A and B could have occurred prior to the distribution, either at a wildlife farm or during transport of the animals to the markets. It is possible that humans involved in the wildlife trade were also infected and involved in this pathway.

Figure 2. Lab Leak scenarios of SARS-CoV-2 origin.

Proponents of Lab Leak theories speculate that SARS-CoV-2 or a close progenitor was present in the Wuhan Institute of Virology or another Wuhan virology lab before the start of the COVID-19 pandemic and the appearance of the first cases in Wuhan (Fig. 2). It has been proposed that SARS-CoV-2 was released either via an infected laboratory worker, an escaped lab animal or via waste disposal (Relman 2020; Butler et al., 2021). Pangolins carry and appear to be naturally infected with at least two lineages of sarbecoviruses (Liu et al., 2019; Lam et al., 2020). The Guangdong strain of pangolin coronavirus carries a receptor binding domain (RBD) that is highly similar to the RBD of SARS-CoV-2 (Lam et al., 2020, Andersen et al., 2020). Some proponents of the Lab Leak theory have speculated the RBD of GD pangolin was recombined via genetic engineering with the backbone of an undisclosed sarbecovirus to produce SARS-CoV-2. Alternatively, it has been suggested that an undisclosed close progenitor of

SARS-CoV-2 was passaged on human cells or experimental animals (such a humanized mice) in gain-of-function type experiments to adapt for human replication (Relman, 2020, Segreto and Deigin, 2020; Sirotkin and Sirotkin, 2020). The direct role of the Chinese military in conducting classified research on sarbecoviruses at the WIV has also been proposed (United States, 2021). In Lab Leak scenarios diversification of SARS-CoV-2 to its two separate early lineages A and B would have had to occur in the laboratory setting. Lab Leak scenarios must also account for the fact that the majority of early cases were associated with different wildlife markets in Wuhan.

[2021-05-11 15:48:07]

[Robert Garry]

Discussion

Lab Leak scenarios are inconsistent with several established facts regarding the origin of SARS-CoV-2. The majority of early cases were linked to different markets that sold wildlife or wildlife products in Wuhan. All theories of the origin of SARS-CoV-2 must account for the linkage to different market engaged in wildlife trade. Theories on SARS-CoV-2 must also account for the fact that two distinct lineages of SARS-CoV-2 were distributed at different Wuhan wildlife markets. Scenarios where an infected laboratory worker, an escaped lab animal or faulty waste disposal spread not one but two lineages of SARS-CoV-2 specifically to different wildlife markets are difficult to rationalize.

The original SARS-CoV outbreaks in 2002-2004 were linked to the wildlife trade (Guan et al., 2003). In contrast to Lab Leak theories, linkage of the origin of SARS-CoV-2 to wildlife or the wildlife trade provides several plausible scenarios for the appearance of SARS-CoV-2 at different wildlife markets. It fully accounts for the fact that the majority of early Wuhan COVID-19 cases were linked to different wildlife markets in a straightforward manner. It also provides simple explanations for the fact that two different lineages of SARS-CoV-2 were linked to markets. In one possible scenario divergence of SARS-CoV-2 to lineages A and B occurred prior to the transport of infected animals to Wuhan and the infected animals were subsequently distributed to different wildlife markets.

Proponents of the Lab Leak theory will point out that none of the animals sold at the Huanan Market tested positive for SARS-CoV-2 (WHO, 2021). Although mentioned in the WHO Report, but not discussed in detail, several independent sources indicate that wildlife species susceptible to SARS-CoV-2, including civets and raccoon dogs, were sold at the Huanan market (Stout, 2020; Yee, 2020; Zhang and Holmes, 2020). Similar species were likely to have been available to purchase at other wildlife markets in Wuhan. Certain species of animals may have been removed after the appearance of the first COVID-19 cases and the linkage of COVID-19 cases to the market, but prior to the closure of the Market on January 1, 2020. It should also be noted that environmental samples that did test positive were associated with the portion of the market where wildlife or wildlife products were sold. A temporal analysis of the early human cases at the Huanan market confirms the pattern of spread from the areas of the market where wildlife products were sold to other parts of the market. (WHO, 2021).

A hybrid of natural and Lab Leak scenarios suggests that SARS-CoV-2 is a natural virus that infected a scientist while doing field work or other personnel after being brought back to a laboratory where it was stored or propagated and then released unknowingly (Relman, 2020; Baker, 2020). Compared to the millions of worldwide encounters of humans with wildlife, including the trapping of bats for food, the number of exposures of scientists doing field work is miniscule. Thus, this hybrid scenario is of very low probability. It also fails to explain how two lineages of SARS-CoV-2 came to be distributed at the different wildlife markets.

Conclusions

New data compiled by the WHO team regarding the presence of distinct lineages of SARS-CoV-2 in different Wuhan wildlife markets are inconsistent with a laboratory-based origin of SARS-CoV-2.

[2021-05-11 16:02:37]

[Eddie Holmes]

You're on fire Bob! I'll take a look when I get a chance.

[2021-05-11 17:07:24]

[Eddie Holmes]

Just got this from Dominic - spot-on "I like the comment on balance related to the number of pages – perhaps if there were 40 rather than 4/313 pages then all would be OK. The authors miss many points - the WHO was not an 'investigation', but a study of origins; that even if a lab leak it is still an animal source; an external forensic examination of a lab would never be acceptable in China/Russia/US/UK etc; the lab hypothesis is not excluded in the report, just ranked lower than the others. I don't know him, but surprised Ralph Baric signed it given his

research. I'm a bit sick of the 'independent oversight' and 'broad expertise' jibes also."

[2021-05-11 17:08:40]

[Kristian Andersen]

100% spot on.

[2021-05-11 17:10:43]

[Eddie Holmes]

Pretty extraordinary that Science are letting this through.

[2021-05-11 17:11:19]

[Kristian Andersen]

[thread - ID: 2021-05-11 17:11:19]

Honestly, it's embarrassing - "as scientists with relevant experience". Lol.

[2021-05-11 20:03:07]

[Kristian Andersen]

Planning on putting another nail in the Wade coffin later this week to take down his argument about "2) Natural history and evolution" (it's so dumb it hurts...). Anyway, I came across our previous conversation about pango CoVs binding better to human cells - turns out that work is actually on the bioRxiv: <https://www.biorxiv.org/content/10.1101/2021.03.22.436468v1>.

Very very interesting stuff - kinda freaky.

[2021-05-11 20:17:37]

[Eddie Holmes]

I remember this. Plus the virus does so well in other animals. Huge outbreaks in mink with no adaptive burn-in. It's a true generalist.

[2021-05-11 20:23:11]

[Kristian Andersen]

Yup - I'll be making a few points about that... And cats. And mice. And chimps. And dogs. And tigers.

I'm also very much looking forward to using Andrew's Mother of All Root to Tip Plots to show exactly how well-adapted SARS-CoV-2 was when it jumped into humans...

[2021-05-11 21:26:57]

[Eddie Holmes]

As an aside, if you look at the gamey tastes figure you will see that some of the pangolins sold as food were sick. We've just done some SRA mining and found that the famous data produced by Liu et al. in that Viruses papers of 2019 also contains a pestivirus. And you wonder why disease emergence events happen.

[2021-05-11 21:43:16]

[Kristian Andersen]

[thread - ID: 2021-05-11 21:43:16]

As an aside - trying to dig into papers eDim and others describe as gain-of-function / GOF at WIV. This seems to be the main (only?) one: <https://journals.plos.org/plospathogens/article?id=10.1371/journal.ppat.1006698>.

VERY clearly not GOF as defined here (they don't do serial passage, they don't create the chimeric viruses to be "better pathogens", they're not SARS, MERS, or flu, etc., etc. - and the chimeric viruses actually bind worse to human receptors than wildtype):

<https://www.phe.gov/s3/dualuse/documents/gain-of-function.pdf>

<https://www.phe.gov/s3/dualuse/documents/p3co.pdf>

It's total BS.

Just FYI since this might come up in random conversation...

[2021-05-11 21:59:18]

[Eddie Holmes]

Yes, that's biodiversity. No way GOF.

[2021-05-11 22:01:46]

[Kristian Andersen]

They make chimeric viruses in the paper (small part), but still not GOF.

[2021-05-11 22:05:31]

[Eddie Holmes]

Ah, got it.

[2021-05-11 22:07:49]

[Eddie Holmes]

They emailed us!

[2021-05-11 22:07:55]

[Kristian Andersen]

Aaaaaahahahahaha [shared file(s): Upcoming letter in Science]

[2021-05-11 22:10:41]

[Eddie Holmes]

I'm not replying. I just won't be able to control my anger.

[2021-05-11 22:13:23]

[Kristian Andersen]

I'll sleep on it and wait for Andrew/Bob to chime in with what they think. I'm thinking a short email to say thanks and that we'd welcome further discussion (maybe an actual Zoom call? I'd be interested in that). I'll then include my prepared comments:

The core message of the letter is that the origins of COVID-19 should be investigated, which I think we all agree on. The authors are correct that both hypotheses are possible, but current evidence points to a natural origin for SARS-CoV-2, as the WHO and others have concluded.

Unfortunately, the letter suggests a false equivalence between the lab escape and natural origin scenarios. To this day, no credible evidence has been presented to support the lab leak hypothesis, which remains grounded in speculation. Instead, available scientific data, including those derived from epidemiological, ecological, clinical, and genomic investigations, are consistent with a natural emergence of a novel virus from a zoonotic reservoir, as has been observed so many times in the past.

I staunchly support further evidence-based studies into the origin of the COVID-19 pandemic and the most effective way to do this would be to continue to build on the work done by the WHO, while ensuring they have the necessary mandate and support. If our main goal is to truly understand what led to the emergence of SARS-CoV-2, such studies need to be collaborative and cannot consist of one-sided demands that are unlikely to be met.

[2021-05-11 22:16:24]

[Eddie Holmes]

No way I'm talking to them. They should be ashamed.

[2021-05-11 22:16:35]

[Kristian Andersen]

[thread - ID: 2021-05-11 22:16:35]

Appreciate Mike reaching out though - I'm pretty darn sure he must have been the one telling the others that that was going to be necessary. Very interestingly, I talked to Jon earlier today (more on that later) and he mentioned that in the very early days of HIV, Mike was convinced that it came from the polio vaccine - i.e., lab derived... https://en.wikipedia.org/wiki/Oral_polio_vaccine_AIDS_hypothesis

[2021-05-11 22:21:38]

[Eddie Holmes]

They're willing authors on a paper will Alina who has directly accused me of being part of a conspiracy. Frankly, they can go fuck themselves.

[2021-05-11 22:23:07]

[Kristian Andersen]

I agree. However, they review my grants and papers :wink:

[2021-05-11 22:23:44]

[Kristian Andersen]

But I _should_ add - my quotes basically tells them they're idiots - and I _will_ call them out for their bullshit.

[2021-05-11 22:24:54]

[Eddie Holmes]

I'm not replying. Not a chance.

[2021-05-11 22:25:08]

[Kristian Andersen]

Yeah, totally fair

[2021-05-11 22:29:03]

[Kristian Andersen]

What's the best single (short) sentence to describe the letter? "biased opinion piece ignoring all available data, presenting a false balance of available evidence". Any better?

[2021-05-11 22:30:36]

[Kristian Andersen]

The bigger problem, which is not in that sentence - it's hopelessly naive and uninformed...

[2021-05-11 22:32:30]

[Eddie Holmes]

Somewhere I would add something like "completely misrepresents the remit and outcomes of the WHO report and presents a hopelessly naive plan of the next steps"

[2021-05-11 22:34:01]

[Eddie Holmes]

For the stupid GIPA court case I'm meant to avoid getting involved in online debates.

[2021-05-11 22:34:33]

[Kristian Andersen]

Probably better for your own health to be honest... :wink:

[2021-05-11 22:35:58]

[Eddie Holmes]

It is!! I take blood pressure meds as it is.

[2021-05-11 22:36:20]

[Kristian Andersen]

Beer for me.

[2021-05-11 22:36:40]

[Eddie Holmes]

So jealous

[2021-05-11 22:37:09]

[Kristian Andersen]

To be honest, it doesn't actually bother me - I kinda like the chaos... Not the same for my wife though - it's very very hard on her.

[2021-05-11 22:38:02]

[Eddie Holmes]

Same here. We've had weird stuff put in our mailbox.

[2021-05-11 22:40:54]

[Eddie Holmes]

Wise move

[2021-05-12 02:09:11]

[Andrew Rambaut]

[thread - ID: 2021-05-11 22:16:35]

@Kristian Andersen That isn't really the case (I shared an office with Mike at the time). He was originally recruited by Bill Hamilton recruited because he was hardy (a forest fire-fighter in BC) and could speak a bit of french. Bill was pretty convinced but believed it could and should be tested (by testing the chimps local to the vaccine camp). During the trip he had pretty much convinced Bill that it wasn't correct (because we had been building trees and the common ancestor was way earlier). But then Bill died and Hooper basically wrote Bill's part.

[2021-05-12 02:10:58]

[Andrew Rambaut]

[thread - ID: 2021-05-11 22:16:35]

@Kristian Andersen I think he sees it in a similar way - he probably doesn't believe it is true but thinks it can be tested. The problem is that it can be tested in the same way he tested the OPV hypothesis - by going out and finding it in the animals. Not by trying to get access to lab books

[2021-05-12 02:13:51]

[Andrew Rambaut]

I think possibly pressing the idea that they are alleging a conspiracy and cover up. Obviously they may have been but there is no evidence of one so they are essentially libelling people. If there was a conspiracy and cover up then getting access to the lab won't help because there was a cover-up.

[2021-05-12 02:16:37]

[Eddie Holmes]

Yes, very well put. It has always struck me that they are accusing people of lying and covering up and don't seem to be appreciate this fact (apart from Alina).

[2021-05-12 02:16:59]

[Eddie Holmes]

[thread - ID: 2021-05-12 02:16:59]

I just found this: [https://healthfeedback.org/did-the-covid-19-virus-originate-from-a-lab-or-nature-exami\[...\]for-different-hypotheses-of-the-novel-coronavirus-origins/](https://healthfeedback.org/did-the-covid-19-virus-originate-from-a-lab-or-nature-exami[...]for-different-hypotheses-of-the-novel-coronavirus-origins/)

[2021-05-12 03:07:18]

[Andrew Rambaut]

I like the mechano CoV

[2021-05-12 03:29:23]

[Eddie Holmes]

Yes, very clever.

[2021-05-12 03:30:57]

[Andrew Rambaut]

I want to make one

[2021-05-12 06:18:28]

[Robert Garry]

Reminds me of some of the steampunk art by Sharon Isern - she's done some work with @Kristian Andersen and myself. [shared file(s): image.png]

[2021-05-12 06:28:55]

[Kristian Andersen]

[thread - ID: 2021-05-11 22:16:35]

@Kristian Andersen Important background - thanks.

[2021-05-12 06:34:09]

[Robert Garry]

Big storm in NOLA Last night - no power etc. Several levels of response to Worobey et al. possible. 1. Simple - thanks for reaching out - look forward to an actual "dispassionate science-based discussion" of the issues. 2. @Kristian Andersen more detailed but still direct response, which is excellent. 3. Simple + Addressing @Andrew Rambaut salient point. "I think possibly pressing the idea that they are alleging a conspiracy and cover up. Obviously they may have been but there is no evidence of one so they are essentially libelling people. If there was a conspiracy and cover up then getting access to the lab won't help because there was a cover-up." Perhaps phrasing it as a question: You do realize that you are accusing some of the best virologists on the planet of a massive conspiracy and cover-up? 4. Some combo of the above or 5. No response - and yes they should be ashamed per @Eddie Holmes.

[2021-05-12 06:42:45]

[Robert Garry]

[thread - ID: 2021-05-11 21:43:16]

@Kristian Andersen <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4797993/> This paper came up in the Rand Paul-Toni Fauci debate yesterday. It's not GoF research, but yes they made cimeric viruses using a mouse-adapted SC1.

[2021-05-12 06:55:33]

[Robert Garry]

[thread - ID: 2021-05-11 17:11:19]

@Kristian Andersen embarrassing because they (Jennifer Sills) also edited it.

[2021-05-12 07:01:13]

[Robert Garry]

[thread - ID: 2021-05-12 02:16:59]

@Eddie Holmes <https://www.dni.gov/index.php/newsroom/press-releases/item/2112-intelligence-community-statem-ent-on-origins-of-covid-19> Sad that Science gives life to RelBloomshit but could not find the time to report on this.

[2021-05-12 10:27:07]

[Kristian Andersen]

Early draft that'll likely change - but lemme know suggested edits / ideas.

Dear Mike,

Thanks for the heads up - much appreciated. We are well aware of the upcoming letter and I was somewhat amused to see that one of your signatories include a person who vehemently attacked me when I suggested we needed to take a potential lab leak seriously back in February, 2020 - the reason why the _"Standing Committee on Emerging Infectious Diseases and 21st Century Health Threats"_ that David and I sit on was established.

Unlike what is claimed in your letter, we have of course learned a lot since the beginning of the pandemic and no evidence has been uncovered to support any connection to the lab - which remains a speculative theory that would

necessarily involve a major cover up and complex web of lies perpetrated by the very scientists and public health authorities that you thank in the end of your letter. Unless there's evidence to directly support such a conspiracy, I think we have to be very careful that we don't unnecessarily add to ongoing anti-Asian racism and hate crimes. I am of course well aware that that is not the intent of your letter, however, it should be clear that it will very likely fan the flames of xenophobia and conspiracy theories - with allegations of a lab leak having no scientific grounding in available evidence or data.

As somebody with significant experience working in outbreak response with international governments and public health authorities - whether that be in 'the field', on the bench, or in front of the computer - I think it is important that we strongly support further evidence-based studies into the origin of the COVID-19 pandemic. Making demands for investigations and data that are clearly outside the mandate, power, or resources of the WHO - instead of supporting work already in progress - will necessarily make it even harder to support future joint missions to perform the critically important task of uncovering what led to the emergence of SARS-CoV-2. That will require trust, coordination, and corporation among international partners, including China.

[2021-05-12 11:11:40]

[Robert Garry]

This is great Kristian - hits both Eddie's point: Se "completely misrepresents the remit and outcomes of the WHO report and presents a hopelessly naive plan of the next steps" and Andrew's point about the conspiracy and cover-up.

[2021-05-12 11:37:50]

[Kristian Andersen]

@Andrew Rambaut - any comments on this draft? You know Mike better and it's pretty harsh(ish). I don't mind pissing up David and Jesse, but I do care about Mike and have a very hard time believing he's signing this for the same reasons Jesse (conspiracy) and David (GOF) are.

[2021-05-12 12:34:16]

[Robert Garry]

A few journos have contacted me too and I was maybe a bit more harsh. Love the bit on "Barrett." RelBloom is actually seriously crap [for all the reasons you mention] and those that signed it should as Eddie said be ashamed.

[2021-05-12 13:25:37]

[Kristian Andersen]

A few additional edits - I'll email it in a couple of hours. I have a call with Marc S in 35 mins that Mike is supposed to be on - we'll see... After sending this, I'll email him separately to engage him at a personal level.

""Dear Mike,

Thanks for the heads up - much appreciated. We are aware of the upcoming letter and I was amused to see that one of your signatories is a person who vehemently attacked me when I suggested we needed to take a potential lab leak seriously back in February, 2020 - the reason why the "Standing Committee on Emerging Infectious Diseases and 21st Century Health Threats" that David and I sit on was established.

Since then, we have of course learned a lot and despite what is alleged in your letter, a significant amount of critical data have been uncovered, including in the recent WHO report (I provide a rather extensive summary here: https://twitter.com/K_G_Andersen/status/1376954932004196352?s=20). Importantly, no evidence has been presented to support any connection to the lab - which remains a speculative theory that would necessarily involve a major cover up and complex web of lies perpetrated by the very scientists and public health authorities that you thank in the end of your letter. Unless there's direct evidence to support such a conspiracy, I think we have to be very careful that we don't unnecessarily add to ongoing anti-Asian racism and hate crimes. I am of course well aware that that is not the intent of your letter, however, it should be clear that it will fan the flames of xenophobia and conspiracy theories - with allegations of a lab leak having no scientific grounding in available evidence or data.

As somebody with significant experience working with international governments and public health authorities on multiple levels of outbreak response - whether that be in 'the field', on the bench, or in front of the computer - I think it is important that we strongly support further evidence-based studies into the origin of the COVID-19 pandemic. Making naive demands for investigations and data that are clearly outside the scope, mandate, or capabilities of the WHO - instead of putting our full support behind joint missions already in progress - will make it harder to uncover exactly how SARS-CoV-2 emerged. Such studies will require trust, coordination, and collaboration among

international partners, including China. Despite what I am sure are your best intentions, I doubt your letter will help that process.

We have all been receiving a lot of requests from journalists wanting us to comment on your letter. I have largely refrained from responding, however, I have included some prepared comments below that you may encounter.
Best, Kristian ``

[2021-05-12 13:57:49]

[Eddie Holmes]

The Science letter will surely feed this

<https://www.smh.com.au/world/asia/going-viral-how-a-book-on-amazon-inspired-the-latest-covid-conspiracy-20210512-p57r6e.html>

[2021-05-12 14:06:51]

[Robert Garry]

Good reporting - I hope to see more like this as RelBloomshit hits the newscycle.

[2021-05-12 14:18:24]

[Eddie Holmes]

Well - confidentially - no CoV yet but these pangos sure carry a lot of viruses: [shared file(s): tree_v8_rename.pdf]

[2021-05-12 14:20:06]

[Kristian Andersen]

Fake.

[2021-05-12 14:22:28]

[Eddie Holmes]

Yes, the shanbavirus was my idea. Nice touch I thought.

[2021-05-12 14:25:21]

[Robert Garry]

Some of the pango RSV look a lot like human RSV - did we get it from them or did we give it to them?

[2021-05-12 14:28:18]

[Andrew Rambaut]

Looks good @Kristian Andersen - only comment would be to say 'despite what is asserted in your letter' (rather than 'alleged') and possibly 'co-signatories' in the second sentence.

[2021-05-12 14:38:36]

[Eddie Holmes]

The scale bar on that tree is deceptive but I will ask.

[2021-05-12 14:55:37]

[Kristian Andersen]

This is funny - replace Peter and I with the likes of Jamie himself... [shared file(s): Screen Shot 2021-05-12 at 14.54.36.png]

[2021-05-12 15:02:46]

[Eddie Holmes]

WTF is he talking about?

[2021-05-12 15:04:24]

[Eddie Holmes]

@Robert Garry Just say your Virological post. Great idea to get your retaliation in first! Sorry that I did not have a chance to comment before it went it. I'll check about those two RSV sequences. Either way, it highlights the risk of the wildlife trade.

[2021-05-12 15:05:40]

[Robert Garry]

I'll try to interpret (not telling where I learned to speak "cray-cray") It's probably PO1 and The Lancet letter he's talking about.

[2021-05-12 15:09:09]

[Robert Garry]

Yeah - spoke with @Kristian Andersen adhe told me could be off-loaded from virological if too "hot" - got some other stuff [REDACTED] is going to have to have some back surgery not trivial but hopefully going to fix some rather serious pain issues she's been having] going on and wanted to get it out.

[2021-05-12 15:11:03]

[Robert Garry]

Oh - and Billy is helping direct traffic to virological - so all good....

[2021-05-12 15:37:01]

[Eddie Holmes]

I look forward to reading it shortly. Sorry to hear about your wife Bob - hope she is doing ok.

[2021-05-12 15:41:33]

[Robert Garry]

Thanks - She'll do much better after they take out the very likely nonmalignant mass near the end of her spinal cord. Should stop the pain and prognosis for full recovery is "excellent." It's a long recovery though.

[2021-05-12 15:45:44]

[Eddie Holmes]

Backs are always the worst. Just read your post - the two markets point is absolutely killer. What are the odds?

[2021-05-12 15:52:42]

[Kristian Andersen]

Agreed - great post Bob and the figures are ace! I hope [REDACTED] is better - backs are the worst.

[2021-05-12 15:53:10]

[Kristian Andersen]

In other news - I Will Not Be Silenced!

<https://townhall.com/columnists/anncoulter/2021/05/12/i-will-not-be-scienced-n2589343>

[2021-05-12 15:57:42]

[Eddie Holmes]

Definitely a badge of honour name check in that one.

[2021-05-12 16:21:07]

[Kristian Andersen]

Wait, Billy asked a good question? [shared file(s): Screen Shot 2021-05-12 at 4.16.00 PM.png]

[2021-05-12 16:21:35]

[Kristian Andersen]

(and the paper eDim points to isn't GOF - he's been running around in circles all day)

[2021-05-12 16:29:47]

[Eddie Holmes]

Dim and dimmer.

[2021-05-12 16:32:11]

[Kristian Andersen]

Time to just flip the switch and turn it off.

[2021-05-12 17:33:23]

[Eddie Holmes]

They are spectacularly naive.

[2021-05-12 17:35:27]

[Kristian Andersen]

Last minute add to my email - "naive". Good call Mr. Andersen, good call.

"Naive" is exactly the criticism they're going to receive from WHO and other folks who actual understand this type of work.

[2021-05-12 17:36:47]

[Kristian Andersen]

"And we agree that we should limit conclusions to those on which there are good data for support" - what he's saying - "we don't believe your conclusions in PO1 are supported by data".

[2021-05-12 17:37:49]

[Eddie Holmes]

Yes, exactly. I can't believe they are so naive to not realise how naive they are being.

[2021-05-12 17:39:00]

[Kristian Andersen]

They can be naive at their own peril. I'm pretty certain this letter is going to look especially dumb about a year from now. The many immunologists on the letter will be "why the fuck did we agree to this?".

[2021-05-12 17:40:12]

[Eddie Holmes]

Yup. But it's a bed of their own making.

[2021-05-12 17:41:23]

[Kristian Andersen]

Correct.

It'll be interesting to see the press tomorrow - I assume most of it will be favorable to them, but we'll see. There'll be plenty of backlash later on.

[2021-05-12 17:46:01]

[Eddie Holmes]

Yes, I agree. The press will love for 48 hours, then we'll see. I do wonder what WHO will do. They are taking a beating at the moment.

[2021-05-12 18:46:28]

[Eddie Holmes]

Getting very messy
<https://twitter.com/mlipsitch/status/1392653566553251841?s=12>

[2021-05-12 18:50:38]

[Kristian Andersen]

It's not even Thursday yet.

[2021-05-12 18:52:43]

[Eddie Holmes]

It is here

[2021-05-12 18:53:42]

[Kristian Andersen]

Haha, true.

[2021-05-12 21:27:51]

[Eddie Holmes]

eDim must be one of the most obnoxious people on the planet.

[2021-05-12 21:29:16]

[Kristian Andersen]

:100:

[2021-05-12 21:29:29]

[Kristian Andersen]

I really hope there isn't a Ms. eDim. Imagine that.

[2021-05-12 21:32:29]

[Eddie Holmes]

I'd rather be a raccoon dog in a wet market

[2021-05-12 23:09:08]

[Kristian Andersen]

Oh, David got specific - let's crush their arguments...

[2021-05-12 23:13:36]

[Eddie Holmes]

I don't think you can even call those arguments. I've got no stomach for a long email fight. I think we can say just say we considered all those points in January 2020 but then decided to do some science.

[2021-05-12 23:15:20]

[Kristian Andersen]

- First cases connected to market
- Triangulation of early cases and deaths
- Virus found at the market - https://twitter.com/K_G_Andersen/status/1377462189632614404?s=20
- Two different lineages circulating early - <https://virological.org/t/early-appearance-of-two-distinct-genomic-lineages-of-sars-cov-2-has-a-natural-origin/691/1>
- Links back to wildlife farming in e.g., Yunnan
- Some evidence of wild animals at market
- Very convoluted route from cave > lab > researcher > market (and hugely unlikely somebody would magically find the next pandemic virus)
- Andrews equations above - love some good math
- No evidence of genetic markers one might expect from lab experiments (they _always_ use the same reagents/methods)
- Would require conspiracy
- Highly similar viruses found in multiple species in multiple places
- ACE2 + FCS combo (all found in nature) > super-charged for emergence
- Sero prevalence studies showing very frequent encounters
- Long evolutionary gap to Yunnan bats
- Yunnan bats look close because they mainly sampled Yunnan bats
- No reason not to publish a closer virus before the pandemic
- "Closest known (not that close) viral relatives in nature are ~1000 miles from Wuhan" - So the known relatives are not the close relatives and thus the fact they are far away is expected
- Virus is adapted to spread in multiple hosts (e.g. mink).
- Same RBD found in pangolins so it is nature
- FCS also 100% a natural feature: https://twitter.com/K_G_Andersen/status/1391507230848032772?s=20
- Serology survey from WIV shows no exposure
- WIV, authorities, Zhengli, and other scientists denied having done any work on the virus prior to the outbreak
- Zoonotic origin has a huge advantage in its favor in that it naturally selects for human transmissible viruses - the

accidental lab escape idea has no such selection - samples are collected from bats over a limited time period and limited geographical area

- SARS1 also associated with animal market
 - The closest relative to SARS-CoV-2 is not from the WIV: i.e. it's not RaTG13 because sequence similarity varies so much across the genome because of recombination. RpYN06 is closest in most genes.
 - No mention of SARS-CoV-2 in old theses from WIV, including from 2019.
- <https://twitter.com/TheSeeker268/status/1392575191763472388?s=20>

[2021-05-12 23:18:12]

[Kristian Andersen]

Yeah, not arguments - just speculations from him. I think it's worth engaging - clearly they haven't really thought that hard about it.

Probably also worth having a little cheat-list of direct evidence for natural emergence because I see this coming up more and more. The only thing we're missing is an intermediate host - that may or may exist - or even existed.

[2021-05-12 23:19:18]

[Eddie Holmes]

Let's sleep on it and do it carefully

[2021-05-12 23:21:43]

[Andrew Rambaut]

You don't really need to get into the individual arguments I think - just address the non equivalence of saying there is no evidence for either hypothesis - one has a prior probability that is vanishingly small so requires at least some evidence the natural hypothesis is everything else.

[2021-05-12 23:22:19]

[Kristian Andersen]

Yeah, but the prior doesn't work with them because, Wuhan.

[2021-05-12 23:22:54]

[Eddie Holmes]

I would add: 1. Long evolutionary gap to Yunnan bats. 2. Yunnan bats look close because they mainly sampled Yunnan bats. 3. Two lineages in Wuhan at different markets. 4. No reason not to publish a closer virus before the pandemic.

[2021-05-12 23:23:42]

[Andrew Rambaut]

I love this one:

> --Closest known (not that close) viral relatives in nature are ~1000 miles from Wuhan
So the known relatives are not the close relatives and thus the fact they are far away is expected.

[2021-05-12 23:24:40]

[Kristian Andersen]

Andrew you nailed that one way back - Ebola virus in West Africa...

[2021-05-12 23:24:53]

[Andrew Rambaut]

> To call this scenario a "conspiracy theory" is inappropriate and unfair to everyone involved.

[2021-05-12 23:25:20]

[Eddie Holmes]

Send them this to explain the point: <https://m.youtube.com/watch?v=MMiKyfd6hA0>

[2021-05-12 23:26:56]

[Andrew Rambaut]

> I would never hang my hat on any of it.
But I would send a letter to Science

[2021-05-12 23:30:02]

[Eddie Holmes]

False equivalence is that the gamey tasting menu is full of bloody viruses (although we can't use this). Some of these animals were sick and sold.

[2021-05-12 23:30:09]

[Kristian Andersen]

Andrew - any chance you can please write a point about the likelihood? Basically what you already have but in a few sentences?

[2021-05-12 23:30:48]

[Kristian Andersen]

> False equivalence is that the gamey tasting menu is full of bloody viruses (although we can't use this). Some of these animals were sick and sold.

I honestly don't understand we aren't all already dead - it's a fucking miracle.

[2021-05-12 23:32:40]

[Eddie Holmes]

5. Virus is adapted to spread in multiple hosts (e.g. mink). 6. Same RBD found in pangolins so it is in nature.

[2021-05-12 23:33:46]

[Kristian Andersen]

"No evidence either way".

Sure. Until you think about it.

[2021-05-12 23:35:45]

[Kristian Andersen]

Alright, off to bed for me - I'll pick it up again tomorrow (unless somebody wants to answer before - I might waste too much time again... :wink: . :beer:

[2021-05-12 23:37:01]

[Eddie Holmes]

Yes, get some rest

[2021-05-13 04:10:58]

[Robert Garry]

Oh yeah - Relman is piece of work. Did not get power on until after 7pm last night - Internet back on after 1am. The trees - one oak about 2/3 meter in diameter - down and tin roof blown off in this video were 1 block from my house:
<https://www.wdsu.com/article/storm-damage-reported-in-new-orleans-wednesday-morning/36405138#>

[2021-05-13 04:27:22]

[Robert Garry]

"Oh, David got specific - let's crush their arguments..." Yeah the crushing will happen and the signers will regret piling on with Alina et al.

[2021-05-13 04:36:35]

[Robert Garry]

Will have to respond to Relman at some level - you know - just to be courteous. The journos are all over this - so that's another place to engage. I was working - off line as it were - on some "talking points." As @Kristian Andersen said "harsh." or maybe not harsh enough to meet the level of nonsense. Borrowed liberally from channel: The letter in Science completely misrepresents the outcomes of the WHO report.

The letter is half right: No data or other evidence (clear or otherwise) has emerged in support of the Lab Leak theory.

What it gets wrong is that the WHO report significantly adds to the large volume of epidemiological and genomic data that support emergence of SARS-CoV-2 from a zoonotic reservoir, either wildlife or farmed animals. I've written a little about that here: <https://virological.org/t/early-appearance-of-two-distinct-genomic-lineages-of-sars-cov-2-in-different-wuhan-wildlife-markets-suggests-sars-cov-2-has-a-natural-origin/691>

It presents a naive plan for next steps. No nation, including the United States, would ever permit the type of "forensic" investigation of their laboratories as proposed in the letter.

The letter damages prospects for cooperation with China that may actually permit further productive investigation of SARS-CoV-2 origins by WHO or other groups of international scientists.

The Lab Leak hypotheses are based on the supposition of a major cover up and complex conspiracy perpetrated by some of the world's leading virologists. It is disappointing to find some leading scientists supporting these unfounded accusations.

The letter risks adding to antiAsian xenophobia and inadvertently supports even more outrageous conspiracy theories about COVID-19 [example: Dr. Fauci and the NIH funded Gain-of-Function research that produced SARS-CoV-2].

The letter DISTRACTs from important work needed to identify the source of SARS-CoV-2 and by extension help to prevent the next pandemic caused by an emergent coronavirus.

[2021-05-13 04:58:35]

[Robert Garry]

Relman argues that all the evidence is circumstantial and indirect. He forgot that: Circumstantial evidence is occasionally very convincing, as when you find a trout in the milk, to quote Thoreau's example."

Sherlock Holmes in Sir Arthur Conan Doyle,
The Adventures of Sherlock Holmes (1892)
"The Adventure of the Noble Bachelor"

[2021-05-13 05:00:07]

[Robert Garry]

I would argue that @Eddie Holmes "raccoon dog in the wildlife market" is equivalent to Thoreau's "trout in the milk."

[2021-05-13 07:23:29]

[Kristian Andersen]

:100:

[2021-05-13 07:30:09]

[Kristian Andersen]

(please keep this ultra confidential)

[2021-05-13 07:46:04]

[Robert Garry]

:+1::100: good for her!

[2021-05-13 08:26:40]

[Robert Garry]

Some thoughts (incomplete) on Relman: I would suggest that there is no direct evidence to support either hypothesis, i.e., to my knowledge, no one has reported finding SARS-CoV-2 in "nature" anywhere, aside from in humans starting towards the end of 2019 and thereafter from human spillover, and no one has reported finding SARS-CoV-2 in a laboratory. Everything in support of both hypotheses (natural spillover and lab spillover) is circumstantial.

There is a difference. If you believe that SARS-CoV-2 or a close progenitor was in WIV and being actively worked on then you are supposing a major cover up and complex conspiracy perpetrated by some of the world's leading virologists. It is disappointing to find scientists providing support for these unfounded accusations.

If you are wondering about circumstantial information in support of a lab spillover...

--First human cases were in Wuhan

The wildlife trade is known to have brought susceptible animals to the Huanan Market as well as other markets in Wuhan.

--Closest known (not that close) viral relatives in nature are ~1000 miles from Wuhan

A similar situation occurred in the West African Ebola outbreak. Prior to the outbreak all but one known spillover was in Middle Africa.

--Largest known collections in the world of related coronaviruses, and samples containing related viruses, are located in laboratories in Wuhan City

This is not a coincidence –WIV was constructed to study CoV after the first SARS pandemic. There is no known CoV close enough to SARS-CoV-2 to have served as the backbone to generate SARS-CoV-2. . If you believe that SARS-CoV-2 or a close progenitor was in WIV and being actively worked on and not being revealed then again you are supposing a cover up and conspiracy.

--Possible lab accident scenarios include a virus isolation experiment with an animal sample that turned out to contain SARS-CoV-2, conducted by an unwitting, unknowing, well-intentioned lab worker, where there was limited growth but no CPE and no follow-up characterization, and where there was inadvertent and asymptomatic infection of the worker, who then transmitted unknowingly. We know that virus isolation efforts using bat samples with uncharacterized coronaviruses were routinely undertaken at WIV. To call this scenario a “conspiracy theory” is inappropriate and unfair to everyone involved.

We have not called this particular limited scenario a conspiracy theory. What is proposed here is unknowable and unfalsifiable. It is also much more unlikely than a spillover involving a nonlaboratorian in high-risk situations (ie. no PPE) in nature or during participation in the wildlife trade. You are comparing dozens of lab workers [with some level of PPE] to literally millions (or more) people with high-risk exposures to animals in nature or while trapping or curating wildlife.

--Lab accidents are much more common than any of us would like to think or that we know, including at BL4 and BL3 labs, and including (especially?) at US labs. (For example, I had to help deal with the inadvertent shipment of supposedly radiation-inactivated but in reality, viable, virulent B anthracis spores to a colleague at Stanford by CDC/US Army several years ago.) For just an inkling of what goes on at US labs...

<https://www.usatoday.com/story/news/nation/2014/08/17/reports-of-incidents-at-bioterror-select-agent-labs/14140483/>

What is mentioned here and in the USA Today article are lab accidents involving known pathogenic viruses. Yes those incidences happen with known pathogens including SARS-CoV. Marburg virus and Monkey B virus have infected lab workers and were previously unknown but these infections were due to animal exposures and specifically not in the course of doing virus-hunting fieldwork, laboratory manipulation of viruses or GoF research. Furthermore, what you imply here, excepting the “unknowing” caveat scenario above, is that WIV was working on SARS-CoV-2 or something very close to SARS-CoV-2 and then when COVID-19 case emerged told the world instead that the closest virus they had was RaTG13. If somehow true, this is the very essence of a devious cover-up and conspiracy.

--WIV investigators have not been entirely forthcoming, complete or timely with their data: as just one example, <https://www.nature.com/articles/s41586-020-2951-z>

In fact the addendum to the Nature paper demonstrated Dr. Shi and her team were in fact publishing papers in the scientific literature on the viruses isolated from the mine. The Nature paper was rightly focused on SARS-CoV-2. Concocting some sort of a narrative that they were covering up the provenance of RaTG13 and other viruses for the mine, while previously publishing Ge et al. etc seems a bit over-blown.

And the scant info in the WHO report about a possible lab accident was just a series of declarations of negative results without provision of any primary data: if a student came to you with a research conclusion, wouldn't you ask to see the data, the methods and the controls? (As an aside, many scientists all around the world are not entirely forthcoming, for all kinds of reasons.)

What your letter gets wrong is that the WHO report significantly adds to the large volume of epidemiological and genomic data that support emergence of SARS-CoV-2 from a zoonotic reservoir, either wildlife or farmed animals. Furthermore the Annexes D5-7 contain data on Wuhan labs (more than the only 4 of 313 pages cited in your letter).

Among the data there is the report that serum samples for Dr. Shi's team were negative for SARS-CoV-2 antibodies.

Again, all of the above is entirely circumstantial. I would never hang my hat on any of it.
You have written a commentary in PNAS and now in Science based on this circumstantial evidence.

But same thing with data in support of a natural spillover, revealing shipments of risky wildlife samples across China, into Wuhan markets, and around the world, as well as the incredible seen and unseen diversity of coronaviruses in nature. All circumstantial.

We each may view these observations and arrive at different likelihoods of one hypothesis versus another. But I really don't think that guesses at likelihoods help right now all that much.

[2021-05-13 12:04:08]

[Kristian Andersen]

He also sets up a false balance between Wade and myself - my Twitter thread wasn't merely a "On the other side" - it destroys his argument with actual data.

[2021-05-13 12:14:12]

[Robert Garry]

Opens the door for a counter letter or tech comment. _I for one would like to see @Andrew Rambaut math in print.

[2021-05-13 12:19:09]

[Kristian Andersen]

Same...

[2021-05-13 12:24:57]

[Andrew Rambaut]

The lab escape idea is not a scientific hypothesis - it is an allegation. It can't be investigated by scientific methods because were it true it would also imply a cover-up which by definition is to avoid discovery.

[2021-05-13 12:27:48]

[Kristian Andersen]

Let's put a Science logo on that and we're done :wink:.

[2021-05-13 12:30:29]

[Andrew Rambaut]

I am not sure about presenting the maths up front but we can use it to hone our arguments. The point is that collecting samples have no way of enriching for human transmissible viruses so they have one in a million shot of finding one. Carnivores are act like a filter - selecting at source for transmissible viruses.

[2021-05-13 12:47:32]

[Robert Garry]

WHO and PD noticed... [shared file(s): image.png]

[2021-05-13 12:47:39]

[Andrew Rambaut]

The editor of science is inviting a scientific 'debate' in his mag. Why don't we see if Nature is interested in a commentary written as a sub-tweet

[2021-05-13 12:58:55]

[Kristian Andersen]

Should we consider it? We can get Angie involved and I'm sure we could get a good list of people to sign - but we should focus on people with _actual_ experience and not ivory tower academics. Andrew, you have by far the clearest voice here...

[2021-05-13 13:01:29]

[Robert Garry]

I think we should. Ian has gone over to the the Lab Leakers (aka FOMOs) . Angie good. From Gorman and Zimmer:
" While this group of scientists does not single out any researchers by name, the letter finds fault with those who have also been vocal in supporting the theory of a natural origin, citing a lack of evidence.

Kristian Andersen, a virologist at the Scripps Research Institute in La Jolla, Calif., has been a strong proponent of the overwhelming likelihood of a natural origin. He was one of the authors of an often cited paper in March 2020 that dismissed the likelihood of a laboratory origin based largely on the genome of the SARS-CoV-2 virus that causes Covid-19. "We do not believe any type of laboratory-based scenario is plausible," that paper stated.

Speaking for himself only, Dr. Relman said in an interview that "the piece that Kristian Anderson and four others wrote last March in my view simply fails to provide evidence to support their conclusions."

Dr. Andersen, who reviewed the letter in Science, said that both explanations were theoretically possible. But, "the letter suggests a false equivalence between the lab escape and natural origin scenarios," he said. "To this day, no credible evidence has been presented to support the lab leak hypothesis, which remains grounded in speculation_."

Instead, he said, available data "are consistent with a natural emergence of a novel virus from a zoonotic reservoir, as has been observed so many times in the past." He said he supported further inquiry into the origin of the virus.

Angela Rasmussen, a virologist at University of Saskatchewan's Vaccine and Infectious Disease Organization, has criticized the politicization of the laboratory leak theory.

She supports further investigation, but said that "there is more evidence (both genomic and historical precedent) that this was the result of zoonotic emergence rather than a laboratory accident."

[2021-05-13 13:03:36]

[Robert Garry]

<https://www.technologyreview.com/2021/05/13/1024866/investigation-covid-origin-wuhan-china-lab-biologists-letter/>

[2021-05-13 13:03:56]

[Robert Garry]

Shi's quotes are important to read.

[2021-05-13 13:08:11]

[Kristian Andersen]

Ian?

[2021-05-13 13:09:04]

[Robert Garry]

He's on the Lab Leak bandwagon

[2021-05-13 13:09:33]

[Robert Garry]

Letter could be @Andrew Rambaut "lab escape idea is not a scientific hypothesis - it is an allegation. It can't be investigated by scientific methods because were it true it would also imply a cover-up which by definition is to avoid discovery." It could also call for support of the WHO process, recognition that intermediate hosts or reservoirs for many viruses have not been determined, respect for the scientific process and a call for more virus-hunting not less.

[2021-05-13 13:09:33]

[Kristian Andersen]

Lipkin?

[2021-05-13 13:09:43]

[Robert Garry]

Yes

[2021-05-13 13:10:13]

[Kristian Andersen]

Is he quoted somewhere?

[2021-05-13 13:11:13]

[Robert Garry]

<https://elpais.com/ciencia/2021-05-13/un-grupo-de-destacados-cientificos-pide-una-autentica-investigacion-del-origen-de-la-pandemia.html> "Epidemiologist Ian Lipkin , a world authority on emerging pathogens, was another of five experts who in March 2020 pointed to a natural origin of the coronavirus as the most likely hypothesis. His speech now sounds more skeptical. "We may never know the origin of SARS-CoV-2. I am concerned that scientists from the Wuhan Institute of Virology did not take adequate precautions when cultivating bat viruses," Lipkin explains to EL PAÍS. The epidemiologist, from Columbia University (USA), cites research with dangerous viruses carried out in Wuhan before the pandemic in laboratories with a medium level of biosafety." I might have said something too.

[2021-05-13 13:19:02]

[Robert Garry]

To think that I sent him one of the posters...

[2021-05-13 13:19:06]

[Andrew Rambaut]

I have started a document - mainly to rant...

https://docs.google.com/document/d/1IPzBuXW0BY0okNIjUBjmOSzDvwMsiW_UGMHYcyCWD4E/edit

[2021-05-13 13:28:55]

[Kristian Andersen]

Great! I'll try to draft something for a reply to Relman too - thanks Bob for the stuff above.

[2021-05-13 13:29:19]

[Eddie Holmes]

Never has the name Butt Lesion been so appropriate.

[2021-05-13 13:34:09]

[Andrew Rambaut]

I am now glad we got him on the origins paper - makes him look like a swithering idiot.

[2021-05-13 14:10:36]

[Andrew Rambaut]

Currently dealing with the shit show that is B.1.617.2 (it is always the lineages with 1s and 7s in it). Might be a bit preoccupied for a bit.

[2021-05-13 14:10:53]

[Kristian Andersen]

Yeah, I mean [shared file(s): E1P6mJmWQAEg1sz.png]

[2021-05-13 14:11:12]

[Andrew Rambaut]

Yeah - but as always it isn't as simple as that.

[2021-05-13 14:11:16]

[Kristian Andersen]

Please tell me something is TOTALLY wrong with this. (I saw the fantastic discussion a few days ago)

[2021-05-13 14:11:37]

[Andrew Rambaut]

The india data is hugely difficult to interpret at the moment

[2021-05-13 14:11:37]

[Kristian Andersen]

Nope, definitely not as simple as that - and clearly there's a bias here. However...

[2021-05-13 14:11:59]

[Kristian Andersen]

Difficult enough to the point that we have to ignore it for now?

[2021-05-13 14:12:25]

[Andrew Rambaut]

B.1.617.2 (and .1) are very diverse suggesting quite an old origin (perhaps July last year).

[2021-05-13 14:12:46]

[Andrew Rambaut]

But imports into UK basically started in March and Indian samples only appeared in Feb.

[2021-05-13 14:12:46]

[Kristian Andersen]

Yup, saw that - similar to CA variant which may well be a dud.

[2021-05-13 14:13:02]

[Andrew Rambaut]

But the full diversity is being imported into UK.

[2021-05-13 14:13:14]

[Kristian Andersen]

Became HUGELY prevalent during the surge, but it was surge-driven, not mutation-driven (most likely)

[2021-05-13 14:13:41]

[Andrew Rambaut]

That doesn't feel like the virus being more transmissible - that is like lots of viruses entering some very high transmission populations.

[2021-05-13 14:13:58]

[Kristian Andersen]

Hmmm

[2021-05-13 14:14:12]

[Andrew Rambaut]

But it has P681R so is very plausibly more transmissible

[2021-05-13 14:14:32]

[Kristian Andersen]

Not necessarily though - if e.g., P681R explains the increased transmissibility, then you'd see the full diversity

[2021-05-13 14:14:35]

[Kristian Andersen]

[thread - ID: 2021-05-13 14:14:35]

No?

[2021-05-13 14:14:45]

[Andrew Rambaut]

In the UK the raw figures seem like it is growing but actually it is focused in a few places and there are some good epi reasons for growth

[2021-05-13 14:15:41]

[Andrew Rambaut]

[thread - ID: 2021-05-13 14:14:35]

@Kristian Andersen Not really - I would expect the first virus with P681R that arrives in Mumbai to win.

[2021-05-13 14:15:51]

[Andrew Rambaut]

[thread - ID: 2021-05-13 14:14:35]

@Kristian Andersen Exponential growth is a killer

[2021-05-13 14:16:40]

[Andrew Rambaut]

[thread - ID: 2021-05-13 14:14:35]

@Kristian Andersen So if these viruses have been lurking in the countryside for months, why do they all arrive in Mumbai at the same time.

[2021-05-13 14:17:43]

[Andrew Rambaut]

[thread - ID: 2021-05-13 14:14:35]

@Kristian Andersen Seems likely to be huge mass gatherings (which India does well I hear) amplifying many variants

[2021-05-13 14:18:27]

[Andrew Rambaut]

So I just don't know if it is more transmissible. But I really don't think it is much more transmissible than B.1.1.7.

[2021-05-13 14:19:49]

[Kristian Andersen]

That last point is really key - being 60%+ more transmissible than B.1.1.7 just seems nuts. Unless there's something funky going on with B.1.1.7's own transmission advantage (so it can be lower under certain circumstances where B.1.617 would be higher - not impossible).

[2021-05-13 14:22:14]

[Kristian Andersen]

[thread - ID: 2021-05-13 14:14:35]

@Kristian Andersen Really good point. But what if P681R arrives first, then spread across the country, followed by local divergence. Do we know how clustered the diversity is? If you're getting pretty much all diversity into the UK, that'd suggest "not very" - i.e., what I'm suggesting probably not very likely compared to the competing hypothesis of surge-driven spread.

[2021-05-13 14:28:04]

[Andrew Rambaut]

Yeah - the modellers are so sure. But it just seems wrong to expect there is a simple mutational path to 3-fold more transmissibility over Wuhan (the figure mentioned today) and it didn't happen before now.

[2021-05-13 14:28:39]

[Andrew Rambaut]

I can't believe someone can say 300% more transmissible and not just pause.

[2021-05-13 14:30:47]

[Kristian Andersen]

[thread - ID: 2021-05-13 14:30:47]

Well, Oli and Nuno said 220% more transmissible for P.1, so there's that :wink:.

But I agree - I think we have to be very very careful not to over interpret the data, which is much too easy to do. But if we're saying that SARS-CoV-2 now has an R0 of ~8-9 and no longer ~2.5 then, well shit...

[2021-05-13 14:32:17]

[Kristian Andersen]

Somebody on Twitter got it. [shared file(s): Screen Shot 2021-05-13 at 2.28.55 PM.png]

[2021-05-13 14:49:07]

[Kristian Andersen]

Angie asked me about writing a letter too - I think we should definitely do it... (with her and others)

[2021-05-13 14:49:17]

[Andrew Rambaut]

[thread - ID: 2021-05-13 14:30:47]

@Kristian Andersen No - not more transmissible (IRRC) - just that it was transmitting faster (in the environment it was in).

[2021-05-13 14:49:56]

[Andrew Rambaut]

Oli might join it - he liked the snippet I sent him.

[2021-05-13 14:50:33]

[Kristian Andersen]

[thread - ID: 2021-05-13 14:30:47]

@Kristian Andersen Hmmm, that was not how I read it (I remember them looking at those separately by splitting out immune evasion and inherent transmission - but I need to look again).

[2021-05-13 14:51:14]

[Kristian Andersen]

It'd be great to have Oli on. Aris too? Do you know him? He seems very insightful.

[2021-05-13 14:51:26]

[Andrew Rambaut]

[thread - ID: 2021-05-13 14:30:47]

@Kristian Andersen Yeah - I need to look again. But I doubt Oli would be too gungho about it - he is the most sceptical of all of us.

[2021-05-13 14:51:40]

[Andrew Rambaut]

I know Aris

[2021-05-13 14:51:43]

[Kristian Andersen]

[thread - ID: 2021-05-13 14:30:47]

@Kristian Andersen Just a bit :wink:

[2021-05-13 14:52:50]

[Andrew Rambaut]

David Robertson would be in too

[2021-05-13 14:53:04]

[Eddie Holmes]

Stuart Neil perhaps as well.

[2021-05-13 14:54:43]

[Kristian Andersen]

Need some diversity on this too

[2021-05-13 14:54:59]

[Andrew Rambaut]

Yup

[2021-05-13 14:55:15]

[Kristian Andersen]

[and Aris, David, Stuart - yup]

[2021-05-13 14:55:23]

[Andrew Rambaut]

Pardis?

[2021-05-13 14:55:37]

[Andrew Rambaut]

For some inter-Broad tension?

[2021-05-13 14:55:46]

[Andrew Rambaut]

Or would she be too cautious

[2021-05-13 14:55:55]

[Kristian Andersen]

Yeah, Pardis would sign I'm sure - although she's a little all over the place with these questions

[2021-05-13 14:56:18]

[Kristian Andersen]

[thread - ID: 2021-05-13 14:30:47]

@Kristian Andersen From the preprint [shared file(s): Screen Shot 2021-05-13 at 2.54.21 PM.png]

[2021-05-13 14:56:56]

[Andrew Rambaut]

Need to get some non Americans too. Happi?

[2021-05-13 14:57:07]

[Kristian Andersen]

Yeah, Happi for sure

[2021-05-13 14:57:23]

[Kristian Andersen]

Mosoka Fallah

[2021-05-13 14:57:33]

[Kristian Andersen]

Need Asia

[2021-05-13 14:57:33]

[Eddie Holmes]

Kanta Subbarao would sign

[2021-05-13 14:57:38]

[Andrew Rambaut]

What do you think about the idea of not explicitly addressing this at the Bloom letter but just as a statement about the risk of focusing on lab escape and missing the big fact that we are going to have another pandemic if we don't sort the animal exposure issue.

[2021-05-13 14:57:46]

[Andrew Rambaut]

Malik

[2021-05-13 14:57:56]

[Kristian Andersen]

Definitely - don't want tit for tat

[2021-05-13 14:58:00]

[Andrew Rambaut]

Yi Guan

[2021-05-13 14:58:05]

[Robert Garry]

The folks from this letter all strong: <https://www.ajtmh.org/view/journals/tpmd/103/3/article-p955.xml>

[2021-05-13 14:58:13]

[Eddie Holmes]

Malik and Yi are good

[2021-05-13 14:58:43]

[Kristian Andersen]

Yeah, good people on the AJTMH letter

[2021-05-13 14:58:52]

[Kristian Andersen]

Also, UTMB guys like Bob Cross

[2021-05-13 14:59:14]

[Kristian Andersen]

(need plenty of people who actually go into the field and get dirty with this type of work)

[2021-05-13 14:59:22]

[Eddie Holmes]

Can't have anyone with any link to WIV

Has to be done by slack/googledoc otherwise there will be GIPAs galore

[2021-05-13 14:59:59]

[Eddie Holmes]

Best if we write and then circulate

[2021-05-13 15:00:16]

[Eddie Holmes]

Nor anyone on the WHO team

[2021-05-13 15:00:19]

[Kristian Andersen]

Yeah

[2021-05-13 15:00:33]

[Kristian Andersen]

Jeremy?

[2021-05-13 15:00:46]

[Kristian Andersen]

Fauci?

[2021-05-13 15:00:46]

[Andrew Rambaut]

He might if the tone was right

[2021-05-13 15:00:55]

[Andrew Rambaut]

(Jezza, I mean)

[2021-05-13 15:01:06]

[Andrew Rambaut]

If it was all about human/animal interface

[2021-05-13 15:01:37]

[Andrew Rambaut]

And missing the opportunity to stop the next one by focusing blame on a postdoc in WIV

[2021-05-13 15:01:46]

[Kristian Andersen]

UC Davis PREDICT folks that are not / less conflicted? We haven't exactly been buds in the past, so could work.

[2021-05-13 15:02:06]

[Andrew Rambaut]

I would avoid PREDICT personally

[2021-05-13 15:02:20]

[Andrew Rambaut]

Could be seen to have a vested interest

[2021-05-13 15:02:30]

[Kristian Andersen]

"And missing the opportunity to stop the next one by focusing blame on a postdoc in WIV"

Yes - as Shi said

The continued pressure on scientists who are working to understand the risk of coronavirus emergence actually weakens our ability to prevent the next zoonosis.

[2021-05-13 15:02:48]

[Robert Garry]

Maybe the Tufts "Spillover" folks

[2021-05-13 15:03:05]

[Kristian Andersen]

Stephen Goldstein has been a clear voice too

[2021-05-13 15:03:08]

[Robert Garry]

But yes -vested interest

[2021-05-13 15:03:33]

[Kristian Andersen]

Spillover folks could be good. And I think we could get the whole of UTMB group to sign on

[2021-05-13 15:03:45]

[Robert Garry]

That Chris guy - the one with the razor tweets

[2021-05-13 15:04:16]

[Robert Garry]

Would pay to watch him "debate" Alina.

[2021-05-13 15:04:25]

[Kristian Andersen]

E.g., Bob C, Weaver, Vasilakis, etc.

[2021-05-13 15:04:37]

[Eddie Holmes]

Not PREDICT as that's Daszak

[2021-05-13 15:04:38]

[Kristian Andersen]

Oh yeah, fucking Chris - we'll just have him write the whole thing!

[2021-05-13 15:05:07]

[Kristian Andersen]

[not Chris - Alex Crits-Christoph]

[2021-05-13 15:05:23]

[Robert Garry]

Yeah

[2021-05-13 15:05:39]

[Kristian Andersen]

The Spillover folks outsmarted EgoHealth so definitely no COI there - quite the contrary.

[2021-05-13 15:05:40]

[Eddie Holmes]

Wish I could show the gamey tastes data as that is hugely instructive

[2021-05-13 15:05:55]

[Kristian Andersen]

Get it on the bioRxiv asap!

[2021-05-13 15:06:29]

[Eddie Holmes]

I'll see where they are

[2021-05-13 15:07:03]

[Robert Garry]

That menu is public: <https://mustsharenews.com/wuhan-market-animals-menu/>

[2021-05-13 15:08:12]

[Robert Garry]

But yeah that's important data

[2021-05-13 15:08:19]

[Kristian Andersen]

Also - have to walk back on some of the AJTMH letter folks because they're GOF.

[2021-05-13 15:08:59]

[Eddie Holmes]

But more powerful to show these animals have viruses

Those 2 RSVs are human ones in the pangos...so, transmission occurs

[2021-05-13 15:09:52]

[Kristian Andersen]

I don't know who Wellym is, but Wellym gets it... [shared file(s): Screen Shot 2021-05-13 at 3.09.23 PM.png]

[2021-05-13 15:10:12]

[Eddie Holmes]

Nope

[2021-05-13 15:10:44]

[Eddie Holmes]

Key thing is to write it carefully and then work out the people

[2021-05-13 15:11:43]

[Kristian Andersen]

Interesting retweeter - some balance. [shared file(s): Screen Shot 2021-05-13 at 3.10.55 PM.png]

[2021-05-13 15:11:57]

[Eddie Holmes]

But, I could get Doherty to sign and he's got a fucking Nobel prize and is an all round smart guy

[2021-05-13 15:11:59]

[Kristian Andersen]

Let me summarize people suggested so far

[2021-05-13 15:12:17]

[Kristian Andersen]

Maybe we can get David Baltimore to sign... Nobel^2

[2021-05-13 15:12:43]

[Eddie Holmes]

:rolling_on_the_floor_laughing: Charlie Rice might

[2021-05-13 15:13:17]

[Robert Garry]

Failing David Baltimore maybe Alice Huang!

[2021-05-13 15:13:26]

[Kristian Andersen]

I'll pin this and add suggested co-signers at the end.

[2021-05-13 15:13:43]

[Eddie Holmes]

Oh, that's genius Bob!!

[2021-05-13 15:13:59]

[Kristian Andersen]

That would be so good

[2021-05-13 15:23:14]

[Kristian Andersen]

Bob - who from GVN?

[2021-05-13 15:23:39]

[Robert Garry]

Baltimore, Mike Bishop and Harold Varmus signed the letter for Daszak/EgoHealth when trump pulled the grant

[2021-05-13 15:26:41]

[Kristian Andersen]

I say we reach out to Baltimore - he might be spooked enough by the time this is ready

[2021-05-13 15:28:44]

[Kristian Andersen]

[we need a Twitter script for this - take out scientists liking the tweets from the Bloomshitters and include those who liked our stuff...]

[2021-05-13 15:29:01]

[Robert Garry]

Gallo, Christian Brechet, *Palese, Schinazi, anyone here*<https://gvn.org/about/scientific-leadership-board/>

[2021-05-13 15:29:16]

[Kristian Andersen]

Trevor Bedford...

[2021-05-13 15:29:38]

[Andrew Rambaut]

Not sure he would go against Richard Neher

[2021-05-13 15:29:58]

[Kristian Andersen]

He should.

[2021-05-13 15:30:07]

[Andrew Rambaut]

Let's keep the diversity in mind. Loads more white American males here.

[2021-05-13 15:30:11]

[Kristian Andersen]

Show fucking Richard who's the boss!

[2021-05-13 15:30:20]

[Kristian Andersen]

Yes - absolutely need the diversity

[2021-05-13 15:30:21]

[Andrew Rambaut]

Would be fun

[2021-05-13 15:30:45]

[Andrew Rambaut]

Emma

[2021-05-13 15:30:51]

[Kristian Andersen]

And we'd need A LOT of people to sign - let's aim for at least 50

[2021-05-13 15:31:20]

[Andrew Rambaut]

[thread - ID: 2021-05-13 15:31:20]

As many on the Cambridge Working Group as possible

[2021-05-13 15:32:32]

[Kristian Andersen]

Lots of people, relevant experience, diversity, Nobel laureates - in other words, look at how the Bloomshitters failed and capitalize on that...

[2021-05-13 15:32:53]

[Kristian Andersen]

Any collaborators of Baric or postdocs now Pls?

[2021-05-13 15:33:04]

[Kristian Andersen]

Fucking Vince too

[2021-05-13 15:34:13]

[Kristian Andersen]

From CWG:
Barry Bloom
Alison Galvani
Michael Osterholm

[2021-05-13 15:35:02]

[Eddie Holmes]

None of that lot I would say. Alison loves Lipsitch. Elodie Ghedin would do it.

[2021-05-13 15:35:34]

[Kristian Andersen]

I can likely get Mike Osterholm - and he's Biden Task Force. Elodie, yes.

[2021-05-13 15:35:52]

[Kristian Andersen]

I know Barry too - so can ask

[2021-05-13 15:36:02]

[Kristian Andersen]

(he understands the whole WHO stuff)

[2021-05-13 15:38:36]

[Kristian Andersen]

As we said...

<https://twitter.com/acritschristoph/status/1392968069752909829?s=21>

[2021-05-13 15:46:35]

[Eddie Holmes]

Love that guy

[2021-05-13 15:48:34]

[Robert Garry]

Fouchier RA, , Drosten C, or Osterhaus AD

[2021-05-13 15:52:08]

[Eddie Holmes]

No, they are GoF.

[2021-05-13 15:52:23]

[Robert Garry]

Good point!

[2021-05-13 15:52:36]

[Eddie Holmes]

Ron is still toxic.

[2021-05-13 15:54:29]

[Robert Garry]

Susan R. Weiss <https://www.med.upenn.edu/apps/faculty/index.php/g275/p11346>

[2021-05-13 16:05:28]

[Robert Garry]

[thread - ID: 2021-05-13 15:31:20]

@Andrew Rambaut These two from the Cambridge Group wrote this: <https://mbio.asm.org/content/11/4/e01868-20>
At this time, the scientific consensus is that the virus emerged as a zoonosis whereby it jumped from an animal host, possibly bats or pangolins, to humans (*11*), and arguments about a laboratory origin for SARS-CoV-2 are more akin to a conspiracy theory than to a scientifically credible hypothesis.

[2021-05-13 16:09:17]

[Andrew Rambaut]

[thread - ID: 2021-05-13 14:30:47]

@Kristian Andersen fair-cop

[2021-05-13 17:19:12]

[Kristian Andersen]

Bill Hanage

[2021-05-13 17:19:19]

[Kristian Andersen]

Nate Grubaugh

[2021-05-13 17:20:38]

[Kristian Andersen]

Nancy Connell

[2021-05-13 17:22:36]

[Kristian Andersen]

Martha Nelson

[2021-05-13 17:25:05]

[Kristian Andersen]

Adam Luring

[2021-05-13 19:49:39]

[Kristian Andersen]

This is pretty wild - >75% reinfections within a 3-month period on a large Danish mink farm:
<https://www.biorxiv.org/content/10.1101/2021.05.07.443055v1>

[2021-05-13 19:52:52]

[Kristian Andersen]

Big question - do mink have crappy immunity to SARS-CoV-2 and we shouldn't worry or are the reinfections caused by animals being stacked so close together so once it gets going on a farm, it'll burn through (again).

Now, we have never tested any of the COVID-19 vaccines in a scenario where we're fully back to normal, spending a ton of time indoors with a lot of other people - e.g., a big office full of people talking all day... I doubt this is a

concern, but worth reminding ourselves that we have limited knowledge when it comes to all of this.

[2021-05-13 22:14:46]

[Kristian Andersen]

:thinking_face: [shared file(s): Screen Shot 2021-05-13 at 10.14.09 PM.png]

[2021-05-13 22:41:22]

[Eddie Holmes]

Wow, the bullshitter is no more

[2021-05-13 22:47:07]

[Eddie Holmes]

[thread - ID: 2021-05-13 22:47:07]

There is no cure

[2021-05-13 22:52:30]

[Kristian Andersen]

This guy is mental - him and his massive robot following...

<https://twitter.com/LawrenceSellin/status/1392001303753150469?s=20> [shared file(s): Screen Shot 2021-05-13 at 10.51.25 PM.png]

[2021-05-13 22:58:49]

[Eddie Holmes]

Poor gender balance though.

[2021-05-13 23:00:16]

[Kristian Andersen]

True.

[2021-05-13 23:03:19]

[Eddie Holmes]

In another world this might be a photo call of people elected to a learned academy.

[2021-05-13 23:04:09]

[Kristian Andersen]

Haha, very true.

[2021-05-14 01:08:38]

[Robert Garry]

[thread - ID: 2021-05-13 22:47:07]

@Eddie Holmes <https://twitter.com/Veronicaromm/status/1392897431830990853> This thread is from Buttercup, head of Covidfaker's fan club. He is trying to rebrand himself as a victim of his Daddy and Chuck Todd. He spent the last year recovering from PTSD inflicted by left wing broadcasters and the right wong media. The latter seduced him into faking COVID; the former excoriated him for doing so. He also got a full back tattoo of Michael the Archangel.

[2021-05-14 01:16:29]

[Robert Garry]

[thread - ID: 2021-05-13 22:47:07]

@Eddie Holmes Yes - he is off of social media. Seems that every time he posts a disciple of one right winger or the other reminds him about the COVID-faking. Last seen on @Curefinder with a new job, founder of Tricorder Health. If I understand StarTrek chronology correctly, I believe that device comes on line sometime in the 23rd century.

[2021-05-14 01:16:40]

[Eddie Holmes]

Two more points for our list:

[2021-05-14 01:17:14]

[Eddie Holmes]

1. SARS1 also associated with animal market

[2021-05-14 01:19:01]

[Eddie Holmes]

2. The closest relative to SARS-CoV-2 is not from the WIV: i.e. it's not RaTG13 because sequence similarity varies so much across the genome because of recombination. RpYN06 is closest in most genes.

[2021-05-14 01:20:50]

[Andrew Rambaut]

Perhaps we should put together a detailed evidence document and then a letter which supports it.

[2021-05-14 01:29:18]

[Robert Garry]

PERFECT!

[2021-05-14 01:49:52]

[Eddie Holmes]

I think that's the way to go: that's what the world needs

[2021-05-14 02:02:33]

[Eddie Holmes]

This is the document we should send to encourage them to sign up for our cause

[2021-05-14 02:32:26]

[Eddie Holmes]

[thread - ID: 2021-05-14 02:32:26]

Bloody Sharri. Should be a good read. <https://www.theguardian.com/world/2021/may/14/sharri-markson-exclusive-on-chinese-bioweapons-based-on-discredited-2015-book-of-conspiracy-theories>

[2021-05-14 03:02:53]

[Eddie Holmes]

Isabella Eckerle is another to add.

[2021-05-14 05:17:23]

[Robert Garry]

eDim + BL https://twitter.com/R_H_Ebright/status/1393046348467998723

[2021-05-14 05:19:21]

[Robert Garry]

shared file(s): image.png

[2021-05-14 05:51:35]

[Robert Garry]

[thread - ID: 2021-05-14 02:32:26]

@Eddie Holmes Long game - none of this is going away.

[2021-05-14 06:56:22]

[Kristian Andersen]

Evidence document - yup! I was planning on working on it in response to David anyway, so I'll spend some time in a summary we can then build on.

[2021-05-14 07:00:03]

[Andrew Rambaut]

Do we want to give it to David at this stage?

[2021-05-14 07:02:46]

[Kristian Andersen]

No I don't think so - but we can pull out a few of the "best hits" and include in the email reply to him.

[2021-05-14 07:03:36]

[Kristian Andersen]

I was planning on doing a Twitter thread based on it too so we have somewhere to point to - I have found this to be exceptionally useful.

[2021-05-14 07:21:16]

[Robert Garry]

Just throwing this out: One way to break a summary down is: 1. evidence for natural origin 2. evidence against lab origin or some variation of this.

[2021-05-14 07:28:30]

[Robert Garry]

[https://www.msn.com/en-us/news/world/did-the-coronavirus-come-directly-from-animal\[...\]cientists-join-call-for-ans wers/ar-BB1gJ2IO?ocid=BingNewsSearch](https://www.msn.com/en-us/news/world/did-the-coronavirus-come-directly-from-animal[...]cientists-join-call-for-ans wers/ar-BB1gJ2IO?ocid=BingNewsSearch) "But Bloom said there is simply not enough evidence yet to draw such a conclusion. He sees three possible origin stories for SARS-CoV-2. First – and here he agrees with Gostin – it originated in bats and jumped directly to humans or into another animal and then into humans.

Bloom said he can't rule out two other possibilities: that someone in a lab in Wuhan, China, was studying the virus, collected from a bat or another animal, and accidentally released it, infecting people; or that it was an intentional release by a researcher working with the virus.

"Regardless of which occurred," Bloom said, "it would be really scientifically beneficial, and I think also beneficial for our ability to understand and prevent future pandemics, to really understand the initial events." Really kind of troubling IMO. Either of Bloom's two possibilities are accusations of cover-up and conspiracy.

[2021-05-14 07:46:31]

[Robert Garry]

Seriously - what freaking scientific data [hell even other data] does JB think is going to get to inform his two other possibilities? Also - I would like to know who that researcher was that did "intentional release." Mo*****ker knows more about viral pathogenesis than anyone on the planet!

[2021-05-14 07:47:54]

[USLACKBOT]

[thread - ID: 2021-05-14 07:47:54]

@USLACKBOT This message was deleted.

[2021-05-14 07:52:23]

[Robert Garry]

[https://www.news.com.au/world/coronavirus/global/not-acceptable-wuhan-scientist-hits\[...\]d19-origin-claims/news-st ory/5f9c6e80eeb1806c670841a45ea33fbc](https://www.news.com.au/world/coronavirus/global/not-acceptable-wuhan-scientist-hits[...]d19-origin-claims/news-st ory/5f9c6e80eeb1806c670841a45ea33fbc) pretty good report

[2021-05-14 07:53:50]

[Robert Garry]

[thread - ID: 2021-05-14 07:47:54]

@USLACKBOT ABSOLUTELY - it's not science! Bloom is accusing WIV of bioterrorism.

[2021-05-14 07:59:24]

[Andrew Rambaut]

I would be interested what Jesse would say if you just posted the list of scientists working at WIV and ask which of these people he thought might have deliberately leaked the virus. Or are they all equally plausible

[2021-05-14 08:01:09]

[Kristian Andersen]

I'm pretty sure he'd say "equally plausible", because he does seem to have a very hard time weighing evidence and utilizing probabilities at the moment.

It's _exactly_ the same line of thinking that led to half the country believing the election was stolen - because nothing can ever be known with 100% certainty.

[2021-05-14 08:03:00]

[Kristian Andersen]

It's the exact same debate - Bloomshitters saying "I'm just asking questions here" and "we just want to know the truth - don't you want to know the truth"? And then words by folks like us will be twisted to make it seem like _we_ don't actually want to know the truth, but rather want to push an agenda.

[2021-05-14 08:03:08]

[Kristian Andersen]

It's dangerous, that's for sure.

[2021-05-14 08:22:55]

[Robert Garry]

And Shi is right - what data could she produce that would satisfy this crowd?

[2021-05-14 08:26:01]

[Robert Garry]

And, here's eDim revealing the true agenda beyond relitigating GoF research restrictions. [shared file(s): image.png]

[2021-05-14 09:04:48]

[Kristian Andersen]

Unlike others, at least he's clear and consistent :wink:

[2021-05-14 09:37:32]

[Robert Garry]

All about the narrative and the agenda, which for eDim boils down simply to virologist=bad. For others it's China=bad, P01 authors=bad, GoF=bad, animal research = bad, etc.

[2021-05-14 11:35:14]

[Robert Garry]

<https://twitter.com/ydeigin/status/1393172849167376386> Here eDim is tweeting with Yuri (yucking it up because BL is a FOMO). Being called a "dead-ender" by eDim not as good as being called out by Ann Coulter but is also a mark of honor.

[2021-05-14 12:02:15]

[Robert Garry]

P01 author-BL=bad. All our fans are coming out... [shared file(s): image.png]

[2021-05-14 12:07:21]

[Kristian Andersen]

They will forever twist words. The dumber, the more twisting.

[2021-05-14 13:05:49]

[Robert Garry]

Politifact is fact-checking whether Tony Fauci is lying about funding GoF research at WIV - Tony is smart - I'm sure he's not lying. @Kristian Andersen you're right they are pointing at the PLOS Pathogens paper.

[2021-05-14 13:31:59]

[Kristian Andersen]

Was just on a call with NIH leadership.... Fucking eDim!

[2021-05-14 13:32:26]

[Kristian Andersen]

This is 100% definitely not GOF. It's unbelievably dumb.

[2021-05-14 13:43:09]

[Eddie Holmes]

We wrote our paper in early Feb prior to widespread COVID in the US so he's lying there. Indeed, he was very keen at the time:

[2021-05-14 13:43:16]

[Eddie Holmes]

shared file(s): Screen Shot 2021-05-15 at 6.39.23 am.png

[2021-05-14 13:43:59]

[Eddie Holmes]

The problem though is that we should clearly have done exactly Kristian didn't want to do:

[2021-05-14 13:44:06]

[Eddie Holmes]

shared file(s): Screen Shot 2021-05-15 at 6.41.11 am.png

[2021-05-14 14:06:49]

[Eddie Holmes]

Lipkin is no better than Covidfaker. Absolute scum. I'm done with him.

[2021-05-14 14:31:25]

[Robert Garry]

Good plan! BL's Daddy probably didn't like him either.

[2021-05-14 14:33:15]

[Robert Garry]

BTW- Covidfaker once told me that BL offered him a job - Covidfaker so, probably a lie, but that would have been quite a team.

[2021-05-14 14:39:53]

[Robert Garry]

Jamie plus Yuri - really kind of sick. [shared file(s): image.png]

[2021-05-14 15:05:05]

[Eddie Holmes]

Long game.

[2021-05-14 15:08:17]

[Kristian Andersen]

Long game indeed. It's going to hurt them further down the line - but let's have them have this little victory lap first.

I trust this team enough that I know science will ultimately prevail.

[2021-05-14 15:15:36]

[Eddie Holmes]

The other problem is that all this chest-beating will make China less willing to share data. We need to keep the channels of communication open so that we might be able to find out WTF is going on and WTF happened. As [REDACTED] said, you attract more bees with sugar than vinegar.

[2021-05-14 15:19:34]

[Kristian Andersen]

Working with Jon Cohen on some potential back channel to China. We'll see...

[2021-05-14 15:20:39]

[Eddie Holmes]

Exactly. They don't get it at all. I'm working the back channels as well.

[2021-05-14 15:23:12]

[Robert Garry]

Science will indeed prevail. As stated, there is no science that supports the Bloomshitters. In point of fact their nonsense and accusations are tremendously antiscience on many levels. The problem [and @Kristian Andersen has reminded me many times re covidfaker] and it's challenging - is not to sink to their levels. Eventually, they will take themselves out of the game...

[2021-05-14 15:40:12]

[Robert Garry]

Angie I believe was keen to set up CC mouse experiments. Not too surprising to see a cytokine receptor pop as a discriminator of more severe disease in mice.

[2021-05-14 15:52:51]

[Kristian Andersen]

Baric is trying to deflect attention away from himself and threw an old collaborator under the bus.

Not going to work - it's going to come right back at him.

[2021-05-14 16:01:39]

[Eddie Holmes]

Totally. He really is the lowest of the low.

[2021-05-14 16:50:28]

[Kristian Andersen]

Hah, this is very sweet from Jeremy L. [shared file(s): -]

[2021-05-14 17:12:55]

[Eddie Holmes]

That's great.

[2021-05-14 17:48:08]

[Robert Garry]

we're for now the "silent majority"

[2021-05-14 18:06:56]

[Kristian Andersen]

Please, please, please do yourself a favor and go through these - he is tearing apart Alina, The Seeker, and all the other Bloomshitters. He is so unbelievably good - I mean, I have a fair bit of experience in this space having battled creationists for years, but this is just well beyond my skill set.

https://twitter.com/acritschristoph/with_replies

[2021-05-14 18:07:47]

[Kristian Andersen]

E.g., [shared file(s): Screen Shot 2021-05-14 at 6.00.45 PM.png]

[2021-05-14 18:08:58]

[Kristian Andersen]

shared file(s): Screen Shot 2021-05-14 at 6.08.43 PM.png

[2021-05-14 18:22:15]

[Kristian Andersen]

And this very key point - which was Zhengli's point too...

I wish more people would understand this. <https://twitter.com/acritschristoph/status/1392556682157326336?s=20>

[2021-05-14 18:28:36]

[Eddie Holmes]

He's a super-star. I noticed all that stuff about Rs8561 etc. the other day. No where near SARS-CoV-2. All this searching online and they have found nothing closer than RaTG13. I wonder why.

[2021-05-14 19:18:52]

[Kristian Andersen]

One would think SARS-CoV-2 would have been in that 2019 thesis had they had SARS-CoV-2 in the lab.... It's just extremely dumb - and Alex is very very good at laying that bare.

Jesse went on about these "missing viruses" too - I pointed out to him that they are nowhere near SARS-CoV-2 and totally irrelevant as it pertains to the origin. I think he might have ignored me.

[2021-05-15 05:24:58]

[Robert Garry]

That's a HUGE point about the thesis - Turn that against the Lab Leakers!

[2021-05-15 05:29:08]

[Robert Garry]

JB didn't ignore you. the twitter exchanges pissed him off to the point he came out with the Bloomshit letter. He's an excellent scientist when it comes to benchwork. Real-world stuff related to outbreaks not so much.

[2021-05-15 05:33:05]

[Robert Garry]

Going back to JB's intentional release statement - does he really believe that someone at WIV or another lab in Wuhan released a bioweapon on their own people? That would be profoundly nuts.

[2021-05-15 05:40:26]

[Robert Garry]

Speaking of profoundly nuts - I actually do think that that is where eDim is going with his call to investigate all the USG agencies, EcoHealth etc. JB may well be referring to the possibility that US or Russia intentionally released SC2. It's also of course precisely where Rand Paul/Fox News and some of the other certifiably crazy politicians are coming from. Makes Steve Bannon look sane by comparison. Fauci/Collins probably not too happy with the JB for the NYT quote.

[2021-05-15 05:45:12]

[Robert Garry]

Then there's ~DT~ Baric. Yes - he's no doubt been getting heat - maybe a lot - re GoF. Still makes him a major league arse, but it's why he signed the Bloomshit letter. Need a journo with some fortitude to lay this all bare.

[2021-05-15 06:42:42]

[Robert Garry]

<https://reason.com/2021/05/13/is-this-a-covid-19-smoking-gun-or-is-it-a-damp-squib/> Furin cleavage site. Baltimore: it's a gun, a smoking one. Andersen: it's a squid, a damp one.

[2021-05-15 07:07:43]

[Kristian Andersen]

A whole article about something you wrote on Twitter. Imagine that.

[2021-05-15 07:08:18]

[Robert Garry]

Unrestricted bioweapon. Dr Yan = Dr.Bloom. Raises the question - I'm just asking - is JB getting some bucks from Miles/Bannon.

[2021-05-15 07:10:35]

[Kristian Andersen]

Time to have a version of this with people paid by Bannon and the Russians :zany_face:

https://andersenlab.slack.com/files/U0HFUE9E3/F021TNYPSTX/screen_shot_2021-05-13_at_10.51.25_pm.png
[shared file(s): Screen Shot 2021-05-13 at 10.51.25 PM.png]

[2021-05-15 07:15:52]

[Kristian Andersen]

Bloomshitters getting caught in the web of conspiracy theories :point_down:

<https://twitter.com/jimmmfelton/status/1393299049781018627?s=21>

[2021-05-15 16:14:23]

[Eddie Holmes]

I've got to give this named lecture (relatively big locally) in a few weeks. I don't not sure whether I should: (a) ignore lab escape, (b) mention it's deficiencies politely, or (c) say fuck it and rip to shreds. I'm tempted by (c). I've been advised to keep off Twitter because of this pending FOI court case.

[2021-05-15 17:06:10]

[Kristian Andersen]

Definitely (c). Here - start with this:

https://docs.google.com/document/d/17btNlLyJFQccKCg7xAwETRN5LWo9g6A_haWubrywwlU/edit?usp=sharing

[2021-05-15 17:07:05]

[Kristian Andersen]

Still working on this document, but I think we have a logical structure now and most of the evidence put in. Let's turn this into a talk (you), Twitter thread (me), and then a paper.

[2021-05-15 17:08:43]

[Kristian Andersen]

I'll doodle over this this coming week, adding references, more points, etc. - but if we could all add to it, then I think we have a very good start.

One thing we need to see if we can more specifically address - Wuhan. People just can't get over the fact it started there and then they don't look at any of the additional evidence.

[2021-05-15 17:15:53]

[Eddie Holmes]

Right. I'll go over the google doc later today. There's no epidemiological link to the WIV (and people have been searching night and day for > a year). Simple as that. But there is a direct epidemiological link to an animal market in which CoVs have consistently emerged in the past. There is zero evidence that WIV have any virus that's the direct progenitor of SC2.

[2021-05-15 17:18:27]

[Kristian Andersen]

Yup

[2021-05-15 17:25:54]

[Eddie Holmes]

I'll go for a public take down. It will probably go on Youtube so all the parasites will freak out but, frankly, fuck them.

[2021-05-15 17:29:04]

[Eddie Holmes]

CoV-HKU1 was first described in Shenzhen.

[2021-05-15 17:29:22]

[Kristian Andersen]

So we really need to answer the question - how unusual is Wuhan for something like this to happen? I don't think very unusual - animal markets, top-10 largest city, largest city in central China, etc.

[2021-05-15 17:29:59]

[Kristian Andersen]

Really?

[2021-05-15 17:32:51]

[Eddie Holmes]

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC538593/>

[2021-05-15 17:33:29]

[Kristian Andersen]

... and SARS-CoV-1 in Foshan. I mean, these are big places - like Wuhan.

[2021-05-15 17:34:02]

[Eddie Holmes]

HKU-1. 1. Emerged in massive Asian city; 2. Unknown animal origin; 3. Furin cleavage site; 4. Initially associated with pneumonia. Sound familiar?

[2021-05-15 17:35:01]

[Kristian Andersen]

FUCK EDDIE - THAT CAME FROM THE LAB TOO??!!!!!!!

[2021-05-15 17:35:26]

[Kristian Andersen]

It's the same thing all over again.

[2021-05-15 17:36:51]

[Eddie Holmes]

It is! I've mentioned HKU1 in virtually every talk I've given over the last 14 months. Just look at that JVI paper. You could just transpose SARS-CoV-2 for CoV-HKU1.

[2021-05-15 17:37:26]

[Kristian Andersen]

Yeah, reading it now - it really is exactly the same story all over again. Except, more benign virus.

[2021-05-15 17:38:38]

[Kristian Andersen]

This is good - because if we can kill the "Wuhan isn't so special", it'll help turn over a lot of people. Would also help if we had a good sense of where major labs are.

[2021-05-15 17:38:39]

[Eddie Holmes]

Initially a pneumonia patient.

[2021-05-15 17:40:11]

[Eddie Holmes]

As there was no major outbreak of pneumonia people lost interest, but it's all there.

[2021-05-15 17:41:33]

[Kristian Andersen]

That's the thing - there's a huge bias towards "something odd here" when things go wrong. But HKU1 is exactly the same - minus severe disease. I can guarantee you that if H1N1 had been worse, the lab leak theory of its origin would also not have gone away.

[2021-05-15 17:42:11]

[Eddie Holmes]

Totally. I think the HKU1 story is hugely instructive.

[2021-05-15 17:43:06]

[Kristian Andersen]

Eddie - would it be possible to get some data on wildlife markets in China from your contacts? Maybe that journo? I'm wondering if we could plot number of markets (or similar) across a map and show an association. Would be _hugely_ instructive, but I have no idea if Wuhan is special, or not, when it comes to these types of markets.

[2021-05-15 17:43:32]

[Eddie Holmes]

I'll see what I can do.

[2021-05-15 17:43:43]

[Kristian Andersen]

I swear, if we can nail the "Wuhan" part, our job will be done.

[2021-05-15 17:45:46]

[Eddie Holmes]

Yes, need to show it is not special.

[2021-05-15 18:46:37]

[Kristian Andersen]

Steve Goldstein also helping out on the document - good to have some postdoc power and he knows CoVs very very well and 'gets' it.

[2021-05-15 18:55:03]

[Eddie Holmes]

Excellent.

[2021-05-15 18:57:48]

[Kristian Andersen]

[thread - ID: 2021-05-15 18:57:48]

... and can I just say - we haven't been saying :point_down: enough. It really 'effing nails it. [shared file(s): Screen Shot 2021-05-15 at 6.56.53 PM.png]

[2021-05-15 19:00:40]

[Eddie Holmes]

Love it!

[2021-05-15 19:02:39]

[Kristian Andersen]

... was just reading Relman's (unRealman?) email again to see if we missed anything (we didn't...) - love his conclusion:

"But same thing with data in support of a natural spillover, revealing shipments of risky wildlife samples across China, into Wuhan markets, and around the world, as well as the incredible seen and unseen diversity of coronaviruses in nature. All circumstantial."

As I said in my first email to him - naive.

[2021-05-15 19:04:44]

[Eddie Holmes]

And dumb

[2021-05-15 19:06:38]

[Kristian Andersen]

Yeah. UnRealMan.

[2021-05-15 19:21:26]

[Eddie Holmes]

Doc is coming on nicely.

[2021-05-15 19:42:03]

[Kristian Andersen]

Yeah, this is good actually - have been wanting to gather all of this for a while, but it's good with a little nudge...

I'll take some of the best hits and reply back to unRealman tomorrow. Kinda looking forward to that...

[2021-05-15 19:44:03]

[Eddie Holmes]

Great! I'll take another look later.

[2021-05-15 20:06:58]

[Eddie Holmes]

It's 'The Man in the White Suite'. Circumstantial evidence dooms a hated minority until a closer look at the evidence reveals the truth. A few loud voices initially lead the jury down the wrong path. The knife is the FCS which makes you Henry Fonda.

[2021-05-16 02:09:17]

[Andrew Rambaut]

[thread - ID: 2021-05-15 18:57:48]

@Kristian Andersen This to me is the real killer - a random sampling of bats in a few locations at a few times is not going to find it. And then you have to have the chance that that one makes it into a live culture.

[2021-05-16 02:14:39]

[Andrew Rambaut]

The point about the unlikeliness of sampling the human transmissible virus by just sampling bats is totally key here. Sampling N bats taking them back to the lab and then exposing a few postdocs to each of the samples in turn is not going result in lab escape - vanishingly unlikely that SC2 was in the N bats in the first place (especially if they are from the same cave or area or time).

The idea that 'lab escape' is plausible comes from the fact that 'escape' is plausible - it is plausible, it is 'lab capture' that isn't.

[2021-05-16 02:17:56]

[Eddie Holmes]

Can you add that to Kristian's google doc - link above. It's coming on.

[2021-05-16 06:55:40]

[Kristian Andersen]

Agreed, this is key. However, they'll counter - "yes, but they have previously managed to identify and culture bat viruses that bind to human ACE2"

[2021-05-16 06:56:43]

[Kristian Andersen]

Obviously not the same thing, but let's keep fleshing out this particular argument as it is indeed key - just need to be careful we don't end up in a trap.

[2021-05-16 07:01:01]

[Robert Garry]

All this is great work - [REDACTED] - just finished doctorate in nursing at Hopkins - came in and we had a bit of a celebration. Will add what I can... Bill G is working on his own response to the Bloomshitters that he will post on virological (makes/corrects a few points in my multi-market post - i've seen a draft and it's as you might guess really well written in his expository way.

[2021-05-16 07:17:50]

[Robert Garry]

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5309958/> This little paper from @Eddie Holmes and references therein is highly relevant to the hku-1 analogy, which is spot-on.

[2021-05-16 07:23:58]

[Robert Garry]

OC43 is relevant- worth remembering that NL63 and HKU-1 were discovered after SC1 and as a result of virus hunting driven by SC1. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3194943/> "Before the SARS epidemic in 2003, there were only 19 known coronaviruses, including 2 human, 13 mammalian, and 4 avian coronaviruses. After the SARS epidemic, more than 20 additional novel coronaviruses have been described with complete genome sequences (9, 24–26, 31, 42, 45, 50, 53, 54, 57). These include 3 human coronaviruses, 15 mammalian coronaviruses, and 4 avian coronaviruses. For human coronaviruses, human coronavirus NL63 (HCoV-NL63) (an alphacoronavirus) and human coronavirus HKU1 (HCoV-HKU1) (a betacoronavirus) have been discovered in addition to the two previously known human coronaviruses, human coronavirus 229E (HCoV-229E) (an alphacoronavirus) and human coronavirus OC43 (HCoV-OC43) (a betacoronavirus), as well as SARS-CoV (a betacoronavirus) (9, 45, 53, 56)"

[2021-05-16 07:41:31]

[Robert Garry]

<https://pubmed.ncbi.nlm.nih.gov/29551135/> "HCoV-OC43 is thought to have emerged from ancestors in domestic animals such as cattle or swine.* The bovine coronavirus has been suggested to be a possible ancestor, from which HCoV-OC43 may have emerged in the context of a *pandemic recorded historically at the end of the 19th century*. New data suggest that HCoV-229E may actually be transferred from dromedary camels similar to Middle East respiratory syndrome (MERS) coronavirus. This scenario provides important ecological parallels to the present prepandemic pattern of host associations of the MERS coronavirus."

[2021-05-16 07:50:24]

[Robert Garry]

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7232417/> may not be best ref but MERS-CoV - outbreaks have been linked to camel slaughterhouses

[2021-05-16 11:33:03]

[Robert Garry]

<https://www.nationalreview.com/news/biosafety-expert-explains-why-faucis-nih-gain-of-function-testimony-was-demonstrably-false/>

[2021-05-16 11:34:59]

[Robert Garry]

eDim says Fauci is a liar. You decide which one is lying about the GoF regs.

[2021-05-16 11:42:27]

[Andrew Rambaut]

'Biosafety Expert' :joy:

[2021-05-16 12:49:03]

[Kristian Andersen]

He's such an idiot - no matter what eDim says, this is "unequivocally" *not* gain of function. One bat virus spike protein into a BAC clone of another bat virus - AND the paper even shows those viruses don't infect cells better than wildtype. It's all just very dumb.

More red meat for the bloomshitters.

[2021-05-16 13:52:37]

[Robert Garry]

Bill G adding to his virological post... Let's just say it's a bit like Angie and Alex C-C greatest hits, but amped up with insights from close to 5 decades of actual virology.

[2021-05-16 14:07:11]

[Robert Garry]

"No matter what eDim says, this is "unequivocally" *not* gain of function." That's exactly what I told Politifact - not sure what they will come up [prob something like yes chimeric viruses were made but it's not GoF] yeah - simply making a chimeric virus in not GoF. If it was we'd not have J&J, AstroZenica or for that matter a Sputnik C19 vaccines. Similar restrictions called for by the GMO crowd would make most gene therapy for cancer illegal and GMO crops would not continue to be a major force for good in improving food inequities/decreasing pesticide use.

[2021-05-16 14:15:13]

[Eddie Holmes]

Excellent point about the vaccines Bob. I look forward to reading Bill's post.

[2021-05-16 14:15:49]

[Eddie Holmes]

There really needs to be an investigation into eDim.

[2021-05-16 14:29:34]

[Robert Garry]

He really is that - well - dim, but it also would not shock me to find out that he's getting paid by the word, tweet and news article citation.

[2021-05-16 18:43:07]

[Eddie Holmes]

Bill does not hold back "Senior scientists have ample opportunity to press for re-investigation privately and effectively with a plethora of government officials, without grandstanding in a letter to _Science_. Such unprofessional narcissism on the part of Bloom et al. (5) , that endangers others and foments hostilities among nations, is both irresponsible and deplorable. I hope they enjoyed their day in the sun and one more Science citation on their _curricula vitae_. Alas, fame and press coverage are fleeting, but the damage done is not".

[2021-05-16 19:04:05]

[Kristian Andersen]

Holy smokes

[2021-05-16 19:10:23]

[Robert Garry]

Everything he said is true. He's putting it all out there...

[2021-05-16 19:14:26]

[Kristian Andersen]

I love an old school virologist who doesn't give a fuck. There are a few in NOLA... :wink:

[2021-05-16 19:16:33]

[Eddie Holmes]

He's spot on though - it is irresponsible and shameful. I hope they read this.

[2021-05-16 19:18:39]

[Kristian Andersen]

It absolutely is - equal measure arrogance, ignorance, and naiveté.

As Bill said, “_I hope they enjoyed their day in the sun and one more Science citation on their curricula vitae_”. It won't last.

[2021-05-16 19:27:14]

[Eddie Holmes]

Totally. The arrogance is breath-taking...we in our tidy offices know better than the WHO who actually went to Wuhan.

[2021-05-16 19:36:43]

[Robert Garry]

He's also got a fair amount of science in there as well. I like the way he turns the mine story on it's head. Happy to be "corrected" vis-a-vis the RNA - he's right of course. To Bill's point about animals in your back yard - this little possum showed up in my back yard tonite - they can carry some bad stuff. [shared file(s): image.png]

[2021-05-16 23:03:53]

[Andrew Rambaut]

Actually I am in a bit of a bind here - I really don't want virological to be a forum for debates about conspiracies as it is liable to get toxic. I am going to pull Bill's reply whilst I think about it. But really this should be posted to a blog I think.

[2021-05-16 23:09:31]

[Andrew Rambaut]

@Robert Garry I have moved your posting and Bill's reply to a private area whilst I think about it. I was fine with your posting because it was noting something about genomes. Bill is much more of a personal taking down - whilst I agree with it virological is not the place to do it. He should write a letter.

[2021-05-16 23:17:43]

[Andrew Rambaut]

I have moved your posting to a private group which you should all have access to.

[2021-05-17 01:16:03]

[Eddie Holmes]

I enjoyed this: https://www.youtube.com/watch?v=T-A_OPWa5VI

[2021-05-17 03:32:59]

[Robert Garry]

Ichannel Just put the in the virological email "Andrew that's fine with me. I can post my original comment on Science's eLetters page and then Bill can respond to that. PubPeer is another forum that could be used for a response to Bloom et al. I also suspect VR's Virology Blog will open up a commentary section on Bloom et al soon. b"

[2021-05-17 03:40:29]

[Andrew Rambaut]

I think that is a good plan. I support the letter but I don't have the mental energy to have virological as a hub for this.

[2021-05-17 03:41:16]

[Andrew Rambaut]

Alina has an account on virological (from way back) but perhaps she has forgotten.

[2021-05-17 06:05:18]

[Robert Garry]

Too soon to declare victory and yes a variety of other factors could be at play but the curve is coming down in the US. Other "high-vax" counties it seems to be similar. Still less than half with even a partial vaccine course. You can add in the previously infected (symptomatic or not) plus some measure of protection from seasonal cov infections, but those are guesses. Questions - 1. safe to say the decreases are vaccine related or not? 2. If so what threshold level of immunization (based in Israel, UK and UK) makes a dent in new cases? 3. What's the likelihood that variants and other factors make the downturn a temporary illusion if as seems likely vaccine coverage peters out and we hit maybe not too far north of 50%. [shared file(s): image.png]

[2021-05-17 06:10:20]

[Andrew Rambaut]

We have been in a pretty strong lockdown over the entire vaccination period so decline in cases probably not down to vaccine (much improved death rate of course). The question is what happens next?

[2021-05-17 06:57:12]

[Robert Garry]

What happens next is indeed the big question - meanwhile, following the invasion of the nonAustralian marsupial this reptilian creature appeared on my dashboard during the drive in. [shared file(s): IMG_1712.JPG]

[2021-05-17 06:57:40]

[Kristian Andersen]

.... the virus mutates, causing further waves.

Unless we get many more people vaccinated and updates boosters.

[2021-05-17 07:08:12]

[Robert Garry]

Agreed - I don't think the US is going to get to sufficient coverage to drive the virus to low-low-no. Most Republicans will not get the vax. No way that sufficient vaccination happens elsewhere it's needed in the world (eg. South America, Southern Africa) so always a source of new variants. Don't think SC2 is going to run out of mutational space anytime soon [we're just seeing the path of least resistance repeated seemingly a couple of times]. Best case scenario in the US is a slow burn with spikes. As Eddie implied HKU1 and OC43 are probably best look forward to what SC2 has in store. OC43 for one has been exploring a lot of it's mutational space over decades.

[2021-05-17 07:13:10]

[Robert Garry]

<https://science.sciencemag.org/content/372/6543/663>

[2021-05-17 07:17:56]

[Kristian Andersen]

Yup, we'll see relief in the short term and vaccination can definitely be the end game - however, only if we think about this as being a global problem and not a national one.

[2021-05-17 07:18:09]

[Kristian Andersen]

This is pretty key: <https://journals.plos.org/plospathogens/article?id=10.1371/journal.ppat.1009509>

[2021-05-17 07:24:37]

[Kristian Andersen]

I also think we're seeing _some_ evidence for post vaccination infections in clusters - i.e., super spreading. Why? Because vaccine 'failures' may very likely not be down to the individual (didn't respond to the vaccine, insufficient immunity, etc.), but rather down to epidemiology. As a vaccinated person, spend a lot of time with an unvaccinated infected person and you'll likely get COVID - the risk is obviously much less, but I'm not convinced our 95% effectiveness will hold up in a world of many unvaccinated people, variants, COVID still circulating, and, most importantly, social interactions back to near-normal.

We'll see - Israel. (Although I don't know what the hell is up in the Seychelles - example of a lot of unvaccinated people coming in, followed by high levels of social interactions, with a lot of post vaccination infections. But they're not using the best vaccines...)

[2021-05-17 07:31:51]

[Robert Garry]

"vaccine 'failures' may very likely not be down to the individual" That's another good way of stating the dirty little secret of vaccination. It's not about the individual, but about the population.

[2021-05-17 07:33:36]

[Robert Garry]

Agree, the whole thing about not using the best vaccines likely becomes key. The stabilized mRNA constructs good - most everything else less good for the "end game."

[2021-05-17 07:48:12]

[Kristian Andersen]

To the virological post - is Bob's post online? A lot of people linked to that so while I agree Bill's post might have been a little too much, I think it's important Bob's post is online and available.

[2021-05-17 07:51:05]

[Andrew Rambaut]

I couldn't move Bill's reply on its own. I also just want to have a quick look over. I may just remove the replies, move it back and then lock it.

[2021-05-17 08:02:04]

[Robert Garry]

I'm fine either way - long game. That google doc of points and counterpoints is pretty awesome and needs to see the light of day.

[2021-05-17 08:02:43]

[Andrew Rambaut]

[thread - ID: 2021-05-17 08:02:43]

OK it is back up - but I have explained to Bill and suggested he goes for an eLetter

[2021-05-17 08:04:53]

[Kristian Andersen]

Yeah, Google doc is coming together - A LOT of key points in there. Need to figure out how we structure this best - I'm thinking maybe we could get Stephen's help with that...

[2021-05-17 08:47:29]

[Robert Garry]

Don McNeill <https://donaldgmcneiljr1954.medium.com/how-i-learned-to-stop-worrying-and-love-the-lab-leak-theory-f4f88446b04d> O found this bit most interesting @Eddie Holmes "Of those swabs, about six percent were positive for the virus, according to Xinhua, China's state news agency. Most came from the western end, where the wildlife was sold. And most, Dr. Shi said, were from spots near or below floor level — the handles of roll down steel shutters and the drains over the floor gutters.

Finding virus in six percent of surface samples was more than might be expected even in a hospital during flu season, Trevor Bedford, an evolutionary geneticist at the Fred Hutchinson Cancer Center in Seattle who does flu studies told me last year.

And the most logical explanation for finding that much virus on the floor and in the drains, he speculated, was not coughing humans. It was the blood of a butchered animal being sloshed around as the market was hosed out."

[2021-05-17 08:48:27]

[Robert Garry]

It's not clear to me that DM really loves the Lab Leak theory...

[2021-05-17 10:25:21]

[Robert Garry]

Lipkin is in the DM longread as well "I spoke about Nick's article last week with Dr. W. Ian Lipkin, the renowned Columbia University virus hunter who was one of the five co-authors on the seminal "proximal origin" paper. He favored a natural origin theory, he said, in part because he had assumed that all the Wuhan Institute's 2019 work with SARS-like viruses had been done in its top-level BSL-4 lab, which was cleared to operate in 2017. (State Department cables from 2018 raised questions about how well-run the lab was.) But later he learned of studies with Dr. Shi's name on them showing that work he considers dangerous had been done in level BSL-2 labs, which he considers highly porous to leaks, not just in 2016, but in 2020. "That's screwed up," he said. "It shouldn't have happened. People should not be looking at bat viruses in BSL-2 labs. My view has changed." That is still not, as he pointed out, direct evidence of a lab leak. There is no proof of a leak. But the Occam's Razor argument — what's the likeliest explanation, animal or lab? — keeps shifting in the direction of the latter."

[2021-05-17 10:28:07]

[Kristian Andersen]

"But later he learned of studies with Dr. Shi's name on them showing that work he considers dangerous had been done in level BSL-2 labs, which he considers highly porous to leaks, not just in 2016, but in 2020."

Is the daft? All of that has been known for years and we discussed it at length...'

[2021-05-17 10:30:28]

[Kristian Andersen]

It's extremely damaging coming from Butt Lesion though - what an idiot. And the "Occam's Razor" argument is just uninformed.

[2021-05-17 11:53:50]

[Robert Garry]

The length of that Medium Post though - seems like the start of yet another book for sure.

[2021-05-17 12:34:10]

[Robert Garry]

[thread - ID: 2021-05-17 08:02:43]

@Andrew Rambaut Thanks - WHO folks asked again about "peer-review" of the post so I may cut this to 1000 words and submit as Tech Report in response to Bloomshit. Just getting reaction from Bloom and Relman would be worth the effort.

[2021-05-17 12:52:37]

[Robert Garry]

<https://www.politifact.com/article/2021/may/17/debating-origins-covid-19-virus-what-we-know-what/>

[2021-05-17 12:53:59]

[Robert Garry]

Lots of names in this article.

[2021-05-17 12:54:23]

[Kristian Andersen]

Haven't read it yet, but from the summary:

"... researchers are paying more attention to the possibility that the virus somehow leaked from the lab, though there's still nothing conclusive."

Things like that pisses me off - "nothing conclusive" really has to be "no evidence".

[2021-05-17 13:19:43]

[Robert Garry]

Exactly I did the best I could with them - Relman, Alina, eDim the whole circus got to weigh in.

[2021-05-17 13:29:58]

[Eddie Holmes]

This is all still the fall-out from Science thing. Nothing new. That's why we need to do the evidence based doc. Don't get me started on Butt Lesion...he just craves attention and will say anything to get it. He told the BBC/PBS filmmaker that he knew about COVID in mid December. There are so many stories of the dirt he has done. I wonder what Daszak thinks?

[2021-05-17 13:38:18]

[Eddie Holmes]

Perhaps we can write send an Erratum to Nature saying his name was added by mistake and should be removed?

[2021-05-17 13:59:58]

[Kristian Andersen]

Butt Lesion will regret this - he's going to look like the biggest idiot.

Yes, need to nail down the evidence doc. Should we have a call to discuss - we 100% need this and probably soon.

[2021-05-17 14:10:30]

[Eddie Holmes]

Yes, happy to do that.

[2021-05-17 14:18:11]

[Kristian Andersen]

How about Thursday? Earliest time that works Down under.

[2021-05-17 14:19:35]

[Eddie Holmes]

So Friday morning my time? Yes, I can do that.

[2021-05-17 14:21:16]

[Andrew Rambaut]

I could make that I think.

[2021-05-17 14:25:37]

[Kristian Andersen]

Yeah. How about this? <https://www.timeanddate.com/worldclock/converter.html?iso=20210520T200000&p1=240&p2=136&p3=178&p4=770> [shared file(s): Screen Shot 2021-05-17 at 14.25.12.png]

[2021-05-17 14:26:03]

[Kristian Andersen]

I'm fine with later too, but don't know how late is too late for Andrew

[2021-05-17 14:28:22]

[Eddie Holmes]

Any chance 30 minutes later?

[2021-05-17 14:29:58]

[Kristian Andersen]

Works for me

[2021-05-17 14:30:03]

[Eddie Holmes]

Need to make my tea etc

[2021-05-17 14:31:05]

[Robert Garry]

Be careful with that tea Eddie...

[2021-05-17 14:32:36]

[Eddie Holmes]

It was a gift from Xi

[2021-05-17 14:35:28]

[Kristian Andersen]

I assume OK with everybody so I'll set it up?

[2021-05-17 14:39:50]

[Eddie Holmes]

:+1:

[2021-05-17 16:11:53]

[Robert Garry]

The Politifact article has been updated with a few paragraphs from Baric. If he was a politician we'd call it flipping and flopping and trying to play both sides.

[https://www.politifact.com/article/2021/may/17/debating-origins-covid-19-virus-what-we-know-what-/](https://www.politifact.com/article/2021/may/17/debating-origins-covid-19-virus-what-we-know-what/)

[2021-05-17 16:23:51]

[Eddie Holmes]

Extraordinary.

[2021-05-17 16:29:17]

[Robert Garry]

Yeah - he may be having a second thought or two about signing on to that really really dumb letter.

[2021-05-17 16:45:32]

[Eddie Holmes]

A letter which proposes his collaborators have lied.

[2021-05-17 16:49:52]

[Kristian Andersen]

From the PolitiFact article:

"Furthermore, the first cases of the coronavirus occurred in September when cold temperatures drive horseshoe bats into hibernation"

Eh, no, actually, November the likely month (December confirmed). And let's not forget - when were the first cases of SARS discovered?

That's right, November.

[2021-05-17 16:52:56]

[Eddie Holmes]

Plus why did it come directly from bats?

[2021-05-17 17:11:25]

[Kristian Andersen]

This quote from Joel is :fire:

"But not having answers to difficult scientific questions shouldn't force us to default to conspiracy theories," he said. "It took scientists decades of research to find the chimpanzee host populations for the HIV/AIDS pandemic."

[2021-05-17 17:12:11]

[Kristian Andersen]

That's exactly right. We should probably involve him in this little project too - they have been looking pretty carefully at the early events and I know he's been doing some studies to show that there are no signs of culture adaptation.

[2021-05-17 17:27:59]

[Eddie Holmes]

This from Alice. She's a bat ecologist who actually lives and works in Yunnan: "In Mid-Northern Yunnan Rhinolophids hibernate, down in the tropics we have not found hibernacula, but the numbers we capture go right down so they are either using different areas or inaccessible hibernacula-there is always some activity though, so at least some individuals in South Yunnan never hibernate, some may-but only for a very short period."

[2021-05-17 17:31:30]

[Kristian Andersen]

Do they migrate at all or move around for any of these events? I'm wondering if there's some sort of connection between the winter months and the virus getting into contact with intermediate hosts. HKU-1 also happened in the winter - probably January.

[2021-05-17 17:36:51]

[Eddie Holmes]

I'll check.

[2021-05-17 18:17:00]

[Eddie Holmes]

More from Alice. I asked here in there might be more opportunities for cross-species transmission during Nov-Jan.

[2021-05-17 18:17:05]

[Eddie Holmes]

"It's complicated. Many bats have maternity roosts, so there is sexual segregation for certain parts of the year during breeding, in China that period will vary, but we see most females starting to give birth in late April-May. They will then nurse their baby (typically one) for a number of months, and the Rhinos will leave young in a "creche" during foraging, whereas some other species will often feed whilst carrying their young.

Those activities are finished by November, but at least some species have the mating period then (most species have delayed implantation, or delayed fertilisation etc capabilities). The Rhino's are very polygamous with very skewed success ratios, so a minority of males mate with all the females (there is paternity data for some colonies, and some males have many tens of offspring in a year whereas others have none). Other taxa have different patterns, in Hipposiderids, especially larger species males may fight and they have enlarged glands and are exceedingly aggressive (normally on the face, though some other genera within Hipposideridae have them elsewhere-such as the chest). Following from this there is a shift in cave use, Hipposiderids show evidence of migration in some species within China-we see them appearing for a small period of the year and their morphology and habitat use means they are able to move long distances and are almost certainly migratory (for at least larger species, smaller species like Aselliscus will hibernate, and actually go into a much deeper daily torpor even at moderately low temperatures).

Rhinolophids clearly also change roosts then, possibly choosing deeper, more thermally stable caves. So that period of the year is basically pretty high stress, most species will be changing roosts, so there are different communities, less sexual segregation than the rest of the year, lower food (so physical stress). This period is also when fungal pathogens like whitenose syndrome appear-so it is likely that during torpor they may be downregulating the functions that allow various pathogens to stay at lower levels and it may be that viral load would be higher at this time.

In a disturbed cave, with higher stress this is likely to increase, they are also more likely to leave the cave in such conditions, which of course increases the interface for spillover to occur.

-Rhinos and Hippos are sister groups, so may share traits, and in some cases roost in close proximity, during cooler periods and hibernation smaller species may cluster to roost together, so there is also a potential for spillover between taxa there-though largely in the smaller species (larger Rhinolophids are solitary and rarely use large or communal caves, and large Hipposiderids are too aggressive)."

[2021-05-17 19:00:29]

[Robert Garry]

Super-interesting Eddie - learning a lot!

[2021-05-17 19:06:00]

[Robert Garry]

Reminds me I need to find some African Batpeople. And snake hunters too - I'm pretty sure the rock pythons have reptarenaviruses. Kristian once volunteered to help IIRC (some rock pythons get to be 10 meters).

[2021-05-17 19:20:35]

[Eddie Holmes]

Amazing what you learn when you actually ask an expert. Certainly plenty of opportunities for transmission during the colder months.

[2021-05-17 20:51:34]

[Kristian Andersen]

Very interesting - although I didn't quite get what time period we're talking about for all the activity above? Is all of this craziness happening around November? Would be great to specifically get a sense of whether October - November are "special" when it comes to bats moving around, getting into new territories, etc. Pretty darn clear piece of the puzzle if the answer is yes...

Also, Eddie - any insights on how "special" Wuhan may be? Do we know anything about how many wet markets? How many people frequent wet markets? Where does all of this rank compared to other cities? Forgetting about WIV right now, if we think about the most risky cities in China for coronavirus outbreaks, how high up on that list is Wuhan?

[2021-05-17 20:57:41]

[Eddie Holmes]

I asked her about Nov-Jan. I don't we can say 'special' exactly. I've also been trying find about the wet markets. It's not easy.

[2021-05-18 01:23:12]

[Eddie Holmes]

Ok. 1. Had a chat to a few colleagues in China and the view is that there is nothing special about Wuhan in terms of the number and size of the wet markets BUT the city is hugely well connected and is famous for that (it's known as the River City). You can get there from anywhere in 6 hours on a train. So, people would animals in from all over China to markets in Wuhan, and the animals they sell there are basically a national mix.

[2021-05-18 01:25:04]

[Eddie Holmes]

2. I asked the journalist on the ground what he know and he sent me this answer. He's a bit all over the place, but what I get from this is whatever as going on within the Wuhan Institute of Virology, what goes outside its highly regulated doors was probably 100X more risky when it comes to disease emergence.

[2021-05-18 01:25:09]

[Eddie Holmes]

"The story on "the boss" of Huanan and the other market is with the Guardian editors. Now working on the one about the zoo/wildlife rescue center/WIV. No one from WIV seems to want to talk about the relationship, so frustrating ... but people don't seem to want to talk about any of this. Can't get anyone from any of these places to talk. Finding out a lot of problematic things though. Just one for instance ... the rescue center had a monkey that became famous for escaping six times over the course of a few years. Terrible biosecurity. I walked along one side of their grounds and there are a couple spots where it would have been easy to get up in a tree and climb over the fence and barbed wire. That Yang Guoxiang who was on the China side of the WHO study team - I've found a few papers of his supporting Asiatic black bear use for bear bile extraction, another on some kind of artificial breeding related to mink. That "wildlife rescue center" also does hybridization experiments according to a Xinhua story I found, with 30 hybrids successful, though the only ones it mentioned were ducks.

Back to your question ...

Huanan didn't seem terribly huge compared to those I've seen in Guangdong. The Four Seasons market is very big, but only part of that devoted to meat/aquatic/poultry. There were no live mammals there when I went but a lady

selling live turtles, who had moved from Huanan, did talk to me for a few minutes until she started blaming the US military for the outbreak ...

Have been trying to find out what's happened with the big wildlife market in Qingyuan, Guangdong.

This from Peter Li's [HSI] recent book on Animal Welfare in China ...

In 2017, the Conghua market was moved to Qingyuan, 62 miles north of Guangzhou. Like most other wildlife markets, the new market has largely been beyond the reach of Chinese laws. Reported illegal sales have rarely been prosecuted (Yi Weekly 2020; Shanshui Nature Protection Center 2020 B).

It was supposedly "rectified" after Covid hit Wuhan, but not sure what's going on there now. Most of the more illicit stuff at Conghua had been done under the counter or out of vans and trucks near the market. It was rumored to be relocated but ... a report from July last year debunked that: <https://xw.qq.com/cmsid/20200722A0Z9IO00>
http://www.gdqy.gov.cn/xxgk/zzjg/zfjg/qysscjdglj/xxgk/tablyjgk/content/post_1288169.html

Peter told me that people on the ground in Wuhan were seeing live wildlife at Huanan market for years, so confirms your finding, and up through 2019. Speaking to those people though would be risky to them, so he did not put me in contact.

There used to be a huge one in the heart of Guangzhou that I once saw people selling tiger paws outside of but that place has largely been closed down, and I think it prompted the move of most of that stuff to that Conghua place.

I may be going back up soon and thinking of stopping at Qingyuan on the way. Going to try to visit several mink farms in Hubei and that one place that has a pangolin license. Calling doesn't work. We've tried."

[2021-05-18 01:27:55]

[Eddie Holmes]

[thread - ID: 2021-05-18 01:27:55]

3. Did you get this? Professor Sheldon Lee Glashow has a Nobel Prize. [shared file(s): Screen Shot 2021-05-18 at 6.26.44 pm.png]

[2021-05-18 02:23:53]

[Eddie Holmes]

4. And then I asked the journo to follow the mink:

[2021-05-18 02:24:01]

[Eddie Holmes]

"There are around five of them that I'd like to check out [one area has two, and that area supplied Huanan market; another has one, also an area supplying the market], and they were the only ones that popped up in Hubei in a commercial registry search. Most are around Wuhan, with the furthest three hours away, and all were licensed for other wildlife as well.

That's basically what I want to find out as well: Were your animals ever tested? Same with the pangolin breeder. We were able to talk to a couple in Yunnan by phone who did say animals were tested there. Others just hang up though.

The Humane Society International inspections of mink and other fur facilities in the northeast showed that none there were tested and there were no biosecurity measures in place, their researchers were just able to walk right in and talk to the breeders. That was just late last year.

Just waiting on the go-ahead from The Guardian. They thought it was too risky to go out to farms the last time I was up there, but I think it will be fine."

[2021-05-18 03:55:19]

[Andrew Rambaut]

[thread - ID: 2021-05-18 01:27:55]

Just got this too. My worry is that they will set up a counter point letter from nutters.

[2021-05-18 03:59:33]

[Eddie Holmes]

Yes, I was going to decline. We should focus on a group paper for a leading mainstream journal.

[2021-05-18 04:02:50]

[Andrew Rambaut]

Agree

[2021-05-18 05:59:01]

[Robert Garry]

[thread - ID: 2021-05-18 01:27:55]

@Eddie Holmes Perhaps telling that I got it too, but simply failed to bother to click on it.

[2021-05-18 06:06:16]

[Robert Garry]

Just an FYI - I did go ahead and submit the virological post as a tech comment to Science. As you know, Science requires that you send it to the authors for comment, so I sent to the Bloom and Relman. JB sent this: Hi Bob,

Thanks for reaching out, and hope all is well. I look forward to reading your thoughts about this.

We will look over your comment and get back to you as soon as possible. Apologies if it ends up taking a day or two: because have a substantial number of co-authors on the letter, we need to make sure we adequately check with others before sending anything that could be construed as a group response.

--Jesse

Jesse Bloom

Associate Professor, Fred Hutch Cancer Research Center

Affiliate Associate Professor, Genome Sciences & Microbiology, University of Washington

Investigator, Howard Hughes Medical Institute

[2021-05-18 06:17:10]

[Robert Garry]

Also - Vince R asked me to do a TWiV on origins (he did mention hearing the Bob's Bullocks podcast) - I'm assuming he may have reached out to @Kristian Andersen. Even though he gets a lot wrong, I might do it...

[2021-05-18 06:47:07]

[Andrew Rambaut]

Ask him whether he thinks there is ZERO chance that B.1.1.7 is more transmissible.

[2021-05-18 06:49:50]

[Kristian Andersen]

[thread - ID: 2021-05-18 01:27:55]

@Eddie Holmes Me too.... Not responding to it.

[2021-05-18 06:53:32]

[Kristian Andersen]

Yeah, do TWiV Bob. Vince did not contact me, but it's worth you going. The evidence doc will be useful...

[2021-05-18 06:53:32]

[Robert Garry]

VR also thought that Bas-Congo virus was going to be the next Ebola - hopefully though an opportunity to counter some Bloomshit. Just need to not go quite as far with the rhetoric as Bill G. @Kristian Andersen may have to do some coaching/intervention for some restraint. It actually is the problem - responding tit-for-tat to the likes of eDim - for example - obscures who the crazy person is.

[2021-05-18 06:57:38]

[Robert Garry]

WashPost has totally gone off the deep end. "Did some byproduct of the research leak, or did workers become inadvertently infected? Was the research carried out in less protected BSL-2 laboratories instead of the more secure BSL-4? Did Dr. Shi successfully manipulate a virus in the lab to add genetic features boosting affinity for human cells, as science journalist Nicholas Wade has suggested in the Bulletin of the Atomic Scientists? These and other questions have been met with stout denials and roadblocks from China. In response to the Science letter, which called for opening records of research labs, Dr. Shi said, "It's definitely not acceptable," and, "Who can provide an evidence that does not exist?"

That brings us no closer to identifying the pandemic's origins. If the laboratory leak theory is wrong, China could easily clarify the situation by being more open and transparent. Instead, it acts as if there is something to hide."

[shared file(s): Opinion _ Two possible theories of the pandemic's origins remain viable. The world needs to know. - The Washington Post.pdf]

[2021-05-18 07:06:13]

[Robert Garry]

<https://www.currentaffairs.org/2021/05/the-stakes-of-finding-covid-19s-origins>

[2021-05-18 07:11:39]

[Robert Garry]

Again the Politifact article - "The lab leak theory is distinct from the hypothesis that gain-of-function research created the new coronavirus, said Alina Chan, a molecular biologist at the Broad Institute of Harvard University and the Massachusetts Institute of Technology.

The lab leak theory "can be as simple as a *researcher being infected by an animal or even another infected person* in remote areas, and then bringing it into one of the most densely populated cities on Earth." The gain-of-function hypothesis supposes both that a virus leaked from the Wuhan Institute and that scientists there tampered with it in ways that could have made it more infective or deadly."

[2021-05-18 07:14:07]

[Robert Garry]

So, if a virologist takes a field trip to Southern China and gets infected *FROM ANOTHER PERSON* that is somehow a Lab Leak. On the basis of this we want to shut down virologists and BSL3/4 labs. Why is this lunacy given an credence whatsoever?

[2021-05-18 07:20:56]

[Andrew Rambaut]

Lunacy. What if it was a botanist or a palaeontologist?

[2021-05-18 07:28:31]

[Kristian Andersen]

This is good - let them go down these crazy paths since it makes the bloomshitters look even dumber as we continue to learn more about how this _actually_ emerged.

[2021-05-18 07:54:50]

[Robert Garry]

"What if it was a botanist or a palaeontologist?" Shut them all down! Fieldwork of ANY kind is too dangerous [says the guy who works with Lassa and Ebola blood samples at hmmmm BLS2+ in Africa].

[2021-05-18 08:12:02]

[Andrew Rambaut]

The more they define 'lab escape' as just anything that involves a virologist in someway the less likely it is that it was lab escape because virologists are generally outnumbered by almost every other subdivision of the population.

[2021-05-18 09:10:24]

[Robert Garry]

I think Dr. Quay missed the points but FWIW. Not sure why he can't post.... Dr. Garry-

here is a single slide of my approach for your thoughts and comments:

Regards, Steve

On Tue, May 18, 2021 at 11:43 PM Steven Quay, MD, PhD [REDACTED] wrote:

> Dear Dr. Garry-

>

> Thank you for your recent post on the genomic origin of the SARS-CoV-2 virus. Attached is my response to your analysis. Would you be willing to post this in the comment section? I am not able to post them myself directly.

>

> Regards, Steve

> --

> Steven Quay, MD, PhD

>

> [REDACTED]

> [REDACTED]

> [REDACTED]

>

> Dr. Quay Website

> Breast Cancer TEDx Talk

> STAY SAFE #1 Amazon Medical Book

>

> [REDACTED]

>

> Skype: Steve.Quay2016 [shared file(s): Response to virology input..pdf, image.png]

[2021-05-18 09:18:07]

[Kristian Andersen]

Steve is indeed wrong - he doesn't understand phylogenetics (but A for effort). He can't post because he needs an invitation to set up an account - I propose we don't give him that invitation since it's all crazy talk... (his 300+ page Bayesian analysis of the origin is a good example..)

[2021-05-18 09:25:57]

[Kristian Andersen]

What's important about the two markets / two lineages isn't the fact that there are two lineages - it's that you have two independent lineages associated with two different markets. It's highly unlikely that a lab escape - of all places - would be associated with two different markets.

[2021-05-18 09:53:02]

[Robert Garry]

I'm either going to A. ignore Dr. Quay or B. tell him that I'm going to forward the emails to virological administration. I'll follow @Andrew Rambaut advice on this. I'm leaning to A.

[2021-05-18 09:54:17]

[Andrew Rambaut]

Most people get so frustrated with not being able to find the register button that they end up emailing me.

[2021-05-18 09:59:50]

[Robert Garry]

So, option C is pointing him to the register button. Quay is clearly off way base, but "allowing" him to post at least shows we're not afraid to take on a challenge.

[2021-05-18 10:01:01]

[Kristian Andersen]

I'd just ignore him. Then Andrew can ignore him.

[2021-05-18 10:03:36]

[Andrew Rambaut]

There is no register button

[2021-05-18 10:05:00]

[Robert Garry]

I'll just ignore him. He's likely expecting that - then he can tweet about me, which is not a problem.

[2021-05-18 11:17:10]

[Robert Garry]

Lipkin and Baric [shared file(s): Fact-checking the Paul-Fauci flap over Wuhan lab funding - The Washington Post.pdf]

[2021-05-18 11:24:51]

[Robert Garry]

They both got what they wanted though a little attention. Seems like neither one care what kind....

[2021-05-18 12:29:21]

[Robert Garry]

I'm pretty sure she's after @Eddie Holmes again. [shared file(s): image.png]

[2021-05-18 12:35:39]

[Robert Garry]

Maybe she can get a gig with NBC/MSNBC - I would wish her the same luck with that as a former student of mine.

[2021-05-18 12:39:03]

[Robert Garry]

She really likes the media attention.

[2021-05-18 13:01:28]

[Eddie Holmes]

All explained in Jeremy's book. She'll be disappointed.

[2021-05-18 13:31:44]

[Kristian Andersen]

I also love her previous comment about how they "sat on it for a week!!!!". Clearly doesn't know how this works...

[2021-05-18 13:46:34]

[Eddie Holmes]

She's evil. The info was sent to the Ministry of Health on the day it was sequenced. At least 3 other groups had the sequence as well (and it has been sequenced by the end of December). The outbreak was only in Wuhan at this point.

[2021-05-18 13:48:06]

[Eddie Holmes]

And there was an order from the National Health Commission on Jan 3rd saying that no information could be released.

[2021-05-18 13:55:50]

[Robert Garry]

this is simply harassment imo [shared file(s): image.png]

[2021-05-18 14:04:04]

[Kristian Andersen]

Stephen got started... Haven't read it / on Zoom all day:

https://docs.google.com/document/d/1jmvbeZ1_RqQedPmfNKNs7DA_Z9sySsEWgAgZoVKRSWg/edit

[2021-05-18 14:05:17]

[Eddie Holmes]

Yes, he sent me that as well.

[2021-05-18 14:21:21]

[Eddie Holmes]

Alina is indeed sailing very close to the wind...I have documentary evidence so she needs to watch it.

[2021-05-18 15:09:24]

[Eddie Holmes]

Shame these viruses aren't closer as it would be great to involve Russia in the conspiracy. [shared file(s): BIORXIV-2021-444362v1-Alkhovsky.pdf]

[2021-05-18 16:19:03]

[Eddie Holmes]

Here's an email exchange with my man [REDACTED] who is based in Shenzhen (despite the USyd address) from Jan 8th. Pretty instructive I think. Please keep this confidential. [shared file(s): Screen Shot 2021-05-19 at 9.06.07 am.png]

[2021-05-18 16:25:19]

[Kristian Andersen]

Very interesting exchange. And by "rumors", no Alina, this does not refer to a lab leak you dummy.

Imagine the bloomshitters seeing an exchange like this - it'd blow their minds... (and yet, it's what we see every single time there's an outbreak. Doesn't make it right, but it's how it is).

[2021-05-18 16:30:28]

[Eddie Holmes]

Yes, the rumours are about SARS. That was what was bothering them. They lost a lot of face about this in 2002/03 and they didn't want to have that again. Bloody obvious that I wanted the data out though!!!

[2021-05-18 16:40:42]

[Kristian Andersen]

Haha, yeah, you definitely pushed this the right way - but hey, we'll still blame you for the delay! You and the CCP!

[2021-05-18 16:44:56]

[Eddie Holmes]

I wish I could sue Alina but it will probably do more harm than good. Perhaps I should publish all these emails at some point.

[2021-05-18 16:47:37]

[Kristian Andersen]

All about the long game, all about the long game....

[2021-05-18 16:50:55]

[Eddie Holmes]

Totally...I've got a pretty unique record of the first two weeks of Jan 2020. It is all compiled for future use....

[2021-05-18 18:12:07]

[Robert Garry]

In this movie you are the hero Eddie. The truth will come out.

[2021-05-18 18:35:23]

[Eddie Holmes]

I'm rewriting Stephen's draft...need more of our evidence in there.

[2021-05-18 18:42:52]

[Kristian Andersen]

Thanks Eddie. Hoping I can spend some time on both documents tomorrow as well.

[2021-05-18 19:00:15]

[Eddie Holmes]

No worries. Will need a lot of polishing.

[2021-05-18 19:13:05]

[Kristian Andersen]

Yeah - we need to get this 100% right.

[2021-05-18 19:42:20]

[Eddie Holmes]

Chatting with someone at EgoHealth now....WIV are sending them all their sequences. Nothing close to SC2.

[2021-05-18 20:08:16]

[Kristian Andersen]

Well, had SC2 been in there, they'd probably have taken it out... :wink:.

Actually, the questions about bats and "how special is Wuhan" may be very good questions for the EgoHealth crew - I expect they might have some insights, so maybe ask? We'd have to independently validate, of course...

[2021-05-18 20:13:18]

[Eddie Holmes]

Very true. I'll see what I can do.

[2021-05-18 20:45:29]

[Eddie Holmes]

When you get to Stephen's doc it's critical that we add all details/facts we can. He's gone for the big statements which is fine, but I strongly feel that we need the details.

[2021-05-18 20:51:22]

[Kristian Andersen]

Yup - absolutely need the details. I'll find some time tomorrow.

[2021-05-18 20:53:40]

[Eddie Holmes]

:+1: It's too vague at the moment. I added details but he chopped them.

[2021-05-18 20:54:58]

[Kristian Andersen]

Oh, interesting... He edited text Eddie Holmes added... That's a first.

[2021-05-18 20:59:13]

[Eddie Holmes]

He's young

[2021-05-18 21:01:40]

[Kristian Andersen]

He'll learn quick...

[2021-05-18 21:02:37]

[Eddie Holmes]

Oh he will

[2021-05-19 00:29:52]

[Eddie Holmes]

Sharri Markson from The Telegraph is after me again. This time for her book. Here's her email to me:

[2021-05-19 00:30:03]

[Eddie Holmes]

shared file(s): Screen Shot 2021-05-19 at 5.28.01 pm.png

[2021-05-19 00:30:14]

[Eddie Holmes]

shared file(s): Screen Shot 2021-05-19 at 5.28.18 pm.png

[2021-05-19 00:30:42]

[Eddie Holmes]

And here's my response that will go through the University:

[2021-05-19 00:30:50]

[Eddie Holmes]

shared file(s): Screen Shot 2021-05-19 at 5.28.55 pm.png

[2021-05-19 00:34:06]

[Eddie Holmes]

She's a total moron. And how did she those emails?

[2021-05-19 00:42:20]

[Andrew Rambaut]

Could the letter be accompanied by an extensive and detailed evidence document?

[2021-05-19 00:42:40]

[Andrew Rambaut]

I.e., it is basically a summary of a technical report?

[2021-05-19 02:25:55]

[Eddie Holmes]

I think we need one paper that details everything. The doc is here but I don't think you'll have permission:
https://docs.google.com/document/d/1jmvbeZ1_RqQedPmfNKNs7DA_Z9sySsEWgAgZoVKRSWg/edit

[2021-05-19 02:30:26]

[Eddie Holmes]

[thread - ID: 2021-05-19 02:30:26]

On those emails above, I've confirmed with Dr. Shen in China and he confirms he has not sent them to anyone. They also include emails from Nature and Nature Microbiology that should even be there because this breaks all journal confidentiality. The one from Nature doesn't have anything to do with me. So, he's clearly be hacked. Billy Bostickson said he was working with Sharri so I my guess is that DRASTIC are behind this.

[2021-05-19 02:31:26]

[Andrew Rambaut]

In which case I am not sure Nature is the place to send it?

[2021-05-19 02:32:25]

[Andrew Rambaut]

We will see how it works out but it needs to be comprehensive.

[2021-05-19 02:32:42]

[Eddie Holmes]

I agree. Comprehensive is key.

[2021-05-19 06:36:17]

[Robert Garry]

Added some more detail to @Eddie Holmes text re the FCS. This is an incredible doc!

[2021-05-19 06:47:05]

[Robert Garry]

[thread - ID: 2021-05-19 02:30:26]

@Eddie Holmes With few exceptions, hacking is illegal. It is a felony in the US with jailtime up to 20 years - not sure about the UK. I'm guessing _Nature_ would not be too pleased to find that their computer system has potentially been "cracked."

[2021-05-19 06:48:55]

[Robert Garry]

[thread - ID: 2021-05-19 02:30:26]

@Eddie Holmes Seems to me that the @Eddie Holmes posting by Alina and the email from Sherri to @Eddie Holmes - within the same 24 hours - is probably not a coincidence.

[2021-05-19 07:15:37]

[Robert Garry]

[thread - ID: 2021-05-19 02:30:26]

@Eddie Holmes Latest post from Alina: [shared file(s): image.png]

[2021-05-19 07:15:57]

[Robert Garry]

[thread - ID: 2021-05-19 02:30:26]

@Eddie Holmes Eddie's email from Sherri not a coincidence.

[2021-05-19 07:16:20]

[Robert Garry]

[thread - ID: 2021-05-19 02:30:26]

@Eddie Holmes In fact it looks like Alina wrote Sherri's email to Eddie.

[2021-05-19 07:20:04]

[Kristian Andersen]

[thread - ID: 2021-05-19 02:30:26]

@Eddie Holmes Yup, almost certainly a connection here - as you say Bob, would be quite the coincidence.

And just wow is Sharri a moron - I mean, that's some extreme word twisting there and it should be clear to any moron that this has nothing to do with peer review.

But sure, bloomshitters - not a conspiracy theory at all. Nothing to see.

[2021-05-19 07:21:53]

[Robert Garry]

<https://khn.org/news/article/wuhan-lab-leak-coronavirus-virologists-seek-inquiry-covid-origins-bat-research/> "In a paper posted to a virology forum last week, Robert Garry of Tulane University, who doubts the lab leak hypothesis, brought forth a new fragment of "spillover" evidence: The WHO report shows that some of the first 168 cases of covid were linked to two or more animal markets in Wuhan, he said, with strains from different markets showing slight differences in their genetic sequence. "Maybe one animal was in a truck with a bunch of cages and then it spread it to another species and that's where the shift took place," Garry said.

Garry and other international scientists have worked with Shi and her lab for years. The evidence for Garry's supposition isn't airtight, he admitted, but it's more convincing than "contriving something where some of the world's leading virologists are covering up at the behest of the Chinese Communist Party," he said."

[2021-05-19 07:22:34]

[Robert Garry]

I'm still waiting for my CCP check.

[2021-05-19 07:24:04]

[Robert Garry]

[thread - ID: 2021-05-19 02:30:26]

@Eddie Holmes Hmm - Sharri with an a.

[2021-05-19 07:25:52]

[Kristian Andersen]

[thread - ID: 2021-05-19 02:30:26]

@Eddie Holmes Hmmm. Time to make a wall of crazy to connect the As.. Alina, RelMan, ShArri.... hmmm - can't possibly be a coincidence....

[2021-05-19 07:25:57]

[Robert Garry]

Also - to be clear - no honeypots.

[2021-05-19 08:19:03]

[Robert Garry]

Off topic a bit but Rainbow Six is the 1998 (but still popular) John Clancy novel that people like David Asher and apparently Jesse Bloom take as a semi-documentary. From Wiki: "Clark and his colleagues become suspicious about the sudden rise in terrorist attacks. Unbeknownst to them, the first two attacks are part of a master plan to wipe out nearly all of the human race, codenamed "the Project". Dr. John Brightling, a staunch environmentalist who heads a biotechnology firm called the Horizon Corporation, ordered the attacks through ex-KGB officer Dmitriy Popov in order to raise awareness against terrorism, which would then allow co-conspirator Bill Henriksen's security firm to land a key contract during the Olympic Games in Sydney, Australia. From within the Olympics security apparatus, Henriksen plans to use a bioweapon containing the Shiva virus, a strengthened form of the Ebola virus that had been used by Iran in its biological attack on the U.S. Since people from virtually every country in the world are present at the Olympics, infecting them would ensure the swift worldwide spread of the virus. The resulting epidemic would kill millions, and Horizon would distribute a "vaccine" that actually contains a slow-acting version of the virus itself, which would then kill the rest of the world's population. The "chosen few", having been provided with the real vaccine, would then be allowed to inherit the emptied world." Substitute in CCP and the Wuhan Summer Games and Rainbow 6 seems "prescient."

[2021-05-19 08:49:32]

[Robert Garry]

<https://www.nih.gov/about-nih/who-we-are/nih-director/statements/statement-misinformation-about-nih-support-specific-gain-function-research>

[2021-05-19 08:50:13]

[Robert Garry]

The news cycle continues....

[2021-05-19 12:01:08]

[Robert Garry]

Off topic again, but Nature asked me to write a commentary on the paper describing the sequences from this year's Guinea Ebola outbreak. It comes heavily down that this is re-emergence. Given A82V is in the sequences and that A82V arose somewhere between the initial spillover and the Gire, Andersen 2014 sequences that's probably a good bet. I just want to make sure I'm not missing nuances (like a long-lived bat) discussed above in channel.

[2021-05-19 12:19:56]

[Kristian Andersen]

Yes, almost certainly re-emergence and especially A82V gives it away - and, of course, the clock. There are other explanations that can't be disproven, however, IMO persistence + re-emergence provide a much more likely explanation (we have seen all the pieces already - we just need to accept 500 days can also be five years. I have no problem with that). Also - remember to mention the solution being vaccination as you suggested - will help combat

stigma.

[2021-05-19 13:02:49]

[Robert Garry]

Good to hear. I will endeavor not to get too far out over my skis on the phylogeny. Yes - the stigma issue was well-discussed and vaccination might be key. I'm talking to Merck (one of my students (Tom Voss is there - Jessica was also at Merck but moved a few weeks ago to J&J) about - at least - providing some vaccine to our Ebola survivor cohort in SL to test this.

[2021-05-19 13:28:38]

[Kristian Andersen]

[thread - ID: 2021-05-19 02:30:26]

@Eddie Holmes > I think the laws of free speech allow me to call a bunch of conspiracy theorists conspiracy theorists.

I believe you're indeed right. Bloomshitters too.

[2021-05-19 13:38:57]

[Robert Garry]

[thread - ID: 2021-05-19 02:30:26]

@Eddie Holmes <https://blogs.sciencemag.org/pipeline/archives/2021/05/19/coronavirus-origins> It's remarkable to me how "rationale people" writing about Bloomshit avoid the obvious --- if you think that WIV had SC2 or something very close and didn't tell anyone HOW in the hell is this _not_ a conspiracy theory. Won't responsible commentary or journalism maybe mention that?

[2021-05-19 14:29:25]

[Eddie Holmes]

[thread - ID: 2021-05-19 02:30:26]

@Eddie Holmes At least some of the comments are reasonable. Molecular Biologist is spot on.

[2021-05-19 14:31:16]

[Andrew Rambaut]

I'm on that paper and did most of the phylogenetic...

[2021-05-19 14:34:10]

[Robert Garry]

Noticed that and guessed that - It's a really important piece of work. Trying to figure out how best to do it justice in the Commentary.

[2021-05-19 14:34:41]

[Kristian Andersen]

[thread - ID: 2021-05-19 02:30:26]

@Eddie Holmes He's basically reiterating what we said in our paper - but people apparently still don't get it.

[2021-05-19 14:35:59]

[Kristian Andersen]

[thread - ID: 2021-05-19 02:30:26]

@Eddie Holmes Why Derek felt the need to write this, I don't know. It's as if anybody with a science background - or no science background - feels qualified to comment on what is an extremely complex issue. Again, these people just can't get past the fact it started in Wuhan.

[2021-05-19 14:36:49]

[Kristian Andersen]

[thread - ID: 2021-05-19 02:30:26]

@Eddie Holmes (but they apparently don't have any issues with a researcher magically picking up the next pandemic virus from a bat butt. Okay, then - A+ for stats).

[2021-05-19 14:37:16]

[Eddie Holmes]

[thread - ID: 2021-05-19 02:30:26]

@Eddie Holmes And shows why the conspiracy theorists are so keen to attack the pangolin data

[2021-05-19 14:38:27]

[Kristian Andersen]

[thread - ID: 2021-05-19 02:30:26]

@Eddie Holmes It's a really inconvenient piece of evidence. It's the one thing that solidified my belief.

[2021-05-19 14:38:47]

[Eddie Holmes]

[thread - ID: 2021-05-19 02:30:26]

@Eddie Holmes Me too

[2021-05-19 14:38:48]

[Robert Garry]

[thread - ID: 2021-05-19 02:30:26]

@Eddie Holmes The large city thing that Eddie identified is important to counter the WIV is in Wuhan.

[2021-05-19 14:48:17]

[Eddie Holmes]

[thread - ID: 2021-05-19 02:30:26]

@Eddie Holmes Yes, no one would engineer that RBD so it has to be natural. And if that's natural so is the FCS. That then must mean they had a virus very close to SC2 at WIV. But if had worked on and sequenced such a virus - which would have been so interesting - why is there no record of it in their data or a paper? If both such a virus and RaTG13 had come out of a mine in Yunnan would they have only published RaTG13?

[2021-05-19 14:53:00]

[Andrew Rambaut]

Look forward to it! It was an interesting experience getting 3 competing groups to all work together and just publish one good paper!

[2021-05-19 15:00:54]

[Robert Garry]

Well done - if you don't mind I'll mention that very thing [in a nice way].

[2021-05-19 15:09:28]

[Robert Garry]

[thread - ID: 2021-05-19 02:30:26]

@Eddie Holmes SC1 in Foshan (7.2M ppl) farmers, market vendors, and chefs). Agree that Eddie HKU1 emerging in Shenzhen (13M ppl) is instructive.

[2021-05-19 15:17:02]

[Robert Garry]

[thread - ID: 2021-05-19 02:30:26]

@Eddie Holmes • Intermediate hosts also instructive. Intermediate host of HKU1 and HL63 like SC2 is not known. MERS-CoV IMO is the only human CoV in which the intermediate host the camel a highly domesticated animal is well established. For the other human CoVs the intermediate hosts IMO can each fall into the highly suspected category, but not proven. SC1 civets obviously can infected in wildlife trade, but could be other spillover hosts and the reservoir may be another animal. OC43 the same intermediate host is likely a bovine, obviously a highly domesticated animals but which bovine? 299E intermediate might be an alpaca (PMID: 26378164).

[2021-05-19 15:23:26]

[Kristian Andersen]

[thread - ID: 2021-05-19 02:30:26]

@Eddie Holmes I don't really think camels can be considered an "intermediate" host for MERS - seems more to me that MERS is causing an epizootic in camels, so it's pretty much a camel virus by now.

[2021-05-19 15:23:54]

[Robert Garry]

[thread - ID: 2021-05-19 02:30:26]

@Eddie Holmes Spillovers are rare. Domesticated animals a key at least for Covs- probably by serving to amplify the virus in close quarters. Pigs get other CoVs - PEDV and SADS-CoV - that are likely direct spillovers from bats. Something about the big cities makes the spillover stick. Could be same thing this time humans living in close quarters able to initiate transmission chains. This happened in West Africa Ebola. The reason why no very large Ebola outbreaks in Middle Africa is population density (we might have a paper on that).

[2021-05-19 15:26:09]

[Robert Garry]

[thread - ID: 2021-05-19 02:30:26]

@Eddie Holmes Good point - but that makes the distinction btwn MERS and the rest of the human CoVs all that stronger.

[2021-05-19 15:31:03]

[Robert Garry]

[thread - ID: 2021-05-19 02:30:26]

@Eddie Holmes So, question: is SC1 an epizootic in civets? Hard to argue there's definite proof of that but maybe i'm missing something.

[2021-05-19 15:37:30]

[Robert Garry]

External Sender. Be aware of links, attachments and requests.

Thanks, Bob. Nice to be in touch and I hope all's well.

Cheers,

Mike

From: Garry, Robert F [REDACTED] >

Sent: Wednesday, May 19, 2021 2:19 PM

To: Bloom PhD, Jesse D; David A Relman; Worobey, Michael - (worobey)

Subject: [EXT]Re: Technical Comment

External Email

That's correct I think.

My understanding is that Science will decide whether or not to send for review, then ask you for a comment.

Of course, based on the review they may or may not "publish."

In the case of a Technical Comment publish means on-line only.

Apparently, they may put the 60-word abstract in the paper journal (which perhaps a few people still look at).

Cheers,

Bob G.

From: "Bloom PhD, Jesse D" [REDACTED] >
Date: Wednesday, May 19, 2021 at 4:08 PM
To: Robert Garry & [REDACTED] >; David A Relman [REDACTED] >; "Worobey, Michael - (worobey)" [REDACTED] >;
Subject: Re: Technical Comment

External Sender. Be aware of links, attachments and requests.
Hi Bob,

I just wanted to follow up, and am also cc-ing Mike Worobey as he is interested in this topic.

Thanks again for looping us in about your comment piece. It sounds like we don't have to draft a full formal response now. But if Science considers your comment then we'd be happy to draft a response. If they don't (I'm not sure how often they published letters about letters?), if you submit your comment as an e-letter online then we would be happy to submit a response as an e-letter too.

Anyway, really appreciate you keeping us informed about this, and we agree it's important to try to figure out ways to discuss these topics in measured academic formats exactly as you are trying to initiate here!

--Jesse

[2021-05-19 15:42:42]

[Andrew Rambaut]

@Robert Garry I think Bill may have taken my removal of his post the wrong way -
""After contemplating this for the last two days, I have decided to make zero substantive response to your action.

However, I do intend to make a very few additional posts, confined entirely to scientific data that will continue to support the natural origin of SARS-CoV-2, and then retire permanently from the field of virology.

It has been my passion since the age of 12, while in quarantine in the New York metro area in the face of the 1957 Asian flu, listening to stories from my father about his recovery from poliomyelitis as a teenager. I believe that I have made a number of useful contributions in the last 15 months, working from home solely from my desktop computer and laptop, including the bulk of my post late this past Sunday.

I do apologize for my intemperance toward the end of my post that likely presented the most difficulty. I had passed it by three reviewers, with license to redline, but none of them, including Bob Garry, changed a word. I actually toned it down a notch from the final draft, before posting. I understand that neither Eddie Holmes or Kristian Andersen objected either, and you yourself did not disagree. I regret the difficult position it put you in. I have a deep respect for you and your work over the past quarter century, am honored to have been a co-author with you, and wish you the best.

Regards,
Bill Gallaher""
I do think he should publish it - just not on virological. Any thoughts?

[2021-05-19 15:51:23]

[Robert Garry]

That's just Bill - I'd call this only very mild by Bill's standards (you've now seen the other end of the scale). *For sure he is 100% sincere about the last few sentences.* I told him that you just were simply interested in keeping virological to the science, which lab leak clearly is not, and not to the personal stuff. I would not give it another thought. Yes - he can submit an toned down version to eLetters if he wishes, which it's much more appropriate.

[2021-05-19 15:51:37]

[Andrew Rambaut]

I have replied to encourage him to publish it and assure him he did nothing wrong.

[2021-05-19 15:59:29]

[Robert Garry]

I think the subthread on Sharri and Alina is getting "hijacked" a bit with that big city/domestic animal/zoonot discussion. But, the letter from Bill G might have convergence. I'm pretty sure at least some of the Bloomshit signers are not aware of the Alina BS. Although Alina plays victim very well, she the one that is passing out the most accusations of misconduct to Nature and PLOS. She's at least on par with Billy and the other DRASTIC thugs.

[2021-05-19 16:13:40]

[Robert Garry]

Holy Crap - Alina got some idiot to write an article about her wall-of-crazy.
<https://rogerpielkejr.substack.com/p/scientific-leadership-on-covid-19>

[2021-05-19 16:20:00]

[Eddie Holmes]

Crazier and crazier. There's nothing in any of my papers and emails that speaks to the origins of the virus. If the Australian intelligence people want to see them they can. Everyone else can fuck off.

[2021-05-19 16:27:13]

[Eddie Holmes]

She'll also be very surprised to learn how I informed the intelligence services about this last year and had extensive discussions with them.

[2021-05-19 16:30:17]

[Robert Garry]

Can you imagine hiring Alina for any - like - actual job after her post-doc? Plus, she is so far gone down the "I'm a media star" path that no way she would have the focus to keep any kind of real job in actual science. That, plus the few examples of her "science" I've actually read as pre-prints are crap.

[2021-05-19 16:39:24]

[Eddie Holmes]

She's pure evil. Seriously.

[2021-05-19 16:48:59]

[Eddie Holmes]

I'm going to write to the spies this morning and give them my current thoughts. I'll also offer them all my emails if they want them.

[2021-05-19 18:28:48]

[Robert Garry]

David A Relman [REDACTED] >
Thu 5/20/2021 12:07 AM

To:

• Garry, Robert F

Cc:

• Worobey, Michael - (worobey) <
[REDACTED] >

External Sender. Be aware of links, attachments and requests.

Thanks Bob for engaging with us.
David

Sent from my iPhone

[2021-05-20 03:38:20]

[Robert Garry]

Yuri post his rejection ltr from jvi [shared file(s): image.png]

[2021-05-20 04:09:39]

[Eddie Holmes]

God bless them one and all

[2021-05-20 04:17:32]

[Eddie Holmes]

Odds on that someone will notice that I'm on the editorial board and think that I'm behind it

[2021-05-20 04:32:14]

[Robert Garry]

That's almost certainly true at some level. As a Proximal Origins author you are imbued with near God-like power to influence group-think in virology. Orchestrating the rejection of a paper submitted to JVI - even one that exposes yet another massive cover-up at WIV - that's mere child's play for someone with your abilities!

[2021-05-20 07:04:04]

[Robert Garry]

Alina yucks it up about BL flip-flop... However, go back and re-read PO1 - hit every nail on the head, with possible exception that O-linked glycans - though real - may be more to do with regulation of cleavage than immunoshielding. [shared file(s): image.png]

[2021-05-20 07:08:35]

[Robert Garry]

Calling us devils - I guess so much for the "dispassionate science-based discourse."

[2021-05-20 07:11:13]

[Robert Garry]

[thread - ID: 2021-05-20 07:11:13]

Oh my - just found out that Bill Gallaher's eldest son Will - age 50 - was found dead yesterday. No other details from Bill.

[2021-05-20 07:58:50]

[Robert Garry]

<https://www.politico.com/newsletters/politico-nightly/2021/05/19/experts-weigh-in-on-the-wuhan-lab-leak-hypothesis-492915>

[2021-05-20 08:04:13]

[Kristian Andersen]

[thread - ID: 2021-05-20 07:11:13]

@Robert Garry Shoot, that is super tragic. Very sorry to hear that :disappointed:

[2021-05-20 08:13:44]

[Robert Garry]

Important to note in Alina's written response - good to actually have something in writing - that she LIES. Not true: "no evidence that live mammals were sold at the Wuhan seafood market in 2019" "In other words, there is zero evidence that supports a zoonotic origin of the virus that excludes the involvement of research activity." "Details of these viruses and the experiments performed with them have not been shared in a timely manner."

[2021-05-20 08:15:25]

[Robert Garry]

Nice quote @Kristian Andersen

[2021-05-20 08:22:24]

[Robert Garry]

But eDim - how far out in left field is this dude?

[2021-05-20 11:20:34]

[Kristian Andersen]

Good quotes from the "very unlikely" crew. Between you, Joel, and myself, I think we cover the main points pretty well.

[2021-05-20 11:36:07]

[Robert Garry]

"Possible crew" making declarative statements sans data or just lying (Alina), proposing unfalsifiable, unknowable and highly unlikely scenarios (Relman), or referring - like the lunatic he is - to only one scenario involving bats without regard for the possibility of an intermediate via wildlife or the wildlife trade (eDim).

[2021-05-20 11:38:50]

[Robert Garry]

<https://www.sciencemag.org/news/2021/05/two-more-coronaviruses-can-infect-people-studies-suggest> :boom:

[2021-05-20 11:43:39]

[Robert Garry]

[https://watermark.silverchair.com/ciab456.pdf?token=AQECAHi208BE49Ooan9kkhW_Ercy7Dm3ZL_9C\[...JDE9QnTqteAw8_nglKmAsuC-HjllyGf9kZbKZ4YCKNss5dLow9GvR7x4](https://watermark.silverchair.com/ciab456.pdf?token=AQECAHi208BE49Ooan9kkhW_Ercy7Dm3ZL_9C[...JDE9QnTqteAw8_nglKmAsuC-HjllyGf9kZbKZ4YCKNss5dLow9GvR7x4)

[2021-05-20 11:52:40]

[Robert Garry]

Deep Throat's quotes in the Science article about the 2 Covs makes me want to vomit.

[2021-05-20 13:03:07]

[Robert Garry]

<https://www.theglobeandmail.com/politics/article-infectious-disease-scientists-at-canadas-high-security-virus-lab/>
Another arrow for Alina's wall-of-crazy if she so desires - plus more fodder for Fauci bashers - let's not tell. I was on an NIH grant thru Erica Saphire with Qui until Qui got fired.

[2021-05-20 13:07:24]

[Eddie Holmes]

We'll be at war with China if they keep this up. eDim is talking out of his arse - betaCoVs have already been found in bats from Hubei. I have a tree. Just putting the kettle on...

[2021-05-20 13:11:49]

[Kristian Andersen]

Let's discuss this on the call too, but are there horseshoe-bats in Guangdong?

[2021-05-20 13:25:06]

[Eddie Holmes]

It's not the species of bat that matters - that just reflects the sampling. It's whether related virus lineages circulate in animals in the area.

[2021-05-20 13:27:11]

[Kristian Andersen]

Yup.

[2021-05-20 13:35:25]

[Eddie Holmes]

shared file(s): Lin.Virology17.pdf

[2021-05-20 15:29:08]

[Robert Garry]

FYI Jesse is flipping and flopping too! ORIGINALLY HE SAID: "But Bloom said there is simply not enough evidence yet to draw such a conclusion. He sees *three* possible origin stories for SARS-CoV-2. First – and here he agrees with Gostin – it originated in bats and jumped directly to humans or into another animal and then into humans. Bloom said he can't rule out two other possibilities: that someone in a lab in Wuhan, China, was studying the virus, collected from a bat or another animal, and accidentally released it, infecting people; *or that it was an intentional release by a researcher working with the virus.*

"Regardless of which occurred," Bloom said, "it would be really scientifically beneficial, and I think also beneficial for our ability to understand and prevent future pandemics, to really understand the initial events." [shared file(s): image.png]

[2021-05-20 15:29:41]

[Robert Garry]

THat mutated to: "But Bloom said there is simply not enough evidence yet to draw such a conclusion. He sees *two* possible origin stories for SARS-CoV-2. First – and here he agrees with Gostin – it originated in bats and jumped directly to humans or into another animal and then into humans.

Bloom said he can't rule out another possibility: that someone in a lab in Wuhan, China, was studying the virus, collected from a bat or another animal, and accidentally released it, infecting people.

"Regardless of which occurred," Bloom said, "it would be really scientifically beneficial, and I think also beneficial for our ability to understand and prevent future pandemics, to really understand the initial events."

[2021-05-20 15:33:00]

[Kristian Andersen]

I'd LOVE to hear their argument for why they think engineering is so unlikely. You can't really have one and not the other.

[2021-05-20 15:33:00]

[Robert Garry]

[thread - ID: 2021-05-20 15:33:00]

USAToday covering up for the Bloomshit was well. That's not reporting. Interview had to have been recorded and I doubt she misquoted him originally. In the real world the correction would have said something like - the scientist changed his mind or something to that effect.

[2021-05-20 15:39:30]

[Robert Garry]

Soooo are the Bloomshitters now saying that engineering is off the table? Lab Leak is just the accident part? Seriously - this really is Bullshit. Butt Lesson is a known commodity. But whipping up this hysteria about an accidental lab leak that Relman says the might not have even known??? Wars literally have been started over lower level bullshit. If you think Trump/Pompeo were not gunning for it or at least discussing it - well - you would be mistaken.

[2021-05-20 15:48:08]

[Eddie Holmes]

Aren't they then just agreeing with what we said in the PO paper???

[2021-05-20 15:48:54]

[Eddie Holmes]

I thought our only clear conclusion was that it was not engineered?

[2021-05-20 15:50:03]

[Robert Garry]

EXACTLY

[2021-05-20 17:38:21]

[Eddie Holmes]

<https://www.forbes.com/sites/startswithabang/2021/05/20/no-science-clearly-shows-that-covid-19-wasnt-leaked-from-a-wuhan-lab/>

[2021-05-20 17:39:39]

[Eddie Holmes]

I enjoyed that. I particularly liked 'disgraced journalist' Wade

[2021-05-20 17:44:19]

[Robert Garry]

:clap::clap::clap::boom:

[2021-05-20 17:52:54]

[Kristian Andersen]

That's actually really good

[2021-05-20 17:54:29]

[Eddie Holmes]

It is!

[2021-05-20 17:55:17]

[Kristian Andersen]

I thought it was going to be quite sketchy, but he correctly hits the main points. And yeah, Wade is a fucking disgraced journalist.

[2021-05-20 17:55:30]

[Kristian Andersen]

Why people listen to him in 2021, I don't know.

[2021-05-20 17:58:44]

[Robert Garry]

'Disgraced journalist' obviously could also be applied to Don McNeil as well - his "origins" piece only somewhat less egregious. Also loved the Murdock media insight! Will the real science journalists start to re-insert their spines?

[2021-05-20 18:03:35]

[Eddie Holmes]

Forbes - who would have thought it

[2021-05-20 18:40:03]

[Kristian Andersen]

Yeah, surprising.

[2021-05-20 19:00:23]

[Kristian Andersen]

Key observation about the article :wink: [shared file(s): Screen Shot 2021-05-20 at 6.59.57 PM.png]

[2021-05-20 19:29:25]

[Eddie Holmes]

Clueless

[2021-05-20 19:48:51]

[Eddie Holmes]

What are the odds that all of the viruses in the WIV that they have worked on over the years it's the one that's there no record of that is subject to a catastrophic lab leak? Improbable that this virus exists on current data x improbable that any virus leaks out = highly improbable.

[2021-05-20 19:59:03]

[Kristian Andersen]

Yup.

[2021-05-20 19:59:19]

[Kristian Andersen]

There more you think about this particular aspect of it, the less sense it makes.

[2021-05-20 20:11:42]

[Eddie Holmes]

If they have shoddy lab procedures then surely it's the virus they use most often that has the greatest chance of leaking out?

[2021-05-20 20:12:57]

[Kristian Andersen]

Yes, although there may well be a difference between BSL-3/4 and BSL-2. A novel bat virus would likely be grown in BSL-2, whereas some of the others are likely BSL-3 or even -4

[2021-05-20 20:14:36]

[Eddie Holmes]

True.

[2021-05-21 01:31:04]

[Eddie Holmes]

Gilles as done some maths to show that the WIV are lying. At least he admits it:
<https://pihabeach.micro.blog/2021/05/04/edwardcholmes-can-be.html>

[2021-05-21 01:38:00]

[Andrew Rambaut]

Here is a thought of how to structure the evidence document - Have it with categorical statements, followed by a degree of confidence in the statement (and then the evidence used in the following paragraph). I.e.:
> The ACE2 binding RBD in SARS-CoV-2 was not inserted or created in a lab [Confidence: high]
>

[2021-05-21 01:38:29]

[Eddie Holmes]

Excellent idea

[2021-05-21 03:24:22]

[Andrew Rambaut]

[thread - ID: 2021-05-20 15:33:00]

@Robert Garry Is Bloom's quote about deliberate escape still out there anywhere? If it is, when we are ready, it might be a good idea to ask Jesse about it?

[2021-05-21 04:53:45]

[Robert Garry]

<https://med.stanford.edu/news/all-news/2021/05/david-reلمان-on-investigating-origin-of-coronavirus.html>

[2021-05-21 05:49:48]

[Kristian Andersen]

[thread - ID: 2021-05-21 05:49:48]

Hah - Stanford. Mike Levitt, David Relman, Jay Bhattacharya, Scott Atlas, John Ioannidis.... Is there a university that has done worse during this pandemic?

[2021-05-21 05:57:00]

[Robert Garry]

They should shutter it for the good of us all.

[2021-05-21 05:57:14]

[Robert Garry]

I see why Nathan Wolfe fit in there so well.

[2021-05-21 06:01:36]

[Andrew Rambaut]

[thread - ID: 2021-05-21 05:49:48]

@Kristian Andersen Oxford has a few bad eggs...

[2021-05-21 06:02:56]

[Kristian Andersen]

[thread - ID: 2021-05-21 05:49:48]

@Kristian Andersen Yeah - although, that is some stiff competition from the US... At least we do 'bad' pretty well.

[2021-05-21 06:05:32]

[Kristian Andersen]

Absence any data whatsoever, Relman's piece might be considered quite balanced. By now, it's uninformed and naive.

[2021-05-21 06:13:17]

[Andrew Rambaut]

[thread - ID: 2021-05-21 05:49:48]

@Kristian Andersen You do bad the best

[2021-05-21 06:47:55]

[Kristian Andersen]

Eddie, I assume this is the journo you have been talking to? He's a little all over the place, but a story to look at the stuff we're currently missing is kinda important.

I'm reluctant to take interviews at the moment, but should I talk to this guy based on your conversations? [shared file(s): China-based journalist with The Guardian reaching out]

[2021-05-21 13:58:37]

[Eddie Holmes]

Yes, that's him. He's a good guy. I agree he's a bit all over the place, but he is in site trying to follow the animals. Perhaps the only person that is.

[2021-05-21 15:08:58]

[Robert Garry]

<https://www.sciencedirect.com/science/article/pii/S0042682219303022?via%3Dihub>

[2021-05-21 15:09:04]

[Robert Garry]

<https://pubmed.ncbi.nlm.nih.gov/27999425/>

[2021-05-21 15:11:17]

[Robert Garry]

<https://pubmed.ncbi.nlm.nih.gov/27535067/>

[2021-05-21 15:17:06]

[Robert Garry]

Easy enough to find the research links between WIV, the wildlife rescue and Yang Guoxiang. Looks solid. Avian flu and lions! @Kristian Andersen we might use that last reference in an upcoming application.

[2021-05-21 15:41:26]

[Kristian Andersen]

[thread - ID: 2021-05-21 15:41:26]

Completely made up, top to bottom. Tell me this isn't 2003 all over again - WMD this time being WIV (see the resemblance.... :thinking_face:). Total crazy town.

https://republicans-intelligence.house.gov/uploadedfiles/covid-19_and_the_wuhan_institute_of_virology_19_may_2021.pdf

[2021-05-21 15:56:10]

[Robert Garry]

As Uncle Joe Biden might say this is a BFD! Here, we report the genome characterization and viral receptor analysis of a novel lineage of SARSr-CoVs in Tongguan town, Mojiang county, Yunnan province in China in 2015, the same location where we found bat RaTG13 in 2013 [1].

[2021-05-21 15:58:40]

[Eddie Holmes]

BFD. Let's hope it's published before the war starts.

[2021-05-21 15:58:46]

[Kristian Andersen]

Very interesting - I love how they totally do not drop a beat.

Interesting viruses - maybe pangolins after all?

I'm glad they gave Jesse his eight mysterious viruses. Turns out they weren't SARS-CoV-2 :man-shrugging: (ANY idiot would realize this if not so deep into crazy land)

[2021-05-21 15:59:23]

[Kristian Andersen]

Hybrid pangolin / mink / whatever farming happening in China? Hubei?

[2021-05-21 16:02:17]

[Eddie Holmes]

Don't rule out those pangolins! Zheng-Li Shi has nerves of steel....

[2021-05-21 16:02:18]

[Robert Garry]

Devin Nunes - - I love the tweets from his mom and his cow.

[2021-05-21 16:06:57]

[Eddie Holmes]

Very much looking forward to hearing what the Bloomshitters and the Parasites will say about this....

[2021-05-21 16:07:29]

[Eddie Holmes]

[thread - ID: 2021-05-21 15:41:26]

@Kristian Andersen Totally fucking mental. 2003 again as you say.

[2021-05-21 16:08:02]

[Kristian Andersen]

They're going to go fucking crazy. I swear - the conspiracy theories on my Twitter timeline right now are off the chart. Total craziness.

[2021-05-21 16:11:03]

[Eddie Holmes]

Yup. It's going to be great.

[2021-05-21 16:33:59]

[Kristian Andersen]

[thread - ID: 2021-05-21 16:33:59]

Shi's viruses - Eddie where's RmYN05 and those guys from? [shared file(s): Screen Shot 2021-05-21 at 4.33.12 PM.png]

[2021-05-21 16:34:32]

[Kristian Andersen]

Rs7896 is the new one - clade sticking out near the bottom

[2021-05-21 16:36:03]

[Kristian Andersen]

~98% identity to those RmYN05-like viruses. Interesting.

[2021-05-21 16:36:28]

[Eddie Holmes]

YN = Yunnan

[2021-05-21 16:37:41]

[Eddie Holmes]

Rm = Rhinolophus malayanus

[2021-05-21 16:38:59]

[Eddie Holmes]

How does the ORF1ab tree look? I usually think that is more informative. The RpYN06 paper has just been accepted in Cell.

[2021-05-21 16:39:11]

[Kristian Andersen]

shared file(s): 2021.05.21_nucleotide_genome RAxML Tree.nex, 2021.05.21_nucleotide_genome RAxML Tree.nex.pdf

[2021-05-21 16:39:20]

[Kristian Andersen]

I have a sim plot - lemme share

[2021-05-21 16:40:03]

[Kristian Andersen]

ORF1ab similar. Let me make a tree [shared file(s): simplot.pdf]

[2021-05-21 16:40:10]

[Kristian Andersen]

(similar to the Rm ones)

[2021-05-21 16:41:15]

[Kristian Andersen]

Black line is the new one

[2021-05-21 16:41:26]

[Andrew Rambaut]

[thread - ID: 2021-05-21 16:33:59]

@Kristian Andersen What's this tree? Complete genomes?

[2021-05-21 16:42:08]

[Kristian Andersen]

[thread - ID: 2021-05-21 16:33:59]

@Kristian Andersen Yeah

[2021-05-21 16:42:47]

[Kristian Andersen]

[thread - ID: 2021-05-21 16:33:59]

@Kristian Andersen Here's a nicely formatted/annotated alignment [shared file(s): 2021.05.21_nucleotide_genome.geneious]

[2021-05-21 16:43:26]

[Eddie Holmes]

Thanks!

[2021-05-21 16:43:29]

[Andrew Rambaut]

Sorry - it is too late for simplots and recombination. Will take a look tomorrow

[2021-05-21 16:43:47]

[Kristian Andersen]

No kidding. Good night!

[2021-05-21 16:44:10]

[Kristian Andersen]

(I shared the full alignment in the thread - so you have that for tomorrow. All CDS annotated)

[2021-05-21 16:44:45]

[Eddie Holmes]

Hope the bioRxiv post goes up soon :bomb:

[2021-05-21 16:44:55]

[Kristian Andersen]

COME ON ALREADY!!

[2021-05-21 16:47:09]

[Andrew Rambaut]

Post the good tweets here for reading over coffee...

[2021-05-21 16:48:04]

[Kristian Andersen]

N/A

[2021-05-21 16:48:29]

[Kristian Andersen]

Spike and ORF1ab trees - note these are midpoint rooted, because I have no idea how to root these guys. [shared file(s): 2021.05.21_nucleotide_Spike RAxML Tree.nex.pdf, 2021.05.21_nucleotide_Spike RAxML Tree.nex, 2021.05.21_nucleotide_ORF1ab RAxML Tree.nex.pdf, 2021.05.21_nucleotide_ORF1ab RAxML Tree.nex]

[2021-05-21 16:49:22]

[Kristian Andersen]

Paper is online - <https://www.biorxiv.org/content/10.1101/2021.05.21.445091v1>

[2021-05-21 16:50:48]

[Eddie Holmes]

Let the show begin...

[2021-05-21 16:52:31]

[Kristian Andersen]

Eddie, the lab leak theory isn't a conspiracy theory, you know?

Just so that's clear...

[2021-05-21 16:53:08]

[Eddie Holmes]

Sorry, I keep forgetting...

[2021-05-21 16:53:46]

[Kristian Andersen]

I know. It's easy to forget.

Separately - fucking hell, these viruses - SO MUCH DIVERSITY!!!!!!!!!!!!

[2021-05-21 16:59:36]

[Eddie Holmes]

Indeed. Doesn't take much to think that any particular RBD+FCS combination could arise. Nature does it again.

[2021-05-21 17:16:18]

[Kristian Andersen]

Nah. I had bookmarked that BioProject previously so I just came across it.

[2021-05-21 17:16:52]

[Eddie Holmes]

Ah yes, I remember now.

[2021-05-21 17:17:24]

[Kristian Andersen]

But yeah - I _could_ have waited ten minutes... Others found the paper before me though

[2021-05-21 17:18:34]

[Eddie Holmes]

Jonathan Eisen is a stand-up guy on this.

[2021-05-21 17:19:05]

[Kristian Andersen]

He is. He's able to keep a cool head.

[2021-05-21 17:22:03]

[Eddie Holmes]

WIV are in an impossible position: don't release the data and they are accused of hiding it, release it and they are accused of faking it. Having no PCR/antibody positives at the WIV and they are accused of lying, having $n = 1$ case at WIV then that would be patient zero.

[2021-05-22 06:33:17]

[Robert Garry]

RaTG15 Spike - 658 DITKARTSSTPA 669 S1/S2 junction - haven't run the analysis but guessing that there are O-linked glycan sites.

[2021-05-22 06:39:37]

[Robert Garry]

My response to Betsy McKay at WSJ: It's a big deal - in terms of the origins "debate." It's a major arrow taken from the quiver of lab leak proponents and snapped into bits.

Bloom, Chan and other Science letter signees have make a major issue that Shi had not released these mine virus sequences. The DRASTIC krewe even more obsessive regarding the mine viruses. The repeat of the claims of a cover-up are likely coming (cue ominous questions: why not release sooner/are the sequences now fake?).

Seems to me that Shi herself had enough and put the sequences out there.

It shows that WIV was not covering up a mine virus that was closer to SC2. Like RatG13 none of the new viruses could have been used to engineer SC2 (make a chimera) or derive SC2 by other types of "GoF research." The mine viruses are interesting, but not a priority [so many viruses, so little time].

The paper confirms that that even among related sarbecoviruses there is a lot of diversity in spike, particularly [but predictably based on other CoVs] around the S1/S2 junction where SC2 has the FCS.

[2021-05-22 06:50:13]

[Kristian Andersen]

This is good. And worth adding - not only did they not cover up these sequences, they're continuing to try and figure out where these viruses come from and how we can be safer in the future.

[2021-05-22 06:54:33]

[Kristian Andersen]

For the unsurprising DISTRACT take on these sequences, look no further
<https://twitter.com/franciscocodeasis/status/1395898890294026243?s=21>

[2021-05-22 06:56:49]

[Kristian Andersen]

"Likes" of that thread includes Sharri Markson...

[2021-05-22 07:12:53]

[Robert Garry]

DRASTIC should be considered part of the Murdock media empire - the really dark part - so is the WSJ - the WSJ news division though including Betsy McKay is relatively isolated and have been pretty balanced on C19. Editorial page - not so much.

[2021-05-22 07:51:22]

[Robert Garry]

https://twitter.com/R_H_Ebright/status/1395550790228529152 eDim

[2021-05-22 08:22:51]

[Kristian Andersen]

This is exactly right. Nailed it. [shared file(s): Screen Shot 2021-05-22 at 8.20.50 AM.png]

[2021-05-22 08:37:22]

[Kristian Andersen]

Just read the pangolin CoV paper from Joe Grove again - such a great paper. If you haven't already, make sure you read - so weird.

<https://www.biorxiv.org/content/10.1101/2021.03.22.436468v1>

[2021-05-22 14:32:21]

[Andrew Rambaut]

I heard him talk about it but didn't see the paper. Will read tomorrow.

[2021-05-22 17:38:51]

[Kristian Andersen]

SO on point!!

<https://twitter.com/monscience/status/1396240581651742724?s=21>

[2021-05-22 17:42:52]

[Eddie Holmes]

This is great!

[2021-05-22 18:01:41]

[Kristian Andersen]

The paper is on my agenda tomorrow morning and I was wondering if we should get some additional (skilled) eyes on it after that? I'm thinking Angie, Spyros Lytras, and Alex Crits-Christoph. Thoughts?

[2021-05-22 18:02:21]

[Kristian Andersen]

Maybe Jemma too?

[2021-05-22 18:09:30]

[Eddie Holmes]

The paper is looking good. It's the evidence doc that needs to be resolved. I think it's a good idea to send to Angie, Alex and perhaps David Robertson. I already passed it to mate Tim Skern who's the editor of Archives of Virology and he is keen to sign.

[2021-05-23 03:16:52]

[Eddie Holmes]

Got this from Dominic. I told him we writing a letter but that we didn't want the WHO team to be involved: "It continues to annoy me when people say that WHO/OIE/FAO aren't 'independent' but letter writers (15/18 of which are from the US) are 'independent'. Sure WHO/OIE/FAO (and add in the UN/UNICEF etc) have their big problems, but what other international groups are there? We in the WHO group may write a piece later about the political/moral/racist/ill-informed/un-evidenced conspiratorial attitudes that surrounded trying to do this work."

[2021-05-23 05:13:09]

[Robert Garry]

<https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0022201> Interesting paper. I'll come back to it.

[2021-05-23 05:21:52]

[Robert Garry]

To DD points which is a good one, 6 of the 18 Bloomshitters (BS) were also members of the Cambridge Working Group (CWG)opposing GoF research. Notable non-overlap BS/CWG eDim and Mike Osterholm.

[2021-05-23 05:23:37]

[Robert Garry]

The CWG lost their battle to shut down dangerous virologists largely because of this counter:
<http://www.scientistsforscience.org/>

[2021-05-23 05:28:36]

[Robert Garry]

This paragraph stuck out for me: "Scientists for Science have a range of opinions on how risk is best assessed. However, maintaining dogmatic positions serves no good purpose; only by engaging in open constructive debate can we learn from one another's experience. Most importantly, we are united as experts committed to ensuring public health is not compromised and the reputation of science in general, and microbiology in particular, is defended."

[2021-05-23 05:33:14]

[Robert Garry]

List of names is good. If we could get Harald zur Hausen, Charlie Rice, Harold Varmus and Mike Bishop it would be awesome.

[2021-05-23 05:36:55]

[Robert Garry]

I don't think getting Baltimore and Alice Huang to sign our letter is out of the question. Worth offering since DB may want to correct the record and if he turns it down that's instructive. Back to the paper - since Jesse Bloom trained with DB I think it's even money that DB was offered a spot on BS and turned that down.

[2021-05-23 05:44:37]

[Robert Garry]

As for the paper itself and other JB-DB papers on H1N1- seriously WTF - a blueprint for making drug-resistant viruses and not a peep about DURC.

[2021-05-23 05:53:41]

[Robert Garry]

In addition to the Nobel prize virologists - I agree with @Eddie Holmes that getting EiC of virology journals is Very Good idea. Richard Kuhn, PhD - Editor-in-Chief - Virology' Rozanne M. Sandri-Goldin JVI, Linfa Wang Virology Journal (but there's the Col thing) *Paul Duprex JGV.*

[2021-05-23 06:10:46]

[Robert Garry]

et tu Sydney Morning Herald <https://www.smh.com.au/world/north-america/fringe-feasible-or-false-the-covid-19-wuhan-lab-leak-theory-gets-a-second-look-20210521-p57tts.html>

[2021-05-23 09:19:57]

[Robert Garry]

RaTG15 Spike 658 ditkarTSStpa 669 S1/S2 junction. So yes the capitalized TSS - all predicted O-glycans. [shared file(s): image.png]

[2021-05-23 09:27:16]

[Robert Garry]

It's like RsYN04. The sequence in RsYN04 is one amino acid shorter at the indel, but aligns: ttkarTSStpa - also with the predicted O-linked glycans. [shared file(s): image.png]

[2021-05-23 09:42:56]

[Kristian Andersen]

Very interesting - clearly a lot of stuff going on around that site, which isn't too surprising given its importance.

[2021-05-23 11:36:54]

[Robert Garry]

Putting RaTG15 plus some of the other new viruses into the Holmes2021 alignment. Some of these could potentially be in the Evidence Doc. RpYN06 (@Eddie Holmes new _Cell_ paper) and PCR31 lay to rest Alina's slander that GD pangolin is fake. See similarity in indels 1,2,3 and 5. Also probably makes sense to update the virological post. [shared file(s): image.png]

[2021-05-23 11:38:37]

[Robert Garry]

For the virus glycoprotein nerdbots note that RaTG15 and RsYN04 have CXK insert at indel 4a. Both viruses have an added cysteine 5 or 4 amino acids towards the N-term. So, these viruses either have an extra tight cysteine loop in the N-terminal domain or as discussed in channel above have a metal binding domain in the N-terminus. One of @Kristian Andersen long covid patients has an added dicysteine in the N-terminus. Also W152C in B.1.427/429 is an unpaired cysteine which is just not hanging in space so might work with H69, H146 and H245 to bind a metal ion. Cryo EM guys/girls get busy.

[2021-05-23 11:44:10]

[Robert Garry]

"Big names, titles don't always = truth." I believe that Ms. Young is talking about us gentlemen. Truly pisses me off. [shared file(s): image.png]

[2021-05-23 11:47:23]

[Robert Garry]

She and Alina seems to be taking the victory lap together.

[2021-05-23 11:48:15]

[Robert Garry]

Note - the align - still a WIP...

[2021-05-23 11:54:10]

[Kristian Andersen]

What's funny here - I can certainly agree that "big names, titles don't always = truth", but referring to the Bloomshitters and not actually us. The truth will ultimately prevail.

Just had a meeting with Fauci and his team this morning - they get it and deeply appreciate what we're doing, so we'll keep dancing...

[2021-05-23 13:33:27]

[Eddie Holmes]

<https://twitter.com/amymaxmen/status/1396529176006430721?s=12>

[2021-05-23 13:34:57]

[Eddie Holmes]

Amy is on the money

[2021-05-23 13:47:29]

[Kristian Andersen]

She is - I had a good discussion with her early last week and she gets it. This honestly won't end well - and the Bloomshitters played right into the hands of the right wing crazies. So dumb and so unnecessary.

[2021-05-23 14:02:06]

[Eddie Holmes]

So dumb. Making the world more dangerous

[2021-05-23 16:38:30]

[Robert Garry]

Amy is spot on - Bloom, Relman, Worobey standing with the likes of Geitz, Nunes, Carlson and most of all Trump. Bloom and Worobey - what are you thinking? I hope a light comes on... [shared file(s): image.png]

[2021-05-23 16:38:58]

[Kristian Andersen]

I think a light might come on in Worobey - Bloom is lost.

[2021-05-23 16:41:07]

[Robert Garry]

Well - lost and confused for sure - That flip-flop in USA Today will come back to bite JB in the ass - bet on it.

[2021-05-23 16:45:11]

[Eddie Holmes]

Anyone who signs a letter with Alina is dead to me.

[2021-05-23 16:45:44]

[Eddie Holmes]

I take that as a personal attack and I won't forget

[2021-05-23 16:47:42]

[Robert Garry]

[thread - ID: 2021-05-23 16:47:42]

Indeed - I want to archive this here May 23, 2021. Alina apparently reading the WHO report for the first time - did not stop her from saying in the science ltr that WHO report provided no evidence. [shared file(s): image.png]

[2021-05-23 16:55:02]

[Robert Garry]

The letter is pure dynamite - we need to get it out ASAP.

[2021-05-23 17:04:38]

[Eddie Holmes]

Spectacular!

[2021-05-23 17:48:56]

[Eddie Holmes]

I can't read this. Is there anything of note in it:

<https://www.wsj.com/articles/intelligence-on-sick-staff-at-wuhan-lab-fuels-debate-on-covid-19-origin-11621796228>

[2021-05-23 18:07:57]

[Kristian Andersen]

Nope, it's _exactly_ the same as previously reported - NO new information.

[2021-05-23 18:11:28]

[Eddie Holmes]

Thought so. If 3 staff were sick enough to go to hospital then any outbreak at WIV must have been substantial.

[2021-05-23 18:16:23]

[Eddie Holmes]

[thread - ID: 2021-05-23 18:16:23]

And of course, the molecular clock dates put the origin of the virus back to September or so

[2021-05-23 18:16:45]

[Robert Garry]

I'll send in the morning (i have to be on the University network to get full access).

[2021-05-23 18:20:27]

[Eddie Holmes]

CNN have it better: "The current intelligence reinforces the belief that the virus most likely originated naturally, from animal-human contact, the sources said. But that does not preclude the possibility that the virus was the result of an accidental leak from the Wuhan Institute, where coronavirus research was being conducted on bats."

[2021-05-23 18:53:46]

[Robert Garry]

[thread - ID: 2021-05-23 16:47:42]

@Robert Garry Rosanna too [shared file(s): image.png]

[2021-05-23 20:17:18]

[Eddie Holmes]

<https://academic.oup.com/cid/advance-article/doi/10.1093/cid/ciab456/6278597>

[2021-05-23 20:17:40]

[Eddie Holmes]

We should cite this somewhere

[2021-05-23 22:31:07]

[Kristian Andersen]

Good thread: <https://twitter.com/pwnallthethings/status/1396578054730833920?s=20>

[2021-05-23 22:36:51]

[Eddie Holmes]

Just read it - bloody awesome

[2021-05-23 22:56:08]

[Eddie Holmes]

The hypocrisy is amazing: loads of people sick with diagnosed COVID-19 in the market - but that's not where it started. Three people sick with who-knows-what at the WIV and it must have started there.

[2021-05-24 04:22:18]

[Andrew Rambaut]

Hope to get onto the letter and evidence docs this evening.

[2021-05-24 06:41:13]

[Robert Garry]

Lack of Intelligence [shared file(s): Intelligence on Sick Staff at Wuhan Lab Fuels Debate on Covid-19 Origin - WSJ.pdf]

[2021-05-24 06:45:47]

[Robert Garry]

[thread - ID: 2021-05-23 18:16:23]

@Eddie Holmes Seems like this should go in the evidence doc.

[2021-05-24 11:52:21]

[Robert Garry]

Hmmmm [shared file(s): The Wuhan Lab Leak Question_ A Disused Chinese Mine Takes Center Stage - WSJ.pdf]

[2021-05-24 11:59:33]

[Kristian Andersen]

Full-on conspiracy by now.

Interesting quote from Bernard Roizman. :face_with_rolling_eyes:

[2021-05-24 11:59:43]

[Robert Garry]

The miners that got sick from going into the mine were not virologists, or botanists for that matter.

[2021-05-24 12:07:36]

[Robert Garry]

Letter is strong - we need to get it out.

[2021-05-24 12:29:32]

[Kristian Andersen]

Wait, what?? [shared file(s): Screen Shot 2021-05-24 at 12.28.50 PM.png]

[2021-05-24 12:37:11]

[Robert Garry]

Republicans

[2021-05-24 12:41:12]

[Robert Garry]

Remember he "totally dismantled" the multi-market virological post, not to mention his Bayesian analysis [which - it's a bit beyond me - involves mathematics to some degree].

[2021-05-24 12:45:29]

[Kristian Andersen]

Yup - I'm glad to see they select people based on merit and not based on their views. I went through his Bayesian analysis - it's kinda funny and oh so wrong.

[2021-05-24 13:27:55]

[Eddie Holmes]

<https://www.audacy.com/kywnnewsradio/news/local/penn-scientists-prefer-one-covid-19-origin-over-another>

[2021-05-24 13:29:17]

[Eddie Holmes]

Obviously Susan Weiss is a good person to have on board

[2021-05-24 13:36:46]

[Eddie Holmes]

Jeremy Page asked me to comment for the WSJ and he said they would write a 'balanced' piece. I knew he was talking shit. All this press and there has not been a SINGLE PIECE of new evidence for the lab leak.

[2021-05-24 13:38:18]

[Kristian Andersen]

Exactly. The recent interest is driven not by data, but rather by a lack thereof.

[2021-05-24 15:28:57]

[Eddie Holmes]

<https://twitter.com/weijia/status/1396913345815617539?s=20>

[2021-05-24 15:29:05]

[Eddie Holmes]

Tony!

[2021-05-24 15:30:33]

[Robert Garry]

THANKS For clarifying that TF!

[2021-05-24 15:32:48]

[Kristian Andersen]

I might have been able to do a little convincing yesterday morning to make him a little more confident in that statement - good! His team was pushing on him pretty hard to come out and say that natural emergence is _much_ more likely - I'm glad he did!

[2021-05-24 15:33:40]

[Eddie Holmes]

Huge!

[2021-05-24 15:34:15]

[Robert Garry]

Agreed!

[2021-05-24 15:34:20]

[Kristian Andersen]

All of this is so fucking dumb. Glad to see David and Andrew hammering the "it's conspiracy" really hard on Twitter too :wink:

[2021-05-24 15:35:30]

[Kristian Andersen]

[thread - ID: 2021-05-24 15:35:30]

It really is important - the issue isn't about lab leak, it's about that they must have had the virus prior to the pandemic, which (a) is hugely unlikely and (b) there's absolutely zero evidence for - in fact, the evidence quite strongly suggest they didn't!

[2021-05-24 15:36:14]

[Eddie Holmes]

Told the same to Simone at the SCMP

[2021-05-24 15:37:39]

[Eddie Holmes]

Told another journo that if it's not a conspiracy theory it's without doubt a 'theory containing a conspiracy'. I hope they get sarcasm.

[2021-05-24 15:39:43]

[Kristian Andersen]

We need this particular point to be crystal clear in the letter. Will find some time tonight.

[2021-05-24 15:43:01]

[Eddie Holmes]

I'll take a look as well

[2021-05-24 15:46:31]

[Andrew Rambaut]

[thread - ID: 2021-05-24 15:35:30]

@Kristian Andersen Yes hopefully the more sensible ones on the BS letter will see what they were actually saying. But I was avoiding saying anything about the evidence fore the zoonosis as that needs a better venue than Twitter.

[2021-05-24 15:47:08]

[Andrew Rambaut]

Sorry about this but could you post the link for the letter again?

[2021-05-24 15:50:39]

[Kristian Andersen]

[thread - ID: 2021-05-24 15:35:30]

@Kristian Andersen Relman clearly doesn't like the word - but it's because he doesn't realize what he's alleging. And yes, hopefully this'll help them understand that.

[2021-05-24 15:51:15]

[Robert Garry]

While I have you all here does anyone have any issues with updating Holmes 2021 as follows: We are updating this post with four additional viruses: RpYN06, PrC31, RaTG15 and RsYN04 (Table 1, yellow highlights). These SARSr-CoVs are described in more detail in Zhou et al. (2021), Li et al. (2021) and Guo et al. (2021).

""The Spike proteins of RpYN06 and PrC31 share 98.2% identity (99.8% similar) in a 1246 aa overlap. RpYN06 and PrC31 spike are highly similar to Guangdong (GD) pangolin coronavirus in the N-terminus of the protein. RpYN06 and PrC31 have 2 or 3 predicted O-linked glycans near the S1/S2 junction (Indel 8) confirming the highly variable nature of this domain.

The Spike proteins of RaTG15 and RsYN04 share 91.5% identity (96.5% similar) in a 1254 aa overlap. RaTG15 and RsYN04 have an apparent insert of three amino acids CXK in the indel referred to here as 4a. Both viruses have a cysteine 5 or 4 amino acids towards the N-terminus that is not present in other SARSr-CoVs located within a conserved sequence (underlined). The two additional cysteines may form a tight cysteine loop or potentially these cysteines could coordinate with histidines to bind a metal ion. Variants of interest B.1.427/429 have a mutation in

spike W152C that creates an unpaired cysteine. This cysteine in the N-terminal domain of B.1.427/429 spike may coordinate with H69, H146 and H245 to bind a metal ion. RatG15 and RsYN04 have 3 or 4 predicted O-linked glycans near the S1/S2 junction (Indel 8).

We note incongruence between the ORF1ab and Spike gene phylogenies of the SARS-CoV-2 related viruses suggesting widespread recombination. This is discussed in more detail in Zhou et al. (2021).

Figure 1 updated. Amino acid alignment of the spike protein sequences of Cambodian, Thai Japanese and Chinese bat coronaviruses and other sarbecoviruses. The signal peptide, S1 subunit and part of S2 are shown. Positions of selected substitutions or deletions in 'variants of concern' are indicated.

Added references:

Li L-L, Wang J-L, Ma X-H, Li J-S, Yang X-F, Shi W-F and Duan Z-J. (2021). A novel SARS-CoV-2 related virus with complex recombination isolated from bats in Yunnan province, China
bioRxiv 2021.03.17.435823; doi: <https://doi.org/10.1101/2021.03.17.435823>

Guo H, Hu B, Si H-R, Zhu Y, Zhang W, Li B, Li A, Geng R, Lin H-F, Yang X-L, Zhou P and Shi Z-L. (2021). Identification of a novel lineage bat SARS-related coronaviruses that use bat ACE2 receptor.
bioRxiv 2021.05.21.445091; doi: <https://doi.org/10.1101/2021.05.21.445091>

Zhou H, Ji J, Chen X, Bi Y, Li J, Hu T, Hao Song H, Chen Y, Cui M, Zhang Y, Hughes AC, Holmes EC and Shi W. (2021). Identification of novel bat coronaviruses sheds light on the evolutionary origins of SARS-CoV-2 and related viruses. bioRxiv 2021.03.08.434390; doi: <https://doi.org/10.1101/2021.03.08.434390> (Cell, in press). [shared file(s): image.png, image.png]

[2021-05-24 15:51:46]

[Kristian Andersen]

On my phone. Bob, can you please share the link

[2021-05-24 15:51:47]

[Robert Garry]

https://docs.google.com/document/d/1jmvbeZ1_RqQedPmfNKNs7DA_Z9sySsEWgAgZoVKRSWg/edit

[2021-05-24 17:12:59]

[Andrew Rambaut]

Oh, Tami: <https://twitter.com/conTaminatedsci/status/1396981846169341954>

[2021-05-24 17:19:28]

[Eddie Holmes]

What a pillock

[2021-05-24 17:26:15]

[Kristian Andersen]

In other news - this is NOT what I want to read. Note, epitopes are located in regions of the NTD (~215 / ~65) where we frequently see SARS-CoV-2 mutations. This could get fun.

[https://www.cell.com/cell/fulltext/S0092-8674\(21\)00662-0](https://www.cell.com/cell/fulltext/S0092-8674(21)00662-0)

[2021-05-24 18:22:07]

[Andrew Rambaut]

That is enough Twitter for tonight. Also been through the letter now.

[2021-05-24 18:42:40]

[Kristian Andersen]

Hah, I can imagine - great work battling the idiots! Good practice for the letter... :wink:.

I'll go through shortly.

[2021-05-24 19:05:42]

[Eddie Holmes]

<https://www.washingtonpost.com/opinions/2021/05/24/right-is-dwelling-slanderous-myths-about-origins-covid-19/>

[2021-05-24 19:06:16]

[Kristian Andersen]

[thread - ID: 2021-05-24 19:06:16]

Yeah, it's pretty good - links to our paper as well.

[2021-05-24 19:06:57]

[Kristian Andersen]

I'm currently reading this: <https://www.vice.com/en/article/wx5ndx/china-coronavirus-origins-who-mission>

Very insightful so far (on the political aspects - which, I should say, we pretty much have nailed down as well, unlike many others....)

[2021-05-24 19:14:32]

[Eddie Holmes]

This is really getting out of hand.

[2021-05-24 19:17:51]

[Kristian Andersen]

It'll get worse, I'm sure - it's currently not about science, but about a power struggle between two super powers. Better to just focus on the science...

[2021-05-24 19:18:27]

[Kristian Andersen]

While I don't agree with everything, that Vice article is good - I strongly suggest reading it to get some of the background on the politics involved. Very insightful.

[2021-05-24 19:23:37]

[Eddie Holmes]

I can testify that between Jan 5-12 the issues were (i) controlling the message because the word 'SARS' was involved and (ii) the egos battling in China for who would get the credit for identifying the virus. On the letter - between us, the only reason Zhang told the Ministry of Health on the 5th was because I bloody well told him to. Twice:

[2021-05-24 19:23:46]

[Eddie Holmes]

shared file(s): Screen Shot 2021-05-21 at 12.03.40 pm.png

[2021-05-24 19:24:42]

[Eddie Holmes]

None of this was about a possible lab leak. And all shit that hit the fan afterwards...none of that was about a possible lab leak either.

[2021-05-24 19:27:39]

[Kristian Andersen]

I don't understand why people don't understand that - it's really rather simple if you have a little bit of insight into outbreak response. But maybe people either have (a) no experience whatsoever in outbreak response, or (b) they don't _want_ to understand.

Very insightful from you btw - early January... I mean, we knew nothing at the time. "The latter is obviously very bad" will haunt you forever... :wink:.

Will these emails be public at some point?

[2021-05-24 19:31:59]

[Eddie Holmes]

I've compiled a load. Perhaps I should publish them all? I'm happy to share with the security services. Here are 3 more from Jan 7/8 which are very interesting. Clearly show that the Ministry of Health were blocking information. [shared file(s): Screen Shot 2021-05-21 at 12.12.56 pm.png, Screen Shot 2021-05-21 at 12.11.41 pm.png, Screen Shot 2021-05-21 at 12.09.25 pm.png]

[2021-05-24 19:36:45]

[Kristian Andersen]

Oh, let Sharri see these... :wink:. (maybe not).

[2021-05-24 19:36:46]

[Eddie Holmes]

Happy to send to Tony if he wants them.

[2021-05-24 19:37:10]

[Kristian Andersen]

I think Tony totally gets it - he more than anybody knows the politics involved.

[2021-05-24 19:38:11]

[Eddie Holmes]

In Zhang's one it is totally clear it's about controlling the message and getting credit.

[2021-05-24 19:39:33]

[Kristian Andersen]

Yup - which isn't surprising. Would have happened anywhere, but even more acute in China.

[2021-05-24 19:41:56]

[Eddie Holmes]

Exactly.

[2021-05-24 20:51:14]

[Kristian Andersen]

Sorry, just need to leave that Roizman quote as a clip out - I mean, WTF Bernard Fucking Roizman. Seriously. [shared file(s): Screen Shot 2021-05-24 at 8.44.44 PM.png]

[2021-05-24 20:58:04]

[Eddie Holmes]

He's 92

[2021-05-24 20:59:33]

[Kristian Andersen]

Don't I know it.

He 100% sabotaged my chalk talk at UChicago back in 2014. I guess I should thank him, actually...

[2021-05-24 21:05:33]

[Eddie Holmes]

Lucky escape

[2021-05-24 21:29:06]

[Eddie Holmes]

<https://www.scmp.com/news/china/science/article/3134688/wuhan-laboratory-adds-another-branch-bat-coronavirus-family-tree>

[2021-05-25 03:37:06]

[Robert Garry]

Couple of points. If this origins thing was some sort of game [it's not], we'd still be in the first half or the early innings. As has been said, it's a long game. USG, WHO etc. realize they are not going to get any cooperation from China on any type of lab leak investigation. USG (yesterday's WH brief) has said they can't lead an so-called "investigation." Investigate what is the question. Notebooks from Shi's lab, sick days of WIV personnel, freezer inventories of mysterious samples? IMO World Health Assembly is not going to pass any resolution to have WHO investigate "lab leak" or alter the trajectory of WHO's current origins study.

[2021-05-25 03:41:56]

[Robert Garry]

@Eddie Holmes yes - I'd turn over the emails to Tony F. Remind him to "follow the animals." TF needs to turn them over to the other Tony --- Blinken Sec of State who will pass them to the CIA and the China watchers. Hopefull TF tells TB to "follow the animals."

[2021-05-25 03:46:17]

[Andrew Rambaut]

[thread - ID: 2021-05-25 03:46:17]

Need to nail down the bit in the letter about the FCS - having the human viruses as examples is open to a comeback. The MERS one is cool though because it is a nearby RxxR motif in the right site but it is not a human virus

[2021-05-25 03:47:07]

[Andrew Rambaut]

[thread - ID: 2021-05-25 03:47:07]

The point is that it exists in nature in various coronaviruses in non-human animals. But seems to be important for H2H transmission.

[2021-05-25 03:47:37]

[Robert Garry]

The Chinese absolutely positively 100% KNOW it did not come from any of their labs. But (as discussed in-channel], they are prefectly content to let Murdoch media rant and take the lead about a "lab leak." It distracts from having anyone discuss "gamey taste" and the multibillion dollar wildlife trade that they find highly embarrassing for whatever reason.

[2021-05-25 03:48:31]

[Robert Garry]

[thread - ID: 2021-05-25 03:46:17]

@Andrew Rambaut Yes - spot-on!

[2021-05-25 03:48:47]

[Andrew Rambaut]

[thread - ID: 2021-05-25 03:47:07]

@Andrew Rambaut I think the presence in human CoVs probably talks more to the bias towards spillovers from viruses that already have the FCS rather than it evolving in humans

[2021-05-25 03:53:12]

[Robert Garry]

Shi releases mine virus sequences. Hey no problem - the goalposts are highly mobile. [shared file(s): image.png]

[2021-05-25 06:51:32]

[Robert Garry]

[thread - ID: 2021-05-24 19:06:16]

@Kristian Andersen "Every moment in which American politics is occupied with MAGA myths about covid-19 is a Chinese victory." All the Parasites and Bloomshitters need to read this.

[2021-05-25 06:55:21]

[Robert Garry]

<https://www.foxnews.com/media/covid-origins-whistleblower-wuhan-lab-jamie-metzl> *Former NSC official: Theory that coronavirus originated in Wuhan wet market is 'baloney'*
WHO adviser Jamie Metzl calls for 'full and thorough investigation' on 'Tucker Carlson Tonight'

[2021-05-25 07:13:38]

[Robert Garry]

Full on MAGA...

[2021-05-25 09:14:28]

[Andrew Rambaut]

Sorry - I will be stapling my head to my desk at that time...

""I hope you are well. I'm the Broadcast Editor of the Spectator magazine. We produce a weekly podcast discussing some of the issues in the magazine each week, and for the upcoming episode, I'm looking to produce a discussion on the lab leak theory, based on our upcoming cover article. The article argues that the idea of an accidental leak from the WIV can't – and hasn't – been ruled out by the existing evidence. I wondered if you might be interested in joining a podcast discussion with the author of the article, science journalist Matt Ridley, to discuss?

As a leading expert of molecular evolution, it'd be hugely instructive to hear from your expertise. I understand that there's been a lot of emotion and hyperbole when it comes to this topic (I'm Chinese!) but this article is clear that it is not saying that a) the virus was genetically engineered or b) the virus was deliberately released. Matt is arguing that its natural origins does not rule out an accidental leak, and Chinese opaqueness has made the issue worse, in reference to the WHO inquiry.

Might you be interested in joining? It will be a civil conversation even if you do disagree, as we would much prefer to shed light than heat, especially on controversial issues. It would be a 10 minute recording tomorrow or Thursday down the line (unless, of course, you're for some reason in London in which case we'd love to host you in our Westminster offices).

Do let me know what might be possible – we'd be honoured to have you.""

[2021-05-25 09:41:15]

[Robert Garry]

https://www.realclearpolitics.com/video/2021/05/25/tucker_carlson_fauci_the_who_and_the_media_lied_about_covid_origins_for_more_than_a_year.html#!

[2021-05-25 09:42:26]

[Robert Garry]

""A number of very qualified evolutionary biologists." Really? Where are those scientists today? Is there, for example, a single working virologist on planet earth who'd come on this show right now and dismiss the Wuhan lab leak idea out of hand as ridiculous — or quote "outrageous," as Francis Collins of the NIH once did?"

[2021-05-25 09:42:32]

[Kristian Andersen]

I'll be stapling my head to my desk too - got that email twice...

[2021-05-25 09:45:18]

[Robert Garry]

Tucker :clown_face: is inviting any of us on his show as well - media opps galore!

[2021-05-25 09:53:36]

[Robert Garry]

Another conspiracy theory down the drain {with bonus Borat]:
<https://twitter.com/HillaryClinton/status/1396936382355021828>

[2021-05-25 12:42:12]

[Kristian Andersen]

I'm now getting emails from the FBI. This could get interesting...

Is everybody else being absolutely bombarded at the moment to respond about our conclusions from last year? It might be worth drafting something from the entire group - I'll work on it and have our comms folks take a look at it.

[2021-05-25 12:46:55]

[Robert Garry]

Newsweek

[2021-05-25 13:02:04]

[Kristian Andersen]

Same. The Epoch times too. BBC with a similar request - and just now NYTimes (their angle seems different). I just emailed our comms office - I'll share what they draft. The issue is that if we don't respond, they'll write whatever the fuck they want.

[2021-05-25 13:03:10]

[Robert Garry]

PO1 holds up extremely well!

[2021-05-25 13:05:47]

[Robert Garry]

Absolutely – The Proximal Origins papers has stood up very well since it was written, peer-reviewed and published. The only change since we wrote our manuscript on the Proximal Origins of SARS-CoV-2 is that I now consider any of the lab leak hypotheses to be extremely unlikely.

There is currently no scientific (or other) evidence for a lab origin of SARS-CoV-2.

The intelligence “declassified” at the end of the Trump Administration suggesting that 3 WIV workers were ill [with something] is disputed by WIV. There is no evidence that one of them was “patient zero.” As reported by the WHO team they were negative for SARS-CoV-2 antibodies.

In contrast, there is significant scientific evidence pointing to a natural [zoonotic] origin for SARS-CoV-2. Unfortunately, the authors of recent letters in support of the Lab Leak hypotheses either ignore and/or misrepresent this data.

Our Nature Medicine article directly addressed the notion that that SARS-CoV-2 was deliberately engineered and/or somehow pre-adapted to humans.

We wrote, “However, the genetic data irrefutably show that SARS-CoV-2 is not derived from any previously used virus backbone.” This remains true today.

There is no evidence that SARS-CoV-2 or an immediate progenitor virus existed in any laboratory before the pandemic. The viruses from the Yunnan mine including RaTG13 are not close enough to SARS-CoV-2 to have served as a backbone (recently described in as preprint from WIV and discussed here: <https://virological.org/t/spike-protein-sequences-of-cambodian-thai-and-japanese-bat-sarbecoviruses-provide-insights-into-the-natural-evolution-of-the-receptor-binding-domain-and-s1-s2-cleavage-site/622/2>). No virus close enough to SARS-CoV-2 has yet been described in any lab. For such a virus to have served as the backbone for SARS-CoV-2 in lab experimentation it would need to be 99% similar to SARS-Cov-2. If you believe that SARS-CoV-2 or a close progenitor was in WIV and being actively worked on then you are supposing a major cover up and complex conspiracy.

The idea that infection of humans is a unique barrier overcome in the in the lab is incorrect. SARS-CoV-2 has undergone continuous significant adaptation to humans over the course of the pandemic (the variants of concern). It's also not specially adapted (in the lab or otherwise) to replicate in humas. SARS-CoV-2 replicates in and transmits among numerous animal species, including mink, cats, great apes, dogs, ferrets, etc which is precisely the characteristic you'd expect of a successful pathogen emerging from nature.

“The fact that the pandemic began in Wuhan is likely a coincidence. Wuhan is a major hub of travel and commerce. It contains numerous live animal markets supplied by farms throughout China, including where the closest viruses to SARS-CoV-2 have been found.

As I wrote here: <https://virological.org/t/early-appearance-of-two-distinct-genomic-lineages-of-sars-cov-2-in-different-wuhan-wildlife-markets-suggests-sars-cov-2-has-a-natural-origin/691>, genetic evidence adds further support that the wildlife markets played a key role in the COVID-19 pandemic. Two early lineages of SARS-CoV-2 (A & B) were each associated with cases at different live animal markets. Linkage of the origin of SARS-CoV-2 to wildlife or the wildlife trade fully accounts for the fact that the majority of early Wuhan COVID-19 cases were linked to different wildlife markets in a straightforward manner. Scenarios where a lab leak led to infections in different wildlife markets are difficult to rationalize. ``

[2021-05-25 13:05:47]

[Robert Garry]

Some variations on a hybrid (natural/lab leak) scenario suggest that SARS-CoV-2 is a natural virus that infected a scientist while doing field work resulting in mildly symptomatic or asymptomatic spread or that after being brought back to a laboratory SARS-CoV-2 was released unknowingly, but not successfully cultured or otherwise manipulated. Compared to the millions of worldwide encounters of humans with wildlife, including the trapping of bats for food, the number of high-risk exposures of scientists doing field or laboratory work with samples from wildlife is miniscule.

[2021-05-25 13:06:38]

[Robert Garry]

Certainly we need to continue to investigate the origins of SARS-CoV-2. My colleagues and I have not stopped doing so since we wrote Proximal Origins.

Indeed a urgent international investigation, which perforce must include China (that's where the "interesting" bats are), is necessary to fill remaining gaps in our knowledge of coronaviruses diversity.

We need to "follow the animals" and explore every possible point of entry of potentially coronavirus infected animals into Wuhan, especially focused on the wildlife trade for food and traditional medicine.

If - as some have argued - we should focus attention on an unsubstantiated hypothesis of lab leak, this would be a serious mistake. The world would be left much more vulnerable to future pandemics.

Sure "investigate" the lab. But, arm-waving about a forensic investigation (whatever that means) is not helpful. It's not even clear to me what the proponents of a "forensic" lab investigation hope to find. IMO notebooks from Shi's lab, sick days of WIV personnel, freezer inventories listing samples are not going to be informative in any way. What other scientific data or even other data do the Lab Leak proponent hope to uncover?

Ironically, most "forensic" investigations at least those on TV involve looking at the DNA. Excepting the fact that it's RNA not DNA, we already did this in Proximal Origins.

It would be nice to have additional information on the early case of SARS-CoV-2 patients in Wuhan, but this paper: March 26, 2020 N Engl J Med 2020; 382:1199-1207 DOI: 10.1056/NEJMoa2001316 was very granular and clearly pointed to the wildlife trade as the origin of the virus.

[2021-05-25 13:07:56]

[Robert Garry]

Yes, eventually the origin of SARS-CoV-2 will be described. A close progenitor in a bat or perhaps more likely another animal host will eventually be uncovered.

Sometimes you get lucky (as in the first SARS) and other times not.

[2021-05-25 13:13:02]

[Kristian Andersen]

This is great Bob! Let's have that be the response from you :wink:.

I especially love this part: "Ironically, most "forensic" investigations at least those on TV involve looking at the DNA. Excepting the fact that it's RNA not DNA, we already did this in Proximal Origins"

[2021-05-25 13:23:46]

[Kristian Andersen]

Oh Marc.

I think people have trouble reading. [shared file(s): Screen Shot 2021-05-25 at 1.22.31 PM.png]

[2021-05-25 13:49:45]

[Kristian Andersen]

Is she daft? [shared file(s): Screen Shot 2021-05-25 at 1.49.05 PM.png]

[2021-05-25 13:58:09]

[Robert Garry]

argh [shared file(s): Timeline_ How the Wuhan lab-leak theory suddenly became credible - The Washington Post.pdf]

[2021-05-25 14:24:03]

[Eddie Holmes]

Sorry, I'm crook. Had a very bad reaction to my first AZ vaccine yesterday. Bed is soaked. I've not been this ill since I went to that cave in Yunnan a couple of years ago.

[2021-05-25 14:29:13]

[Robert Garry]

Sorry to hear it...pretty rare.

[2021-05-25 14:29:25]

[Andrew Rambaut]

Ooh. Bad luck. Had my second dose last week. Was a little bit under the weather with the first but fine for the second. Another week and I will be invincible. I will be eating bats for breakfast.

[2021-05-25 14:31:24]

[Robert Garry]

With a side of caterpillar on lightly done toast.

[2021-05-25 14:32:57]

[Kristian Andersen]

Guys, Eddie is hurting and all you do is making fun of him. Not cool man, not cool.

Eddie, I'm sorry to hear that - I hope you feel better soon.

Also, bad side effects is a sign of weakness. Buck up, man.

[2021-05-25 17:26:08]

[Kristian Andersen]

This is actually a good point from Peter - but, of course, he'd lie about it. [shared file(s): Screen Shot 2021-05-25 at 5.25.29 PM.png]

[2021-05-25 17:30:34]

[Eddie Holmes]

I'm sick, so I might not be reading this correctly.

[2021-05-25 17:30:37]

[Eddie Holmes]

American scientists caught in Wuhan web of intrigue

Senior US personnel have been involved with the Wuhan Institute of Virology, even visiting coronavirus research labs, an investigation by The Australian has revealed.

By SHARRI MARKSON

Members of a World Health Organisation team investigating the origins of Covid-19 arrive at the Wuhan Institute of

Virologyin February. Picture: AFP

Inside America's highly secretive biological research site at Fort Detrick, Maryland, are biosafety level-four laboratories.

Soldiers guard the premises that house America's bio-defence agency, the US Army Medical Research Institute of Infectious Diseases.

It's the last place on Earth you would expect to have developed ties with Wuhan Institute of Virology researchers who, in turn, are engaging in secret Chinese military activity.

An investigation by The Australian has revealed senior personnel at USAMRIID — its chief science officer, a laboratory director, a former commander and a research contractor — have been involved with the Wuhan Institute of Virology, even visiting its laboratories where risky research on coronaviruses took place.

China's attempts to deflect attention from the Wuhan laboratory by claiming Covid-19 arrived in the city through frozen food or originated in a US military laboratory have been denounced as false conspiracy theories.

Revelations about US scientific links to the Wuhan Institute of Virology feature in an upcoming investigative book on the origins of Covid-19, What Really Happened In Wuhan, to be published by HarperCollins. They include the extent of the scientific community's ties to the Wuhan Institute of Virology, which, according to declassified intelligence released by the US, was conducting secret projects for the Chinese military.

National Institute of Allergy and Infectious Diseases director Anthony Fauci has come under pressure for providing \$US13m in funding to a not-for-profit organisation, EcoHealth, with \$US598,500 funnelled through to the Wuhan Institute of Virology.

The institute also had strong ties to Australia's level-four laboratory in Geelong.

The emergence of various scientific links have shed light on the reticence in the scientific community to call for an investigation into a possible laboratory origin for Covid-19 throughout 2020.

This month, a group of international virologists, biologists and immunologists — including the Wuhan Institute of Virology's Centre for Emerging Infectious Diseases director Shi Zhengli's closest American collaborator, the University of North Carolina's Ralph Baric — were signatories to a letter calling for an inquiry to examine both natural genesis and an accidental laboratory leak.

USAMRIID's former chief scientific officer, Sina Bavari, sits on the editorial board of Dr Shi's virology journal, Virologica Sinica, and has visited the Wuhan Institute of Virology for a board meeting. Bavari said he didn't go into the BSL-4 laboratory at the Wuhan Institute of Virology, which was not open at the time of his 2015 visit, but ventured inside the lower-security, level-three laboratory where Shi was conducting coronavirus research.

Asked about the biosafety standards inside the laboratory, Bavari said: "Oh, my God, that was like seven years ago, so I don't remember a darn thing. I was jet lagged and I got there two days after I was supposed to get there because of some screw ups with my flights and so on. So I don't really remember much about that trip. They actually gathered a bunch of virologists together and it was the editorial board of the journal actually. They're all invited to come there and give presentations, interact with the students, things like that. I remember being in a place walking around, but I don't remember the details."

Anthony Fauci, director of the US National Institute of Allergy and Infectious Diseases. Picture: AFP

Trip to Mozambique

Bavari joined USAMRIID in 2011 and became chief scientific officer in September 2014. His five-year term expired in September 2019, according to his CV. Before he left, Bavari had agreed to attend an emerging infectious diseases conference with Shi in September 2019, in Tofo, Mozambique. Shi was a speaker and Bavari, who sat on the scientific committee, was planning to give a talk.

Bavari had paid for his flights and organised his Mozambique visa when he withdrew from the conference 10 days before, emailing organisers to apologise and offer to give his lectures by FaceTime or WhatsApp.

Bavari originally told The Australian he did attend the conference, saying Shi gave a presentation on bat coronaviruses and that he hadn't noticed anything unusual about her that week. "There was nothing that rang any bells," he said. Five days later, Bavari said he remembered that he had attended in 2018, not 2019. It does not appear that Shi flew to Tofo in 2018.

Shi did attend the 2019 conference, held from September 1 to 5. She gave a coronavirus presentation, according to another conference participant, who described her as friendly and sociable.

A week later, on September 12, the Wuhan Institute of Virology virus database was taken offline. It has not been published since and has not been made available to World Health Organisation investigators, who did not ask for it during their Wuhan visit earlier this year. Shi has claimed the virus database was taken offline after 3000 hacking attempts.

Last Friday, the Wuhan Institute of Virology disclosed the genomic sequences of eight new viruses that were the second, third, fourth, fifth, sixth, seventh, eighth and ninth genetically closest viruses to SARS-CoV-2. Their full sequences were only disclosed on May 21, even though the viruses were obtained from a mine in Mojiang in 2015 — the same mine where RaTG13, a virus that shares a 96 per cent sequence identity with Covid-19, was found.

Chinese virologist Shi Zhengli inside the P4 laboratory in Wuhan. Picture: AFP

Inside the Wuhan labs

Bavari wasn't the only senior figure from USAMRIID to visit the Wuhan Institute of Virology.

In October 2018, a senior USAMRIID laboratory director flew to the institute to give a presentation on ebola in the facility's No. 1 conference room.

The laboratory director was presented with a commemorative medal on behalf of the institute, according to a write-up of the visit.

And at a hotel in central Wuhan in May 2017, a former commander at USAMRIID participated in a workshop with the institute's top scientists. The workshop was called the "Second China-US Workshop on the Challenges of Emerging Infections, Laboratory Safety and Global Health Security".

Gain-of-function research, laboratory risks and gene editing were key topics during the conference held from May 17-19.

Shi and George F. Gao, the director at the Chinese Centre for Disease Control and Prevention, gave presentations at the conference hosted by China's Academy of Sciences and attended by the director of Wuhan Institute of Virology BSL-4 laboratory, Yuan Zhiming.

A meeting report stated that the US commander "discussed the evolution of biosecurity thinking in the US, noting only one accidental death — and not from a true select agent — is associated with the US Select Agent program (and three deaths before 1969 when the US offensive biological program was halted)".

"He compared that to more than 700,000 hospital-acquired infections and 400,000 deaths due to medical mistakes in recent years," the report said.

The commander said there was no single solution to eliminating bio-safety incidents but international collaboration would help. Stanford University professor David Relman, who also attended this conference, said they visited the newly built BSL-4 laboratory but it "was not yet active, and there were no experiments taking place with BL3/BL4 agents".

"These discussions were cordial and useful insofar as they provided an opportunity to develop at least some superficial working relationships," Relman said. "I didn't hear about anything in particular that concerned me, but that wasn't surprising since the presentations and comments on both sides were somewhat pre-planned and a bit orchestrated."

The virus journal

The editorial board of Shi's journal consists of People's Liberation Army members, a virologist who was kicked out of Canada for security breaches, the director of China's Centre for Disease Control, many esteemed international scientists and two employees at USAMRIID.

Bavari sits on the editorial board, as does Jens Kuhn, the virology lead at Fauci's National Institute of Allergy and Infectious Diseases and a contractor under Fort Detrick's "Integrated Research Facility Leadership and Scientists" program.

Gao, the Chinese Centre for Disease Control and Prevention director, is also on Shi's journal board, along with Yong-Zhen Zhang, the scientist responsible for sharing the gene sequence of Covid-19. Another member is connected to the PLA. Yi-Gang Tong was previously director of the Institute of Microbiology and Epidemiology of the Academy of Military Medical Science, which sits under the PLA.

Pathogens in the mail

One concerned member of the editorial board is award-winning virologist Xiangguo Qiu, who was escorted out of a Canadian laboratory in July 2019 after being caught sending deadly virus samples back to the Wuhan Institute of Virology. Qiu, her husband Kedin Cheng and her students from China were removed from Canada's only BSL-4 laboratory amid an official investigation.

Four months earlier, a shipment containing highly virulent viruses — ebola and nipah — were sent from her laboratory to China. It was reported that the Wuhan Institute of Virology had requested the shipment.

Chemical and biological warfare specialist Dany Shoham, from the Begin-Sadat Centre for Strategic Studies, wrote an article claiming Qiu had made at least five trips over the academic year 2017-18 alone to the Wuhan National Biosafety Laboratory at the Wuhan Institute of Virology.

Qiu had also done joint research with USAMRIID on ebola, which was received by Nature in October 2018.

Bavari denied there was any connection between USAMRIID and the Wuhan Institute of Virology. "US Army Medical Research Institute of Infectious Diseases, where I was the chief science officer there, has no connection whatsoever to Wuhan Institute of Virology or any other institute in China," Bavari said.

"Being on an editorial board of a journal is not the same as helping a Chinese institute of this and that to do something. They're just two different things."

He also played down the visits by other researchers to the Wuhan Institute of Virology.

"So at the institute they may have friends there, OK, they're Chinese, so absolutely, that (visits) had happened, I have no doubt," he said. "But officially, to say that USAMRIID itself was actually collaborating, for example, with Chinese Institute of Virology, or Wuhan Institute, that's just not true. We absolutely had no connection to them whatsoever. Not under my watch."

In collaboration with Gilead Sciences of Foster City, they had success in 2015 with a treatment that blocked the ebola virus's ability to replicate. The treatment was an antiviral compound called GS-5734 that became known as Remdesivir. Bavari was one of the scientists behind this antiviral treatment. The drug was touted as a potential

treatment option for Covid-19 five years later.

The patent for commercial use of Remdesivir was filed in China. The application was made by the Wuhan Institute of Virology.

The institute lodged the patent application on January 21, 2020 — one day after China confirmed human-to-human transmission of the virus, The Daily Mail reported.

Asked about this, Bavari said he was not aware the Wuhan Institute of Virology had lodged the patent for Remdesivir.

USAMRIID did not respond to requests for comment.

[2021-05-25 17:31:34]

[Eddie Holmes]

I think that wins the most deranged article of the whole pandemic. Published in The Australian.

[2021-05-25 17:38:16]

[Kristian Andersen]

Is there something wrong with the formatting? Because `_none_` of this makes any sense whatsoever.

[2021-05-25 17:39:23]

[Kristian Andersen]

It honestly reads like a really terrible Google translation of a Chinese document.

Hmmmm :thinking_face:

[2021-05-25 17:43:34]

[Eddie Holmes]

It's missing the pictures. Try this: [shared file(s): Re Ugh.pdf]

[2021-05-25 17:44:44]

[Kristian Andersen]

Nope - still the same. Total gibberish.

I love the subject line of that email - "Ugh" indeed.

[2021-05-25 17:48:21]

[Eddie Holmes]

The story seems to be that an editor of Virologica Sinica who worked at the USAMRID once went to WIV for a journal meeting. I particularly like the bit about Jens Kuhn also being on the editorial board....if Jens were in charge of WIV they'd have all their viruses beautifully classified by now.

[2021-05-25 17:50:28]

[Eddie Holmes]

Sharri is totally deranged. Off the scale.

[2021-05-25 17:52:51]

[Kristian Andersen]

Completely off the scale. How this gets past editorial, I just don't understand - they must be desperate for anything lab leak related.

[2021-05-25 17:57:34]

[Eddie Holmes]

I would have thought China would be delighted to see USAMRID mentioned.

[2021-05-25 18:00:38]

[Eddie Holmes]

Here's an S gene tree with Weifeng's and Shi's new sequence (green). Clearly a distinct lineage. [shared file(s): RAXML_bipartitions.SpikeNT_MSA_tidy.pdf]

[2021-05-25 18:19:58]

[Eddie Holmes]

<https://www.cnn.com/2021/05/25/politics/biden-shut-down-trump-effort-coronavirus-chinese-lab/index.html>

[2021-05-25 18:43:41]

[Kristian Andersen]

Reading...

Separately, Marc is going to regret getting on Twitter today...

[2021-05-25 18:44:33]

[Kristian Andersen]

He made the mistake of bringing up a few specific points (while criticizing our paper) and he's absolutely getting his ass handed to him for being so darn naive. I hope he learns from the experience.

[2021-05-25 18:53:39]

[Eddie Holmes]

Is he suggesting they got directly infected from tissue in the freezer?

[2021-05-25 19:17:51]

[Kristian Andersen]

Yup, he just brought that up

[2021-05-25 19:18:23]

[Kristian Andersen]

I called it a "very specific version of natural emergence" (and hence hugely unlikely). He didn't like that very much.

[2021-05-25 19:18:56]

[Kristian Andersen]

He's being absolutely swarmed at the moment though, so not really fair to him - but I gotta say, boy oh boy is the stuff he says naive.

[2021-05-25 19:20:45]

[Kristian Andersen]

Look at the last tweet in that thread too. Bringing up bacteria... ANYBODY with a little bit of knowledge would look at that and say "wait, what, he doesn't even understand the basics"?

Unreal. I really respect Marc a lot - as in, a lot. But this is uninformed and naive. [shared file(s): Screen Shot 2021-05-25 at 7.19.25 PM.png]

[2021-05-25 19:22:46]

[Eddie Holmes]

Isolating bacteria in live animals? WTF?

[2021-05-25 19:24:21]

[Kristian Andersen]

Yeah - that's what SARS-CoV-2 did. It jumped out of a tube and into a person. And then it caused a super spreading event at a wet market. And then the pandemic. Simple, really.

I was kinda hoping Alex would go in for the kill... Good thing Andrew is asleep.

[2021-05-25 19:30:34]

[Eddie Holmes]

Just supreme arrogance. The other question is where this will all end? Will China seriously allow another, more detailed investigation? I think not.

[2021-05-25 19:36:52]

[Kristian Andersen]

Of course they will Eddie - don't be daft. They'll welcome us with open arms and Zhengli will head the welcome committee.

[2021-05-25 19:42:10]

[Robert Garry]

Just had a long talk (70 minutes) with Carl Zimmer - brought up some of these points.

[2021-05-25 19:47:29]

[Kristian Andersen]

Good. Let's hope this can get back on track - but I'm not hopeful in the short term.

[2021-05-25 20:00:35]

[Robert Garry]

Zimmer writes with Gorman so could go anywhere.

[2021-05-25 20:09:12]

[Eddie Holmes]

No chance in the short-term

[2021-05-25 22:12:00]

[Kristian Andersen]

Key. <https://twitter.com/acritschristoph/status/1397409973257179138?s=20>

[2021-05-26 06:39:52]

[Robert Garry]

<https://unherd.com/2021/05/what-if-there-was-a-lab-leak/> This tells you all you need to know: "The latest Wall Street Journal story, for example, about three Wuhan researchers allegedly falling suspiciously sick in November, builds on facts revealed by David Asher, former lead investigator for the State Department, in interviews two months ago with both the Australian journalist Sharri Markson and myself."

[2021-05-26 06:46:07]

[Robert Garry]

BTW- really "fair and balanced" reporting from Birrill.

[2021-05-26 10:53:33]

[Kristian Andersen]

shared file(s): Fwd: [whcanyt] Statement by President Joe Biden on the Investigation into the Origins of COVID-19

[2021-05-26 11:10:02]

[Robert Garry]

My response to Carl same question. Thanks Carl and I too enjoyed the chat.

When the WSJ ran their article last Sunday I revisited the reports of the 2-3 sick WIV workers.

I need to go off the record for a bit: [REDACTED] is a FSO and until last July worked directly with Secretary Pompeo. It was a difficult post – she's now in [REDACTED] She knows and has worked with David Asher who is responsible for the intelligence on the 2-3 lab workers and Miles Yu China expert - both are now at the Hudson Institute. It's fair to say in the case of both that their take on Lab Leak is driven by a strong Anti-China bias.

Back on the record.

The intelligence about the 2-3 lab works being sick and checking into hospital has been disputed. It's also been reported that these workers tested negative for SC2 antibodies. Marion Koopman a member of the WHO team characterized the cases as no big deal.

The WSJ report needs to be considered in the context that there was a major influenza surge at the same time in Wuhan. Having a couple of people with flu would be expected. This surge of flu cases probably obscured some of the early C19 case finding.

More important if there were in fact 2-3 cases of C19 at the WIV that were ill enough to get checked into a hospital, then there would have had to be 100s of cases of less severe disease at the WIV. Either that or you believe that everyone that got infected got very sick. I do not think it is plausible that large numbers of cases were covered up.

Bottom line: I do not find the reports on 2-3 sick workers with "possible" COVID to be credible. Nevertheless I do welcome the investigation and I hope the Intel agencies take some of the scientific information into consideration. The Biden Administration should declassify this information ASAP, because it is being used to create uncertainty about C19 origins. At the same time I do not believe that the answers to the origins of SC2 lie in any type of forensic or intelligence gathering operation surrounding the lab – this is a distraction. Rather, it's imperative that we investigate the wildlife chain and find the reservoir of SC2. We also need an international effort to identify other CoVs that may become the next pandemic virus.

[2021-05-26 13:27:52]

[Eddie Holmes]

Anyone who listens to Sharri for anything is in deep trouble.

[2021-05-26 13:44:28]

[Robert Garry]

Unfortunately, Sharri and the Murdoch media empire gave a platform for David Asher (at the behest of Pompeo and Miles Yu) to amplify the porous 2-3 WIV workers had C19 in November story. Parasites and Bloomshitters riding this BS train to the promised land of fame and glory. Epidemiology and Genetics tuff to get across. Fauci, Collins etc put into a difficult box. Biden Admin response by committee - go figure.

[2021-05-26 13:50:13]

[Kristian Andersen]

Well, I guess the train will arrive at the platform of the promised land of fame and glory in 90 days.

I wish them the best of luck with their investigation. Let's see if they'll fabricate their evidence.

[2021-05-26 14:01:16]

[Eddie Holmes]

I

[2021-05-26 14:04:47]

[Robert Garry]

New reporting but fucking Fox news done good (sorta) - very hard to believe but a *highly recommended read* on David -Captain China - Asher and the probe that Biden cancelled - also mentions Steven Quay and his Bayesian analysis - calls it crap. [https://www.msn.com/en-us/news/politics/former-state-department-official-reveals-p\[...\]cerns-with-wuhan-covid-19-origin/ar-AAKpGpq?ocid=BingNewsSearch](https://www.msn.com/en-us/news/politics/former-state-department-official-reveals-p[...]cerns-with-wuhan-covid-19-origin/ar-AAKpGpq?ocid=BingNewsSearch)

[2021-05-26 14:07:30]

[Kristian Andersen]

"There are all sorts of reasons to worry about possible lab origins, and it's critical to get to the bottom of this," Ford continued, adding that "one very particular claim made by AVC purporting to 'prove' WIV origin by 'statistical analysis' turned out to be junk science and evaporated when subjected to scrutiny by their own scientific panel," referring to a Jan. 7 panel of experts the AVC had arranged to review its findings."

Poor Quay :wink:

[2021-05-26 14:07:35]

[Robert Garry]

"Fabricating the evidence?" If you believe Fx news that horse looks like it already departed the barn, Good for Chris Ford.

[2021-05-26 14:07:59]

[Andrew Rambaut]

I see Angie is editing. Do we want get in more at this stage? I could ask David Robertson and Oli if they want to be involved through our slack?

[2021-05-26 14:09:43]

[Kristian Andersen]

Yeah, was just chatting with Angie - she was invited to write something for WaPo, so I thought now would be a good time. Let me set up a separate Slack channel - should we get Oli on this particular one too?

[2021-05-26 14:11:28]

[Robert Garry]

A subchannel might be fine - BL, Grand Wiz, and Asher comments might be a bit out of context.

[2021-05-26 14:11:51]

[Kristian Andersen]

@Andrew Rambaut - do you want to bring Pango into the other channel or should I just invite people directly?

[2021-05-26 14:11:57]

[Kristian Andersen]

Email for David?

[2021-05-26 14:12:47]

[Andrew Rambaut]

Gmail: [REDACTED]

[2021-05-26 14:13:24]

[Eddie Holmes]

[thread - ID: 2021-05-26 14:13:24]

Still unpublished, but the this study shows what microbes were causing respiratory disease in Wuhan Central Hospital (i.e. hospitalised cases) in 2016-2017. A ton of different pathogens. [shared file(s): 137480_0_merged_1611477736.pdf]

[2021-05-26 14:13:30]

[Andrew Rambaut]

Don't add anyone here - too much baggage

[2021-05-26 14:15:14]

[Eddie Holmes]

Scroll to Figure 2 of the paper for details

[2021-05-26 14:16:30]

[Kristian Andersen]

Just created the new channel and added Stephen, Angie, David, and Oli - Andrew, do you want to ping David/Oli? I'll also reach out to Alex to see if he's interested in helping out - his logical fallacy takedowns may be helpful for some of the later paragraphs...

[2021-05-26 14:26:17]

[Robert Garry]

[thread - ID: 2021-05-26 14:13:24]

@Eddie Holmes Very Important data. Interesting to see the paraflu viruses popping. BTW - noticed that Influenza is misspelled in the tree figure a couple of times.....

[2021-05-26 14:31:00]

[Eddie Holmes]

[thread - ID: 2021-05-26 14:13:24]

@Eddie Holmes Yes! I noticed the 'influenza' issue...they can never get their indels right.

[2021-05-26 14:31:25]

[Robert Garry]

[thread - ID: 2021-05-26 14:13:24]

@Eddie Holmes :+1:

[2021-05-26 14:45:55]

[Eddie Holmes]

Conference abstract: [shared file(s): NIDO2021_Abstract_Worthington-et-al_v2.docx]

[2021-05-26 14:45:57]

[Robert Garry]

Quay and Asher still making the rounds though in Republican circles - kinda like a Blizzaro World version of Batman and Robin.

[2021-05-26 15:05:10]

[Robert Garry]

Couple of others think their little paper has held up pretty well: [https://www.msn.com/en-us/news/world/scientists-wh-o-doubt-wuhan-lab-theory-still-b\[...\]ewed-calls-to-probe-covid-origin/ar-AAKpVnJ?ocid=BingNewsSearch](https://www.msn.com/en-us/news/world/scientists-wh-o-doubt-wuhan-lab-theory-still-b[...]ewed-calls-to-probe-covid-origin/ar-AAKpVnJ?ocid=BingNewsSearch)

[2021-05-26 15:12:12]

[Andrew Rambaut]

@Kristian Andersen Oli reckons he is supportive but doesn't know if he wants to wade in on this. But asked if he could take a look and decide? I notice the document is currently open to anyone who has the link - perhaps we should make it an explicit share? Just in case it leaks out.

[2021-05-26 15:45:51]

[Robert Garry]

FWIW - the NPR guy told me that BL claims that he's been misquoted (seems like a couple of times) and that he still supports PO1. It's just that he wanted to make the point that he thinks working with bat covs at BSL2 is a bad idea. :flipper:

[2021-05-26 16:21:13]

[Eddie Holmes]

Lest we forget (SARS positive racoon dogs):

<https://www.cidrap.umn.edu/news-perspective/2003/09/animals-chinese-markets-carried-sars-virus> [shared file(s): science.1087139.full.pdf]

[2021-05-26 16:22:50]

[Eddie Holmes]

CIDRAP report is good

[2021-05-26 16:41:35]

[Andrew Rambaut]

@Kristian Andersen could you add David to the other channel using [REDACTED]

[2021-05-26 16:47:36]

[Kristian Andersen]

Yup, just added David. All good for Oli to sniff around - as long as he knows that he's either with us or against us... :wink:

[2021-05-26 16:47:51]

[Kristian Andersen]

[thread - ID: 2021-05-26 16:47:51]

Let me get people's Gmail accounts and lock the document

[2021-05-26 16:48:06]

[Kristian Andersen]

This article is :fire:

<https://massivesci.com/articles/sars-cov-coronavirus-covid19-lab-leak-hypothesis/>

[2021-05-26 16:48:35]

[Kristian Andersen]

Gets better towards the end - especially these two paragraphs. :fire::fire::fire: [shared file(s): Screen Shot 2021-05-26 at 4.45.45 PM.png]

[2021-05-26 16:49:22]

[Kristian Andersen]

"it's naive at best and violent gaslighting at worst to pretend that supporting an evidence-free hypothesis that clearly adds fuel to the idea that China inflicted COVID-19 upon the world"

I'm glad I called Relman naive to his face because, yes, that's exactly what it is.

[2021-05-26 16:50:01]

[Andrew Rambaut]

[thread - ID: 2021-05-26 16:47:51]

@Kristian Andersen [REDACTED]

[2021-05-26 16:59:54]

[Eddie Holmes]

[thread - ID: 2021-05-26 16:47:51]

@Kristian Andersen [REDACTED]

[2021-05-26 17:31:11]

[Robert Garry]

[thread - ID: 2021-05-26 16:47:51]

@Kristian Andersen [REDACTED]

[2021-05-26 17:36:50]

[Robert Garry]

Yes - please pick a side: "There's a choice being made here between two ideas — one that falls neatly within the world of biology, and the other that knots together conspiracy theory, political intrigue, and xenophobia."

[2021-05-26 17:38:25]

[Kristian Andersen]

Yup. What's key here - if there was _evidence_ to support the lab leak, taking that latter path would (unfortunately) have been necessary. However, there isn't any evidence, so it ends up exactly like he writes it. Sad!

[2021-05-26 19:23:28]

[Eddie Holmes]

<https://www.nature.com/articles/d41586-021-01383-3>

[2021-05-26 19:29:28]

[Eddie Holmes]

[thread - ID: 2021-05-26 19:29:28]

Who's the neuroscientist?

[2021-05-26 19:39:56]

[Eddie Holmes]

Tweet of the year: [shared file(s): Screen Shot 2021-05-27 at 12.39.34 pm.png]

[2021-05-26 19:47:36]

[Kristian Andersen]

Thank fuck for Amy and Angie - so good!

[2021-05-26 19:50:13]

[Eddie Holmes]

There have been a number of virulent escapes from Stanford recently.

[2021-05-26 19:51:58]

[Kristian Andersen]

Somebody needs to investigate Stanford. Seriously.

[2021-05-26 21:17:31]

[Eddie Holmes]

I've not listened to this: <https://www.youtube.com/watch?v=d7kRxmEgzbQ>

[2021-05-26 21:21:07]

[Kristian Andersen]

Thanks for sharing - I'll have to watch it this weekend.

[2021-05-26 21:21:34]

[Eddie Holmes]

Follow the animals by the sound of it...

[2021-05-26 21:22:12]

[Kristian Andersen]

... now there's a novel concept...

[2021-05-26 21:38:58]

[Eddie Holmes]

1:16-1:17 - both Fauci and Collins say that natural is most likely. They sounded very reasonable to me:
<https://www.c-span.org/video/?512042-1/drs-collins-fauci-testify-national-institutes-health-2022-budget-request>

[2021-05-26 21:57:21]

[Kristian Andersen]

Yeah, but very very poor response to Rubio's questioning, which is completely off-base.

[2021-05-26 21:59:42]

[Eddie Holmes]

Ugh. Couldn't take watching much. The TWiVO thing is very interesting though.

[2021-05-27 01:04:46]

[Robert Garry]

[thread - ID: 2021-05-26 19:29:28]

@Eddie Holmes That's Billy Bostickson/Kevin McCairns, PhD

[2021-05-27 01:23:50]

[Robert Garry]

[thread - ID: 2021-05-26 19:29:28]

@Eddie Holmes Failed down-on-luck neuroscientist using the Internet to harass actual scientists and solicit handouts. Thinks drawing penises on the heads of people he disagrees with is "debate."

[2021-05-27 01:25:06]

[Eddie Holmes]

[thread - ID: 2021-05-26 19:29:28]

@Eddie Holmes Thanks! I saw the video but never knew the name of the person. Pond life.

[2021-05-27 08:59:41]

[Robert Garry]

<https://www.nationalreview.com/2021/05/the-considerable-if-circumstantial-evidence-of-a-wuhan-lab-leak/>

[2021-05-27 09:00:24]

[Robert Garry]

gish galloping garbage

[2021-05-27 09:11:32]

[Kristian Andersen]

So much garbage...

[2021-05-27 09:11:55]

[Kristian Andersen]

This one is interesting though - musings about the FCS and it turns out Vince talked to Baltimore...

<https://youtu.be/DTx4EIYzcWk?t=5073>

[2021-05-27 09:41:38]

[Robert Garry]

Yeah at the end - he mentions @Kristian Andersen FCS tweetorial - it's actually his must read "pick." Baltimore might be open to sign.

[2021-05-27 09:43:51]

[Kristian Andersen]

I suspect Baltimore may definitely be interested in signing - especially if we go via Vince.

[2021-05-27 10:02:49]

[Robert Garry]

I really should not read this shit. tl/dr lies, lies lies

<https://www.wnycstudios.org/podcasts/otm/segments/lab-leak-theory-on-the-media>

[2021-05-27 10:14:30]

[Kristian Andersen]

First quote:

“ALINA CHAN We are in this pandemic that’s been ongoing for about one and a half years now, there has been no actual investigation of how it began”.

Unbelievable.

[2021-05-27 10:30:33]

[Robert Garry]

And the so-called reporter - not a peep to question that.

[2021-05-27 10:56:34]

[Kristian Andersen]

Brooke Gladstone - of all people. Disappointing.

[2021-05-27 11:11:35]

[Andrew Rambaut]

In other news we are tracking a B.1.617.2 variant variant with K417N (Karen) - probably at quite high prevalence in Nepal with lots of travel exports. Looks nasty.

[2021-05-27 11:15:41]

[Kristian Andersen]

Interesting - a couple of B.1.429s with Karen in them too. I thought maybe L452R would be non-conductive to Karen.... <https://outbreak.info/compare-lineages?gene=S&threshold=75>

[2021-05-27 11:52:03]

[Andrew Rambaut]

But add 'more transmissible than B.1.17' and it could be a problem

[2021-05-27 12:41:58]

[Kristian Andersen]

The important addition to that question that I think is often forgotten - "in what setting". I can believe that 617 is more transmissible than 117 in certain settings (high natural immunity, high one-shot immunity, mostly), but in a naive population, is it more fit? Not so sure about that.

[2021-05-27 12:45:09]

[Kristian Andersen]

And it's worth pointing out that this is strictly an academic question, not a public health one - it's clear 617 is a problem and we need to act, but that was clear weeks ago.

[2021-05-27 13:06:20]

[Andrew Rambaut]

Just discussing that. My personal hunch has been that B117 is adapted to strong NPI by being more transmissible early but for shorter (causing more damage and thus severity). Make the most of limited number of contacts. 617.2 may have a longer pre-symptom period making it better in a more free-for-all environment (i.e., unfortunate timing as UK restrictions have lifted).

[2021-05-27 13:10:29]

[Kristian Andersen]

Yeah, that's an interesting theory - although it seems like 117 may actually also infect for longer? Did Oli ever do any of the modeling analyses to try and flesh these differences out a little more?

[2021-05-27 13:34:01]

[Eddie Holmes]

I wonder if they have enough material to shotgun sequence the environmental samples from the market? Might tell them what animals were being sold by looking at the expressed host genes (e.g. COII). Doesn't even need to be the virus positive samples although they would be better.

[2021-05-27 13:38:16]

[Kristian Andersen]

Well, fuck me - so obvious and honestly I had not thought about it. Yes, they should and yes that should be totally doable.

[2021-05-27 13:39:28]

[Andrew Rambaut]

Could do a COI amplification - i.e., species barcoding?

[2021-05-27 13:47:52]

[Eddie Holmes]

I'll see if I can get George and Weifeng to do it

[2021-05-27 13:50:49]

[Kristian Andersen]

Yeah, they should really get on it - metagenomic sequencing should be sufficient. It'll be messy, but not a lot of data needed to do meaningful IDs

[2021-05-27 13:52:19]

[Andrew Rambaut]

You sure you would be able to do species ID? Pretty unlikely to bring up anything with species level specificity

[2021-05-27 13:52:48]

[Andrew Rambaut]

COI would be much more sensitive and there is the BOLD database

[2021-05-27 13:54:06]

[Eddie Holmes]

It will be messy, but there should be enough to identify the dominant host and at least to exclude humans

[2021-05-27 13:58:45]

[Robert Garry]

You're the man @Eddie Holmes

[2021-05-27 13:59:07]

[Kristian Andersen]

(we should add this suggestion to the letter)

[2021-05-27 14:09:51]

[Kristian Andersen]

"metaphorical disco club during a pandemic". Pretty accurate :wink: [shared file(s): Screen Shot 2021-05-27 at 14.09.12.png]

[2021-05-27 14:17:56]

[Robert Garry]

27-May-2021

Dear Dr. Garry,

Manuscript number: abj5092

Thank you for submitting your manuscript "Comment: Investigate the origins of COVID-19" to Science. We will not be publishing any follow-up letters to the Bloom et al. letter given that arguments for one theory or the other remain speculative. We are therefore notifying you so that you can seek publication elsewhere.

Sincerely,

Jennifer Sills

Science

[2021-05-27 14:19:55]

[Robert Garry]

Well so much for a "dispassionate science-based discourse."

[2021-05-27 14:21:01]

[Eddie Holmes]

I thought they wanted a debate?!

[2021-05-27 14:24:19]

[Andrew Rambaut]

```The goal of Science's Insights section is to be the best place for scientists to talk to each other about science. So, given the importance of this issue and the breadth of expertise and outstanding qualifications of the authors, it was an easy decision to publish the Letter. The authors acknowledged that demanding transparency from China—while acknowledging the important role of Chinese researchers in tackling the virus—is a nuanced and important task given the discouraging rise of anti-Asian sentiment over the past 18 months.```

[2021-05-27 14:24:59]

**[Robert Garry]**

This actually makes no sense - if both arguments are "speculative," then why the hell did they publish the Bloomshit, which they just called speculative?

[2021-05-27 14:26:16]

**[Robert Garry]**

Yeah - good point Andrew.

[2021-05-27 14:30:44]

**[Robert Garry]**

And to be clear, the Bloomshit letter is speculating that Shi et al are involved in a massive conspiracy and cover-up.

[2021-05-27 14:39:02]

**[Kristian Andersen]**

That's hilarious. From a journal called "Science".

[2021-05-27 14:43:23]

**[Eddie Holmes]**

And some cover-up it would need to be. If they had 3 serious cases in the 2nd week of Nov then there would be 10s of less serious cases dating back into October. Lots is the must have known and obviously Shi. That's a lot of people to keep quiet, inc. all those their lab results are negative.

[2021-05-27 14:46:39]

**[Robert Garry]**

After the big can of whoopass Amy M unloaded on them last night I think that the Science Editors are likely sitting in the corner licking their wounds.

[2021-05-27 14:47:41]

**[Kristian Andersen]**

... and one additional thing to that point that Joel brought up earlier today - if WIV really had three people who ended up in the hospital with COVID, a TON of people would have had to have gotten infected before that would statistically be plausible given hospitalization rates.

[2021-05-27 14:49:24]

**[Eddie Holmes]**

Yes, that's my point as well.

[2021-05-27 14:50:03]

**[Kristian Andersen]**

Well, of course it is - only read the first part :wink:

[2021-05-27 14:52:54]

**[Eddie Holmes]**

Which also means that they started the cover-up long before this outbreak became serious

[2021-05-27 15:02:06]

**[Eddie Holmes]**

So, big outbreak at WIV but it's all kept quiet in November. And this cover-up would be going on for even longer if they knew back in September and so took their database offline.

[2021-05-27 15:02:28]

**[Kristian Andersen]**

Yup, that's what happened.

[2021-05-27 15:03:04]

**[Robert Garry]**

So what we have is a failed CDC Director speculating in an area of virology he does not understand, A CNN science anchor tagging on, two failed exNYTimes authors seeking relevance or just looking for an income stream with a book, a failed Intelligence officer David Asher (who now Batman to Steve Quay's Robin\_ who own deputy secretary pulled the plug on the investigation (apparently unbenown to the WSJ, but clear even to Fox), and a couple of old Nobelists also proving they are long past their prime (redeem yourself DB). Mix this with a Republican toxic stew and an few ill-considered Fauci quote. Mix in Angie's opportunists, dilettantes, racist/misogynist assholes, and trolls and shit decisions at the journal call "science" and this is where we're at.

[2021-05-27 15:35:03]

**[Robert Garry]**

At this moment probably about as good as it gets from the NYT - it could be worse. [shared file(s): Scientists Don't Want to Ignore the Wuhan 'Lab Leak' Theory, Despite No New Evidence - The New York Times.pdf]

[2021-05-27 15:56:38]

**[Eddie Holmes]**

Not great though. What do you make of this? Surely nobody is reading Yan's report? [shared file(s): Screen Shot 2021-05-28 at 8.54.53 am.png]

[2021-05-27 15:58:54]

**[Robert Garry]**

<https://cnnphilippines.com/world/2021/5/25/WHO-China-overlooked-data.html> Good guy Nick Paton Walsh, CNN also doing some - well - reporting . It relevant to the 2-3 cases from David Ashers "intel" "Leaked documents reported by CNN revealed the flu outbreak in December of 2019, showing a significant spike in Wuhan but also other cities in Hubei at the end of that year. The cause and consequences of the outbreak of influenza-like illnesses remains unclear.

The source said the spike showed "there was a large influenza outbreak happening more or less at the same time" as the emergence of the coronavirus. The simultaneous emergence of the influenza outbreak with the first cases of the virus "explains the difficulties of identifying Covid cases in December and early January," said the source. It remains unclear the impact the influenza spike had on detecting the first cases of the novel coronavirus."

[2021-05-27 16:00:21]

**[Eddie Holmes]**

Yes, I might have a chat to Nick.

[2021-05-27 16:03:46]

**[Robert Garry]**

THat's a good idea - one of the few no nonsense types left (Ed Yong waiting for you to get your hands "dirty")- Tell him the Science editorial staff are acting irrationally.....slightly\_smiling\_face:

[2021-05-27 16:44:52]

**[Eddie Holmes]**

This is extraordinary: <https://www.smh.com.au/national/where-did-covid-come-from-the-case-for-a-leak-of-a-virus-engineered-in-a-wuhan-lab-20210526-p57vgt.html>

[2021-05-27 16:45:44]

**[Eddie Holmes]**

This statement "In particular, we know from her published work that Shi had successfully been inserting furin cleavage sites into viruses to make them more infective" strikes me a bare-faced lie.



[2021-05-27 17:16:48]

**[Eddie Holmes]**

I can't believe they published this! If I can show that they did not use FCS then I can embarrass this idiot.

[2021-05-27 17:48:56]

**[Robert Garry]**

\*No relevant priors?\*

Clive Hamilton is a professor at Charles Sturt University in Canberra and author of Hidden Hand: Exposing How the Chinese Communist Party is Reshaping the World.

[2021-05-27 17:56:59]

**[Kristian Andersen]**

I don't know of Shi having engineered FCSs - and that article seems like pure fiction, top to bottom, of somebody who's bought into the Wade bullshit.

[2021-05-27 17:59:08]

**[Eddie Holmes]**

It's a disgrace.

[2021-05-27 18:02:48]

**[Kristian Andersen]**

Bill too?

I just don't get it. I really don't. [shared file(s): Screen Shot 2021-05-27 at 5.58.50 PM.png]

[2021-05-27 18:06:34]

**[Robert Garry]**

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4524054/>

[2021-05-27 18:07:57]

**[Kristian Andersen]**

Yeah, she's on that paper, but I don't believe that work is actually hers

[2021-05-27 18:08:47]

**[Robert Garry]**

exactly! In this paper Shi and Baric make a point mutation in the HKU4 spike. Baric did it nit Shi I'm pretty sure and we're talking pseudoviruses which as the name implies are not viruses.

[2021-05-27 18:09:11]

**[Kristian Andersen]**

Yup

[2021-05-27 18:15:40]

**[Kristian Andersen]**

Honestly, the NYTimes article makes my blood boil. It's not "we need to consider a lab leak" - I get that and I agree with that. However, it's the false equivalence and the idea that we have no data either way - it's just not true, but I'm pretty damn sure somebody like Marc or Akiko haven't actually looked at any of it. It's just lazy - and dangerous.

And where in the article are they discussing the extremely high likelihood that this came in via infected animals? I don't see any of that - only lab, lab, lab. It's clear that people who say "I'm keeping an open mind" very clearly believe it came from a lab - they're just too afraid to admit it. At least fucking eDim is consistent on that point - I wish the Bloomshitters would be too. This whole "I'm just asking questions" leads to a bottomless well of hypotheticals, which is incredibly unhelpful.

[2021-05-27 18:16:14]

**[Eddie Holmes]**

So, a single point mutation. No evidence of "inserting a furin cleavage site"?

[2021-05-27 18:16:31]

**[Kristian Andersen]**

Correct - and it's not her work.

[2021-05-27 18:18:46]

**[Eddie Holmes]**

:+1:

[2021-05-27 18:56:56]

**[Robert Garry]**

on the shit scale Zimmer's NYT is about 6 or 7 - most of the rest are 10s

[2021-05-27 18:58:31]

**[Robert Garry]**

Except for Amy - 0 on the shit scale

[2021-05-27 19:15:18]

**[Eddie Holmes]**

Useful preprint from David online

[2021-05-27 19:20:18]

**[Kristian Andersen]**

Yeah, just reading it...

[2021-05-27 19:23:30]

**[Eddie Holmes]**

Says the same as our Cell paper re: RaTG13.

[2021-05-27 19:35:28]

**[Robert Garry]**

Found this highly interesting: "One possible recent disruption that caused widespread and unusual movements of animals in China and may have increased the permeability of this barrier, was the dramatic shortage of pork products in 2019 attributable to an African swine fever virus (ASFV) outbreak impacting 100s of millions of pigs in China<sup>38</sup>. Such a major disruption in the food supply chain will have potentially brought humans into increased contact with Sarbecovirus infected animals as i) exotic meats replaced pork, ii) animals from rural locations were brought to city markets and/or iii) by meat from infected animals being transported in cold chain processes."

[2021-05-27 19:37:04]

**[Kristian Andersen]**

I didn't know this bit either:

"Still, the fact that viruses in the Yunnan clade (consisting of RmYN02, RpYN06 and PrC31) were sampled from three different Rhinolophus species supports the hypothesis that these viruses readily infect multiple different horseshoe bat species with overlapping geographical ranges."

Didn't realize they were different species of bats - but, of course, I should, since the naming gives it away.

[2021-05-27 19:43:05]

**[Robert Garry]**

Figuring out how the viruses expand their host range even further would be key. Of course, that would require making chimeras which the bloomshitters would frown upon.

[2021-05-27 19:45:53]

**[Kristian Andersen]**

I found the link to the host range of pangolins quite interesting...  
<https://www.iucnredlist.org/species/12764/168392151>

[2021-05-27 19:48:26]

**[Kristian Andersen]**

Eddie's point that the nearest virus to SARS-CoV-2 isn't actually one that WIV has also needs repeating! [shared file(s): Recombination tree.png]

[2021-05-27 20:27:28]

**[Eddie Holmes]**

Not to moan too much, but we said all this in our Cell paper (there's even a whole section on host range mapping). Probably good that it is being said again though.

[2021-05-27 20:49:29]

**[Kristian Andersen]**

... for people like me with a short-term memory, it's good to be reminded again... :wink:

[2021-05-27 21:02:32]

**[Kristian Andersen]**

At least that furin cleavage site tweet is coming in handy for the Aussies :scienceparrot: [shared file(s): Screen Shot 2021-05-27 at 9.01.45 PM.png]

[2021-05-28 07:07:25]

**[Kristian Andersen]**

Predictable...

<https://www.cnn.com/2021/05/28/china/china-coronavirus-lab-leak-floods-mic-intl-hnk/index.html>

[2021-05-28 07:14:06]

**[Andrew Rambaut]**

Ha. I suggested on Twitter it was as likely that some one from USAMRIID infected themselves and then flew to Wuhan as it was for someone from WIV to have leaked it. I will ask Beijing for a bung.

[2021-05-28 07:14:35]

**[Andrew Rambaut]**

I mean you can't prove they didn't.

[2021-05-28 07:15:03]

**[Andrew Rambaut]**

And there are direct flights from US to Wuhan - coincidence? I don't think so.

[2021-05-28 07:20:29]

**[Robert Garry]**

Another 4 or so on the shit scale: [shared file(s): How China Is Responding to the Wuhan Lab Leak Theory \_ Time.pdf]

[2021-05-28 07:23:06]

**[Robert Garry]**

So will USAMRIID open their books for a "forensic" evaluation? Porton Down? Winnipeg? I think not.

[2021-05-28 07:28:20]

**[Robert Garry]**

It's frankly insane - USAMRIID is not going to release info all the projects that they have ongoing on emerging infectious disease vaccines and countermeasures. Same with the others. Might as well write a blueprint for terrorist orgs.

[2021-05-28 07:38:43]

**[Kristian Andersen]**

Just pure insanity all around. And the main issue here is the false equivalence - there's this sense that unless we have 100% proof, we can't know one way or the other. Simply not true - given current evidence, we can give a very strong statement about how this happened - unless somebody brings credible data about a lab leak, we already know what happened and just need to figure out the exact details.

[2021-05-28 07:44:27]

**[Robert Garry]**

Yes it's a binary [but an incredibly skewed one] - it's either lab leak [all versions by the way involve conspiracies now - because even if you accept Relman's "they had it and didn't know hybrid scenario" then they still have to be lying about the serology] \*or\* natural. Disprove one and it has to be the other.

[2021-05-28 07:53:44]

**[Robert Garry]**

Serious question - now that \_Science\_ stuck their collective head in the sand do I send anything back to the Bloomshitters. I was thinking about a "cordial," - It does not look like Science has any interest in hosting any type of serious discussion about COVID-19 origins. There will be other opportunities. Meanwhile, please take another look at the data in the WHO document. There is actually a lot of evidence here including important genetic data regarding the cases at the markets. Or, just let it "lie."

[2021-05-28 08:19:50]

**[Robert Garry]**

@Eddie Holmes thinking more about your brilliant idea - they definitely need to test those environmental samples and identify the animals associated with the SC2 PCR positives at the markets. Veterinary genetics forensics is definitely a thing. <https://vgl.ucdavis.edu/forensics>

[2021-05-28 08:20:18]

**[Robert Garry]**

BTW - doing TwiV at 1pm...

[2021-05-28 12:56:07]

**[Robert Garry]**

<https://onlinelibrary.wiley.com/doi/full/10.1002/bies.202100015>

[2021-05-28 12:57:34]

**[Robert Garry]**

Another Dynamic Duo: Rosanna and Yurie claiming the sequences must be fake.

[2021-05-28 12:58:51]

**[Kristian Andersen]**

NOT A CONSPIRACY THEORY BOB, NOT A CONSPIRACY!!!!

I'm just asking questions...

[2021-05-28 13:15:10]

**[Kristian Andersen]**

A little shaky, but some helpful comments from Relman and Baric on their true beliefs.

<https://www.newyorker.com/news/annals-of-inquiry/the-sudden-rise-of-the-coronavirus-lab-leak-theory>

[2021-05-28 13:15:28]

**[Kristian Andersen]**

Here's Relman with his main argument... I'll let you be the judge. [shared file(s): Screen Shot 2021-05-28 at 1.14.15 PM.png]

[2021-05-28 13:57:29]

**[Robert Garry]**

Strikes me as a little odd that Relman would believe that this was a little odd.

[2021-05-28 14:00:19]

**[Kristian Andersen]**

Exactly - but if you have either (a) not looked at the data, or (b) don't understand the data, this would be a very logical standpoint. But here's the problem - it's uninformed.

[2021-05-28 14:03:53]

**[Robert Garry]**

But hey - mission accomplished - they are getting a lot of time in the media. All the stuff that Amy wrote about is not a consideration.

[2021-05-28 14:22:21]

**[Eddie Holmes]**

How are BioEssays able to publish this nonsense?

[2021-05-28 14:29:42]

**[Eddie Holmes]**

I'm genuinely ashamed to be a scientist at the moment. We look like total dick heads. What ever happen to reason?

[2021-05-28 14:36:48]

**[Kristian Andersen]**

Reason, data, evidence, statistics - come on man, opinion is what matters!

[2021-05-28 14:36:51]

**[Eddie Holmes]**

<https://www.abc.net.au/news/2021-05-28/aussie-who-investigator-defends-wuhan-study/100175292>

[2021-05-28 14:37:25]

**[Eddie Holmes]**

Good old Dom

[2021-05-28 14:37:41]

**[Kristian Andersen]**

Poor Dom... :wink:

[2021-05-28 14:38:18]

**[Kristian Andersen]**

Just came across this oldie but goodie. Do yourself a favor and read it - and then ask yourself this question "Since then, what new data have we gotten to support a lab leak?".

<https://img-prod.tgcom24.mediaset.it/images/2020/02/16/114720192-5eb8307f-017c-4075-a697-348628da0204.pdf>

[2021-05-28 14:39:08]

**[Kristian Andersen]**

I love how simple the paper is - I also love the fact that the paper was named "nCov\_Lancet". I guess it never got published :slightly\_smiling\_face:

[2021-05-28 14:45:27]

**[Eddie Holmes]**

Ha, spot on. Nothing whatsoever.

[2021-05-28 14:48:35]

**[Eddie Holmes]**

Did you write :writing\_hand: the first reply to your Twitter post?:rolling\_on\_the\_floor\_laughing::rolling\_on\_the\_floor\_laughing:

[2021-05-28 14:51:07]

**[Kristian Andersen]**

So good - captures everything in &lt;100 chars :wink:

[2021-05-28 15:29:27]

**[Kristian Andersen]**

I love this old bit about the SARS hunt - exactly the same question people have brought up as being suspicious about SARS2. We still don't know exactly how SARS got from Yunnan to Guangdong (but, animal trading a very likely explanation...).

<https://www.nature.com/articles/d41586-017-07766-9> [shared file(s): Screen Shot 2021-05-28 at 3.27.47 PM.png]

[2021-05-28 15:38:49]

**[Eddie Holmes]**

Oh that's fabulous

[2021-05-28 15:40:10]

**[Kristian Andersen]**

Watch this. <https://www.nytimes.com/video/opinion/100000001183275/the-umbrella-man.html>

[2021-05-28 17:35:47]

**[Robert Garry]**

Timeless! terrific...

[2021-05-28 18:26:01]

**[Kristian Andersen]**

Another 617.2 paper today. This ain't looking good, folks.

<https://www.biorxiv.org/content/10.1101/2021.05.26.445838v1>

[2021-05-28 18:45:10]

**[Eddie Holmes]**

Umbrella Man to Umbrella Corporation; <https://www.politifact.com/factchecks/2020/mar/03/facebook-posts/viral-image-draws-misleading-parallel-between-coro/>

[2021-05-28 19:03:17]

**[Robert Garry]**

Good find Eddie! "Corona is an anagram for Racoon!" Racoon City is where Resident Evil took place.

[2021-05-29 00:15:19]

**[Eddie Holmes]**

*[thread - ID: 2021-05-29 00:15:19]*

I think I'll use Umbrella Man in this big lecture I have to give on Wednesday. It is bloody good.

[2021-05-29 02:48:33]

**[Eddie Holmes]**

Insanity. <https://www.dailymail.co.uk/news/article-9629563/Chinese-scientists-created-COVID-19-lab-tried-cover-tracks-new-study-claims.html>

[2021-05-29 02:53:45]

**[Andrew Rambaut]**

'waves'

[2021-05-29 02:54:00]

**[Andrew Rambaut]**

*[thread - ID: 2021-05-29 02:54:00]*

I feel sea-sick

[2021-05-29 05:07:37]

**[Andrew Rambaut]**

Could have a sneaky dig at the GVP - they wanted \$2B? to sequence all viruses? which they estimated to be something tiny like 100K?

[2021-05-29 07:01:07]

**[Andrew Rambaut]**

*[thread - ID: 2021-05-29 07:01:07]*

Hope it doesn't escape: [https://twitter.com/jbloom\\_lab/status/1398638782740525057](https://twitter.com/jbloom_lab/status/1398638782740525057)

[2021-05-29 07:05:55]

**[Andrew Rambaut]**

*[thread - ID: 2021-05-29 00:15:19]*

I think we could have a title and a lede for the letter - "Umbrella men and the zoonotic origins of SARS-CoV-2"

[2021-05-29 07:21:58]

**[Robert Garry]**

*[thread - ID: 2021-05-29 07:01:07]*

@Andrew Rambaut Myopia - the Bloomshit has the potential to shut this type of research down. Relman, eDim. Alina all have opined that Jessie should move to the country at least to do this dangerous type of animal passage of a PPP.

[2021-05-29 07:27:26]

**[Robert Garry]**

*[thread - ID: 2021-05-29 02:54:00]*

@Andrew Rambaut you should - this is bullocks - also not an "exclusive" this crap has been out there for a year.

[2021-05-29 07:54:35]

**[Robert Garry]**

<https://www.cnn.com/2021/05/29/politics/covid-origin-intelligence/index.html> Intelligence has nothing - Gupta - full on Kool-Aid!

[2021-05-29 08:03:26]

**[Robert Garry]**

*[thread - ID: 2021-05-29 07:01:07]*

@Andrew Rambaut And from Bloom's paper: "All studies were conducted at the BSL2 animal facility at the Centre for Comparative Medicine Research, The University of Hong Kong. " Just asking questions, but how does JB know that inoculating a PPP via novel routes into an animal that has a very human like receptor distribution isn't going to select for a new and more transmissible variant. BSL2 just like a dentist's office according to eDim.

[2021-05-29 08:09:48]

**[Kristian Andersen]**

*[thread - ID: 2021-05-29 07:01:07]*

@Andrew Rambaut Haha, this is so unbelievably dumb - I guess once we have a flu outbreak in Seattle we know who to blame...

[2021-05-29 08:11:32]

**[Kristian Andersen]**



I'm pretty glad this 'investigation' is handled by the intelligence community - only way to do it. They final report will just (hopefully...) regurgitate the evidence as we understand it already.

Between us, but the spooks will spend quite a bit of time in sunny San Diego. N'Orleans too?

[2021-05-29 08:14:20]

**[Robert Garry]**

Not been contacted yet - but good to hear!

[2021-05-29 08:37:08]

**[Kristian Andersen]**

Do we know anything about this? @Andrew Rambaut?

<https://www.washingtonpost.com/world/2021/05/29/vietnam-hybrid-variant-covid-virus/>

[2021-05-29 08:40:22]

**[Kristian Andersen]**

Previously highly successful countries are taking off like crazy - Vietnam, Thailand, Malaysia, and Fiji, so I'm wondering if that's linked to B.1.617.2 in any way.

[2021-05-29 08:53:18]

**[Andrew Rambaut]**

Not yet. Nothing on GISAID. In no particular order of likeliness: B117 with some additional mutations, B16172 with some additional mutations (Nelly?), a contaminated sequencing, mixed infection, recombination

[2021-05-29 09:01:53]

**[Kristian Andersen]**

Yeah, I don't really give much for the "recombination" aspect of this - but was wondering if this is B.1.617.2. Probably is.

[2021-05-29 09:08:26]

**[Andrew Rambaut]**

Not going to speculate :face\_with\_raised\_eyebrow:

[2021-05-29 09:19:22]

**[Robert Garry]**

Sucks we don't know by now - I have a feeling deep in my veins that someone should set up some better sequencing infrastructure in Vietnam, Thailand, Malaysia.

[2021-05-29 09:22:56]

**[Kristian Andersen]**

Hah. I guess we're on it :wink:

[2021-05-29 09:23:12]

**[Kristian Andersen]**

Pretty good, this. [shared file(s): Screen Shot 2021-05-29 at 9.21.57 AM.png]

[2021-05-29 17:27:07]

**[Kristian Andersen]**

Eddie - do you think it would be possible to get some clarifying answers from Shi about the serology staff testing, the database, and maybe a few other things? Would greatly improve some of our points. Alex suggested this and I have been thinking about it myself - maybe we could reach out via Peter?

[2021-05-29 18:32:08]

**[Eddie Holmes]**

This worries me. It would mean going through Daszak and that would reduce the objectiveness of the paper. Better if Jon Cohen did it. Also, I have to say, I looked at the paper yesterday and I thought it had gotten a lot worse. There are just too many cooks. I'm not really keen on the way it is heading.

[2021-05-29 18:43:47]

**[Eddie Holmes]**

We can't resolve every issue here and we shouldn't even try. I thought the aim was just to point out that there is evidence for natural origin that should not be ignored.

[2021-05-29 19:50:59]

**[Kristian Andersen]**

The paper is definitely too long at the moment, but I think can be cut significantly - I think the first part is quite good, no? I haven't gotten a chance to look at the later sections because, yes, too long. Focus should be on getting the main points down and then the rest can go in the separate document / website.

Please feel free to take an axe to it Eddie :wink: .

[2021-05-29 20:10:11]

**[Eddie Holmes]**

Needs a big axe. I'll see if I have time later.

[2021-05-29 20:12:23]

**[Eddie Holmes]**

We can't have Daszak anywhere near this

[2021-05-29 22:11:47]

**[Kristian Andersen]**

I wish more people would listen to this.

<https://www.youtube.com/watch?v=d7kRxmEgzbQ&t=2411s>

[2021-05-29 22:21:02]

**[Eddie Holmes]**

Yes, it's good. I've found something...

[2021-05-29 22:24:07]

**[Eddie Holmes]**

On Jan 4th 2020 my spy █████ sent me this:

[2021-05-29 22:24:15]

**[Eddie Holmes]**

shared file(s): Screen Shot 2021-05-30 at 3.22.44 pm.png

[2021-05-29 22:25:27]

**[Kristian Andersen]**

Yeah, makes sense, no? 4991 is RaTG13

[2021-05-29 22:25:36]

**[Eddie Holmes]**

So, clearly someone at WIV had tipped him off and told him the virus was like 4991...which is clearly RaTG13. So, that's 2 days after Shi sequenced.

[2021-05-29 22:25:55]

**[Eddie Holmes]**

On the 6th he sent me this:

[2021-05-29 22:26:05]

**[Eddie Holmes]**

shared file(s): Screen Shot 2021-05-30 at 3.23.27 pm.png

[2021-05-29 22:26:11]

**[Eddie Holmes]**

shared file(s): m.pdf

[2021-05-29 22:26:45]

**[Eddie Holmes]**

So, the point is that this confirms Shi's story of what happened.

[2021-05-29 22:27:45]

**[Kristian Andersen]**

Which part?

[2021-05-29 22:34:48]

**[Eddie Holmes]**

This is the earliest document on the outbreak from Shi's lab I think. She said that they sequenced SARS-CoV-2 and then screened their databases to see what matched. The only match they had was 4991/RaTG13. No evidence of anything as close that they then deleted. It also confirms the Addendum to her Nature paper.

[2021-05-29 22:36:34]

**[Eddie Holmes]**

This is also the first reported tree with SARS-CoV-2 in.

[2021-05-29 22:37:28]

**[Eddie Holmes]**

Might not be much but it is at least consistent.

[2021-05-29 22:37:29]

**[Kristian Andersen]**

Ahhh, I see what you're saying - this tree contains \*everything\* relevant they have, including RaTG13, which is very very close if you only consider RdRp. If she was concerned about similarity because it came from the lab, she would have taken out 4991 - it's very very close in the tree, but once you have the full sequence, you know it ain't it, but you don't from just the RdRp fragment.

[2021-05-29 22:37:53]

**[Eddie Holmes]**

Yes, that's it.

[2021-05-29 22:38:03]

**[Kristian Andersen]**

Is there anywhere to confirm the sequences are internal and not just from NCBI?

[2021-05-29 22:38:32]

**[Kristian Andersen]**

If the former, this is the 'effing SMOKING GUN of NOT lab escape.

[2021-05-29 22:39:01]

**[Eddie Holmes]**

Let me check with [REDACTED]

[2021-05-29 22:40:30]

**[Kristian Andersen]**

That'd be great. If I looked at that tree and I was Shi, my first thought would be - FUCK, did 4991 get out? Yet, she/they decided not to hide the similarity (of course, it would have been noticed anyway because 4991 was in a public database, but there's just no way they'd be thinking that way).

[2021-05-29 22:42:31]

**[Kristian Andersen]**

The sequences all have NCBI accession numbers, so probably from NCBI.

[2021-05-29 22:46:59]

**[Kristian Andersen]**

Is it possible to confirm the tree is from Shi's lab?

[2021-05-29 22:47:16]

**[Eddie Holmes]**

Yes, thinking about it you are probably right. Damn! I will check with [REDACTED] I assumed it was Shi's group because they were the only people thinking about 4991, but on reflection it could be someone at CCDC.

[2021-05-29 22:48:25]

**[Kristian Andersen]**

Yeah, I'm thinking it's somebody who got a short RdRp fragment, did a blast, pulled down related / relevant sequences and created the tree. That wouldn't really mean much - unless, of course, it came from Shi's group. Would be good to ask [REDACTED].

[2021-05-29 22:51:02]

**[Eddie Holmes]**

I've just emailed him. I agree though...it does look like a GenBank compilation.

[2021-05-29 22:51:37]

**[Eddie Holmes]**

It's the hope that gets you.

[2021-05-29 22:52:20]

**[Kristian Andersen]**

I would love to know what happened after that tree was circulated though - image getting that hit, seeing how close 4991 is and then looking up the metadata [shared file(s): Screen Shot 2021-05-29 at 10.51.15 PM.png]

[2021-05-29 22:53:25]

**[Kristian Andersen]**

After that realization, you have got to ask yourself "did 4991 just escape from WIV". There's just no other way around it - would love to know what happened the days right after.

[2021-05-29 22:54:27]

**[Eddie Holmes]**

Totally! Notice that I did not destroy the file either.

[2021-05-29 22:54:56]

**[Kristian Andersen]**

Hah, I *\*did\** notice that... Shame on you :wink:

[2021-05-29 22:56:25]

**[Eddie Holmes]**

So, let's wait for [REDACTED]. I'll now look at the main doc....I see the comments run for about 3 pages longer....

[2021-05-29 22:57:36]

**[Kristian Andersen]**

Image seeing all of this though, freaking out about this having come from the lab, surely the next thing one would do would go and 'plant' the virus in some random animal from the market. It had been shut down just a couple of days before.

If I had to cover up a lab leak, that's what I would do - not whatever the fuck is happening right now.

[2021-05-29 22:58:52]

**[Kristian Andersen]**

Yeah, let's see if [REDACTED] has more to that document - I mean, it \_must\_ have been on the minds of smart people at the time, so I'd love to get some intel on that. There's just no way.

[2021-05-29 22:59:53]

**[Eddie Holmes]**

But if you believe the tinfoils they knew about this is September and at least November

[2021-05-29 23:00:20]

**[Kristian Andersen]**

That would have given them even longer to plant that virus in an animal at the market... :wink:

[2021-05-29 23:01:11]

**[Kristian Andersen]**

I gotta say though - had I sequenced that RdRp and blasted that fragment, I would have lost my shit. Immediately.

[2021-05-29 23:02:33]

**[Eddie Holmes]**

Right. You wouldn't be putting in a paper to Nature for all the fucking world to see.

[2021-05-29 23:03:03]

**[Kristian Andersen]**

Nope. And I remember you and I discussing that back then.

[2021-05-29 23:07:22]

**[Eddie Holmes]**

And virus X could not really any closer to SARS-CoV-2 than that on an RdRp tree....

[2021-05-29 23:08:51]

**[Eddie Holmes]**

The letter is FAR too complex. The false equivalence angle does not work at all for me.

[2021-05-29 23:20:44]

**[Eddie Holmes]**

This needs to be completely rewritten IMO

[2021-05-29 23:26:47]

**[Eddie Holmes]**

[REDACTED] replied - it's NOT from Shi. Damn! He got sent the RdRp and did it himself. Bum. Of some historical interest though. The excitement did not last long....

[2021-05-30 01:16:45]

**[Andrew Rambaut]**

Morning - I agree about the letter. It won't have impact like this. Did you see the structure I suggested: <https://andersenlab.slack.com/archives/C022R1PFL2K/p1622293697139200> ?

[2021-05-30 01:17:40]

**[Andrew Rambaut]**



1. Substantial evidence base that zoonosis is the source of this - this should be the bulk of the paper.
2. Capture-escape is basically a very specific and low probability route for zoonosis to have occurred. The only way the posterior probability of this goes from close to zero to something reasonable is by the addition of evidence. If evidence emerges that SARS-CoV-2 was in the lab in November then the posterior probability of lab-escape goes to 1, at the moment it is near 0.
3. Thus capture-escape is unsubstantiated conjecture about a conspiracy to cover up the evidence (access to lab documentation will thus say nothing either way).
4. If capture-escape happened then further natural zoonosis is still a more likely source in future (although that emerges from 2 so perhaps is not worth saying).
5. It is seriously distracting from understanding and ameliorating our risk of future pandemics and re-emergence of this virus.

[2021-05-30 01:19:16]

**[Andrew Rambaut]**

We should ignore manipulation altogether and let Bloom and co have to come back and say "ah but ... what if ..."

[2021-05-30 01:54:31]

**[Eddie Holmes]**

I agree. Do you want to start on this? If not, I can try tomorrow. All the different forms of lab escape should go in the second paragraph

[2021-05-30 03:42:12]

**[Andrew Rambaut]**

*[thread - ID: 2021-05-30 03:42:12]*

I won't be able to do anything today until everyone has gone to bed. I have to get off my laptop and interact with family. Plus it is the first warm sunny day since last September I think (don't say anything @Kristian Andersen).

[2021-05-30 07:34:01]

**[Robert Garry]**

<https://twitter.com/gumby4christ/status/1398488808077893640>. I have my own wall of crazy now. Simplified: Alina Chan -&gt; Jeremy Epstein. As noted in -channel you can also draw not so crazy lines from Epstein to Peter Theil (Yuri), Steve Bannon (Dr. Yan), David Asher/Pompeo and I'm sure the list goes on and on. Karma has a way of biting you in the ass. Accuse people of genocide you better make sure your own house is squeaky clean. Archiving some of the tweets just for fun: [shared file(s): image.png, image.png]

[2021-05-30 07:36:28]

**[Robert Garry]**

Missed a lot here, but hanging with [REDACTED] yesterday - She's having some pretty serious back surgery in a few weeks and we bought a better bed and a better recliner for her (Memorial Day sales). Yes that tree is of historical importance and you can bet Shi et al. did one as well.

[2021-05-30 07:38:28]

**[Robert Garry]**

<https://www.statnews.com/2016/06/02/synthetic-human-genome/> Alina's first bite of the media star apple.

[2021-05-30 08:03:04]

**[Robert Garry]**

<https://www.bing.com/videos/search?q=twiv+762+you+tube&view=detail&mid=087450BEAE72B2919FB7087450BEAE72B2919FB7&FORM=VRDGAR&ru=%2Fvideos%2Fsearch%3Fq%3Dtwiv%2B762%2Byou%2Btube%26qs%3Dn%26form%3DQBVR%26sp%3D-1%26pq%3Dtwiv%2B762%2Byou%2Btube%26sc%3D2-17%26sk%3D%26cvid%3D4B8DEBA8B9EB4799A09178689FC37A81>

[2021-05-30 08:26:44]

**[Robert Garry]**

I might have talked about you guys a few times.

[2021-05-30 09:26:23]

[Kristian Andersen]

Thanks Bob for doing the podcast - looking forward to listening to it later today! Here's the YouTube link: <https://www.youtube.com/watch?v=lxwrDSYrhjU>.

Love that Alina ended up on her own little wall of crazy - the thread is about as crazy as her own...

[2021-05-30 09:29:57]

[Kristian Andersen]

[thread - ID: 2021-05-30 03:42:12]

@Andrew Rambaut I agree on all these points - we need to stay on-point so it doesn't get too long.

I think the first draft is great, because it has a TON of stuff in there - however, I also absolutely agree that most of it needs to go, focusing just on the most important aspects and key components of "evidence for emergence".

I'll let the two of you make the next few editing rounds and then I can pop back in. The document has the whole version history saved, so no harm in being aggressive with the editing - everything will be preserved if we need to get back to it. I'll go in and name the current version so we can go back to parts of it if necessary.

[2021-05-30 09:38:27]

[Robert Garry]

I'm just asking questions - not 100% convinced that Alina hasn't been secretly recruited by the Peter Thiel/Steve Bannon/Miles Guo axis - like Dr. Yan - to push Lab Leak. The fact she gave a talk essentially on the topic of eugenics that Epstein (one of Thiel's buddies) attended bumps up my prior on this a bit higher. Yuri - the head freezer - is all most certainly in the Thiel cabal.

[2021-05-30 10:05:58]

[Robert Garry]

<https://diyhl.us/wiki/transcripts/hgp-write/2017-05-09/human-artificial-chromosomes/> "A case study that we did is fuse yeast that carries a herpes genome and a yeast that carries the ebola protein, to human cells, to show that the human cell produces the infectious virus in combination with the ebola part and the other part....I have a lot of crazy undergrads working for me," GoF for the herpesvirus - you decide.

[2021-05-30 10:16:25]

[Robert Garry]

@Eddie Holmes rocking: [https://www.theguardian.com/world/2021/may/30/covid-team-interview-wuhan-market-virologist-animals?CMP=Share\\_iOSApp\\_Other](https://www.theguardian.com/world/2021/may/30/covid-team-interview-wuhan-market-virologist-animals?CMP=Share_iOSApp_Other)

[2021-05-30 11:11:09]

[Kristian Andersen]

Great TWiV episode Bob - really enjoyed that! And thanks for the nice words... :flushed:.

One quick comment on the codons - the fact that they're commonly found in humans is actually \_the\_ argument Wade is making that these were human engineered. Quite a lot of (stupid...) subtlety to the recent conversation about that, so I made some specific comments in my thread to highlight how stupid that argument is: [https://twitter.com/K\\_G\\_Andersen/status/1391507230848032772?s=20](https://twitter.com/K_G_Andersen/status/1391507230848032772?s=20).

Also, Bob, new microphone soon...? :studio\_microphone::wink:

[2021-05-30 11:30:03]

[Robert Garry]

Yeah - I fumbled some of that a bit...., but my phone also started making noises - I had it off the hook - it looks like a few sentences got cut. Point taken re the microphone 22nd century version on the way. [shared file(s): image.png]

[2021-05-30 12:33:13]

[Kristian Andersen]

It was a great episode - you hit so many excellent points very clearly!



I don't think you realize how good a communicator you are Bob - the person on the internet was right about that :wink::trophy:

[2021-05-30 12:47:46]

**[Robert Garry]**

Thanks - appreciated!

[2021-05-30 14:26:30]

**[Eddie Holmes]**

Looking forward to listening to it later!

[2021-05-30 16:35:20]

**[Eddie Holmes]**

37 years at Tulane! That's something.

[2021-05-30 22:15:52]

**[Eddie Holmes]**

*[thread - ID: 2021-05-30 22:15:52]*

Got this from Peter Daszak. Please keep to this particular slack group. Pretty amazing what they did to the market. [shared file(s): Peter Daszak WHO & China joint study report for Eddie Holmes.pptx]

[2021-05-31 07:56:06]

**[Robert Garry]**

WoW

[2021-05-31 08:04:21]

**[Robert Garry]**

Again, the Bloomshit notion that the WHO team got no access and found out nothing is garbage.

[2021-05-31 08:31:08]

**[Robert Garry]**

Pushing back with pure science seems to be getting some attention in the right places - thanks Eddie for the analogy. Hard to adequately attribute all the great stuff coming in-channel! [shared file(s): image.png]

[2021-05-31 10:17:44]

**[Kristian Andersen]**

*[thread - ID: 2021-05-30 22:15:52]*

@Eddie Holmes Thanks for sharing these slides - a few key things that didn't make it into the final WHO report.

Cool to see that they even point out the Huanan market in their excess deaths slide! I noticed that separately as well and included it in my long Twitter thread - why that didn't make it into the final report, I simply don't understand. It's key - together with the triangulation of early (retrospective) cases too!

[2021-05-31 11:06:35]

**[Kristian Andersen]**

I thought this was a pretty accurate summary... :wink:

<https://twitter.com/wokeglobaltimes/status/1399187095764279303?s=20> [shared file(s): Screen Shot 2021-05-31 at 8.16.17 AM.png]

[2021-05-31 11:26:39]

**[Robert Garry]**

Let off Yuri the head freezer and Dan - Harvard to the Big House - Sirotkin, who at least at one time thought it's OK to molest your underage students.

[2021-05-31 14:40:19]

**[Eddie Holmes]**

I'm half way through the podcast Bob - really enjoying it  
We should not the location of the cases and excess deaths in the paper

[2021-05-31 16:34:31]

**[Robert Garry]**

Thanks Eddie - not doubt I flubbed a few things - easy to do over 70 minutes. But, rest assured that DRASTIC will be on the case. Quay already sent a letter to Bob Gallo, turns out Quay was wrong.

[2021-05-31 17:59:52]

**[Eddie Holmes]**

I think might have to give up with that Nature doc. Every time I cut it down, it just expands in size again. I've not got the energy or the time to keep doing this.

[2021-05-31 18:01:42]

**[Kristian Andersen]**

No problem - let me go in tomorrow evening and cut. Did Andrew get a chance to take a look? I liked his outline...

[2021-05-31 18:09:04]

**[Eddie Holmes]**

Thanks. It's driving me crazy.

[2021-05-31 18:13:49]

**[Robert Garry]**

Indeed - run-on sentences and overly long paragraphs. Main concern has to be readability...

[2021-05-31 18:17:24]

**[Eddie Holmes]**

It has to be bang, bang, bang....not bang, clause, subclause, cross-reference, bang

[2021-06-01 05:39:58]

**[Robert Garry]**

<https://senseaboutscience.org/john-maddox-prize/> @Eddie Holmes genome releaser/animal follower @Andrew Rambaut variant tracker @Kristian Andersen Bloomshit buster

[2021-06-01 09:04:51]

**[Robert Garry]**

They FOIA'd TF emails - starting in March - don't think we'll show up... [shared file(s): Tony Fauci's emails from April 2020 released under FOIA - Washington Post.pdf]

[2021-06-01 10:30:05]

**[Kristian Andersen]**

@Andrew Rambaut - odd question for you. Based on the UK data, are you able to get a good evolutionary rate for B.1.617(.2)? If yes, any different?

[2021-06-01 13:09:56]

**[Eddie Holmes]**

<https://twitter.com/jamesctobias/status/1399811395043004418?s=12>

[2021-06-01 13:10:38]

**[Eddie Holmes]**

Oh, I think we are showing up...

[2021-06-01 13:12:15]

**[Kristian Andersen]**

Oh, we definitely are! Could have been better worded, but I have no problems with this being public.

[2021-06-01 13:12:33]

**[Kristian Andersen]**

Clearly showed we took the lab leak very seriously - and decided there was nothing to it.

[2021-06-01 13:13:34]

**[Eddie Holmes]**

You can guarantee that others will spin it differently

[2021-06-01 13:13:37]

**[Kristian Andersen]**

I'm pretty sure the TFHs will take this to mean the CCP paid us off. I'll let them go down that rabbit hole.

[2021-06-01 13:15:39]

**[Eddie Holmes]**

I hope you used Butt Lesion to Tony

[2021-06-01 13:17:16]

**[Kristian Andersen]**

I didn't, unfortunately - lemme just check what other emails I had out to him (I think these are the two).

[2021-06-01 13:17:35]

**[Eddie Holmes]**

And I thought they had run out of rabbit holes :zany\_face:  
<https://twitter.com/sciencecohen/status/1399821336487227393?s=12>

[2021-06-01 13:19:06]

**[Kristian Andersen]**

Just missed the cutoff date I think... [shared file(s): RE: Phone call]

[2021-06-01 13:19:43]

**[Kristian Andersen]**

I can't WAIT to see how this will all be spun - it's gonna be so dumb.

[2021-06-01 13:19:59]

**[Eddie Holmes]**

That's one they should release!

[2021-06-01 13:21:54]

**[Kristian Andersen]**

I know! I'm kinda bummed that wasn't part of the whole dump.

[2021-06-01 14:18:21]

**[Robert Garry]**

Agree - the TFHs are gonna go F'ing bonkers...

[2021-06-01 14:19:25]

**[Robert Garry]**

WE should send a version of the current letter to Tony and Jeremy F just to get another email chain going!

[2021-06-01 14:30:12]

**[Eddie Holmes]**

eDim has started already

[2021-06-01 14:36:06]

**[Kristian Andersen]**

I'll let them go down this path - going to look so dumb later on. "Telling the public one thing, but secretly believing it's engineered". Love it.

[2021-06-01 14:49:46]

**[Robert Garry]**

eDim [shared file(s): image.png]

[2021-06-01 14:53:16]

**[Kristian Andersen]**

Pure garbage - apparently these folks have never heard about "science". Not too surprising.

[2021-06-01 14:53:49]

**[Robert Garry]**

Kristian you didn't just tell the public - you used an advanced form of mind control over scientists, journalists and lay people alike.

[2021-06-01 14:54:23]

**[Kristian Andersen]**

Mind control. My specialty.

[2021-06-01 14:54:45]

**[Robert Garry]**

So, I guess there was some sort of "conspiracy."

[2021-06-01 14:56:35]

**[Kristian Andersen]**

Just look at the word choice from eDim - "close coordination". Such garbage - but it's worthwhile having them all go down this path because it'll show how absolutely absurd their efforts are - pure conspiracy. Then the actual explanation of "hypotheses, data, analyses, updated hypotheses" will become known and shows totally normal science being done.

Same with Shi's explanation for how RaTG13 was indeed 4991, the sample...

[2021-06-01 15:06:20]

**[Kristian Andersen]**

This guy gets it...

[https://twitter.com/\\_Sernie\\_Banders/with\\_replies](https://twitter.com/_Sernie_Banders/with_replies) [shared file(s): Screen Shot 2021-06-01 at 3.04.48 PM.png, Screen Shot 2021-06-01 at 3.05.07 PM.png]

[2021-06-01 15:12:48]

**[Robert Garry]**

eDim and ~@COVIDfaker~ should probably get together and commiserate about their "Daddy" issues.

[2021-06-01 17:05:00]

**[Eddie Holmes]**

Jeremy sent me this. Usual BS but you see such a random bunch of people included on these email chains. [shared file(s): Fwd EXTERNAL Farrar.pdf]

[2021-06-01 17:08:54]

**[Kristian Andersen]**

It's pretty unbelievable how people really don't actually read what's in front of them... How this can be interpreted in any other way than Fauci wanting to look into this in a scientific way, I just don't understand...

My wording of “inconsistent with evolutionary theory” is just a really, really dumb way of saying “we think they might have fiddled with it”, but those were the words we (I) were using at the time. Could have been phrased better, but hey, it got the job done.

[2021-06-01 17:18:14]

**[Eddie Holmes]**

We've all been convicted already.

[2021-06-01 17:21:55]

**[Kristian Andersen]**

Twitter is going crazy right now.

[2021-06-01 17:30:00]

**[Eddie Holmes]**

Very predicable.

[2021-06-01 17:30:25]

**[Kristian Andersen]**

It's fascinating.

[2021-06-01 17:31:45]

**[Eddie Holmes]**

Let's say we hadn't looked into it. Or Tony had said 'forget it'? Then what? 1000X worse I would think.

[2021-06-01 17:33:31]

**[Kristian Andersen]**

Yeah, I honestly have no idea. What's interesting here is that this really is a textbook example of the scientific method - absolute textbook.

[2021-06-01 17:34:40]

**[Kristian Andersen]**

For example - this comment to me tweet.

I mean, it doesn't matter how deep in conspiracies you are, how the hell can you come to that conclusion? [shared file(s): Screen Shot 2021-06-01 at 5.34.07 PM.png]

[2021-06-01 17:34:58]

**[Kristian Andersen]**

Science = COI, maybe? :man-shrugging:

[2021-06-01 17:35:30]

**[Eddie Holmes]**

Totally stupid. I've honestly lost all faith in humanity.

[2021-06-01 17:40:05]

**[Kristian Andersen]**

Trump 2024.

We haven't quite hit rock bottom yet.

[2021-06-02 04:45:22]

**[Robert Garry]**

<https://www.newsweek.com/fauci-emails-experts-covid-could-look-engineered-1596738>

[2021-06-02 04:50:21]

**[Robert Garry]**

<https://www.theaustralian.com.au/science/bombshell-emails-over-what-anthony-fauci-knew/news-story/39c108c393a660b85dce452e4eb4a6b3>

[2021-06-02 07:54:24]

**[Robert Garry]**

Clearly Relman has only one thing on his agenda: [shared file(s): Lab leaks happen, and not just in China. We need to take them seriously. - The Washington Post.pdf]

[2021-06-02 07:55:41]

**[Robert Garry]**

Whoever this old person is - in the comments - got it at least a bit right: [shared file(s): image.png]

[2021-06-02 08:21:34]

**[Kristian Andersen]**

The key from the World Health Assembly really is this: [shared file(s): Screen Shot 2021-06-02 at 08.21.00.png]

[2021-06-02 08:22:41]

**[Kristian Andersen]**

Folks like Relman just don't get it - we can't force them to do anything, we can only work with them - there just isn't any other way. In the meantime, nothing gets done and we're never going to figure out WTF happened in Wuhan. Not smart.

[2021-06-02 08:32:23]

**[Robert Garry]**

Yuri 6-1-21 [shared file(s): image.png]

[2021-06-02 08:33:32]

**[Kristian Andersen]**

So dumb.

[2021-06-02 12:01:53]

**[Kristian Andersen]**

What the heck did Ron say? [shared file(s): E25KVcZWYAU9TZX.jpeg]

[2021-06-02 12:29:23]

**[Kristian Andersen]**

Why the heck did they redact all of this? Ron's notes are GREAT! [shared file(s): Screen Shot 2021-06-02 at 12.28.34.png]

[2021-06-02 12:39:12]

**[Kristian Andersen]**

Fulls thread - all of it redacted. Not sure why, since there's a lot of good stuff in there. [shared file(s): Re: Teleconference]

[2021-06-02 12:40:15]

**[Kristian Andersen]**

shared file(s): Re: Teleconference

[2021-06-02 13:36:00]

**[Robert Garry]**

Careful out there gentlemen. Someone just threw a rather large rock at my door with a note wrapped around it with duct tape. On the outside of the note: To the ComSimp.

[2021-06-02 13:52:42]

**[Kristian Andersen]**

Fuck, really? Is your address public? I have been having a few companies working on scrubbing me from the internet over the last few months, but there are still traces out there... (filings, etc.).

[2021-06-02 13:55:23]

**[Kristian Andersen]**

I'm sorry about that Bob - really need to be careful out there since this is being spun out of proportion in right-wing circles. All these emails unfortunately fit perfectly into a narrative - no matter what that narrative is.

[2021-06-02 14:16:36]

**[Robert Garry]**

Rocks and ugly notes we can handle, I suppose but will probably get that security camera hooked up . Yeah the right-wing crazies are itching for a revolution. Flynn, Trump etc say it's coming.

[2021-06-02 14:29:24]

**[Kristian Andersen]**

Shoot - can't you get that information deleted Bob? You might want to consider something like DeleteMe or PrivacyDuck - or both... Plus file some manual requests.

[2021-06-02 14:33:14]

**[Robert Garry]**

Yeah - a good idea...

[2021-06-02 14:41:49]

**[Eddie Holmes]**

Jesus Bob - that's bad. This is really not on. We can't make ourselves and our families targets. Sharri is so dumb - just wait til she finds out that I told the Chief Medical Officer and the intelligence services here that we thought it might be a lab leak...hang on, though, how can that be a cover-up?

[2021-06-02 14:43:36]

**[Kristian Andersen]**

BECAUSE EDDIE!!!

[2021-06-02 14:47:33]

**[Robert Garry]**

In other new it looks like the MOMA might actually let me use The Persistence of Memory along with my commentary The Persistence of Ebola regarding @Andrew Rambaut et al. sequencing paper on the newest Guinean Ebola outbreak coming out in Nature. Other good news - the mystery of the "thing" in PoM is solved - seems to be a bat - maybe a hammerhead bat. [shared file(s): image.png, image.png]

[2021-06-02 14:50:37]

**[Eddie Holmes]**

I'm having doubts about the wisdom of our new letter: (i) it's crap - SO depressing that I spent ages cutting it down for it to be readed; (ii) it's late; (iii) there's so much hate out there that people will be reluctant to sign and I can't say I'm keen to get back in the firing line; (iv) what will it actually achieve - people have made their minds up.

[2021-06-02 14:59:43]

**[Kristian Andersen]**

We'll get it back in shape, I'm sure. Let's decide on next steps once we have it - I very much think it's worthwhile to have it out there for something to point to.

[2021-06-02 15:00:24]

**[Kristian Andersen]**

I have a lot of urgent shit to deal with today, but I'll have some time tomorrow (hopefully...) to go through it - I think it can be brought back to life and the full version history is saved.

[2021-06-02 15:14:44]



**[Andrew Rambaut]**

Sorry - I have been out of the loop working on B.1.617.2. But I agree Eddie - it is got quite far from what we were thinking it should be. Everyone keeps saying 'keep it tight' and then adding more stuff in. I think we should not mention manipulation - no furin site, no passaging, nothing - that is all dumb and has been dealt with. I think it should just address how implausible it is for it ever to get to the lab to escape in the first place and how plausible the animal route is. The one thing we need to nail is the 'lab escape is plausible' shit that serious scientists are signing up to.

[2021-06-02 15:32:56]

**[Robert Garry]**

Agreed! - that's where your capture-escape definition is helpful. Capturing the next pandemic virus, then getting infected is hard [and much less likely than 1 of 14M wildlife traders getting infected]. Escape also rare, but not impossible - that is why the Lab leakers focus on that. Throw in capture-manipulate-escape (still being pushed by the likes of eDim, Yuri etc) and its a slam dun it didn't happen. [shared file(s): What Did Fauci Tell Trump About Wuhan\_ - WSJ.pdf]

[2021-06-02 15:36:02]

**[Robert Garry]**

eDim - might be feeling a little overly cocky these days. [shared file(s): image.png]

[2021-06-02 15:36:31]

**[Robert Garry]**

He's talking about Fauci and Collins here.

[2021-06-02 15:36:56]

**[Eddie Holmes]**

Jon Cohen's story had nothing to do it for me - I don't even remember seeing it

[2021-06-02 15:59:03]

**[Kristian Andersen]**

*[thread - ID: 2021-06-02 15:59:03]*

Jon Cohen's story is brought up because that's the story Tony forwarded to me in his email - Eddie, we're both quoted in it, but yeah, it had nothing to do with any of this.

Andrew, what's the skinny on B.1.617.2? I don't see anything I particularly like when it comes to that variant.

[2021-06-02 15:59:54]

**[Kristian Andersen]**

Warning or Wanted? I'm confused. [shared file(s): image.png]

[2021-06-02 16:05:19]

**[Eddie Holmes]**

I think it should read "Warning: avoid this man at all costs"

[2021-06-02 16:05:57]

**[Kristian Andersen]**

Better than "Wanted", I guess...

[2021-06-02 16:07:58]

**[Eddie Holmes]**

What a mess. Fauci did everything right.

[2021-06-02 16:09:01]

**[Kristian Andersen]**

We all did - and do. Doesn't matter - too good a conspiracy.

But, that also doesn't matter - it's all about the long-game and hence that paper is important. I'll get back to it tomorrow.

[2021-06-02 16:56:01]

**[Eddie Holmes]**

I see Trevor is pontificating again  
He is forgetting all the zoonotic IAVs

[2021-06-02 17:03:44]

**[Eddie Holmes]**

I like the Fauci ink blot test at the bottom: <https://www.bbc.com/news/world-us-canada-57336280>

[2021-06-02 17:06:06]

**[Kristian Andersen]**

Hah, yeah, that ink blot test is :100: spot on. These emails fit whatever narrative you believe.

[2021-06-02 17:08:14]

**[Kristian Andersen]**

I don't know what Trevor is on about - the first tweet in that thread is outright false:

"We now have mainstream scientific opinions that largely range between "lab leak can be dismissed" and "both zoonosis and lab leak are viable""

Eh, no - nobody said we could dismiss anything. We said it was unsupported and highly unlikely. Also, we're not talking about uninformed priors here - there's actual data, which Trevor knows well.

[2021-06-03 01:12:10]

**[Andrew Rambaut]**

*[thread - ID: 2021-06-02 15:59:03]*

Confidentially - it will be in the next PHE Tech Brief - but it is not good. Modellers have really consolidated around a 50% transmissibility advantage over B.1.1.7 (I am not sure I am quite comfortable with that yet because there is large heterogeneity of R in time and place - which makes less sense if it is all due to an inherent advantage). Also evidence of higher rate of hospital admissions from two independent studies. And evidence of a significant vaccine effect. Really not good. I just hope some of this is not the case.

Is there any evidence of growth in the USA? If the above is true I would imagine it is going to flare up all over the place.

[2021-06-03 03:49:18]

**[Andrew Rambaut]**

```Hello,

My name is Daniel Payne. I'm a reporter with Just the News. I hope you're well.

I have been reviewing the major release of Dr. Anthony Fauci's emails from last year. In one sequence of emails I noticed you were part of an early February 2020 conference call involving several experts discussing what appears to be, at least in part, gain-of-function research.

Can you offer any insight into what that conversation was about? What was discussed in it? What was concluded? Are you able to provide any documentation from the phone call?

Thanks so much. I'm also at [REDACTED].

Daniel````
Yeah right.

[2021-06-03 03:58:58]

[Andrew Rambaut]

OK. Here is a stab at the opening paragraph and structure of the letter. I think this point (that lab escape is not the point) is still worth making as it is not well understood. All of the other stuff (FCSs etc is just irrelevant if the virus was never there in the first place). If people want to say 'well what if... humanised', 'well what if... GOF' etc then let them. It is the grandstanding 'leaks are plausible' scientists that I think we should put on the spot here.

""Since the first reports of a new SARS-like human coronavirus in late December 2019 in Wuhan, China, and as a result of the subsequent pandemic, there has been intense global interest in understanding how and where SARS-CoV-2 first infected humans. Both preceding and following the recent WHO-convened "Global Study of Origins of SARS-CoV-2", primary interest has coalesced on two seemingly competing hypotheses: the "lab escape" scenario and one of natural "zoonotic" emergence. However with the focus on escape and arguments of plausibility based on prior instances of pathogens leaking from laboratory environments, proponents omit to consider the other component of this hypothesis, "lab capture" – the plausibility that SARS-CoV-2 was ever in a laboratory from which to escape in the first place. In essence the "lab-capture-escape" scenario is just a very specific conjecture about the exact nature and route of a zoonotic spillover. In the absence of any documentary evidence at all, we believe the likelihood that a human-transmissible bat coronavirus would ever have been present in a laboratory is so unlikely that the plausibility of escape is irrelevant.

[Discuss all the zoonosis stuff... intermediate hosts... animal exposure etc]

[Bring it back to the tiny prior probability of capture given how rare human transmissible viruses are in bats]

[finish with the implied cover-up by the leak-proponents, the pointlessness of demanding anything and the fact the natural origins need to be the focus of our time]""

I haven't put this in the document because I think we (the executive committee) should make a decision about whether we go forward with this.

[2021-06-03 05:02:51]

[Robert Garry]

This is it! The only debate would be to even bother to include one sentence to totally dismiss the even more extreme lab capture-manipulate-release.

[2021-06-03 05:13:59]

[Robert Garry]

And, word-smithing needed but in the opening point out that it's a fatal logical flaw of the Lab Leak to only consider the Leak part, since at minimum it's a two step process.

[2021-06-03 05:26:27]

[Robert Garry]

Also - keeping with a logical fallacies overall theme, perhaps note that most iterations of the lab leak are unfalsifiable - relman et al saying that lab leak could be a field worker getting asymptotically infected in the field (and not seroconverting btw) fails the falsifiable test for a hypothesis - it can only be conjecture or speculation (tied in with the accusation of cover-up part). This version of Lab Leak is indeed a similar to other unfalsifiable "theories," for ex. that eDim keeps an Invisible Pink Unicorn up his ass: https://en.wikipedia.org/wiki/Invisible_Pink_Unicorn

[2021-06-03 05:34:17]

[Robert Garry]

If logical fallacies becomes the theme as @Andrew Rambaut suggests - then one could consider - *or not* - mentioning Umbrella Man=FCS

[2021-06-03 05:55:39]

[Robert Garry]

Regardless of the specifics, I agree with Andrew that hitting them with logic is what we must do. The arguments have to be framed sans subilty - like a Mike Tyson punch.

[2021-06-03 06:51:44]

[Robert Garry]

Of course, False equivalence prime logical fallacy.

[2021-06-03 06:54:44]

[Robert Garry]

<https://en.vietnamplus.vn/man-jailed-for-storing-780-kg-of-african-pangolin-scales/202492.vnp>

[2021-06-03 07:09:57]

[Robert Garry]

<https://www.washingtonpost.com/opinions/2021/06/01/we-need-investigate-lab-leak-theory-without-inflaming-anti-asian-hate/yeah>

[2021-06-03 07:13:14]

[Robert Garry]

here's the op-ed in case you don't have full access [shared file(s): Opinion _ How to investigate the lab-leak theory without inflaming anti-Asian hate - The Washington Post.pdf]

[2021-06-03 07:15:35]

[Kristian Andersen]

[thread - ID: 2021-06-02 15:59:03]

@Kristian Andersen Gah! Not surprising and the effect on vaccination has been my biggest worry - also not surprised by that (unfortunately).

I was discussing this with Duncan yesterday and it looks like we're starting to see growth in the US too, although it's still much too early to tell. B.1.1.7 is already in somewhat decline with P.1 coming up. So the main competition may be between P.1 and B.1.617.2 and it's going to be very dependent on vaccination status.

[2021-06-03 07:18:32]

[Andrew Rambaut]

[thread - ID: 2021-06-02 15:59:03]

@Kristian Andersen Not sure why India cases peaked and dropped though. Do they have lock downs and NPIs?

[2021-06-03 07:19:26]

[Andrew Rambaut]

[thread - ID: 2021-06-02 15:59:03]

@Kristian Andersen Lots of seeds planted for growth: [shared file(s): image.png]

[2021-06-03 07:27:58]

[Kristian Andersen]

[thread - ID: 2021-06-02 15:59:03]

@Kristian Andersen I'm not sure exactly what they did officially, but people freak out and that effectively is a lock down - plus, of course, localized 'herd' immunity (likely won't last more than 6-9 months).

My concern around the vaccine in particular, is that while we have updated shots ready to go into production, but they're all based on B.1.351 and B.1.617.2 is a very different variant. As this continues in years to come, unless we manage to somehow gain control over transmission, this is going to be a game of whack a mole that we can't win. It's concerning - and people don't get it since they're so done with this pandemic (which I get. Oh boy, do I understand that...)

[2021-06-03 08:10:48]

[Kristian Andersen]

[thread - ID: 2021-06-03 08:10:48]

I knew that when the first subheading was titled "A Group Called DRASTIC", it was going to be bad. But this - in Vanity Fair - is just outright criminal. If I was Peter, I would sue immediately. [shared file(s): Screen Shot 2021-06-03 at 8.08.08 AM.png]

[2021-06-03 08:10:52]

[Kristian Andersen]

Andrew, totally agree on your first paragraph / outline - I'll work on it tonight. We might need to create a new document...

[2021-06-03 08:14:29]

[Robert Garry]

[thread - ID: 2021-06-03 08:10:48]

@Kristian Andersen Libel: a published false statement that is damaging to a person's reputation; a written defamation.

[2021-06-03 08:14:40]

[Robert Garry]

[thread - ID: 2021-06-03 08:10:48]

@Kristian Andersen Yeah - this is that.

[2021-06-03 08:15:37]

[Kristian Andersen]

[thread - ID: 2021-06-03 08:10:48]

@Kristian Andersen Oh, just a bit.

[2021-06-03 08:20:32]

[Kristian Andersen]

As for our opening paragraph, I was playing around with the "capture-release" vs "lab leak" stuff yesterday, making some FAQs to respond to the stuff around Tony's emails. What I think is key here - and maybe we could specifically mention it - is that a "lab leak" is insufficient in itself to explain the emergence of SARS-CoV-2. A scientific theory of SARS-CoV-2 emergence needs to be able to account for all facts surrounding the origin - the "lab leak" only provides a very small part of that, not being able to explain everything prior to the leak or the fact that this got going in a wet market.

I'll see if I can incorporate a single sentence to that effect as I go through - the beauty here is that "natural emergence" explains everything.

[2021-06-03 08:21:27]

[Kristian Andersen]

And yes - to Bob's point, it must be testable... Otherwise, what are we even doing?

[2021-06-03 09:10:15]

[Kristian Andersen]

In a strange plot twist, I think I might be somewhat of a hero to Fox Nation... I also go an interview request from NewsMax this morning - I'll decline.

<https://www.foxnews.com/transcript/tucker-fauci-deserves-to-be-under-criminal-investigation>

[2021-06-03 09:37:20]

[Robert Garry]

Yeah - double agent - the most dangerous game a spy can play. [shared file(s): image.png]

[2021-06-03 09:57:31]

[Robert Garry]

This isgonna make an amazing movie [shared file(s): image.png]

[2021-06-03 14:10:00]

[Robert Garry]

<https://twitter.com/Ayjchan/status/1400529361133056001> Kinda feel like this is crap

[2021-06-03 14:10:08]

[Eddie Holmes]

[thread - ID: 2021-06-03 14:10:08]

Kristian Andersen - the fastest gear change since Bob Katter (you need to watch this):
<https://www.youtube.com/watch?v=Wm4kRqedsgo>

[2021-06-03 14:10:59]

[Kristian Andersen]

I'm trying to figure out exactly how we should tackle this first paragraph (if at all different to what Andrew is suggesting, because that's ace!). A couple of things:

- The focus from the lab leak focus has been on the likelihood of a lab leak, however, a lab leak in itself is insufficient to explain the origin of SC2
- Any theory needs to be able to explain the emergence of SC2 - "natural emergence" does that easily"
- A "lab leak" is an incomplete hypothesis that also needs to account for all events prior (capture or engineering) and those following (market outbreaks)
- ANY version of the lab leak hypothesis would require a conspiracy because they would have had to work on the virus prior to the outbreak - but categorically stated they didn't and provided evidence to support that (e.g., serology)

[2021-06-03 14:11:30]

[Eddie Holmes]

[thread - ID: 2021-06-03 14:11:30]

I'll get back to the paper when I can. This is good:
<https://www.latimes.com/business/story/2021-06-03/lab-leak-covid-origin>

[2021-06-03 14:11:48]

[Kristian Andersen]

I'm wondering if we should double down on the conspiracy - because people like the Bloomshitters really don't want to consider it, yet it is a KEY component of what they're saying, otherwise their hypothesis can't explain the emergence of SC2.

[2021-06-03 14:13:36]

[Robert Garry]

[thread - ID: 2021-06-03 14:11:30]

@Eddie Holmes I may have talked to that guy

[2021-06-03 14:13:38]

[Kristian Andersen]

To the other point about "capture" - I want to make people understand that we don't find novel pandemic viruses, novel pandemic viruses find us. Novel epidemic viruses too. This really is huge - because it would be the first time in the history of mankind that somebody would have managed to find a pandemic/epidemic novel virus before the virus found us. It's a very simple concept to grasp, so I'm wondering if we should spell it out?

[2021-06-03 14:15:56]

[Kristian Andersen]

Astute people might point out that "finding pandemic viruses before they find us" is exactly what the EcoHealth/WIV program tried to do, however, we then either have to admit that that program was successful beyond belief OR, as we point out in our previous Nature commentary, is hugely unlikely (we can then just reference our paper).

Thoughts on whether to spell this out in a sentence or not? I like the very simple concept of "we don't find novel pandemic/epidemic viruses, they find us". And because of that, the "lab leak" hypothesis falls flat.

[2021-06-03 14:18:04]

[Kristian Andersen]

[thread - ID: 2021-06-03 14:10:08]

@Eddie Holmes Haha, I love this - that's me!

Also, I can't deny - this is pretty good: <https://twitter.com/FunctionGain/status/1400254855764135937>

[2021-06-03 14:18:24]

[Kristian Andersen]

[thread - ID: 2021-06-03 14:10:08]

@Eddie Holmes (these people have too much time on their hands - and too few brain cells)

[2021-06-03 14:25:37]

[Robert Garry]

Nature aka the invisible pink unicorn is the best bioterrorist.

[2021-06-03 14:25:58]

[Robert Garry]

Best line in contagion - WE don't have to weaponize the bird flu - the birds are doing it.

[2021-06-03 14:43:34]

[Andrew Rambaut]

[thread - ID: 2021-06-03 14:11:30]

@Eddie Holmes ``The organizer of the letter, David Relman of Stanford, told Nature's Amy Maxmen, "I am not saying I believe the virus came from a laboratory." Another signatory, Ralph S. Baric of the University of North Carolina told the New Yorker, "The genetic sequence for SARS-CoV-2 really points to a natural-origin event from wildlife."``

[2021-06-03 14:44:11]

[Robert Garry]

@Kristian Andersen someone at something called the monk debates is trying to get you to debate Bret Weinstein - I'm refusing to give them your number. But, they are persistent.

[2021-06-03 14:52:29]

[Andrew Rambaut]

I got an email for that too. Ignored it

[2021-06-03 15:01:46]

[Robert Garry]

I made the mistake of picking up the phone (you know public phone number, address and everything, which I will fix).

[2021-06-03 15:03:42]

[Eddie Holmes]

[thread - ID: 2021-06-03 14:10:08]

@Eddie Holmes Oh jesus!

[2021-06-03 15:03:51]

[Andrew Rambaut]

I no longer have a 'land-line' phone

[2021-06-03 15:09:47]

[Robert Garry]

:+1:The only reason we do still have it are the adult daughters 2 of whom tend to live all over the world and sentimentality. That land line is their permanent number - they need one for the State Department and UN. I just need to get it out of the public directories and take my office number out of my email.

[2021-06-03 15:16:27]

[Andrew Rambaut]

I unplugged my office phone in Feb 2020!

[2021-06-03 15:16:56]

[Andrew Rambaut]

Nothing good ever came through on that

[2021-06-03 16:29:19]

[Eddie Holmes]

Mine is offline as well. How did Angie do?

[2021-06-03 16:41:34]

[Robert Garry]

ok - I would not have been as nice - but AR pretty much dominated. I don't think AC scored a point.

[2021-06-03 17:06:10]

[Kristian Andersen]

Is there a link - I so want to see this... I would be afraid of debating Angie to be honest - everybody else, bring it on. But her, I'd be afraid...

[2021-06-03 17:07:11]

[Kristian Andersen]

Sorry about the monk debate folks - so dumb, and yeah, please ignore. Our comms department will decline.

[2021-06-03 18:18:30]

[Robert Garry]

[thread - ID: 2021-06-03 14:11:30]

@Eddie Holmes IOWS they were just whipping up this nonsense for a few moments of media attention - pathetic.

[2021-06-03 19:31:17]

[Kristian Andersen]

Just filing here as reference if we later need all of Tony's emails...

Guess what, I once again didn't get a chance to look at the paper and I still need to focus on grants for the rest of the evening. I swear, tomorrow will be the day. [shared file(s): leopold-nih-foia-anthony-fauci-emails.pdf]

[2021-06-03 20:00:25]

[Eddie Holmes]

I'm in the same boat Kristian. Plus I think I am going slowly mad.

[2021-06-03 20:22:09]

[Kristian Andersen]

Slowly?

[2021-06-03 20:35:35]

[Eddie Holmes]

Fair point. Did you get this? Is it a trap? Might help get some right-wing credit. I feel that I should be open. What do you think? [shared file(s): Screen Shot 2021-06-04 at 1.33.23 pm.png]

[2021-06-03 20:37:50]

[Kristian Andersen]

Nope, didn't get that - Bob would be the person to answer if this is a trap... I don't think so though.

[2021-06-03 20:38:19]

[Eddie Holmes]

Yes, I think it's legit. Would you do it?

[2021-06-03 20:47:25]

[Kristian Andersen]

I think probably yes, but need @Robert Garry's eyes on it - he knows all this stuff :wink:

[2021-06-03 20:47:48]

[Eddie Holmes]

:+1:

[2021-06-03 21:34:36]

[Kristian Andersen]

I gotta share this in case any of us can muster the courage - Yuri got on the podcast with Weinstein. It might be good.

... for comedic value.

<https://www.youtube.com/watch?v=q5SRrsr-lug>

[2021-06-03 21:44:42]

[Eddie Holmes]

I think I'd rather eat my own head

[2021-06-03 21:52:03]

[Kristian Andersen]

This is actually very good. [shared file(s): Screen Shot 2021-06-03 at 9.51.00 PM.png]

[2021-06-03 22:15:26]

[Eddie Holmes]

Oh, he's good. I'm now done with Twitter. It's not doing me any good.

[2021-06-03 23:55:46]

[Robert Garry]

The RAND thing looks legit. It usually does not hurt to teach ppl stuff.

[2021-06-04 01:30:29]

[Eddie Holmes]

Thanks Bob. I'll say yes.

[2021-06-04 01:41:52]

[Eddie Holmes]

My [REDACTED] was upset because she thought I said Rand Paul

[2021-06-04 04:23:44]

[Robert Garry]

Speaking of Rand, it's not too late Eddie for you to follow Kristian's lead, play both sides and become a double agent.

[2021-06-04 07:07:29]

[Kristian Andersen]

One has to wonder if these could be reintroductions? I mean, Foshan and Guangzhou - literally the cities SARS popped up in...

<https://www.shine.cn/news/nation/2106040097/>

I hope they sequence them.

[2021-06-04 07:14:29]

[Andrew Rambaut]

That would put a new spin on the debate... Perhaps they will have taken SC2 and added sufficient mutations so that it looks like it is a new introduction. Get them off the hook for WIV

[2021-06-04 07:18:45]

[Kristian Andersen]

I hadn't actually thought about the possibility of additional spillovers. Would immediately invalidate the lab leak - although, of course, there's a lab there too... A good one. And they're working on CoVs...

[2021-06-04 07:23:56]

[Andrew Rambaut]

What did you mean by 'reintroductions'? Imports from global?

[2021-06-04 07:24:36]

[Kristian Andersen]

Yeah, sorry - I meant new/additional. Not "re"

[2021-06-04 07:25:41]

[Andrew Rambaut]

I should offer to be a consultant to design a genome that would categorically disprove the lab leak.

[2021-06-04 07:25:58]

[Andrew Rambaut]

Or that it started in the USA

[2021-06-04 07:26:18]

[Andrew Rambaut]

(more tricky - you would have to plant it in the US

[2021-06-04 07:26:42]

[Robert Garry]

I nominate San Diego!

[2021-06-04 07:27:16]

[Robert Garry]

Or, if you think NOLA would do - I'm your guy!

[2021-06-04 07:27:31]

[Kristian Andersen]

Currently the most believable root is a US sequence, sooo....

[2021-06-04 07:27:48]

[Andrew Rambaut]

I wa thinking Chapel Hill

[2021-06-04 07:28:31]

[Kristian Andersen]

Payback for Deep Throat bs email Epic.

[2021-06-04 07:28:33]

[Robert Garry]

WA-1 or something even earlier in Chapel Hill - love it!

[2021-06-04 07:36:49]

[Robert Garry]

Angie and SG [shared file(s): We may never know where the virus came from. But evidence still suggests nature. - The Washington Post.pdf]

[2021-06-04 07:37:41]

[Kristian Andersen]

Any good? Won't be able to read for an hour or so..

[2021-06-04 07:39:07]

[Robert Garry]

It's fine - 99% of the public's eyes will glaze over - the head's of the TFHs and Bloomshitters will explode...

[2021-06-04 09:14:06]

[Robert Garry]

This from BBC interview I just did for half the morning. [shared file(s): image.png]

[2021-06-04 09:16:24]

[Kristian Andersen]

Let's hope they don't cut it down to a 10sec sound bite and distort the crap out of it!

[2021-06-04 09:21:19]

[Robert Garry]

Yes - with the proper editing it could probably be made to say: Reinstate the one true President, Donald J. Trump.

[2021-06-04 09:43:38]

[Kristian Andersen]

From the journo Eddie was talking to - "the pangolins WIV was using in CoV studies".

Wait, what? Do we know about WIV working in pangolin CoVs in the lab? If so, that's huge - I haven't heard anything about that. [shared file(s): Screen Shot 2021-06-04 at 9.42.11 AM.png]

[2021-06-04 09:47:22]

[Robert Garry]

He must be mistaken - maybe he taking about the original pango studies that were reported in 2019 viruses paper. And yes Eddies on some of the pango papers and I think a para flu papers where they are sick with C19-like illnesses.

[2021-06-04 09:48:39]

[Kristian Andersen]

I think so too - and I just followed up with him about that, plus this. [shared file(s): Screen Shot 2021-06-04 at 9.48.17 AM.png]

[2021-06-04 09:49:28]

[Kristian Andersen]

If he can find evidence of pangolins at the Huanan market and link that back to e.g., that wildlife rescue center, holy smokes - I mean, that would be an actual smoking gun. A big one.

[2021-06-04 09:49:59]

[Kristian Andersen]

(a smoking gun for wildlife trade > rescue centers > dead animals > human food chain)

[2021-06-04 09:50:51]

[Kristian Andersen]

It's actually not crazy - a dead pangolin is no good in a wildlife rescue center, but it's HIGHLY valuable in a wet market. Bloody hell - if true, this would be so obvious.

[2021-06-04 10:19:51]

[Robert Garry]

Paid in the pocket virologists - David Asher.
<https://www.foxnews.com/world/wuhan-lab-leak-scenario-complicated-prove-credibility>

[2021-06-04 10:20:11]

[Robert Garry]

Talking bout us...

[2021-06-04 11:46:24]

[Kristian Andersen]

Hah.

<https://twitter.com/amymaxmen/status/1400878604636942337?s=20>

[2021-06-04 12:27:00]

[Robert Garry]

Listening to her Podcast - interesting....

[2021-06-04 12:46:37]

[Kristian Andersen]

Amy is so good.

[2021-06-04 13:12:01]

[Robert Garry]

Wade is a serious asshole. Damn. [shared file(s): Fauci Email Bolsters the Lab-Leak Theory - WSJ.pdf]

[2021-06-04 13:45:14]

[Eddie Holmes]

He's a piece of shit.

[2021-06-04 13:49:01]

[Eddie Holmes]

Can't believe the WIV had pangolins and there is serological evidence for SARS related viruses in these animals going back some years. Certainly a possibility that markets had them and we know from the gamey tastes project that sick pangolins were being sold across China.

[2021-06-04 13:50:13]

[Kristian Andersen]

I have a really hard time believing WIV had them - but I can totally believe the wildlife rescue center might have. It would provide SUCH an easy path - dead pangolin no good, let's sell dead pangolin to make good money & hello COVID-19.

[2021-06-04 13:51:12]

[Robert Garry]

FCS is an Umbrella Man. Real scientists accumulate data - analysis - consider options - test hypotheses.

[2021-06-04 13:52:03]

[Kristian Andersen]

Yup, and you know what, that allows us to actually get to the bottom of how things work and not just rely on gut reactions.

[2021-06-04 14:04:41]

[Eddie Holmes]

Does he seriously want to know how she has questioned my research integrity?! [shared file(s): Screen Shot 2021-06-05 at 7.03.07 am.png]

[2021-06-04 14:09:16]

[Kristian Andersen]

No point...

Also, Antonio is a giant idiot and works closely with Rowan Jacobsen, so I'm sure his story about Alina is going to be a love story about how she single handedly stood firm against conspiring virologists.

[2021-06-04 14:10:19]

[Robert Garry]

Hobsen's choice. Answer and you get sucked into the Alina BS and are still at the mercy of the reporter. Don't answer and you get sucked into the Alina BS and are still at the mercy of the reporter.

[2021-06-04 14:11:16]

[Eddie Holmes]

Yes, of course it will. He even answered his own question by mentioned the pangolin papers which she claims are dodgy. I'm not answering this garbage.

[2021-06-04 14:12:57]

[Robert Garry]

Third choice tell him you will talk to him off the record on background then send him all the Alina Bullshit. It would be my pleasure to help you compile it.

[2021-06-04 14:20:26]

[Robert Garry]

Not answering probably the best choice of the three - let him stew. He really doesn't have a story re Eddie Holmes UNLESS Eddie Holmes responds.

[2021-06-04 14:36:04]

[Eddie Holmes]

When he wrote to me previously I said I was not going to talk to him because Rowan was giving oxygen to someone who has questioned my research integrity. I stand by that. I'm just not going to reply as anything is oxygen to them. When I wrote to the Broad I included these 3 tweets which are pretty clear:

[2021-06-04 14:36:11]

[Eddie Holmes]

shared file(s): Screen Shot 2020-10-22 at 7.33.29 am.png

[2021-06-04 14:36:21]

[Eddie Holmes]

shared file(s): image (1).png

[2021-06-04 14:36:26]

[Eddie Holmes]

shared file(s): Another image.png

[2021-06-04 14:37:10]

[Eddie Holmes]

I am an author of these papers and she directly mentions 'severe research integrity'.

[2021-06-04 14:37:45]

[Eddie Holmes]

However, Bob, if you have other good examples they would be great to have for the future.

[2021-06-04 15:06:29]

[Robert Garry]

I'll look -those are the most important...

[2021-06-04 15:21:34]

[Robert Garry]

You got the majors - here are a few others parked here for context. Angie may have some more it seems. [shared file(s): image.png, image.png, image.png, image.png, image.png]

[2021-06-04 15:21:35]

[Eddie Holmes]

She also asked Nick Loman on Twitter if I was an original author on the Nature paper. She's bloody evil.

[2021-06-04 15:24:41]

[Eddie Holmes]

Thanks Bob! She's spectacularly stupid. Look at the Boston Magazine: [shared file(s): Screen Shot 2021-06-05 at 7.46.09 am.png]

[2021-06-04 15:27:15]

[Eddie Holmes]

She claims that the pangolin virus may have been contracted from their smugglers. So, in 2019 before the pandemic started smugglers in southern China in were infected by a virus that is related to, but not the same as, SARS-CoV-2, and then infected pangolins.

[2021-06-04 15:30:58]

[Eddie Holmes]

Totally WRONG to say that the Lam et al. paper just uses the first paper's (Liu et al....published before the pandemic) data.

[2021-06-04 15:52:06]

[Robert Garry]

I've seen this behavior before - no compunction against lying - loves the spotlight - massive [undeserved] ego. She'll fly too close to the sun and the wings will melt - the crash will be hard - the problem is she can do and is doing a lot - a lot - of damage along the way.

[2021-06-04 15:53:44]

[Robert Garry]

Long game - the tide will turn - may sound trite even a bit arrogant - BUT we have science on our side. Of that I'm confident.

[2021-06-04 16:02:56]

[Eddie Holmes]

Me too Bob. Just makes my blood boil. Anyway, I'm going to ignore that journo.

[2021-06-04 16:07:38]

[Robert Garry]

Another common trait of this phenotype - they can get journos to write love letters. [shared file(s): A virus hunter faces the big one_ Ebola - The Washington Post.pdf]

[2021-06-04 16:12:45]

[Kristian Andersen]

This made me fall over... :rolling_on_the_floor_laughing: [shared file(s): Screen Shot 2021-06-04 at 4.12.20 PM.png]

[2021-06-04 16:21:28]

[Robert Garry]

It's in these rare moments that twitter is actually of some value.

[2021-06-04 16:21:31]

[Eddie Holmes]

Love it!

[2021-06-04 16:23:58]

[Kristian Andersen]

Alex has some really good one-liners - I'm pretty sure he spends fifteen minutes each day saying, "alright, time to fuck with some of the nutters before a beer".

[2021-06-04 16:29:28]

[Robert Garry]

I'd do the same - probably with less finesse - except instead of 15 minutes a day it could well be 15 hours - it's that obsessive thing...

[2021-06-04 16:29:45]

[Robert Garry]

That why no twitter for me.

[2021-06-04 16:31:47]

[Andrew Rambaut]

shared file(s): image.png

[2021-06-04 16:39:41]

[Eddie Holmes]

I agree Bob. I'm now done with Twitter. Have deleted it from my devices.

[2021-06-04 17:44:17]

[Kristian Andersen]

Pure fabrication.

<https://www.nbcnews.com/news/us-news/fauci-s-emails-don-t-prove-wuhan-conspiracy-raise-further-n1269650>

[2021-06-04 17:51:49]

[Eddie Holmes]

Wow. Is that actionable? Perhaps let the Scripps lawyers know.

[2021-06-04 17:57:23]

[Eddie Holmes]

How can we have been so quick to defend our Chinese counterparts after raising the alarm in the first place. Fucking ridiculous.

[2021-06-04 18:03:09]

[Kristian Andersen]

Just pinged the institution - we'll get the lawyers involved. Enough of this pure bullshit.

[2021-06-04 18:08:35]

[Eddie Holmes]

It's just infuriating. And the by-line in that article seems racist to me.

[2021-06-04 18:14:32]

[Kristian Andersen]

Agreed - casual racism thanks to WSJ and the Bloomshitters. How predictable.

[2021-06-04 18:37:43]

[Robert Garry]

Yes - indeed - Denise Chow one of two reporters allowed into WIV has no doubt that the LL is pure crap - she got pushed to the back and my statement seems to have been selectively edited - sure investigate but only to put the bs to rest.

[2021-06-04 18:44:07]

[Robert Garry]

How is it possible that they believe you had anything to do with the Lancet letter?

[2021-06-04 19:23:52]

[Eddie Holmes]

This is basically an attack on the rights of scientists to say and write what they believe to be true.

[2021-06-04 19:35:34]

[Eddie Holmes]

I can't quite articulate how angry I am about this: we have every right to express our scientific opinion and every right to change our views on the basis of new data.

[2021-06-04 20:08:12]

[Robert Garry]

Its anti-science for sure.

[2021-06-04 20:20:25]

[Kristian Andersen]

Vilification of scientists and politicization of science. Not smart.

[2021-06-04 20:20:36]

[Robert Garry]

Saw Tony on Rachael Maddow today. Great reporting - Tony gave maybe his best interview ever, which is saying a lot. RM went all the way back to ACT-UP and the initial cases of unusual pneumonia - no not the ones in Wuhan the ones 40 years to the day from the beginning of the AIDS pandemic. Not covered is the fact that Tony saved the mRNA vaccine programs - they were crap - then they got better - then they got amazing. That's all on Tony.

[2021-06-04 20:23:34]

[Kristian Andersen]

Link?

[2021-06-04 20:23:40]

[Robert Garry]

@Kristian Andersen - pretty sure there's a flip side to the horrific Wade and NBC articles - Tony is a legend at NIAID - that's gonna stick for a long time - the heat you got today along with Tony - I think that scientists have a long memory. Being on the same for science not anti-science side can't be a losing position

[2021-06-04 20:25:49]

[Robert Garry]

Looks like they run about a day later - I'll link - it was inspiring though.

[2021-06-04 21:18:59]

[Kristian Andersen]

This is just nuts - I mean, wtf.

<https://www.dailymail.co.uk/news/article-9653363/Dr-Peter-Daszak-spotted-outside-million-dollar-home-upstate-New-York.html>

[2021-06-04 21:38:44]

[Eddie Holmes]

This is just disgusting

[2021-06-04 21:45:40]

[Eddie Holmes]

This is getting totally out of hand

[2021-06-04 21:50:04]

[Kristian Andersen]

Yup. The world simply has gone mad.

[2021-06-04 22:01:16]

[Eddie Holmes]

The Guardian journo told me that the State Dept fact sheet says that the WIV worked on pangolins and indeed it does: [shared file(s): Screen Shot 2021-06-05 at 3.00.24 pm.png]

[2021-06-04 22:01:31]

[Eddie Holmes]

Where are they getting that from?

[2021-06-04 22:02:05]

[Eddie Holmes]

Obviously this is the Trump fact sheet

[2021-06-04 22:05:53]

[Kristian Andersen]

I have no idea - and Michael's answers back to me were confused... He's trying to see if he can get more info

[2021-06-04 22:09:20]

[Eddie Holmes]

He emailed me as well. The pangolin stuff comes from Asher.

[2021-06-04 22:10:55]

[Kristian Andersen]

Something tells me Asher is full of shit... I don't know - it's just a hunch..

[2021-06-04 22:13:59]

[Eddie Holmes]

It gets worse: <https://www.bbc.com/news/world-europe-57358492>

[2021-06-04 22:27:59]

[Kristian Andersen]

Yeah, that story is nuts - he was hunted by a guy with a bazooka... It's Marc in my lab's old boss - crazy story.

[2021-06-04 22:28:46]

[Eddie Holmes]

Yes, I know Marc. Good guy.

[2021-06-05 04:54:47]

[Robert Garry]

<https://www.msnbc.com/rachel-maddow-show>

[2021-06-05 04:57:56]

[Robert Garry]

TF's first comment - "It's very much an attack on science."

[2021-06-05 08:15:41]

[Kristian Andersen]

Yeah, it's good - it's not just an attack on science though, it's an attack on scientists.

[2021-06-05 08:25:00]

[Robert Garry]

That is exactly right - ad hominem.

[2021-06-05 09:58:34]

[Kristian Andersen]

This defense of Quay's so called "Bayesian Analysis" is kinda hilarious.

http://downloads.vanityfair.com/lab-leak-theory/Response_to_Former_Asst_Sec_Ford.pdf?_ga=2.64746348.2131245650.1622909444-1945384548.1621574023

[2021-06-05 09:58:49]

[Kristian Andersen]

(it's in response to this memo: http://downloads.vanityfair.com/lab-leak-theory/1821COVIDemail.pdf?_ga=2.161086206.2131245650.1622909444-1945384548.1621574023)

[2021-06-05 10:12:31]

[Robert Garry]

Fascinating ...

[2021-06-05 10:24:34]

[Robert Garry]

"Twenty-nine people logged on to a secure State Department video call that lasted three hours, according to meeting minutes obtained by _Vanity Fair._ The scientific experts included Ralph Baric, Alina Chan, and the Stanford microbiologist David Relman." This is the group that wrote Bloomshit. One noted that it is hard to culture viruses from bat samples.

[2021-06-05 10:46:04]

[Kristian Andersen]

And continuing down this vein, it's probably important to be aware of this one, since I expect it'll only get further amplified:

<https://www.youtube.com/watch?v=DNxoVFZwMYw&list=WL&index=7>

It's fascinating - he almost had me convinced. Almost.

[2021-06-05 10:59:50]

[Robert Garry]

I take being a co-conspirator with Tony and you guys any day - just saying...

[2021-06-05 11:00:25]

[Kristian Andersen]

Definitely. The Cool Gang - Tony & The Boys.

[2021-06-05 15:08:46]

[Eddie Holmes]

Science. R.I.P.

[2021-06-05 15:29:17]

[Kristian Andersen]

shared file(s): question on Fauci emails & an Alina Chan tweet.

[2021-06-05 15:29:34]

[Kristian Andersen]

Clearly digging... Antonio is such an idiot.

[2021-06-05 15:34:20]

[Kristian Andersen]

I can see the angle there - "trying to silence the conversation".

[2021-06-05 15:38:24]

[Eddie Holmes]

Exactly. I'll get painted as someone who tried to gag the heroine. If you actually read my email to Lander it clearly says she is entitled to her opinion but that these attacks on my research integrity have crossed the line.

[2021-06-05 15:39:48]

[Robert Garry]

Anyone in contact with zeynep NYTimes?

[2021-06-05 15:40:46]

[Andrew Rambaut]

I had an off-the-record background chat (for about 2.5 hours)

[2021-06-05 15:42:08]

[Robert Garry]

Impression - mine mixed - I think she's smart but has taken a sip or two of the Alina Kool-aid.

[2021-06-05 15:42:29]

[Kristian Andersen]

Zeynep seems convinced by the lab leak - I'm assuming her story will be absolutely awful.

[2021-06-05 15:46:13]

[Robert Garry]

She's Turkish - bringing a high prior that oppressive governments lie and cover-up. Some very convoluted thinking to back up the prior.

[2021-06-05 15:46:30]

[Andrew Rambaut]

I just keep pushing all our points. She tried some nonsense Bayesian thing but clearly doesn't understand that.

[2021-06-05 15:46:49]

[Eddie Holmes]

I declined to talk to her.

[2021-06-05 15:56:25]

[Robert Garry]

Good to know - she is apparently writing her own long-form version. Hard to guess (beyond) Alina, who she is talking too.

[2021-06-05 15:59:06]

[Kristian Andersen]

I think Angie might have some background on it...

[2021-06-05 21:27:07]

[Kristian Andersen]

Definitely worth a read - Drosten.

<https://www.republik.ch/2021/06/05/herr-drosten-woher-kam-dieses-virus>

[2021-06-05 21:38:41]

[Eddie Holmes]

Spot on. Raccoon dogs.

[2021-06-05 21:39:38]

[Kristian Andersen]

I had never thought about the fact that they're screaming when fur is pulled - sounds like a good way to spread a virus...

[2021-06-05 21:41:48]

[Eddie Holmes]

I know how they feel

[2021-06-06 04:30:23]

[Robert Garry]

More fan mail... [shared file(s): image.png]

[2021-06-06 04:42:22]

[Eddie Holmes]

Bonecrusher has a way with words

[2021-06-06 05:04:27]

[Robert Garry]

<https://verdict.justia.com/2020/12/07/answering-my-hate-mail>

[2021-06-06 05:06:11]

[Robert Garry]

Bonecrusher apparently like to send emails to college professors...

[2021-06-06 09:25:30]

[Andrew Rambaut]

Hey all. Wendy Barclay just got in touch to suggest the idea of getting some document together to refute some of the arguments being made about lab escape - particularly the GOF ones. She says that some may try to push this at the G7 meeting (for all the usual political reasons - deflect blame, etc. and may end up being an attack on virologists). Perhaps we should try to get the point by point evidence document together ASAP and we can then give it to all the people involved that we know will appreciate having it (Fauci, Farrar, Vallance etc.)? I think Wendy would be happy to help out too.

[2021-06-06 10:25:45]

[Robert Garry]

The evidence doc is looking pretty good - it's a bit dense/long though for this purpose. Perhaps an executive version of the high points - maybe even only one page would be best.

[2021-06-06 13:30:23]

[Kristian Andersen]

Yes, I think this would be important - it's just been impossible for me to get anything done over the last week+. Hopefully this coming week.

This should help. [shared file(s): Screen Shot 2021-06-06 at 1.28.54 PM.png]

[2021-06-06 13:31:50]

[Kristian Andersen]

I'll probably reactive it at some point, but I'm done with the conspiracy theorists digging up old random tweets and misrepresenting them totally out of context. I set up auto-delete on older tweets yesterday, and I'm pleased to see it exploded some TFHs :wink: [shared file(s): Screen Shot 2021-06-06 at 1.24.56 PM.png, Screen Shot 2021-06-06 at 1.25.32 PM.png]

[2021-06-06 13:35:28]

[Eddie Holmes]

That Rowan is a total piece of shit. These people are horrendous!

[2021-06-06 13:35:44]

[Eddie Holmes]

It's an all out attack

[2021-06-06 13:38:03]

[Kristian Andersen]

Yup - conspiracy theorists covering as journalists. It's disgusting and I'm done - time to focus in on the science and see if it's possible to even get excited about it again.

[2021-06-06 13:42:20]

[Kristian Andersen]

Disgusting. [shared file(s): Screen Shot 2021-06-06 at 1.40.20 PM.png, Screen Shot 2021-06-06 at 1.40.30 PM.png, Screen Shot 2021-06-06 at 1.40.45 PM.png]

[2021-06-06 13:47:27]

[Robert Garry]

I hope you are saving the tweetorials.

[2021-06-06 13:53:09]

[Eddie Holmes]

It's an absolute disgrace
My account is still active
I just don't look any more

[2021-06-06 13:58:11]

[Eddie Holmes]

This is the mob! So, according to Ridley the entire shutdown of a major Chinese city was a minor outbreak. Racist pig.

[2021-06-06 14:03:10]

[Kristian Andersen]

I saved the most important tweetorials - I hope... Here's the FCS one in case that's needed for Peter's letter (I'm not going to be part of that). [shared file(s): ThreadReader_0_k_g_andersen_1391507230848032772.pdf]

[2021-06-06 14:21:20]

[Eddie Holmes]

Not sure where this ends

[2021-06-06 14:30:33]

[Kristian Andersen]

50/50 well / not well.

[2021-06-06 14:35:36]

[Eddie Holmes]

I'm not sure what 'not well' entails

[2021-06-06 14:36:29]

[Kristian Andersen]

50 / 50 kinda ok not well / not well at all :wink:

[2021-06-06 14:37:37]

[Andrew Rambaut]

```Dear Dr. Rambaut-

I would like to be able to post comments to this site. Is it possible to be given a user account?



Regards, Steve

--

Steven Quay, MD, PhD

[REDACTED]  
T: [REDACTED]

Dr. Quay Website  
Breast Cancer TEDx Talk  
STAY SAFE #1 Amazon Medical Book

C: [REDACTED]  
D: [REDACTED]  
Skype: Steve.Quay2016``  
:joy:

[2021-06-06 14:38:08]

**[Andrew Rambaut]**

`I would like to be able to post comments to this site` - I bet you would

[2021-06-06 14:39:52]

**[Robert Garry]**

That's gas!

[2021-06-06 14:50:34]

**[Robert Garry]**

What's going on in Ireland?

[2021-06-06 15:11:40]

**[Robert Garry]**

A few exchanges with zeynep - she may be a lost cause...

[2021-06-06 15:27:27]

**[Eddie Holmes]**

I wonder if Jon will ever leak the Deep Throat email. Point 8 in our response is somewhat topical. [shared file(s): Screen Shot 2021-06-07 at 8.25.33 am.png]

[2021-06-06 15:28:42]

**[Kristian Andersen]**

Hah. Yeah.

[2021-06-06 15:30:57]

**[Kristian Andersen]**

Also, I find that my reply to Relman had a few salient points... Not at least

``Importantly, no evidence has been presented to support any connection to the lab - which remains a speculative theory that would necessarily involve a major cover up and complex web of lies perpetrated by the very scientists and public health authorities that you thank in the end of your letter. Unless there's direct evidence to support such a conspiracy, I think we have to be very careful that we don't unnecessarily add to ongoing anti-Asian racism and hate crimes. I am of course well aware that that is not the intent of your letter, however, it should be clear that it will fan the flames of xenophobia and conspiracy theories - with allegations of a lab leak having no scientific grounding in available evidence or data.``

I hope they're happy.

[2021-06-06 15:31:43]

**[Eddie Holmes]**

Shall I post that email on the other channel?

[2021-06-06 15:32:27]

**[Kristian Andersen]**

Yeah, why not - no harm in that (I actually think I might have shared it with Stephen a while back)

[2021-06-06 15:34:28]

**[Eddie Holmes]**

It's a good clear history

[2021-06-06 15:39:21]

**[Kristian Andersen]**

I'm glad Bret's on it. [shared file(s): Screen Shot 2021-06-06 at 3.33.46 PM.png]

[2021-06-06 15:41:32]

**[Robert Garry]**

:clown\_face:

[2021-06-06 15:43:25]

**[Robert Garry]**

Must be part of the cover-up for sure....

[2021-06-06 15:44:48]

**[Robert Garry]**

I'm pretty sure this is going to be in either the NYT, the WashPost or both tomorrow. For sure the Australian and Daily Mail.

[2021-06-06 15:51:30]

**[Eddie Holmes]**

Godwin's Law: <https://www.youtube.com/watch?v=Qh5ZPquXbds>

[2021-06-06 15:56:06]

**[Robert Garry]**

Laughed out loud at the "calm down Rasmussen."

[2021-06-06 15:57:05]

**[Kristian Andersen]**

OMG that is SO good. I haven't laughed this hard for quite some time.

[2021-06-06 15:57:28]

**[Eddie Holmes]**

I have to say I did laugh.

[2021-06-07 07:47:17]

**[Robert Garry]**

fyi [shared file(s): image.png]

[2021-06-07 07:57:44]

**[Andrew Rambaut]**

Is he a nutter?

[2021-06-07 08:04:16]

**[Andrew Rambaut]**

His reply is not out-and-out lab escape. Perhaps more of an early spread in Europe type nutter?

[2021-06-07 08:12:28]

**[Kristian Andersen]**

I made another front page! [shared file(s): Screen Shot 2021-06-07 at 8.10.34 AM.png]

[2021-06-07 08:13:12]

**[Kristian Andersen]**

It's a pretty sad world we live in when deactivating a Twitter account makes the front page... :man-shrugging:

[2021-06-07 11:55:07]

**[Robert Garry]**

eDim vs Amy [shared file(s): image.png]

[2021-06-07 12:14:56]

**[Robert Garry]**

Policing narratives - sure eDim would never do that himself...

[2021-06-07 15:46:03]

**[Andrew Rambaut]**

Sorry Kristian, your career is up in smoke... [shared file(s): image.png]

[2021-06-07 15:46:43]

**[Andrew Rambaut]**

By the way, does anyone know who my handlers are? I would like to have a word (and some money).

[2021-06-07 15:46:59]

**[Kristian Andersen]**

Crap man! I have gotten a couple of emails about my career being over too. Twitter career maybe.

[2021-06-07 15:47:37]

**[Kristian Andersen]**

I'll have a handler Thursday onwards - and we already know Eddie has Jezza...

[2021-06-07 15:48:03]

**[Andrew Rambaut]**

I would quite like a handler. Tell me what to do.

[2021-06-07 15:48:05]

**[Eddie Holmes]**

Hang tight man

[2021-06-07 15:48:22]

**[Eddie Holmes]**

I'd like a pimp

[2021-06-07 15:48:32]

**[Kristian Andersen]**

I am one.

[2021-06-07 15:48:55]

**[Eddie Holmes]**

:sunglasses:

[2021-06-07 15:49:14]

**[Eddie Holmes]**

There should be pimp and handler emojis

[2021-06-07 15:52:08]

**[Robert Garry]**

I'm apparently a Simp as in ComSimp - close enough? BTW - there's a very good chance that the gentleman in the gif is wearing raccoon dog. Just saying...

[2021-06-07 16:02:31]

**[Eddie Holmes]**

If they do find it to be a raccoon dog then I think we should do a group photo shoot wearing raccoon dog furs

[2021-06-07 16:08:57]

**[Robert Garry]**

For Ian the conversion would be simple. Pimple to pimp.

[2021-06-07 16:22:11]

**[Robert Garry]**

Posting this likely to proved the ComSimp label, but: <https://www.wsws.org/en/articles/2021/06/01/wuha-j02.html>  
One of the reporters mentioned Michael R Gordon - He did the WSJ article on the supposed intel about the 2-3 sick WIV employees - linked to David Asher and Mike Pompeo. He and the other reporter wrote a story in the NYT that was a major factor in US starting the first Iraq War. This was Judith K Miller. Here from the Wiki: "\_The New York Times\_ determined that several stories she wrote about Iraq were inaccurate, and she was forced to resign from the paper in 2005.[2] According to commentator Ken Silverstein, Miller's Iraq reporting "effectively ended her career as a respectable journalist".[6]" We've seen this script before.

[2021-06-07 16:27:02]

**[Kristian Andersen]**

WSWS isn't exactly my main go to for news, but they have had a few really good articles lately. Hippies fighting back!

[2021-06-07 16:27:40]

**[Robert Garry]**

Gordon, Wade, McNeill - starting to see a bit of a pattern...the guy that busted Gordon/Miller - Robert Parry - can't make that up. <https://consortiumnews.com/2014/04/21/another-nyt-michael-gordon-special/>

[2021-06-07 16:28:14]

**[Eddie Holmes]**

I hate to keep going on about it, but the claim that WIV were working on pangolins pretty much proves they are lying

[2021-06-07 16:31:50]

**[Robert Garry]**

Parry died in 2018 - another investigative journalist Brian Deer [the one that took down Wakefield] possibly could give this a go.

[2021-06-07 17:16:50]

**[Kristian Andersen]**

Good to see Jason on it - and also with quotes from Mike. This is *\*very strictly\** between us, but here's a snippet from an email exchange I had with Mike earlier today...

I say we get him to sign our letter... [shared file(s): Screen Shot 2021-06-07 at 5.15.02 PM.png]

[2021-06-07 17:26:19]

**[Eddie Holmes]**

Huge!

[2021-06-07 17:27:31]

**[Eddie Holmes]**

He's just emailed me

[2021-06-07 17:30:03]

**[Kristian Andersen]**

I guess he just emailed all of us... That's nice - I can fully forgive scientists who realize they were wrong, admit it, and then move on. I'm not surprised Mike would be that person out of the lot. He still owes me a beer.

Eddie, do you want to email him back since I just talked to him on a separate thread?

[2021-06-07 17:31:43]

**[Eddie Holmes]**

Yes, I'll email him back

[2021-06-07 17:33:30]

**[Robert Garry]**

I sent a quick ten worder - please say more Eddie...

[2021-06-07 17:55:07]

**[Eddie Holmes]**

<https://www.theguardian.com/science/2021/jun/08/blacklist-claim-australian-research-council-admits-scanning-applicants-for-sensitivities-china-links>

[2021-06-07 18:06:51]

**[Kristian Andersen]**

Dang! WTF?

[2021-06-07 18:09:01]

**[Eddie Holmes]**

WTF indeed. Thanks everyone! Hopefully it's the AI stuff they are mainly worried about.

[2021-06-07 19:25:54]

**[Kristian Andersen]**

For reference. [shared file(s): Miners.jpeg]

[2021-06-07 19:31:50]

**[Kristian Andersen]**

Quay on Fox News

[2021-06-07 19:34:14]

**[Kristian Andersen]**

Using the recent paper to "lay to rest the natural origin of SARS-CoV-2" because, wait for it, no bats or pangolins were sold.

He's dumber than I thought. And yes, attacks on virology and unsafe research.

[2021-06-07 19:47:04]

**[Eddie Holmes]**

Total idiot

[2021-06-07 19:50:31]

**[Eddie Holmes]**

The lunatics have taken over the asylum

[2021-06-08 07:26:48]

**[Robert Garry]**

<https://unherd.com/2021/06/beijings-useful-idiot/?=frbottom> The race to the bottom continues....

[2021-06-08 07:36:41]

Indeed.

**[Andrew Rambaut]**

What do you think?

I think it makes sense to have a quick Zoom to discuss. Maybe once Eddie is up?

I was typing this - but Zooming better &&&&&&&&We're a little late to respond directly to Bloom2021. In my ideal world we would have a doc that peels off the more credible scientists (eg. Worobey) that have spoken out in favor of Lab Leak. Somehow encourage them to get past the superficial data that the outbreak started in Wuhan that has the WIV. The Evidence doc - I think could be used to address the CGGCGG nonsense, 2-3 sick WIV employees etc.. I'd make it a standalone supplement doc, but also a living doc - somewhere - not sure virological is best but a possibility..

I would prefer to keep it out of virological but we could create something. Could be fun to do it as a git hub repo. Allow us to have a full commit history, issue list etc. Would drive the Drastic bunch nuts because they would see it all happen but not be able to do anything.

Zoom later would be good.

Github would be great - I have been doing the same for some of my stuff. Let's have a Zoom once Eddie is up.

You can actually have the repo private but the output public in the pages.

zepnep = a little too far gone... [shared file(s): image.png]

Yup, she's gone. I'd love to have her explain exactly what version of the lab leak isn't a conspiracy theory - I certainly can't think of any.

I think I can see where her article is going - "the lab leak debate was silenced by labeling those believing in it as conspiracy theorists". There'll be others like it.

It's disgusting.

[2021-06-08 11:19:12]

**[Robert Garry]**

@Kristian Andersen - thanks for posting the Metzl piece. I will give him credit for becoming more forthwith - at least he's upfront now with clearly laying out that it's a cover-up and conspiracy. I'm more ok with that than the Relman doubletalk. I'm moving this over here to the executive group off record. I just this morning did a long interview for ABC Nightline - they mentioned that Metzl (maybe Relman likely Carrol and Koopsman all) on it. I'm guessing that what Metzl put up there is the same script he gave Nightline. Was I successful in rebutting - we'll see - always at the mercy of what may drop on the cutting room floor. post-interview I got the impression they liked what they heard. Got this from the producer as well. [shared file(s): image.png]

[2021-06-08 11:34:41]

**[Robert Garry]**

Just saw the other post from Metzl - he's also a liar and thug.

[2021-06-08 11:36:16]

**[Kristian Andersen]**

Yup - but unfortunately not enough to sue.

[2021-06-08 11:40:41]

**[Robert Garry]**

Plus you're a public figure. Bar higher. You thereby have to prove actual malice (not just that what was said was false) - in this case perhaps not so difficult.

[2021-06-08 11:40:52]

**[Robert Garry]**

Sharri as well.

[2021-06-08 11:46:01]

**[Kristian Andersen]**

We just have to accept that people like Jamie will win in the short-term, knowing that science will ultimately prevail. I'm fine with that.

[2021-06-08 11:54:11]

**[Robert Garry]**

One of the Bloomshitters co-author with zeynep - just saying... [shared file(s): image.png]

[2021-06-08 13:47:20]

**[Kristian Andersen]**

Somebody emailed me about this - I'm wondering if we/I should try to engage Gavin Schmidt. He got caught up in the "Climate gate" shit, so he might have some advice.... [shared file(s): E3PTjDjWQAI5T29.jpeg, E3PTvcDXwAEuLAX.jpeg]

[2021-06-08 13:53:11]

**[Robert Garry]**

Hi Robert,

I'm a reporter with the Daily Caller News Foundation. I'm reaching out to all the scientists that worked on the Nature Medicine paper "The proximal origin of SARS-CoV-2" about an op-ed published in the Wall Street Journal on Monday by Drs. Steven Quay and Richard Muller claiming the available science suggests a Wuhan lab leak.

As one of the scientists that contributed to the paper concluding that no laboratory-based scenario for COVID-19's origins are plausible, I was curious if you had any thoughts on their argument. Are Quay and Mueller missing anything here? My deadline is end of business Wednesday.



<https://www.wsj.com/articles/the-science-suggests-a-wuhan-lab-leak-11622995184>

Specifically:

\_\_ In the case of the gain-of-function supercharge, other sequences could have been spliced into this same site. Instead of a CGG-CGG (known as “double CGG”) that tells the protein factory to make two arginine amino acids in a row, you’ll obtain equal lethality by splicing any one of 35 of the other two-word combinations for double arginine. If the insertion takes place naturally, say through recombination, then one of those 35 other sequences is far more likely to appear; CGG is rarely used in the class of coronaviruses that can recombine with CoV-2.\_\_

\_\_ In fact, in the entire class of coronaviruses that includes CoV-2, the CGG-CGG combination has never been found naturally.\_\_

--  
\_...\_

\_\_ Now the damning fact. It was this exact sequence that appears in CoV-2. Proponents of zoonotic origin must explain why the novel coronavirus, when it mutated or recombined, happened to pick its least favorite combination, the double CGG. Why did it replicate the choice the lab’s gain-of-function researchers would have made?\_\_

\_\_ Yes, it could have happened randomly, through mutations. But do you believe that? At the minimum, this fact—that the coronavirus, with all its random possibilities, took the rare and unnatural combination used by human researchers—implies that the leading theory for the origin of the coronavirus must be laboratory escape.\_\_

Best,

--

Andrew Kerr  
Investigative Reporter  
Daily Caller News Foundation



[2021-06-08 13:59:24]

**[Kristian Andersen]**

More from Baltimore - from the damn good business reporter at LA Times... Why he can do what so many supposed ‘science’ journalists can’t, I don’t know...

<https://www.latimes.com/business/story/2021-06-08/nobel-laureate-baltimore-smoking-gun-for-the-covid-lab-leak-theory>

[2021-06-08 14:02:23]

**[Robert Garry]**

It's behind a paywall for me but good on DB. Maybe he'll sign our letter.

[2021-06-08 14:04:19]

**[Kristian Andersen]**

“Incognito” window and you should be able to read it...

[2021-06-08 14:09:40]

**[Robert Garry]**

That's a helluva trick - why did I not learn this before?

[2021-06-08 14:13:53]

**[Kristian Andersen]**

Works with Science too...

[2021-06-08 14:13:59]

**[Robert Garry]**

Love it: "Yet Baltimore has effectively disavowed his characterization of the furin cleavage site. As with so many other claims made to support the lab leak theory, this "smoking gun" turns out to be mostly smoke."

[2021-06-08 14:23:33]

**[Eddie Holmes]**

I can't Zoom today - I've got a lot on. I think we were lucky not to write the response to Bloom but should turn the evidence doc into a proper paper outlining what we do and don't know.

[2021-06-08 14:37:04]

**[Kristian Andersen]**

Yeah, I agree - tricky though. Should we try to aim for a Zoom tomorrow or Thursday (Friday)? I think it would be good to touch base on what we have and where to go next

[2021-06-08 14:42:30]

**[Eddie Holmes]**

I could do tomorrow morning - something like 2 pm your time

[2021-06-08 14:44:37]

**[Eddie Holmes]**

Ditto for Friday

[2021-06-08 15:01:42]

**[Andrew Rambaut]**

Let me know what time you decide - I can probably make it.

[2021-06-08 15:20:13]

**[Kristian Andersen]**

2pm my time tomorrow

[2021-06-08 15:26:41]

**[Eddie Holmes]**

:+1:

[2021-06-08 15:26:59]

**[Andrew Rambaut]**

OK 10pm my time.

[2021-06-08 15:28:13]

**[Andrew Rambaut]**

It is when Eddie says tomorrow - I never really know what day that is.

[2021-06-08 15:29:46]

**[Eddie Holmes]**

Sorry, my clock is set to Beijing time

[2021-06-08 15:30:19]

**[Andrew Rambaut]**

Well you need to be ready when your handlers call

[2021-06-09 02:52:09]

**[Andrew Rambaut]**

<https://www.theguardian.com/environment/2021/jun/09/raccoon-dogs-britain-non-native-pest-invasive-species>

[2021-06-09 04:50:11]

**[Robert Garry]**

That and the fact that the letters in raccoon can be rearranged to spell corona and it would appear that UK is ripe for the next spillover. Better see if you can figure out some system for monitoring virus genomes just in case...

[2021-06-09 12:53:28]

**[Kristian Andersen]**

I'm going crazy - I just read this as "Fauci Day gifts"... [shared file(s): Screen Shot 2021-06-09 at 12.52.10 PM.png]

[2021-06-09 13:29:27]

**[Robert Garry]**

attacks on me are an attack on science <https://twitter.com/townhallcom/status/1402681156953427973>

[2021-06-09 13:40:06]

**[Eddie Holmes]**

I thought Feb 1st was now Fauci Day?

[2021-06-09 15:37:19]

**[Eddie Holmes]**

Got this. He's a total piece of shit. I can either ignore him - in which case there might be some story that I am hiding stuff - or tell him that it was the presence of restriction enzyme sites and the reduced diversity near them which we then released were the reddest of herrings. [shared file(s): Screen Shot 2021-06-10 at 8.33.29 am.png]

[2021-06-09 15:39:31]

**[Eddie Holmes]**

It's the stuff in your Twitter thread Kristian.

[2021-06-09 16:13:33]

**[Kristian Andersen]**

Yeah, I'd just point him to my tweet - it's here:

[https://web.archive.org/web/20210607101425if\\_/https://twitter.com/K\\_G\\_Andersen/status/1400892933130256384](https://web.archive.org/web/20210607101425if_/https://twitter.com/K_G_Andersen/status/1400892933130256384)

[2021-06-09 16:13:49]

**[Kristian Andersen]**

If he's got further questions, he can go ahead and do the alignment himself.

[2021-06-09 16:14:53]

**[Eddie Holmes]**

Thanks! Send him that.

[2021-06-09 16:16:45]

**[Kristian Andersen]**

Yeah, I'd just email him saying that it was "the restriction site as Kristian described here: XX".

[2021-06-09 16:18:36]

**[Eddie Holmes]**

On it!

[2021-06-09 16:18:49]

**[Kristian Andersen]**

He's such a turd - the worst.

[2021-06-09 16:19:17]

**[Eddie Holmes]**

Total turd. BUT it would be good to show we are no hiding stuff.

[2021-06-09 16:26:57]

**[Kristian Andersen]**

Talking about turds. [shared file(s): Screen Shot 2021-06-09 at 16.26.07.png]

[2021-06-09 16:27:39]

**[Eddie Holmes]**

Makes me sick.

[2021-06-09 16:36:54]

**[Eddie Holmes]**

But I'm just a China stooge [shared file(s): Screen Shot 2021-06-10 at 9.35.09 am.png]

[2021-06-09 16:46:02]

**[Robert Garry]**

eDim is polluting the twitter with his rhetoric.

[2021-06-09 16:50:11]

**[Eddie Holmes]**

Yes, pure hate. I'd take my CV down but then I'll just get accused of covering things up.

[2021-06-09 17:03:27]

**[Kristian Andersen]**

Bob / Eddie (and Andrew - but I assume he's :zzz:) - any chance the two of you would have time to take a quick look at a document I'm preparing for Jim / NYTimes. It's about recent events and it's the only interview I'll take, so just want to make sure I don't get anything wrong.

[2021-06-09 17:03:48]

**[Eddie Holmes]**

Sure, pass it on.

[2021-06-09 17:04:12]

**[Kristian Andersen]**

Thanks - just shared the doc.

<https://docs.google.com/document/d/1F7T48AATRUu2ltnzDqIBaakxDYSGVlWAXYzAZz7dhU/edit?usp=sharing>

[2021-06-09 17:35:19]

**[Eddie Holmes]**

Looks good. A few things: (i) our Nature Medicine article was not an official policy document or an official statement - it was a just a scientific paper by a group of scientists; (ii) he is focused on one line in the paper but we also clearly say that is 'currently impossible' to prove or disprove other theories so were obviously open to more data and changing evidence; (iii) might say that the pangolin data - which coincidentally appeared at the same time because I was an author on the Lam et al. paper - was very helpful in suggesting a natural origin; (iv) it's ludicrous to suggest that our paper shut down research into a lab escape as the govt bodies were obviously still going on with this. If scientists want to publish counter data/evidence they had ever right to. We're not stopping them. We don't control and police the whole field. We are being assigned some sort of power that we just don't have!!

[2021-06-09 17:37:27]

**[Kristian Andersen]**

Very good, thanks Eddie. Yeah, it's ludicrous to suggest we somehow shut down the conversation - come on! Race to the bottom.

[2021-06-09 17:41:28]

**[Eddie Holmes]**

Agreed. That point needs to be made very clearly and very strongly.

[2021-06-09 19:14:15]

**[Robert Garry]**

Agree - you're simply telling the truth - the whole truth - also science - it's the same thing.

[2021-06-09 19:51:17]

**[Eddie Holmes]**

G7 now involved:

<https://www.theguardian.com/world/2021/jun/10/g7-communique-leak-covid-origins-inquiry-vaccines-forced-labour>

[2021-06-09 20:32:23]

**[Kristian Andersen]**

I'm sure that'll help move things along.

[2021-06-09 20:32:29]

**[Eddie Holmes]**

Also very important to remember that Australia pushed for a detailed investigation of COVID origins in April 2020.

So, clearly, we didn't inhibit this.

<https://www.theguardian.com/world/2020/apr/29/australia-defends-plan-to-investigate-china-over-covid-19-outbreak-as-row-deepens>

[2021-06-09 20:39:47]

**[Eddie Holmes]**

Perhaps we even caused it?

[2021-06-09 20:55:26]

**[Kristian Andersen]**

I suspect we might...

[2021-06-10 00:15:56]

**[Eddie Holmes]**

No. 3 in our series 'Emails that may go down in history':

[2021-06-10 00:16:04]

**[Eddie Holmes]**

shared file(s): Screen Shot 2021-06-10 at 4.56.47 pm.png

[2021-06-10 05:27:53]

**[Robert Garry]**

I think the fact that the Intel community was alerted - given the current Biden 90 days is important - that should be "leaked." as it puts the Fauci emails into another context. Proves we weren't fucking around.

[2021-06-10 05:52:08]

**[Robert Garry]**

Alina's take-down of my TWiV fell a little flat. But yes - freely admit that the notion that they removed SC2 susceptible animals from the HM was a "conspiracy theory" a big one! 'Cept now with Monday's SciRep my conspiracy theory is looking like a fact - yours Alina is still in TFH territory. [shared file(s): image.png]

[2021-06-10 13:58:33]

**[Eddie Holmes]**

Need to be careful with the intel people as I don't want to piss them off. I think we keep that card up our sleeve for now and play it if things get a lot worse.

[2021-06-10 14:11:46]

**[Eddie Holmes]**

I sent the evidence doc to Jeremy and got a thumbs up: [shared file(s): Screen Shot 2021-06-11 at 7.11.02 am.png]

[2021-06-10 16:33:51]

**[Eddie Holmes]**

I'm still working on the barcoding of the environmental samples from the market idea. There does appear to be some movement....

[2021-06-10 17:28:20]

**[Kristian Andersen]**

In better news. :chart\_with\_upwards\_trend: [shared file(s): Screen Shot 2021-06-10 at 11.36.06.png]

[2021-06-10 17:30:03]

**[Eddie Holmes]**

Keeps on giving!

[2021-06-10 17:30:56]

**[Kristian Andersen]**

Might also get us killed. Buy hey, we can print the final score on my tombstone :headstone:

[2021-06-10 17:35:40]

**[Eddie Holmes]**

That is such a good and I'll get to test it first!

[2021-06-11 06:26:13]

**[Robert Garry]**

Check the Metzl video on PBS - dude is in fact trying to get us and Daszak killed. PO1 a [CCP] propaganda piece , oh yeah....

[2021-06-11 06:26:26]

**[Robert Garry]**

Might actually think about a response to PBS.

[2021-06-11 14:15:24]

**[Eddie Holmes]**

That's totally irresponsible - I'll ask the University lawyers to take a look

[2021-06-11 15:41:22]

**[Eddie Holmes]**

For the smaller group only...I've heard there are MERS-like viruses in the pangolins. I assume these have a furin cleavage site. Trying to find out what the sequence is.

[2021-06-11 15:45:24]

**[Robert Garry]**

bingo

[2021-06-11 15:58:24]

**[Kristian Andersen]**

Ohhh, interesting.

I'm so confused about this pangolin stuff - did we always know they were full of CoVs? To me it's something we only found out recently, but I'm not that well-read in this space.

[2021-06-11 16:20:13]

**[Eddie Holmes]**

Not only did we know NOTHING about pangolin CoVs until the end of 2019 but we knew NOTHING about pangolin viruses. Period. Now it turns about they are balls of scales full of viruses. The narrative that these are just transient spillover infections is clearly wrong. They can be reservoirs. Whether these MERS-like viruses are of any importance is unclear, but it does show that pangolins are more important in the ecology of these viruses than we thought.

[2021-06-11 16:20:57]

**[Robert Garry]**

worth doing a closer look - HKU5 CAIPPTTSTRFRRATSGVSDV has a maximum FCS and its on the same branch as MERS CALPDTPSTLTPRSVRSVPGEM. HKU4 also there cavppvstfrs ysasqfqlav, but looking a lot like RmYN02 - so I guess we need assnat Yuri to help with the alignment.

[2021-06-11 16:21:31]

**[Robert Garry]**

*[thread - ID: 2021-06-11 16:21:31]*

<https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0236971> this new from PREDICT2 - partial sequences but the tree is interesting

[2021-06-11 17:28:57]

**[Kristian Andersen]**

I gotta say - the video with Metzl on YouTube is the only example of the comments being better than the reporting. Unlike a lab leak causing a pandemic, that truly may be a first.

[2021-06-11 17:36:25]

**[Eddie Holmes]**

Just watched it - what he says about our paper is pure slander.

[2021-06-11 18:02:09]

**[Robert Garry]**

I'm kinda ready to go all in on this - crap and bullshit from Mr. Metzl.

[2021-06-11 18:02:47]

**[Robert Garry]**

I don't care how many books he wants to sell - this literally is gonna get somebody killed.

[2021-06-11 18:10:39]

**[Eddie Holmes]**

I'll pass this to the Uni lawyers.

[2021-06-11 18:11:37]

**[Eddie Holmes]**

Will be interesting to see if the local media pick up on this.

[2021-06-11 18:35:51]

**[Robert Garry]**

Ditto - me too - Cease and desist letter at the least.

[2021-06-11 18:40:25]

**[Eddie Holmes]**

Particularly as we don't say 'conspiracy theory' at all

[2021-06-12 01:12:49]

**[Andrew Rambaut]**

*[thread - ID: 2021-06-11 16:21:31]*

@Robert Garry How are they allowed to show a cladogram? Reviewers - please?

[2021-06-12 15:47:29]

**[Eddie Holmes]**

<https://www.dailymail.co.uk/news/article-9680085/British-head-science-funding-body-Wellcome-Trust-accused-chilling-bid-stifle-debate.html>



[2021-06-12 15:53:30]

**[Kristian Andersen]**

People have lost their minds. Period.

[2021-06-12 15:53:38]

**[Eddie Holmes]**

Birrell is a piece of shit. I did laugh at the description of Daszak though.

[2021-06-12 15:55:11]

**[Kristian Andersen]**

He really is - he's so unbelievably dumb. Low IQ individual.

Snail researcher... :joy:

[2021-06-12 16:53:17]

**[Robert Garry]**

Wizard of Snails - sounds like a playable character in video game.

[2021-06-12 17:54:47]

**[Robert Garry]**

Worldwide conspiracy to suppress the truth about an outbreak when - on Jan31 there were about 10K cases worldwide. The vast majority in China (>9500).

[2021-06-12 18:01:18]

**[Eddie Holmes]**

It's an attack on truth and on science

[2021-06-12 18:08:41]

**[Kristian Andersen]**

This idea that there was some sort of "lab leak suppression campaign" is preposterous and dangerous - I mean, why the FUCK would anybody outside China try to suppress that if we thought it were true? Just doesn't make any sense.

People have lost their minds. Period.

[2021-06-12 18:10:04]

**[Kristian Andersen]**

FWIW Farrar and Fauci did exactly as they were supposed to do - take somewhat outlandish claims very seriously, launched a scientific investigation, alerted the relevant entities, and then stepped back to let science be science. A+ effort.

[2021-06-12 18:27:39]

**[Eddie Holmes]**

Exactly. Blatant lies are now becoming accepted 'facts'

[2021-06-12 18:58:19]

**[Robert Garry]**

"Bio-security expert Richard Ebright said that he was 'shocked' Farrar has given such weight to the 'pseudoscientific analysis'."

[2021-06-12 19:06:28]

**[Kristian Andersen]**

Bio-security expert Richard Ebright - who has contributed a tremendous amount of scholarly work during this pandemic.

Makes me sick. :face\_vomiting:

[2021-06-12 19:06:48]

**[Kristian Andersen]**

However, long game. That makes me feel good.

[2021-06-12 19:20:02]

**[Robert Garry]**

"I mean, why the FUCK would anybody outside China try to suppress that if we thought it were true?" *\*Obviously\**, we - including Fauci, Farrar - are all CCP propagandists. Great job hiding this from the spooks gentlemen!:female-detective:

[2021-06-12 19:40:45]

**[Eddie Holmes]**

Yes, totally insane. This is what Jeremy told me "We are facing a critical point for science, culture and society ... it depends now on what we stand for..."

[2021-06-13 06:12:13]

**[Robert Garry]**

Jeremy is a wise man. C19 - once it hit a couple of hundred thousand deaths - was going to be that - an inflection point. @Kristian Andersen if you decide to write that medium piece - I don't know which way to advise you on that - this might be an anchor: "FWIW Farrar and Fauci did *exactly* as they were supposed to do - take somewhat outlandish claims very seriously, launched a scientific investigation, alerted the relevant entities, and then stepped back to let science be science. A+ effort."

[2021-06-13 06:19:01]

**[Robert Garry]**

BTW - I'm speaking with Tulane's General Council re the Metzl/CNN slander tomorrow.

[2021-06-13 06:39:13]

**[Robert Garry]**

sharri <https://www.youtube.com/watch?v=ANRs4DojOek>

[2021-06-13 06:43:01]

**[Robert Garry]**

Oh, buy her book at the end...

[2021-06-14 09:23:01]

**[Robert Garry]**

Spoke with lawyer from the General Council's office - she believes that contacting CNN would be the correct thing to do. Leaving it unchallenged just empowers Metzl and his ilk to crank up to the next levels.

[2021-06-14 09:28:07]

**[Kristian Andersen]**

Agreed. Are they willing to do it? Scripps is a little more hesitant - but to go out there and call a scientific paper CCP propaganda on national TV is a disgrace that can't remain unchallenged. Metzl is doing this as an individual, so getting contacted by the lawyers from a big university might do the trick.

[2021-06-14 09:31:33]

**[Robert Garry]**

They are talking - I got the impression they'd be more likely if several of us went in together.

[2021-06-14 09:32:09]

**[Robert Garry]**

She wanted to see the email from bonecrusher...

[2021-06-14 09:33:46]

**[Kristian Andersen]**

Maybe have them reach out to Scripps directly? Seems like Sydney is already doing a lot, so they might be game :wink: .

Alanna Routan: [REDACTED] and Matt Tremblay: [REDACTED]

[2021-06-14 09:44:55]

**[Robert Garry]**

Will do...

[2021-06-14 12:16:54]

**[Andrew Rambaut]**

<https://journals.plos.org/plospathogens/article?id=10.1371/journal.ppat.1009664>

[2021-06-14 12:22:42]

**[Kristian Andersen]**

Another giant waste of time...

[2021-06-14 14:10:29]

**[Eddie Holmes]**

Ha, that will piss them off.

[2021-06-14 17:38:45]

**[Kristian Andersen]**

Gotta admit - some hate mail is better than others... A+ effort on this one.

Maybe a little paranoid, but :man-shrugging: [shared file(s): Screen Shot 2021-06-14 at 5.37.08 PM.png]

[2021-06-14 17:41:17]

**[Eddie Holmes]**

He needs to turn cap lock off

[2021-06-14 17:41:50]

**[Kristian Andersen]**

I think he ran out of questions marks too.

[2021-06-15 17:23:43]

**[Kristian Andersen]**

They're talking about us...

[https://www.washingtonpost.com/national-security/us-intelligence-wuhan-lab-coronavirus-o\[...\]/2021/06/15/2fc2425e-ca24-11eb-afd0-9726f7ec0ba6\\_story.html](https://www.washingtonpost.com/national-security/us-intelligence-wuhan-lab-coronavirus-o[...]/2021/06/15/2fc2425e-ca24-11eb-afd0-9726f7ec0ba6_story.html)

[2021-06-15 18:18:28]

**[Eddie Holmes]**

They are. A bit more reasoned.

[2021-06-15 18:25:25]

**[Robert Garry]**

We looked and considered all the evidence.

[2021-06-16 19:15:21]

**[Eddie Holmes]**

Straight to the bin: [shared file(s): Screen Shot 2021-06-17 at 12.14.54 pm.png]

[2021-06-16 19:21:12]

**[Kristian Andersen]**

Yeah she's been emailing me to o. I expect drivel. :-1:

[2021-06-16 19:24:55]

**[Eddie Holmes]**

Total drivel. As I noted before, Australia asked for an investigation into COVID origins in April 2020 so we can easily kick the 'we shutdown investigations' into touch.

[2021-06-17 17:35:25]

**[Robert Garry]**

Long talk with Daszak today - PTSD - no one deserve what he been put thru - learned a few things about the WHO study.

[2021-06-17 17:45:08]

**[Eddie Holmes]**

Indeed. One of my mantras has been how much worse it must be for Daszak. There's no way he is lying either.

[2021-06-19 07:32:37]

**[Robert Garry]**

Well done on doc @Eddie Holmes @Andrew Rambaut almost there...

[2021-06-19 08:59:44]

**[Andrew Rambaut]**

I have fixed a few minor things but will go over it tonight. Great work Eddie!

[2021-06-19 10:10:18]

**[Robert Garry]**

Bloom - please read !channel IMPORTANT [shared file(s): paper.pdf]

[2021-06-19 10:15:31]

**[Robert Garry]**

"However, the current study suggests that at least in one case, the trusting structures of science have been abused to obscure sequences relevant to the early spread of SARS-CoV-2 in Wuhan. A careful re-evaluation of other archived forms of scientific communication, reporting, and data could shed additional light on the early emergence of the virus."

[2021-06-19 10:33:49]

**[Andrew Rambaut]**

Is it deep sequencing data? Or amplicons?

[2021-06-19 10:35:40]

**[Andrew Rambaut]**

Amplicons -

```The study describes an approach to diagnose infection with SARS-CoV-2 and other respiratory viruses by nanopore sequenc-ing. This approach involved reverse-transcription of total RNA from swab samples, followed by PCR with specific primers to generate amplicons covering portions of the viral genome. These amplicons were then sequenced on an Oxford Nanopore Grid-Ion, and infection was diagnosed if the sequencing yielded sufficient reads aligning to the viral genome. Importantly, the study notes that this approach yields information about the sequence of the virus as well enabling diagnosis of infection```

At least 2 of the mutations talked about are in or immediately adjacent to ARTIC primer sites which always ring a few alarm bells:

```C18060T

MN908947.3 18036 18062 nCoV-2019\_59\_RIGHT 60 -

C28144T

MN908947.3 28145 28172 nCoV-2019\_92\_RIGHT 60 -

G28085T

MN908947.3 28081 28104 nCoV-2019\_93\_LEFT 60 +```

[2021-06-19 10:35:55]

**[Robert Garry]**

Wang \_et al.\_ (2020a) sequenced PCR amplicons covering nucleotide sites 21,563 to 29,674 of the SARS-CoV-2 genome, which spans from the start of the spike gene to the end of ORF10. They also sequenced a short amplicon generated by nested PCR that covered a fragment of ORF1ab spanning sites ~15,080 to 15,550. In this paper, I only analyze the region from spike through ORF10 because this is a much longer contiguous sequence and the amplicons were generated by conventional rather than nested PCR. I slightly trimmed the region of interest to 21,570 to 29,550 because many samples had poor coverage at the termini."

[2021-06-19 10:36:40]

**[Andrew Rambaut]**

Ah - OK so not the ARTIC amplicons then

[2021-06-19 10:39:07]

**[Robert Garry]**

WA1 is lineage A and has bat-like T8782 and C28144 plus another bat-like snp - what mutation is this?

[2021-06-19 10:41:05]

**[Robert Garry]**

More top secret stuff - Tony and Francis have arranged a call with Jesse tomorrow - need to sort this out...

[2021-06-19 10:42:47]

**[Robert Garry]**

C18060T?

[2021-06-19 11:33:37]

**[Andrew Rambaut]**

```But the earliest known SARS-CoV-2 sequences, which are mostly derived from the Huanan Seafood Market, are notably more different from these bat coronaviruses than other sequences collected at later dates outside Wuhan.```\n\nThis is incorrect - WA1 is from Wuhan

[2021-06-19 11:34:38]

[Robert Garry]

Yes from your earlier post (Numbering off by 1) Andrew Rambaut [12:11 PM]

Wuhan-Hu-1: T:8781:C|T:18059:C|C:28143:T

WH04: T:18059:C

WA1: 0:

[2021-06-19 11:34:43]

[Andrew Rambaut]

So it is they are notably (2 or 3 mutations) more distant from RATG13 than other viruses in Wuhan at the same time

[2021-06-19 11:56:30]

[Robert Garry]

Yes - he's got WA1 in the mix, but yes definitely WA1 early Wuhan for sure. I'm thinking Jesse making much ado about nothing - it's lineage A going to lineage B with WA1 from Wuhan ancestral.

[2021-06-19 12:03:01]

[Robert Garry]

"Rambaut _et al._ (2020) suggest that viruses from the clade labeled "B" in Figure 4 may just "happen" to have been sequenced first, but that other SARS-CoV-2 sequences are really more ancestral as implied by phylogenetic rooting." Uhhh Rambaut is right about this...

[2021-06-19 13:30:54]

[Robert Garry]

@Kristian Andersen let me know if you want to have call later today/tomorrow before Tony/FrancisII - interested in your thoughts

[2021-06-19 14:08:45]

[Kristian Andersen]

Yeah cutting my trip short for this and will be back tonight. Can we set up a call Sunday am with Andrew too?

[2021-06-19 14:09:41]

[Kristian Andersen]

I haven't looked at any of this yet

[2021-06-19 14:44:49]

[Robert Garry]

"The second explanation, which was proposed in a blog post by Garry (2021) and amplified by a popular podcast (Racaniello _et al._ 2021), is that there were multiple zoonoses from distinct markets, with the Huanan Seafood Market being the source of viruses in clade B, and some other market being the source of viruses that lack the T8782C and C28144T mutations. However, inspection of Figure 4 shows that clade B is connected to viruses lacking T8782C and C28144T by single mutational steps via other human isolates, so this explanation requires not only positing two markets with two progenitors differing by just two mutations, but also the exceedingly improbable evolution of one of these progenitors towards the other after it had jumped to humans." Actually no - simple to see how the mutations might have become fixed in the progression - I think the take-home is JB is dead set that Rambaut is wrong and actually B came before A. Because? [shared file(s): image.png]

[2021-06-19 14:45:25]

[Eddie Holmes]

Is this something or nothing? I can't quite get my head around it.

[2021-06-19 14:49:05]

[Robert Garry]

I think JB main point is they removed some SRA data re early cases - the data IMO - and maybe I can be shown the error of my ways - adds basically zero. It allows JB to complain about lack of transparency I guess.

[2021-06-19 14:49:14]

[Andrew Rambaut]

[thread - ID: 2021-06-19 14:49:14]

We already discussed this - the 'intermediates' are dubious and from February

[2021-06-19 14:52:17]

[Eddie Holmes]

It's a weird sort of stream of consciousness paper. Very naughty to include an email from the unrelated pangolin study in there. Is that even legal?

[2021-06-19 14:56:11]

[Robert Garry]

The WA1 tree - fig 4 and 6 looks fine to me - but me and trees so i really dunno. However the middle guangdong tree looks like :hankey: and forced just based on where WA1 lands, but again i'm no good here at all.

[2021-06-19 14:58:30]

[Eddie Holmes]

The February part seems important....

[2021-06-19 15:02:15]

[Robert Garry]

Unrelated pangolin study - must be either from Alina or a present to Alina. Seriously - not legal - invasion of privacy - unless he got permission somehow from all parties.

[2021-06-19 15:03:08]

[Eddie Holmes]

Yes, I agree. Can't believe he is doing this.

[2021-06-19 15:31:05]

[Andrew Rambaut]

Where did this paper come from? Is it public?

[2021-06-19 15:33:53]

[Robert Garry]

WA1 "The patient is a man in his 30s who lives alone. He had been traveling solo since November in Wuhan, China, a city of 11 million where the outbreak appears to have originated, health officials said. He had no symptoms on his flight or when he arrived at Seattle-Tacoma International Airport on Jan. 15, but he contacted doctors Jan. 19 when he developed a fever and cough, officials said. It's unknown which clinic he visited that day. The man was hospitalized for pneumonia and, on Monday, tested positive for coronavirus."

[2021-06-19 15:37:45]

[Robert Garry]

Apparently according to Francis Collins: "Jesse Bloom has just submitted to BioRxiv (attached)." So not up there yet. @Andrew Rambaut

[2021-06-19 15:39:43]

[Robert Garry]

and this just in from JB to the email chain (foias R' us) By the way, I just wanted to add one last piece of information prior to the meeting that might be relevant.

Because the e-mail Steve Sherry found from Wuhan University about the request to delete PRJNA612766 mentioned deleting two projects, I pointed my pipeline that is currently scanning for SRA deletions to that range of SRRs. It appears that the other largest chunk of contiguous deleted accessions of SARS-CoV-2 sequencing is from SRR11313377 to SRR11313509, which comes immediately after the PRJNA612766 accessions. I suspect that this might be the other sequencing project that Wuhan University requested to delete in their e-mail to the SRA? It might be informative if NCBI is able to confirm that just so we know that we have the both project deletions covered before meeting tomorrow.

I'm not going to have time to properly analyze the runs from SRR11313377 to SRR11313509 before tomorrow, but on an extremely cursory glance nothing looks that striking from those runs. Some of them contain the mutation A15090T which is not a mutation that I've come across before in early-ish isolates, but there isn't obvious significance of that mutation as the identity is A in most of the closely related bat coronaviruses (other than PrC31).

--

Jesse Bloom
Associate Professor, Fred Hutchinson Cancer Research Center
Investigator, Howard Hughes Medical Institute

[2021-06-19 15:56:39]

[Robert Garry]

Is this science? "It therefore seems likely the sequences were deleted to obscure their existence. Particularly in light of the directive that labs destroy early samples (Pingui 2020) and multiple orders requiring approval of publications on COVID-19 (China CDC 2020; Kang _et al._ 2020a), this suggests a less than wholehearted effort to trace early spread of the epidemic."

[2021-06-19 15:59:12]

[Eddie Holmes]

The direction to destroy the samples was from Jan 3rd 2020. It's got nothing to do with covering origins, and all to do with controlling the message. The pangolin stuff is actually from the USRTK from last year.

[2021-06-19 16:03:51]

[Robert Garry]

"Finally, both plausible putative progenitors require that an early mutation to SARS-CoV-2 was a reversion towards the bat coron- avirus outgroups (either C18060T or C29095T) on a branch that subsequently gave rise to multiple distinct descendants." WAIT is this true - I thought WA1 was T18060 so bat-like.

[2021-06-19 16:10:02]

[Eddie Holmes]

Well, Jesse has gone full-on conspiracy. I can well imagine people deleting data because they were shit scared what the state would do to them. And he's right that China want to control the message on origins...they are particularly keen that it is not China.

[2021-06-19 16:13:44]

[Andrew Rambaut]

What does he think they were trying to cover up? That there was something that was one SNP closer to a bat virus that hadn't even been sequenced by then?

[2021-06-19 16:13:59]

[Andrew Rambaut]

Unless it was !!!

[2021-06-19 16:18:30]

[Eddie Holmes]

Yes, and it would mean that someone did in China did some very detailed analysis very quickly and spotted this themselves. I can't see that they data deletion is specific to what the data actually says.

[2021-06-19 16:22:43]

[Robert Garry]

He's not overthinking this - Chinese scientist deletes sequences - holy shit it's a cover-up - must be a lab leak.

[2021-06-19 16:24:50]

[Robert Garry]

that was the fox news - murdock version coming to a tv screen near you very soon...

[2021-06-19 16:30:38]

[Eddie Holmes]

There's also news/rumours about China's top spy defecting to the US in Feb and providing info about a lab leak. I've just heard it on the radio. No idea what this actually means.

<https://www.telegraph.co.uk/news/2021/06/18/rumours-swirl-chinas-top-spycatcher-has-defected-us/>

[2021-06-19 16:39:09]

[Robert Garry]

If he's wearing a raccoon dog coat, I'm all ears!

[2021-06-19 20:23:38]

[Kristian Andersen]

Reading through Jesse's preprint now. I fail to see the relevance...

[2021-06-19 20:26:33]

[Kristian Andersen]

I mean, it's interesting enough, but none of this is surprising - and he clearly doesn't understand some pretty basic principles about early divergence. Oh well - I'm glad I cut my trip short by three days to hop on this call. I'm sure this'll be interpreted as the proof of a lab leak - I kinda just adds to the multi-market hypothesis and some Chinese scientists asked for the data to be deleted because Chairman Xi had made it clear that he is in charge.

I hate to think what will happen to the authors of the deleted data once this goes online - I can't say I think their lives

are not at risk.

[2021-06-19 20:29:16]

[Kristian Andersen]

[thread - ID: 2021-06-19 20:29:16]

I set up a pre-Zoom call for 11am PT tomorrow - Bob/Andrew, would that work for the two of you? I can move it earlier too. Eddie, I added you, but probably much too early on your end.

[2021-06-19 21:01:47]

[Kristian Andersen]

I'll just leave these here with no comments. [shared file(s): Screen Shot 2021-06-19 at 9.00.54 PM.png, Screen Shot 2021-06-19 at 8.58.22 PM.png]

[2021-06-19 21:09:06]

[Kristian Andersen]

[thread - ID: 2021-06-19 14:49:14]

@Andrew Rambaut Yeah. The intermediates very very likely don't exist - bioinformatics errors calling reference in regions with no coverage.

[2021-06-19 21:12:25]

[Kristian Andersen]

[thread - ID: 2021-06-19 21:12:25]

Sorry, one more... Too good. :kiss: [shared file(s): Screen Shot 2021-06-19 at 9.06.48 PM.png]

[2021-06-19 22:21:13]

[Kristian Andersen]

Just for reference - a list of the various mutations that often come up. Also, an alignment with Jesse's sequences and some other relevant ones.

Looking through all of this and reading the preprint a couple of times - this adds nothing. He found some deleted data, which is cool, but the reason for deletion has to do with fear of the CCP and them making it very clear they control everything - yes, not ideal, but welcome to the real world. I would not be in those scientists' shoes - they're going to go through hell. [shared file(s): 2021.06.19_SARS-CoV-2_RaTG13 Bloom.geneious, early_muts.txt]

[2021-06-19 22:23:29]

[Eddie Holmes]

Jesse's paper is hugely inflammatory. He didn't need to write it that way. Going to be a shit storm.

[2021-06-19 22:25:29]

[Kristian Andersen]

Agreed. He's so far down the conspiracy route and that's driving the language - he even thank those people in the acknowledgments...

I mean, this is nice enough and impressive effort - plus I totally agree that it'd be very helpful to get all of those fully sequenced + metadata, but do we think that's going to happen after this paper...? Words matter.

[2021-06-19 22:41:52]

[Eddie Holmes]

The pangolin bit makes my blood boil - he's included irrelevant FOIAd emails from people with no chance of reply. A new low.

[2021-06-19 23:25:28]

[Eddie Holmes]

I'm afraid - I won't make the Zoom tomorrow. Too early. Forgive me.

[2021-06-20 00:51:53]

[Robert Garry]

[thread - ID: 2021-06-19 21:12:25]

@Kristian Andersen Hail DRASTIC!

[2021-06-20 00:53:51]

[Robert Garry]

[thread - ID: 2021-06-19 20:29:16]

@Kristian Andersen Yes - perfect time for me - totally agree with comments since I went to sleep

[2021-06-20 02:30:31]

[Andrew Rambaut]

[thread - ID: 2021-06-19 20:29:16]

@Kristian Andersen I can make that.

[2021-06-20 10:03:04]

[Robert Garry]

"fear of the CCP and them making it very clear they control everything - yes, not ideal, but welcome to the real world." That certainly could be it, but It actually does not even need to be fear of the CCP - Take a look at the Wang2020 paper - it's very good - it not a paper about the early case they just used the samples to validate their nanopore sequencing. Furthermore, they have most of the sequence data in there that JB says they are *hiding* in the form of a Table. Same numbering of samples same data in Table 1 of Wang 2020 <https://onlinelibrary.wiley.com/doi/epdf/10.1002/sml.202002169> as in the Bloom preprint Table 1. What are more likely explanations is that they 1. pulled this data from NCBI so they could post it here National Genomics Data Center (NGDC) <https://ngdc.cncb.ac.cn/>

[2021-06-20 10:07:17]

[Kristian Andersen]

Yup, agreed - I came to a similar conclusion over night too. In any case - while we can't rule out the reason for pulling the data that JB describes as by far the most likely, in my eyes, while possible, it's highly unlikely. JB is coming from the angle of all Chinese scientists acting in bad faith, hence he can only see that reason - it's disappointing, frankly.

And yes, they provide a table. And yes, by reading their description of the mutations, it's clear they didn't even think of this as important data for understanding the origin - they were focused on a diagnostics. Plus, what do we really learn about the origin now we do have the data? Nothing - other than A and B lineages were circulating, which we already knew.

[2021-06-20 10:07:52]

[Kristian Andersen]

It's racism. Full stop.

[2021-06-20 10:11:16]

[Andrew Rambaut]

Is the exact same data deleted from NCBI on NGDC?

[2021-06-20 10:15:29]

[Robert Garry]

I made stab at finding it - PRJNA612766 doesn't pull anything up on NGDC. But, they could have renamed it or just didn't bother yet.

[2021-06-20 10:16:09]

[Kristian Andersen]

I'm digging too... Irrespective of this, all the relevant SNPs are in Table 1 - not trying to "hide" anything

[2021-06-20 10:16:20]

[Kristian Andersen]

(otherwise, why the heck would they include Table 1...)

[2021-06-20 10:19:50]

[Kristian Andersen]

Also, it's not that they mentioned the BioProject in their paper and then later pulled it - they added it there, presumably to later share the data, but then took it down for whatever (likely non-nefarious) reasons. Maybe the IP lawyers told them to. Maybe they thought, you know, maybe next time. Maybe they didn't have full IRB approval to share the raw data - who knows.

What I find deeply problematic here actually has to do with the SRA - apparently "deleting" data from the SRA doesn't actually do that. That's a HUGE issue for many other reasons

[2021-06-20 10:39:19]

[Kristian Andersen]

Joel will join us for the call in 20 mins too

[2021-06-20 13:22:25]

[Robert Garry]

@Kristian Andersen can we have a brief follow-up? Maybe a new zoom

[2021-06-20 13:22:46]

[Robert Garry]

or a call [REDACTED]

[2021-06-20 13:24:06]

[Robert Garry]

I do think that yes - I see more shit heading towards the fan

[2021-06-20 13:26:39]

[Kristian Andersen]

Yeah, let me grab some lunch and ping you with a Zoom in ~30mins if that works?

As to JB's last point about other things being deleted, I wonder where he got that from... [shared file(s): Screen Shot 2021-06-20 at 13.20.21.png]

[2021-06-20 13:27:37]

[Robert Garry]

4 central great - Jesus - he's full in DRASTIC...

[2021-06-20 13:27:54]

[Andrew Rambaut]

Just a thought but perhaps Peter Bogner was pressing the Chinese to not deposit on NCBI?

[2021-06-20 13:28:21]

[Andrew Rambaut]

He tried to get Duncan fired for doing that

[2021-06-20 16:41:04]

[Eddie Holmes]

What happened? I'm out of town for a few days.

[2021-06-20 16:41:59]

[Kristian Andersen]

JB being JB - King of DRASTIC.

[2021-06-20 16:42:53]

[Eddie Holmes]

He's totally lost it. His paper is clearly racist.

[2021-06-20 16:43:07]

[Kristian Andersen]

Yup.

[2021-06-20 16:43:59]

[Kristian Andersen]

Which was pointed out to him. Repeatedly. Yet - :man-shrugging:. In his words "I'll take the heat" (I pointed to out this wasn't about him, but :man-shrugging:)

[2021-06-20 16:48:19]

[Eddie Holmes]

Such a stupid thing to do. He could have raised these points without all the accusations.

[2021-06-20 16:49:41]

[Kristian Andersen]

Yup. And concluded - "It'd be really helpful if the samples were still available and full genomes could be produced". But no - he finishes on how this is a failure of science because the Chinese scientists are lying bastards.

[2021-06-20 16:50:18]

[Robert Garry]

I think some of this is about "taking the heat" or at least forcing his way into the spotlight. He'll be a hero to DRASTIC and Alina - will this be a step too far for any of the rest of the Bloomshitters. Btw JB and AC they are pretty much making a mockery of science. We'll know for sure when he starts making the rounds on Fox and Murdoch.

[2021-06-20 16:50:22]

[Kristian Andersen]

Tone deaf. :notes:

[2021-06-20 16:50:22]

[Eddie Holmes]

I can't believe he is really that naive

[2021-06-20 16:51:16]

[Kristian Andersen]

After this meeting, I honestly think something might be wrong with him. But I'm not going to speculate.

[2021-06-20 16:51:41]

[Kristian Andersen]

And it's not as much naive as it's willful ignorance.

[2021-06-20 16:52:15]

[Eddie Holmes]

I'm just disgusted that he has printed a FOIAd email in which the authors have no say

[2021-06-20 16:52:47]

[Kristian Andersen]

Agreed. He brought up the pangolin genomes. And RaTG13. It's full on conspiracy. \

[2021-06-20 16:54:23]

[Kristian Andersen]

"I'm just asking questions". He ended on talking about other data that had been deleted - from GISAID. My Google search above - I wonder where he got that idea from.... (stuff is being deleted on GISAID all the time - we do it,

Andrew does it, everybody does it - when we realize the data aren't quite right / contaminants).

[2021-06-20 16:59:23]

[Eddie Holmes]

Amazing

[2021-06-20 17:01:30]

[Kristian Andersen]

I'm sure Tony had to make an extra call to his security service - "Be ready, folks".

Anyways - we'll see. But hugely disappointing. Archiving a version of the preprint here with my highlights. [shared file(s): Bloom Preprint.pdf]

[2021-06-20 17:05:18]

[Eddie Holmes]

Is it up yet? I'm deliberately not looking at the bioRxiv queue as I don't want to have anything to do with this is in any way. Indeed, if bioRxiv post something that includes FOIA stuff I may quit

[2021-06-20 17:13:23]

[Kristian Andersen]

I haven't seen it in the quick queue yet.

[2021-06-21 10:22:16]

[Kristian Andersen]

And Trevor chimes in with total BS... [shared file(s): Re: URGENT: Seeking your expert advice]

[2021-06-21 10:35:29]

[Kristian Andersen]

I hope nobody responds back to this email, because I don't want to have a discussion about rooting a tree on an email chain that will be FOIAd. Trevor really should know better.

[2021-06-21 10:35:37]

[Robert Garry]

Is this worth a response - they totally do not get that the WHO report points to multiple markets. [shared file(s): image.png]

[2021-06-21 10:36:52]

[Robert Garry]

Agree about the FOIA stuff - is there some other channel to get this info to TB - JB was told but didn't pay attention.

[2021-06-21 10:37:15]

[Kristian Andersen]

We'll focus on getting an actual paper in place - why they think that this pandemic was caused by a single introduction into the human population, followed by perfect sampling, I don't know. Rasmus is excused for believing that, but Trevor? Plus, the issue of reversions.

Andrew, you need to train your people better :wink:.

[2021-06-21 10:49:41]

[Robert Garry]

Just to note I am on another email chain with McNutt Tony Relman and a few others following the WashPost article yesterday. Nothing ominous - but who knows what a dedicated DRASTIC look would find.

[2021-06-21 10:52:28]

[Kristian Andersen]

Eh? What's that about?

[2021-06-21 11:18:07]

[Robert Garry]

Marcia McNutt sent a long email about climate change. Basically everyone is on it that's quoted in the WashPost piece except Angie for some reason. So, it's the weather plus the attacks on science and scientists - I put up one of my emails in the WashPost thread - it has a not so subtle dig for Relman's benefit.

[2021-06-21 12:43:35]

[Andrew Rambaut]

I can ping him on his slack and suggest he stays off email

[2021-06-21 13:04:18]

[Kristian Andersen]

Thanks Andrew - yeah, that might make sense. Just not helpful - especially because he's wrong.

[2021-06-21 17:12:03]

[Andrew Rambaut]

Uggh....

```Thanks for the note Andrew. Public discourse and Twitter in particular surrounding "lab leak" has become increasingly toxic. I hope you're surviving the Fauci FOIA sniping. I wrote today's message to the group imagining it will get FOIAed. I do see this rooting issue as pretty critical. If root is parsimonious with RaTG13 or other outgroups it would suggest market as Huanan market outbreak as secondary foci. Or at least that's my take. But would be good to have a fully rigorous assessment of root and on top of this epi implications of different rootings. (edited)

10:12

I've had a sparsely running DM with Kristian about origins since last summer, though I largely hadn't been paying much attention to it until things blew up recently.```

`I wrote today's message to the group imagining it will get FOIAed.`

[2021-06-21 17:14:09]

**[Kristian Andersen]**

I don't think Trevor is thinking right...

Does he understand the \_actual\_ issues with the type of rooting he mentions? We have come a long way since the days of parsimony and I don't necessarily think this needs to go to Cladistics.

[2021-06-21 17:14:12]

**[Andrew Rambaut]**

My reply about the rooting:

```But I don't really see any of this as relevant other than some interesting epi and timing - it looks to me that the ideas we had right at the beginning that this was live animal population in markets, starting multiple chains of infection until 3 of them really kicked off. The evidence of live animals in these markets seem conclusive that here is a hugely explanatory hypothesis.

The lab-escape idea is a non starter unless there was actually evidence of 'lab-capture'. Anyone can see that escape has prior. The problem is without evidence that SC2 was in the lab in the first place just asserting it was is a non-starter. There are vastly more ways that live viruses can reach markets in Wuhan over nearly 2 decades than the chance that a few scientists found one in a bat (let alone cultured and stored in secret without sequencing it). Jesse, Fred and the others are going to make a huge fuss but there will never be anyway of scientifically getting evidence to support their idea - it basically requires documentary evidence which will not exist either way (either it doesn't exist or it was destroyed).```

[2021-06-21 17:18:54]

[Andrew Rambaut]

[thread - ID: 2021-06-21 17:18:54]

@Eddie Holmes Eddie - will you take control of the document again? I have been over it and removed some of the added waffle, tried to tighten it up a bit. Need to stop it wandering again. But I think it is looking really good.

[2021-06-21 17:19:05]

[Kristian Andersen]

It seems to me that there are four main issues here with his / Rasmus' thinking:

- They assume the sequence closest to RaTG13 must be the root - that is incorrect as we see a lot of reversions.
- They assume A > B and that that happened in the human population. We don't know that - A > B or B > A (former more parsimonious) and the MRCA may very well be in animals, not humans.
- They assume a single introduction into the human population.
- They assume non-biased sampling from both the Huanan market and elsewhere - we know this definitely isn't true. There might very well have been Lineage A circulating at the Huanan market, but we didn't capture it because of bias - e.g., SSE of Lineage B at that market.

The idea that any of the recent data make Huanan a less likely place for a spill-over is hugely flawed IMO - totally wrong.

[2021-06-21 17:19:31]

[Andrew Rambaut]

[thread - ID: 2021-06-21 17:18:54]

@Andrew Rambaut I have lazily put in a few 'REF's where it seem to need it. If they are still there tomorrow, I will go hunting.

[2021-06-21 17:24:50]

[Eddie Holmes]

Sure. I'm out of town this week and don't have much time to do much, but I'll take a look later. Is there anything about the rooting in the paper? I think we had probably add a line about this...I agree with Kristian's logic - I don't see why the sequence closest to RaTG13 is the root.

[2021-06-21 17:25:54]

[Andrew Rambaut]

Be good to preempt them

[2021-06-21 17:26:42]

[Eddie Holmes]

Have you seen Sergei's Italian job?

[2021-06-21 17:27:09]

[Andrew Rambaut]

No?

[2021-06-21 17:27:15]

[Kristian Andersen]

[thread - ID: 2021-06-21 17:27:15]

The problem with the rooting is that it's very complex so not sure we want to add it - working on a paper with Joel and Marc that should settle this. But it's just so frustrating to see their naiveté - especially since they know a lot more about rooting than I do. But this one is obvious...

[2021-06-21 17:27:39]

[Eddie Holmes]

Ok...I'll find it....definitely keep this to yourself...

[2021-06-21 17:27:56]

[Kristian Andersen]

Oh boy.

[2021-06-21 17:29:09]

[Eddie Holmes]

Check out Figure 2 [shared file(s): 21-09335_Proof_hi.pdf]

[2021-06-21 17:30:02]

[Andrew Rambaut]

I cant read it now but they are mental

[2021-06-21 17:31:11]

[Eddie Holmes]

They say D614G was there in September 2019

[2021-06-21 17:31:24]

[Andrew Rambaut]

[thread - ID: 2021-06-21 17:27:15]

@Kristian Andersen We talk about the 2 haplotypes (I think we should add the 3rd). We can just say that the 1100 mutations to bat makes it impossible and cite Sergeis reply to the Forsters. I will come up with something in the morning

[2021-06-21 17:31:47]

[Kristian Andersen]

OMG, he mentioned “early cases in Europe” on the call yesterday and how “all the timing may well change”. Come on - this is dumb. I didn’t want to get into an argument about it on the call, but come on guys.
:face_with_rolling_eyes:

[2021-06-21 17:32:06]

[Kristian Andersen]

I’m sure Chairman Xi will welcome this paper with open arms.

[2021-06-21 17:32:26]

[Kristian Andersen]

[thread - ID: 2021-06-21 17:27:15]

@Kristian Andersen Awesome.

[2021-06-21 17:33:46]

[Eddie Holmes]

It was sent to me by someone who was reviewing it for advice and I said it was almost certainly just contamination from the major Italian wave...notable that they are getting the sequences from the patients that are PCR negative.

[2021-06-21 17:34:44]

[Andrew Rambaut]

Why are they saying it came from Wuhan? Why not an Italian lab escape? Bonkers

[2021-06-21 17:34:45]

[Kristian Andersen]

D614G is pretty much a dead giveaway...

[2021-06-21 17:35:06]

[Kristian Andersen]

USAMRIID after all, huh? I hear there’s an Italian working there.

[2021-06-21 17:35:43]

[Andrew Rambaut]

Knew it. It was Gus

[2021-06-21 17:36:16]

[Eddie Holmes]

Yes, I love the way it goes from Wuhan and then to Italy :zany_face: For the rooting thing, I think it just needs one statement given that we have the 2 lineages x 2 markets story. It doesn't need to be definitive but just to say it is complex.

[2021-06-21 17:36:29]

[Kristian Andersen]

Argentinian, I believe, but basically the same, so definitely.

Just connecting dots here.

[2021-06-21 17:37:21]

[Eddie Holmes]

There are a lot Italians in Argentina...

[2021-06-21 17:37:40]

[Eddie Holmes]

Diego Maradona played for Napoli

[2021-06-21 17:37:58]

[Kristian Andersen]

Nailed it!

King of DRASTIC.

[2021-06-21 17:38:25]

[Eddie Holmes]

Diego was a good mate of Castro!

[2021-06-21 17:38:30]

[Kristian Andersen]

I mean - what are the chances? Maradona 100% the best player of all times, so clearly there's a connection here.

[2021-06-21 17:40:57]

[Eddie Holmes]

[thread - ID: 2021-06-21 17:27:15]

@Kristian Andersen Yes, that's all I wanted. Perfect.

[2021-06-21 17:57:22]

[Robert Garry]

:exploding_head:

[2021-06-21 18:09:11]

[Eddie Holmes]

USAMRIID were developing the bioweapon and testing on prisoners at Guantanamo. Castro found out and wanted to know what it was. He got hold a sample and gave it to his mate Maradona to give to an Italian lab to be discretely tested. Their sloppy lab protocols allowed it to escape into Rome. Unfortunately, Maradona also took a sniff of the vial and died. Patient zero - 25th November 2020. If we had his sequence it would be another snp closer to RaTG13. Maradona's shirt number was 10, which only 3 away from the 13 in RaTG13. It all fits, apart from the Wuhan wet market.

[2021-06-21 18:40:17]

[Kristian Andersen]

You might want to email that to Metzl - I suspect he might want to replace his current history of events that took place.

[2021-06-21 21:05:39]

[Eddie Holmes]

Well, here's one for a FOIA request. I'm not sure how I should reply ('why did you delete the database?'). [shared file(s): Screen Shot 2021-06-22 at 2.04.02 pm.png]

[2021-06-21 21:07:49]

[Kristian Andersen]

Dang - is that legit from her? My question would be about the recent "animals at the market" paper - "what's your thought on this?".

[2021-06-21 21:10:08]

[Eddie Holmes]

Oh, you're right. Perhaps it not from her at all.

[2021-06-21 21:11:10]

[Kristian Andersen]

Check the header of the email

[2021-06-21 21:12:21]

[Eddie Holmes]

It's from zlsht [REDACTED] It reads legit. She's not asking for anything.

[2021-06-21 21:13:34]

[Eddie Holmes]

I can ask Linfa if it's correct.

[2021-06-21 21:15:27]

[Kristian Andersen]

Yeah, ask Linfa - I'd LOVE to get her insights on what she thinks happened, especially in light of the recent paper. She's the #1 expert in the world on this shit...

[2021-06-21 21:17:17]

[Eddie Holmes]

I agree. I'll ask Linfa. If legit I'll ask what she thinks actually happened. No one seems to ask her that...they just spend all the time trying to trick her out.

[2021-06-21 21:28:04]

[Eddie Holmes]

Hmmm.... [shared file(s): Screen Shot 2021-06-22 at 2.27.26 pm.png]

[2021-06-21 21:28:52]

[Eddie Holmes]

I've just sent him the message to check whether he thinks it's from her.

[2021-06-21 21:38:01]

[Kristian Andersen]

Hmmm, interesting. But yeah, the question here is if she's trying to reach you outside the great Chinese firewall... The message seems legit enough, so who knows.

[2021-06-21 21:48:27]

[Eddie Holmes]

Linfa says it is :100: fake!! Tone and English are all made up. What kind of world are we living in?!?

[2021-06-21 21:49:42]

[Kristian Andersen]

Fuck! Probably some DRASTIC trick. Are you able to see the full headers in the email? That should allow you to see what country the email was sent from

[2021-06-21 21:53:19]

[Eddie Holmes]

Yes, probably DRASTIC. I'll check full headers when I get home.

[2021-06-21 21:53:21]

[Kristian Andersen]

E.g., here's what an email from you to me looks like showing the full headers [shared file(s): Original Message.pdf]

[2021-06-21 21:54:12]

[Eddie Holmes]

Great, thanks! I'll check in a while and let you know.

[2021-06-21 23:15:35]

[Andrew Rambaut]

Wow - just saw this. Can't trust anything.

[2021-06-21 23:16:27]

[Andrew Rambaut]

Post the full headers - let's see what stuff we can see... go Drastic on them.

[2021-06-21 23:16:45]

[Eddie Holmes]

Full header... [shared file(s): zlshi.pdf]

[2021-06-21 23:19:34]

[Andrew Rambaut]

Hmm. Nothing.

[2021-06-21 23:20:49]

[Eddie Holmes]

It says lsh [REDACTED] designates [REDACTED] as permitted sender and that is from Hong Kong

[2021-06-21 23:21:32]

[Eddie Holmes]

Tencent cloud computing

[2021-06-21 23:22:32]

[Andrew Rambaut]

<https://www.whois.com/whois/qq.com>

[2021-06-21 23:23:22]

[Andrew Rambaut]

This is fun... I see why they enjoy it... [shared file(s): image.png]

[2021-06-21 23:28:24]

[Andrew Rambaut]

Sadly 'qq' is just an internet portal: https://en.wikipedia.org/wiki/Tencent_QQ

[2021-06-21 23:29:05]

[Andrew Rambaut]

I.e., where you might go to create a private email address.

[2021-06-21 23:29:05]

[Eddie Holmes]

So, no clues then.

[2021-06-21 23:29:31]

[Andrew Rambaut]

A good choice for a hoax address - plausible.

[2021-06-21 23:31:04]

[Andrew Rambaut]

It is tempting to try and come up with a counter-scheme - provide a bit of information and see where it pops up. But probably the sensible thing is just to put it in your notes for your memoirs

[2021-06-21 23:31:16]

[Eddie Holmes]

Linfa was pretty adamant [shared file(s): Screen Shot 2021-06-22 at 4.30.46 pm.png]

[2021-06-21 23:35:03]

[Eddie Holmes]

Reading it again, I am can see one deliberately trying to make it sound like bad English. Her emails to Jon Cohen are a lot better written.

[2021-06-22 02:06:38]

[Andrew Rambaut]

Might be worth warning the other channel about some of these attempts at getting responses.

[2021-06-22 02:53:49]

[Eddie Holmes]

Good idea.

[2021-06-22 18:09:59]

[Eddie Holmes]

Sergei, I think the only thing that we will need to revise in the light of any new data is your standing as a scientist: [shared file(s): Screen Shot 2021-06-23 at 11.07.20 am.png]

[2021-06-22 18:12:10]

[Kristian Andersen]

He's talking about his Italian Job...

[2021-06-22 18:12:32]

[Eddie Holmes]

Surely

[2021-06-22 18:15:34]

[Eddie Holmes]

I REALLY hope they preprint soon because it is going to cause so many heads to explode. Such garbage.

[2021-06-22 18:19:33]

[Kristian Andersen]

So much of it. I just don't understand.

[2021-06-22 18:46:45]

[Robert Garry]

What's to understand? National Institute for Infectious Diseases IRCCS 'L. Spallanzani' – Rome, Italy - what are the odds that there would be a BSL4 lab so close by?

[2021-06-22 18:50:20]

[Eddie Holmes]

I so want this paper online. I hope there's a scandal about why they haven't they preprinted it.

[2021-06-23 02:38:47]

[Andrew Rambaut]

```@Kristian I have dug out some analysis of the early haplotypes I did way back and updating it. I realise it overlaps with what Joel's student is doing so I will make sure it doesn't impact on that - it is for internal use of this group. I also have in mind a rebuttal of the Italian Job.```\nMeant to put this on this Channel.

[2021-06-23 02:42:40]

**[Eddie Holmes]**

I suspect the Italian Job paper will have great trouble getting published. It was only in review at NEJM. I can't believe for a sec they will take it.

[2021-06-23 03:28:27]

**[Andrew Rambaut]**

No but they will push it out somewhere. I assume they are not preprinting it so it doesn't get demolished whilst trying to slip it in a high-impact

[2021-06-23 03:50:49]

**[Andrew Rambaut]**

Jeremy just emailed Eddie and me (he just wants to know if he should worry, I think). Eddie you may have gone to bed now. I was planning to reply with -\n```\nA total red herring delivered with unsupported insinuation of malfeasance. All of the actual data is in Table 1 of the cited paper, and is exactly the same as reconstructed by Jesse from the 'deleted' reads. The paper was published after the data was deleted so if they wanted to hide something they could have simply not published it. The data just shows there were other haplotypes in Wuhan in January which we knew already - we also now that some aren't associated with the Huanan market. But that was discussed in the WHO report already. It fits very well with the idea there were multiple markets with captive wild animals acting as a more distributed source of human infections until it took hold in a few transmission chains.```\nShould I add anything else?

[2021-06-23 04:07:42]

**[Eddie Holmes]**

Might possibly add that the tree is hard to root because of distant outgroup and reversions and the intermediates might be miscalls. I'll email him tomorrow.

[2021-06-23 13:58:16]

**[Kristian Andersen]**

All too predictable - I'm sure there will be NO more data coming from China. Case closed. [shared file(s): Screen Shot 2021-06-23 at 13.56.35.png]

[2021-06-23 14:04:23]

**[Robert Garry]**

We'll do the best we can with what we got....

[2021-06-24 02:55:34]

**[Eddie Holmes]**

@Robert Garry Do you think the Wang et al. people who publicly say why they deleted the data? That would help a lot. Perhaps this can be communicated through John Cohen at Science (or even Kai) that it is reported in a neutral way? I can also ask Yongyi to tell Jon about the pangolin deletion.

[2021-06-24 03:42:17]

**[Robert Garry]**

I'm trying to get them to do it. From what I understand via Shi is they feel they are in a damned if they do/damned if they don't scenario. But good to advise them it would be communicated through some trusted journalists. I'll keep trying.

[2021-06-24 07:43:59]



**[Kristian Andersen]**

I definitely think some quotes to Jon Cohen would be very very helpful - people need to see these as, well, people.

[2021-06-24 09:41:05]

**[Kristian Andersen]**

Just had another call with NIH folks and they're really struggling with all the different evidence out there. Should we consider sharing our draft with them at this stage or should we wait?

[2021-06-24 09:44:51]

**[Andrew Rambaut]**

Shouldn't take long to make a first draft of it. I think it is looking pretty good. Need to check it for any lose-ends or chinks that can be exploited to cast doubt.

[2021-06-24 09:45:42]

**[Kristian Andersen]**

Yeah, I'm going to go through this over the weekend - bloody study section is killing me, but it's DONE tomorrow.

[2021-06-24 11:41:28]

**[Robert Garry]**

Trying to make a figure to show the FCS - out-of-frame insertion etc. Other stuff [shared file(s): image.png]

[2021-06-24 13:32:15]

**[Robert Garry]**

Then I got hung up trying to figure out which is the 12 base insert TCCTCGGCGGGC or CTCCTCGGCGGG

[2021-06-24 13:38:55]

**[Robert Garry]**

Might have to look at some other bat covs...

[2021-06-24 13:39:17]

**[Robert Garry]**

Nucleic acids - I'm not sure how you guys cope...

[2021-06-24 17:11:28]

**[Eddie Holmes]**

I'm going to try and take another look at the paper over the weekend. Just swamped at the moment.

[2021-06-25 15:05:18]

**[Andrew Rambaut]**

Hang on - I will check to see if this is one of the same recombinant we discuss in our preprint.

[2021-06-25 15:08:16]

**[Eddie Holmes]**

Perhaps I should post it and let the public decide

[2021-06-25 15:09:48]

**[Andrew Rambaut]**

It doesn't cite our recombination in B.1.1.7 paper -  
<https://www.medrxiv.org/content/10.1101/2021.06.18.21258689v1>

(which was also on virological for a few months)

[2021-06-25 15:10:31]

**[Eddie Holmes]**

This paper is saying that B.1.1.7 is itself a recombinant

[2021-06-25 15:10:55]

**[Andrew Rambaut]**

It also doesn't cite our original virological post <https://virological.org/t/563> which gives a suggestion of how it arose (not stepwise)

[2021-06-25 15:11:04]

**[Andrew Rambaut]**

It isn't a recombinant.

[2021-06-25 15:11:34]

**[Andrew Rambaut]**

But I don't care really - it won't get anywhere

[2021-06-25 15:12:07]

**[Eddie Holmes]**

I'll ponder it...

[2021-06-25 15:12:42]

**[Kristian Andersen]**

I'd reject it - if they then come back, it can go online. But the methods are incorrect.

[2021-06-25 15:12:48]

**[Andrew Rambaut]**

There are some intermediates but we believe they are sequences of mixtures (we can look at the BAM files - they are all one ENA unlike the Wuhan genomes)

[2021-06-25 15:13:56]

**[Andrew Rambaut]**

I think they have found some dodgy sequence. Jotun Hein also sent us a preprint which claimed to have discovered a recombinant but when we looked, the negative control for that plate was hooching with reads.

[2021-06-25 15:14:06]

**[Andrew Rambaut]**

They need to check the raw data (which is available)

[2021-06-25 15:14:36]

**[Andrew Rambaut]**

However, I assume it isn't your job to review it

[2021-06-25 15:15:04]

**[Andrew Rambaut]**

You could at least say they should contact CoG to collaborate

[2021-06-25 15:15:15]

**[Andrew Rambaut]**

As that are the GISAID rules

[2021-06-25 15:15:22]

**[Eddie Holmes]**

Our job is not to review. I only reject if it is dangerous/malicious/nutso.

[2021-06-25 15:15:44]

**[Andrew Rambaut]**

Accept it then - won't hurt anyone

[2021-06-25 15:16:31]

**[Eddie Holmes]**

Yes, that's my inclination. Hopefully people will just shit on it quickly.

[2021-06-25 15:18:43]

**[Andrew Rambaut]**

Yeah. Nick will destroy it with a quick look at the BAM file and a tweet

[2021-06-25 15:19:30]

**[Kristian Andersen]**

Will he delete the BAM file then? Because... you know.

[2021-06-25 15:23:55]

**[Andrew Rambaut]**

We should do that - just to troll those Chinese authors.

[2021-06-25 15:41:00]

**[Kristian Andersen]**

I'm sure this'll be insightful...

<https://www.republicanwhip.gov/news/select-subcommittee-republicans-announce-expert-witness-forum-on-covid-19-origins/>

[2021-06-28 14:56:25]

**[Andrew Rambaut]**

Shall we ask Mike W if he wants to be an author? I don't think it would be incompatible with his being on the Bloom letter and I think he would see the good science. Would be good to pull over a few Bloom letter peeps.

[2021-06-28 14:57:24]

**[Eddie Holmes]**

Sure. It will be noted. Just make sure he doesn't share it.

[2021-06-28 14:58:40]

**[Eddie Holmes]**

I might ask Peter Doherty. Would be good to get a Nobel on board.

[2021-06-28 15:00:51]

**[Andrew Rambaut]**

How many extra authors do we want? Only big hitters? Broad range of fields?

[2021-06-28 15:01:29]

**[Eddie Holmes]**

Not a huge number. People who will contribute. See other channel.

[2021-06-28 15:02:08]

**[Kristian Andersen]**

Yeah, agreed - let's get some big hitters / CoV folks, but other than that, keep it simple. Mike would be good so we have some cross-fertilization.

[2021-06-28 15:02:09]

**[Andrew Rambaut]**

But we don't want them actually to contribute - or we will get in the editing mess again.

[2021-06-28 15:02:31]

**[Andrew Rambaut]**

Could do with some epidemiology and some ecology

[2021-06-28 15:02:51]

**[Eddie Holmes]**

*[thread - ID: 2021-06-28 15:02:51]*

But they most comment otherwise they shouldn't be an author and that would give us grief

[2021-06-28 15:02:56]

**[Kristian Andersen]**

I'm wondering if we should consider Pamela Bjorkman too - big name and she's not happy with her Science letter

[2021-06-28 15:03:26]

**[Andrew Rambaut]**

Make it as broad as possible - not just virologists worried about being allowed to create frankenstein viruses.

[2021-06-28 15:04:11]

**[Andrew Rambaut]**

*[thread - ID: 2021-06-28 15:02:51]*

Yes - we need documented evidence of a suggested edit.

[2021-06-28 15:04:28]

**[Eddie Holmes]**

Exactly!

[2021-06-28 15:11:15]

**[Andrew Rambaut]**

Need to keep gender balance and non-US/UK angle

[2021-06-28 15:12:14]

**[Andrew Rambaut]**

Let's try and vet the names before Angie and Stephen invite every virologist they ever had a drink with

[2021-06-28 16:03:54]

**[Andrew Rambaut]**

Mike said he would love to be involved.

[2021-06-28 16:05:09]

**[Kristian Andersen]**

Great!

[2021-06-28 16:12:05]

**[Eddie Holmes]**

Fab!

[2021-06-28 17:48:05]

**[Eddie Holmes]**

They really are a bunch of cunts [shared file(s): Screen Shot 2021-06-29 at 10.46.18 am.png]

[2021-06-28 17:51:20]

**[Kristian Andersen]**

WTF????! This is Zhang? I mean - one of the biggest virologists in China? That's fucking awful.

[2021-06-28 17:52:07]

**[Eddie Holmes]**

Yup. I tell you, so much of this is done to George.

[2021-06-28 17:52:56]

**[Kristian Andersen]**

Just awful.

[2021-06-28 17:58:23]

**[Eddie Holmes]**

I'm meant to be on a review paper for Nature on COVID with George. I'm going to take my name off now in protest. Weifeng is a good guy, but I can't agree to this.

[2021-06-29 18:34:56]

**[Eddie Holmes]**

I'm going to blow my brains out if people getting adding text. It's not an undergrad essay FFS.

[2021-06-29 18:45:08]

**[Kristian Andersen]**

We should lock editing on the new version...

[2021-06-29 18:57:37]

**[Eddie Holmes]**

If I'm your average punter, I don't want to hear about false equivalence. I just want to know if it came out of a lab or not.

[2021-06-29 19:04:25]

**[Kristian Andersen]**

Hah - that edit was mine and I actually think that point is really key :wink:. But hey, all good to axe :axe:

[2021-06-29 19:08:25]

**[Eddie Holmes]**

The point is correct, but not for this doc. We need to end on a simple and powerful argument - no direct evidence for a lab escape.

[2021-06-30 09:59:33]

**[Andrew Rambaut]**

How are we doing new coauthors like Mike? Could give him comment only permissions on the GoogleDoc or send him a word version and then manually work in the comments? Ora PDF for initial look? Could embed a secret code in each version we send out to track leaks

[2021-06-30 10:20:31]

**[Robert Garry]**

Perhaps, word version and request that they use track changes probably works the best. Old school. You can do the same with Google docs obviously but when ten or more ppl get to making changes as we've seen now about 5X it gets unwieldy.

[2021-06-30 10:36:28]

**[Andrew Rambaut]**

Personally I find it much worse when I get 10 word documents with track changes on and have to merge them.

[2021-06-30 10:37:32]

**[Andrew Rambaut]**

I have created a PDF version with a code in the DOI of the last reference. [shared file(s): Image from iOS.jpg]

[2021-06-30 10:39:31]

**[Andrew Rambaut]**

But I may be a bit paranoid

[2021-06-30 10:42:09]

**[Andrew Rambaut]**

I am thinking for the figure a simple two panel with the tree rooted between A and B and the map with the cases on it. We can link them up using colours.

[2021-06-30 10:44:43]

**[Kristian Andersen]**

Sounds good about the figure - keep it simple. Possible to shade the excess deaths on the map too? Issue with cases is that people will say there was a sampling bias towards the market.

[2021-06-30 10:46:04]

**[Kristian Andersen]**

*[thread - ID: 2021-06-30 10:46:04]*

Excess deaths is simple data [shared file(s): Screen Shot 2021-06-23 at 09.59.57.png]

[2021-06-30 13:32:44]

**[Andrew Rambaut]**

Should be able to do something with that.

[2021-06-30 14:14:44]

**[Eddie Holmes]**

I've got 2 new authors - Tim Skern and Jemma - who have given proper comments on a PDF. That gave me some control.

[2021-06-30 15:55:39]

**[Kristian Andersen]**

I assume no interest? [shared file(s): Author Invitation -- Bulletin of the Atomic Scientists ]

[2021-06-30 16:03:24]

**[Eddie Holmes]**

I think our Nature paper fills that niche

[2021-06-30 16:05:19]

**[Kristian Andersen]**

Yeah. Plus, I want to tell this guy to FUCK OFF!

[2021-06-30 16:06:00]

**[Eddie Holmes]**

Permission granted

[2021-07-01 00:13:21]

**[Andrew Rambaut]**

@Eddie Holmes Would you send a copy to Mike? He is expecting it but I just have my phone at the moment

[2021-07-01 00:41:21]

**[Eddie Holmes]**

Will do shortly.

[2021-07-02 08:29:54]

**[Andrew Rambaut]**

Do we have an editable version of the figures? Do you want me to try to integrate them and style them a bit?

[2021-07-02 08:38:57]

**[Andrew Rambaut]**

*[thread - ID: 2021-06-30 10:46:04]*

I would like to do something with this but the resolution is too bad to extract the data even though it is just binary. I can't see the exact districts in the centre. We need to get the raw data or better quality figures.

[2021-07-02 08:43:31]

**[Andrew Rambaut]**

Actually looking more carefully - I don't think it is much use to us

[2021-07-02 08:43:40]

**[Kristian Andersen]**

We unfortunately don't have either raw data or higher quality figures :disappointed:. I asked Marion, but she said there's no way to get the data since all of that is on the Chinese side. The excess deaths plot is just a fill within some neighborhood borders, so maybe we can find a vector of their maps?

[2021-07-02 08:43:49]

**[Andrew Rambaut]**

It is all in week 3 or later

[2021-07-02 08:44:15]

**[Andrew Rambaut]**

The December stuff I guess the numbers are too small to be detectible

[2021-07-02 08:44:28]

**[Andrew Rambaut]**

Shows it didn't start in August though

[2021-07-02 08:44:38]

**[Kristian Andersen]**

Yeah, everything is happening over three weeks in January, so those would be the ones that I think would be helpful

[2021-07-02 08:44:58]

**[Kristian Andersen]**

Having cases in December and then excess deaths in January would fit the bill

[2021-07-02 08:45:21]

**[Andrew Rambaut]**

But the spatial pattern by January would mean much I think

[2021-07-02 08:45:45]

**[Kristian Andersen]**

It's mostly that spatial pattern we refer to - because it starts North

[2021-07-02 08:46:20]

**[Andrew Rambaut]**

I guess we might just be able to work out the Districts: [shared file(s): image.png]

[2021-07-02 08:47:12]

**[Andrew Rambaut]**

<https://www.nature.com/articles/s41467-020-19802-w/figures/2> [shared file(s): image.png]

[2021-07-02 08:47:36]

**[Andrew Rambaut]**

Maybe

[2021-07-02 08:48:21]

**[Kristian Andersen]**



Yeah, I think if we have the borders of those neighborhoods, then they could just be filled in

[2021-07-02 08:49:29]

**[Andrew Rambaut]**

I just mean trying to pick out those border on the little maps - some shapes that don't easily match

[2021-07-02 08:50:47]

**[Kristian Andersen]**

Yeah, I'm wondering if there's a vector of whatever map it is WHO used. Lemme dig a little..

[2021-07-02 08:53:33]

**[Andrew Rambaut]**

<https://els-jbs-prod-cdn.jbs.elsevierhealth.com/cms/attachment/5f763a8e-f8b4-4770-bab6-1f54fdcf8259/gr3.jpg>  
[shared file(s): image.png]

[2021-07-02 08:53:49]

**[Andrew Rambaut]**

This one seems to fit a bit better

[2021-07-02 08:55:08]

**[Kristian Andersen]**

Somewhat - but still some inconsistency.

[2021-07-02 08:58:09]

**[Kristian Andersen]**

Friggin' impossible!

[2021-07-02 08:59:38]

**[Andrew Rambaut]**

Leave it - not worth it for the marginal point it would make. If we wanted to we could just cite the fact.

[2021-07-02 09:03:23]

**[Andrew Rambaut]**

Just say there was no excess deaths due to pneumonia or all-causes in JX in January?

[2021-07-02 09:10:45]

**[Kristian Andersen]**

I think the key point is that those excess deaths first cluster North of the river and then moves South - like the cases (cases have a sampling bias, excess deaths do not).

We have a postdoc at our center who's from Wuhan - let me just try to ping him

[2021-07-02 09:13:58]

**[Andrew Rambaut]**

Not sure they show that: [shared file(s): image.png]

[2021-07-02 09:14:34]

**[Andrew Rambaut]**

Nothing in Week2, Week 3 has both sides of the river.

[2021-07-02 09:14:45]

**[Andrew Rambaut]**

But it is all Central Districts

[2021-07-02 09:15:07]

**[Andrew Rambaut]**

Spreading out to the outlying areas (which includes WIV)

[2021-07-02 09:17:27]

**[Kristian Andersen]**

There are two maps - the "pneumonia" one looks a little different [shared file(s): Screen Shot 2021-07-02 at 9.16.28 AM.png]

[2021-07-02 09:18:03]

**[Kristian Andersen]**

(which I think is the one I have been going with).

[2021-07-02 09:18:38]

**[Kristian Andersen]**

Here's a better map where (I think) the districts are shown - I think some of the borders in the WHO map actually correspond to rivers. [shared file(s): 20190322090211.png]

[2021-07-02 09:22:59]

**[Andrew Rambaut]**

Yes - that is better - you sent all-cause above (fig 20) but we want fig 21.

[2021-07-02 09:23:57]

**[Kristian Andersen]**

shared file(s): Map-of-the-administrative-divisions-of-Wuhan-city.png

[2021-07-02 09:24:14]

**[Andrew Rambaut]**

Again - we could just reference the WHO report and say that "by week 3, all pneumonia related excess mortality was in districts to the north of the river"

[2021-07-02 09:25:00]

**[Kristian Andersen]**

Yeah, that might be easier - if it gets too busy, I think that's totally sufficient.

[2021-07-02 09:26:39]

**[Andrew Rambaut]**

I think week 3 is only: Dongxihu, Hanyang, Jiang'an, Jiangnan

[2021-07-02 09:27:22]

**[Andrew Rambaut]**

By week 5 it is everywhere

[2021-07-02 09:28:14]

**[Andrew Rambaut]**

Perhaps we can highlight those 4 districts in the map and say they were the first to spike in excess mortality

[2021-07-02 09:29:13]

**[Kristian Andersen]**

Yeah, that'd be nice - and yes, I agree it's those four (although I have it as Dongxihu not Dongzihu)

[2021-07-02 09:29:56]

**[Andrew Rambaut]**

yes - mistyped...

[2021-07-02 09:33:14]

**[Kristian Andersen]**

And just as reference point - Huanan market is in Jiangnan.

[2021-07-02 09:34:48]

**[Andrew Rambaut]**

Judging from Bob's map, Huanan market is in Jiangnan?

[2021-07-02 09:36:01]

**[Kristian Andersen]**

Yeah - from Google too and just double-checked.

[2021-07-04 09:31:26]

**[Andrew Rambaut]**

Just created and shared a Dropbox with you to put actual files in - put the figure 1 editable PDF there. Will add supplementary tables etc. Bob - do you use Dropbox? Which email do you use?

[2021-07-04 09:33:04]

**[Andrew Rambaut]**

I also created a really sparse SVG version of the map from one of Bob's files. This is kind of to show the raw data for this (it has all the case locations).

[2021-07-04 09:40:02]

**[Kristian Andersen]**

We need to figure out author list too... I think the only one secured is Eddie in the last spot (or first?). Do we think Stephen might want to be first on this? Could also be one of us.

[2021-07-04 09:41:43]

**[Robert Garry]**

██████████ for dropbox

[2021-07-04 09:49:19]

**[Robert Garry]**

*[thread - ID: 2021-07-04 09:49:19]*

I'm happy for @Eddie Holmes first - gets notice. Andrew last or Kristian (or co-last). Goldstein could be second - then perhaps Rasmussen, Robertson, ACC {these could be co-equals} after that alphabetical.

[2021-07-04 09:50:19]

**[Kristian Andersen]**

Yeah, would be good for this to be a Holmes et al.

[2021-07-04 09:56:18]

**[Andrew Rambaut]**

@Robert Garry Are you OK with what I have done to your maps? I just have a penchant for desaturated colour schemes

[2021-07-04 09:58:28]

**[Robert Garry]**

Yes Indeed - absolutely - they look great - I'm color blind [very weak] - which is why I use rainbow colors - but your desaturated scheme works VERY well!

[2021-07-04 09:59:01]

**[Robert Garry]**

Not sure what you have in mind if anything for the FCS figure - needed or not?

[2021-07-04 10:06:51]

**[Andrew Rambaut]**

I remember from the Ebola paper (and Eddie too) - was very useful then to find colours that worked but still looked attractive to graphic design obsessives.

[2021-07-04 10:08:00]

**[Andrew Rambaut]**

I would be happy to have a go at giving the FCS some styling - pop the file in the Dropbox anyway.

[2021-07-04 10:08:32]

**[Kristian Andersen]**

Would be good to have some FCS stuff in there if possible since it comes up SO often. Could be supp. if necessary.

[2021-07-04 10:20:38]

**[Andrew Rambaut]**

At the moment we reference a Figure 2 which is FCS. I think it is worth putting in again to show people what we are talking about

[2021-07-04 10:58:40]

**[Robert Garry]**

This may be overkill, but some ideas for a Geneious fig - Yes the 12 nucleotides are out-of-frame - just not clear which frame. [shared file(s): image (5).png]

[2021-07-04 14:51:32]

**[Eddie Holmes]**

*[thread - ID: 2021-07-04 09:49:19]*

Yes, I don't mind going point. Who wants to go rear gunner?

[2021-07-04 14:54:10]

**[Robert Garry]**

On PO1 @Kristian Andersen was point and I was rear gunner - seems symmetrical that @Eddie Holmes should be point and @Andrew Rambaut the rear gunner on this one. Just saying...

[2021-07-04 14:59:47]

**[Kristian Andersen]**

Agreed

[2021-07-04 15:01:18]

**[Kristian Andersen]**

Stephen after Eddie and Bob or myself before Andrew (3rd and 2nd last). Then kinda just fill up with the rest

[2021-07-04 15:02:33]

**[Eddie Holmes]**

Works for me.

[2021-07-04 15:19:18]

**[Eddie Holmes]**

*[thread - ID: 2021-07-04 15:19:18]*

Andrew, before it goes on Virological, I will need to edit a word doc because there a few errors in the ref that need to be hand fixed. So, don't just post the Google Doc.

[2021-07-04 15:23:09]

**[Robert Garry]**

Eddie, Stephan .... then Bob (3rd last) then Kristian (2nd last) and Andrew at the end. I could also see Angie, David, Alex following Stephan then the rest in btwn alphabetical.

[2021-07-04 15:31:22]

**[Andrew Rambaut]**

*[thread - ID: 2021-07-04 15:19:18]*

@Eddie Holmes No problem. Will post tomorrow?

I can fix errors in references in PaperPile if you give me a list - Probably good to keep the GoogleDoc as master.

[2021-07-04 15:31:59]

**[Andrew Rambaut]**

*[thread - ID: 2021-07-04 15:19:18]*

@Eddie Holmes Also it is much easier to copy and paste from a google doc to virological as the formatting goes across automatically.

[2021-07-04 16:02:51]

**[Kristian Andersen]**

*[thread - ID: 2021-07-04 15:19:18]*

@Eddie Holmes Yeah, let's make sure we keep that master on Google Doc because "final" is never actually that.

[2021-07-04 16:07:49]

**[Eddie Holmes]**

*[thread - ID: 2021-07-04 15:19:18]*

@Eddie Holmes Ok, I fix them on the Google Doc as soon as they all in. Is that the case now? Bloom? @Andrew Rambaut Probably post the day after tomorrow as I need to get all the authors in etc.

[2021-07-04 16:21:25]

**[Eddie Holmes]**

Andrew, I'll put us down as joint corresponding

[2021-07-04 16:29:39]

**[Andrew Rambaut]**

Oh joy. I look forward to the correspondance

[2021-07-04 16:30:30]

**[Andrew Rambaut]**

Getting into a bit of a rabbit hole trying to match genomes to cases. God it is a mess.

[2021-07-04 16:31:41]

**[Eddie Holmes]**

I'm use there are DRASTIC members who think that is a deliberate ploy to mislead

[2021-07-04 17:16:49]

**[Eddie Holmes]**

I've drafted an author order. Not easy. Happy to take complaints.

[2021-07-04 17:21:32]

**[Andrew Rambaut]**

*[thread - ID: 2021-07-04 15:19:18]*

@Eddie Holmes I think they are all in there. No Bloom - doesn't say anything worth citing

Day after is fine. Still need to fix up the tree after looking into the 13 cases in the WHO report.

[2021-07-04 17:49:40]

**[Eddie Holmes]**

*[thread - ID: 2021-07-04 15:19:18]*

@Eddie Holmes Great. I'll do a quick hand job on the refs then.

[2021-07-04 17:59:58]

**[Eddie Holmes]**

*[thread - ID: 2021-07-04 15:19:18]*

@Eddie Holmes Ref. 34 needs a Greek delta symbol. Can you sort that Andrew?

[2021-07-04 18:13:47]

**[Eddie Holmes]**

*[thread - ID: 2021-07-04 15:19:18]*

@Eddie Holmes Refs fixed. Quite a few little things. Just that Greek delta in ref. 34 to resolve.

[2021-07-06 14:06:06]

**[Eddie Holmes]**

Ichannel Got sent this by my deep throat in China. He said "In case I got silenced later on. This is the tree figure based on very partial S gene that I wanted to show you. Hopefully we will get more complete genome later on, will update you". What he didn't say was what animal it was! This is likely part of the gamey tastes project. I'm guessing pangolin but I'm not sure. [shared file(s): Nice\_whether.jpg]

[2021-07-06 14:09:02]

**[Kristian Andersen]**

Interesting - I assume the sequence of interest is "temp4"? If so, more distant than RaTG13 to SARS-CoV-2, but definitely interesting.

[2021-07-06 14:10:41]

**[Eddie Holmes]**

Yes, temp4. It's S though and only RaTG13 has been close in S (other than the pangolin RBD). I do wonder if they have the FCS??

[2021-07-06 14:11:23]

**[Eddie Holmes]**

You can see how distant the other Yunnan bat viruses are.

[2021-07-06 14:12:58]

**[Kristian Andersen]**

FCS would be exciting....!!!

[2021-07-06 14:14:35]

**[Eddie Holmes]**

I will bring news when I get it.

[2021-07-06 14:34:20]

**[Andrew Rambaut]**

Ooo... exciting

[2021-07-06 15:13:11]

**[Andrew Rambaut]**

I kind of wish everyone hadn't gone around telling journos about this until we had it out.

[2021-07-06 15:13:39]

**[Andrew Rambaut]**

I don't see any reason why we needed to pre-warn journalists

[2021-07-06 15:13:43]

**[Eddie Holmes]**

Me too!

[2021-07-06 19:50:29]

**[Eddie Holmes]**

So, it turns out these are pooled (10) bat samples from Yunnan and the don't yet have the S1/S2 region. More sequencing being done. Current sequence is very messy. On the plus side because they are pooled some may actually be closer to SC2.

[2021-07-06 20:03:11]

**[Robert Garry]**

RBD and S1/S2 got to be interesting just based on this.

[2021-07-06 20:08:57]

**[Eddie Holmes]**

Indeed

It's important that it's only virus close in S other than RaTG13

[2021-07-07 01:52:26]

**[Andrew Rambaut]**

Eddie - I am going to remove the 'corresponding authors' line for the preprint - to avoid a perception that there are leaders and we just recruited everyone else. Obviously the journal will need corresponding but hopefully by then it will be water under the bridge.

[2021-07-07 01:54:16]

**[Andrew Rambaut]**

Any journalist will be able to contact us.

[2021-07-07 02:16:18]

**[Eddie Holmes]**

Fine by me.

[2021-07-07 15:59:37]

**[Kristian Andersen]**

Since Eddie was gloating about some unimportant ballgame earlier today, I'm happy to see he didn't make the cut. (what a weird selection of people :wink: ).

:crown::flag-dk::trophy::soccer: [shared file(s): Screen Shot 2021-07-07 at 3.57.17 PM.png]

[2021-07-07 16:05:00]

**[Eddie Holmes]**

I will happily forsake that for the first final in 55 years

Great coverage so far though

I'm very interested in what Bloom and Relman say

[2021-07-07 16:08:31]

**[Kristian Andersen]**

The only thing they really can say is "it's great to see the evidence summarized for natural emergence". Anything other than that would prove that they don't give a toss about the actual science here.

[2021-07-07 16:08:57]

**[Kristian Andersen]**

(which I suspect is exactly what will happen)

[2021-07-07 23:30:49]

**[Eddie Holmes]**

Just sharing this with the smaller group as it definitely shouldn't get out. It's the Chinese proposal for the 2nd phase of the investigation. Key aim: it's not China. What bollocks. [shared file(s): TOR proposal by Chinese experts-ENG.docx]

[2021-07-08 00:39:23]

**[Andrew Rambaut]**

That is bonkers - totally going for cold-chain origins. They are going to love the Italian Jobbie.

[2021-07-08 01:21:33]

**[Eddie Holmes]**

Oh yes. I really want to see that online.

[2021-07-09 01:21:15]

**[Eddie Holmes]**

This is going to ruffle a few feathers: <https://profilebooks.com/work/spike/>

[2021-07-09 01:48:00]

**[Andrew Rambaut]**

Love the name

[2021-07-09 03:00:12]

**[Andrew Rambaut]**

Question from Jon Cohen:

[2021-07-09 03:00:12]

**[Andrew Rambaut]**

``Is this accurate? How likely is it that humans infected civets with SARS-CoV?

Begin forwarded message:

From: Frutos [REDACTED] &gt;  
Date: July 8, 2021 at 8:06:23 PM PDT  
To: Jon Cohen [REDACTED] &gt;  
Subject: Re: Interesting question

[EXTERNAL EMAIL]

In the trees SARS-CoV RdRp and spike are shown in red. The host code is Plar for civets and Hsap for humans. None is ancestral to the other. It is the same virus.

Le 09/07/2021 à 04:19, Jon Cohen a écrit :

So you disagree with the rooting that shows civet SARS-CoV is ancestral to human?

On Jul 8, 2021, at 6:31 PM, Frutos [REDACTED].fr &gt; wrote:

[EXTERNAL EMAIL]

I didn't fully answered.

Yes it is misguided because of quasispecies and metapopulation but also because of the flawed idea of a linear process. That it goes from A to b to C to D in a linear way. No. It is a non linear process. The circulation works the same for SARS as for COVID.

Civets have been contaminated by humans not the other way around. Like minks with SARS-CoV-2.

Le 09/07/2021 à 03:00, Jon Cohen a écrit :



With SARS-CoV, I think there's a compelling case that the virus went from bats>other species>eventually to civets>humans. This is the argument that the sequence makes. Do you think that argument is misguided because of the quasispecies and metapopulation?

On Jul 8, 2021, at 5:55 PM, Frutos [REDACTED].fr> wrote:  
[EXTERNAL EMAIL]

Jon,

No. it is not possible.

It is a quasispecies evolution. Human viruses exist only in humans. SARS-CoV-2 is just one of the multiple human avatars of the SARS metapopulation. SARS-CoV is another one. Both have emerged by chance. Many haven't. SARS-CoV-3 is perhaps already evolving in humans but we will know it only after its emergence.

Viruses from the same metapopulation will evolve differently depending on the host species. Put a human virus in another host, the sequence will change. In animals you will find cousins and none of them will be the ancestor. Ancestors have already disappeared a long time ago.

It is an endless process of circulation and evolution.

Best

Roger

Le 09/07/2021 à 02:42, Jon Cohen a écrit :  
Roger,

Thanks for the thorough explanation.

I understand your point about surveillance to prevent outbreaks, but how about now, once the outbreak has surfaced? Couldn't surveillance of wild animals potentially lead to a clue as to which animals harbored a closer relative than RaTG13?

Jon

On Jul 8, 2021, at 5:21 PM, Frutos [REDACTED].fr> wrote:  
[EXTERNAL EMAIL]

Hi Jon,

No, it won't help at all.

1) We can do surveillance only on things we know. By definition, the causative agent of a novel emerging disease is not known. It is known only after the disease has been characterized and the causative agent has been isolated. The novel disease is detected and characterized only when physicians see a lot of people coming at the same time with atypical symptoms. This is exactly what happened with SARS-CoV-2/COVID-19. Far too late to do any surveillance.

2) The pandemic virus does not exist yet in the wild. It only evolves in humans following the primo infection (primary case - first human to be infected by the pathogen). Looking for the pandemic virus in the wild is hunting for unicorns, for things that don't exist. The emergence of a disease is an accident and the emerging virus is only one out of a

multitude which by chance benefited from an accidental chain of events leading to disease emergence (definition of an accident). It is unpredictable and the chain of events is of societal nature not of biological nature. It is impossible to say which one out of all the viruses found in the wild may evolve in humans to give a pandemic virus. The ancestor of the pandemic virus might even have not been found.

3) We are dealing with metapopulations of viruses circulating widely and evolving and changing all the time

4) They evolve so fast that in the theoretical case we could find all the viruses present in all animals in a region, if we do it again two years later on the same animals, we will not find the same viruses. Viruses found at a time T0 cannot help to say which one will emerge at time T4 or T5.

5) The surveillance is really useless. We don't know what to look for and having a catalog does not tell which one in the list may evolve in a virus well adapted to humans and if this virus will ever encounter the societal chain of events leading to the emergence of a disease (the amplification loop). This is why the emergences of diseases are so rare.

6) Surveillance for disease or symptoms is useless also since when we see the symptoms it is too late, the virus has already spread.

6) To summarize, after the emergence of the disease it is too late and the surveillance of pathogens cannot tell which virus may emerge one day.

I am attaching two manuscripts that have just been accepted today (both the same day !) They will be online soon. One is in Environmental Research (Elsevier) and the other in New Microbes New Infections (Elsevier) . They might help clarifying several things.

Best

Roger

Le 08/07/2021 à 22:12, Jon Cohen a écrit :  
Roger,

An editor raised an interesting question. Even if there technically is no spillover and a stochastic event leads to the zoonotic jump that takes and causes an outbreak, would surveillance of animals have value because it could potentially find a close relative of SARS-CoV-2? As is, we don't have any close relatives.

Thanks,

Jon  
&lt;Opinion unpreparedness\_Revised.pdf>&lt;Article comments Accepted.pdf>&lt;Figure 1\_Comment\_Article\_MacLean.pdf>``

[2021-07-09 03:00:12]

**[Andrew Rambaut]**

Roger has some relevant points but then as you go up the thread gets increasingly bonkers:

[2021-07-09 03:00:23]

**[Andrew Rambaut]**

````It is a quasispecies evolution. Human viruses exist only in humans. SARS-CoV-2 is just one of the multiple human avatars of the SARS metapopulation. SARS-CoV is another one. Both have emerged by chance.

Many haven't. SARS-CoV-3 is perhaps already evolving in humans but we will know it only after its emergence.""
What??

[2021-07-09 03:09:49]

[Eddie Holmes]

I've come across this guy before. I can't quite recall how. He thinks that everything is interconnected. Clearly crazy. I thought another reason that civets were ancestral was that they had very high prevalence:
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3323399/>

[2021-07-09 03:17:35]

[Andrew Rambaut]

Yeah - and the found SARS in some that lay outside the diversity of humans.

[2021-07-09 03:57:19]

[Andrew Rambaut]

Eddie - what is your current status with your FOI requests? I guess the rules are different in Australia but it might be good to coordinate as my requests are:

- All correspondence between you and me from 2019-2021 (my admin has said we narrow this to only those about the lab-escape stuff because they make it clear that is what they are interested in).

A second request asking for:

- All documents about the "Proximal Origins ..." research project (I am not sure how we will deal with that as it wasn't a research project).

[2021-07-09 04:07:31]

[Andrew Rambaut]

I should say that some of the emails make it clear that you are not part of a conspiracy - this one where you sent me the pictures of the raccoon dogs: [shared file(s): image.png]

[2021-07-09 04:37:38]

[Eddie Holmes]

If asked under UK law my Uni will block any release of these emails. Their case is that they were intended to be sent in confidence and that their release will do me harm (e.g. mental health) because of the current levels of abuse. Plenty of evidence for that. The Uni have a duty of care. They also say that releasing one will set a precedent for releasing more so they all need to be blocked.

[2021-07-09 04:49:42]

[Andrew Rambaut]

Perhaps I need to get our lawyers to talk to your lawyers?

[2021-07-09 04:49:53]

[Andrew Rambaut]

Given it is both ends of the same set of emails.

[2021-07-09 04:56:04]

[Eddie Holmes]

Yes. That's a good idea. The person they should talk to first is the USYD contact who is Kate Cumming ([REDACTED]). She's very good.

[2021-07-09 04:56:49]

[Andrew Rambaut]

OK, thanks. Will pass this on.

[2021-07-09 04:59:25]

[Andrew Rambaut]

I am going to try to remember to use my gmail address for all such emails in future.

[2021-07-09 05:03:36]

[Eddie Holmes]

They told me that doesn't matter if it is 'work' related. But, the very fact you using your Uni email shows that you are not hiding anything.

[2021-07-09 07:10:16]

[Kristian Andersen]

To the civets - Zeynep hypothesized that too.... So dumb - just look at the tree and do it properly. Or don't try to do phylogenetics in the first place.

[2021-07-09 07:12:11]

[Andrew Rambaut]

That guy Roger seems like he has some weird idea of how viruses evolve - between host 'quasispecies'. Bonkers

[2021-07-09 08:12:59]

[Robert Garry]

Never use the Q word!

[2021-07-09 09:28:00]

[Andrew Rambaut]

The Edinburgh lawyers are taking the risk of harm approach and are going to refuse to release any emails. It might go to the information commissioner but given all the shit that has happened it seems likely to be accepted.

[2021-07-09 09:29:10]

[Kristian Andersen]

That's great - and definitely the right choice! This has NOTHING to do with "freedom of information" and everything to do with targeted harassment.

[2021-07-09 09:30:49]

[Andrew Rambaut]

It did make me laugh that they asked for my copy of the missing WIV database. Nice try.

[2021-07-09 09:31:54]

[Andrew Rambaut]

The lawyer said that even if I had it they wouldn't release it - but they might have had to say they had it which would have sent Drastic nuts.

[2021-07-09 16:18:13]

[Eddie Holmes]

Good move Andrew - releasing these emails is an attempt to harass. It's a simple as that.

[2021-07-09 16:32:22]

[Kristian Andersen]

FOIA + social media. Nope.

[2021-07-15 05:44:23]

[Andrew Rambaut]

George Gao on a WHO meeting saying they released first genomes on GISAID on 10th Jan. Then said sequence on virological was full of errors and was retracted and then re-released on the 12th. Total bullshit.

[2021-07-15 06:46:33]

[Andrew Rambaut]

@Robert Garry - would be good to fix the issue with the map. Do you have your original one that I adapted?

[2021-07-15 06:49:37]

[Robert Garry]

I think this is the one [shared file(s): Wuhan combined v4.ai]

[2021-07-15 07:08:51]

[Andrew Rambaut]

Are you happy with the locations in that version?

[2021-07-15 07:22:18]

[Andrew Rambaut]

Here is a version with each set in layers. If we can use that to get the points right, then it will be easy to build the full figure [shared file(s): map.ai]

[2021-07-15 07:37:18]

[Andrew Rambaut]

I haven't got perfect alignment but here is the map overlaid on the maps from the Annex. Definitely some tweaks we could make I think. [shared file(s): image.png]

[2021-07-15 07:37:57]

[Andrew Rambaut]

Here is the Illustrator version of the above. [shared file(s): map.ai]

[2021-07-15 07:39:22]

[Andrew Rambaut]

All the different panels from Fig 17 on page 156 are there. I also put in the other figure which shows which are market related.

[2021-07-15 07:40:10]

[Andrew Rambaut]

Once we get this aligned, we can remake the full figure. We can also release this as our 'raw' data.

[2021-07-15 07:49:33]

[Robert Garry]

Looks good and releasing this as raw data a good idea. A few need to be nudged, especially the lowest blue dot nearest to WIV and several of the green ones slightly. Also need to note that some dots outside of Wuhan proper are not shown.

[2021-07-15 07:58:41]

[Andrew Rambaut]

I can't believe how bad those maps are - deliberately perhaps?

[2021-07-15 07:58:49]

[Andrew Rambaut]

(I mean the ones in the report)

[2021-07-15 08:00:45]

[Robert Garry]

Ours may not be perfect, but at least they are readable.

[2021-07-15 08:00:50]

[Andrew Rambaut]

Is the market location from the WHO report map too? It and the first two cases may be a little bit off...

[2021-07-15 08:00:54]

[Andrew Rambaut]

shared file(s): image.png

[2021-07-15 08:01:18]

[Andrew Rambaut]

But it is that vague greenish patch so who knows

[2021-07-15 08:01:23]

[Andrew Rambaut]

WHO knows

[2021-07-15 08:27:11]

[Robert Garry]

One problem is the Yangtze river - it's quite massive and not indicated at all in the who map. So the spots are more or less on the bank of the river i guess. *They could also be nudged a bit though.* When I placed them i think I had the underlaying WHO map a bit more to the left, which would line things up a little better.

[2021-07-15 10:17:39]

[Robert Garry]

Should post it on Zenado - short-circuit the current and coming Alina/Drastic BS.

[2021-07-15 10:22:30]

[Andrew Rambaut]

Here is the one I just emailed. I really tried to match the density of the WHO plot. But obviously in the later ones it is just placing the circles down randomly within the region to cover the green. That is why I made them indistinguishable in the mass. [shared file(s): map v2.ai]

[2021-07-15 10:23:23]

[Andrew Rambaut]

If you think that is OK, I will rebuild the figure tonight, and post an update to the preprint - best to be completely open about it.

[2021-07-15 10:34:01]

[Robert Garry]

PERFECT - definitely OK!

[2021-07-15 11:06:06]

[Robert Garry]

Glad you came up with this better way to get the spots as precise as possible.

[2021-07-15 13:45:23]

[Eddie Holmes]

Looks good! George is a lying turd. He's got going to be very happy with Jezza's book.

[2021-07-15 13:49:11]

[Kristian Andersen]

I _do_ wonder what George knows... Do we know if he's sitting on a bunch of genomes?

[2021-07-15 13:49:39]

[Eddie Holmes]

The WHO never spoke to him!!

[2021-07-15 13:51:21]

[Eddie Holmes]

He doubt he will have any early SC2 ones but I guarantee he has some animal ones

[2021-07-15 13:51:21]

[Kristian Andersen]

That's helpful.

[2021-07-21 08:00:23]

[Robert Garry]

Anyone interested in responding to Ian re his atomic scientists article?

[2021-07-21 08:09:41]

[Kristian Andersen]

shared file(s): The known knowns, known unknowns, and unknown unknowns of COVID-19

[2021-07-21 08:31:43]

[Andrew Rambaut]

FFS. What an ejjit.

[2021-07-21 14:07:58]

[Eddie Holmes]

My thoughts on Ian haven't changed either

[2021-07-23 11:54:42]

[Robert Garry]

@Andrew Rambaut do you know what's up with Keita, Koundouno, Faye et al. - seems like forever since _Nature_ asked me to write a perspective...

[2021-07-28 13:30:42]

[Kristian Andersen]

Speaking of SARS2 in animals.... Bloody hell, if this is true:
<https://twitter.com/sarperotto/status/1420428787372552197?s=20>

[2021-07-28 14:01:38]

[Robert Garry]

Mind-blowing - if true...

[2021-07-28 14:31:47]

[Eddie Holmes]

Do you believe that? Seems extraordinary.

[2021-07-28 14:35:34]

[Robert Garry]

Obviously need sequence data, but of course that's not coming from blood. Wonder if - in the unlikely event it's actually true - that this is still circulating in deer?

[2021-07-28 14:38:56]

[Eddie Holmes]

Yes - lots of unknowns. Is this just one population? Really need to see the original data.

[2021-07-28 18:17:36]

[Eddie Holmes]

<https://content.govdelivery.com/accounts/USDAAPHIS/bulletins/2ea5c07/>

[2021-07-28 18:17:42]

[Eddie Holmes]

Doesn't add much

[2021-07-28 18:20:16]

[Kristian Andersen]

It's pretty nuts though - but yeah, need to know the details to understand if this is real. I can believe it though

[2021-07-29 07:12:27]

[Kristian Andersen]

How fun - Jim wants to talk to me. Apparently. [shared file(s): Letter to Andersen Re. COVID Origin final.pdf]

[2021-07-29 07:30:59]

[Andrew Rambaut]

[thread - ID: 2021-07-29 07:30:59]

Those three days are at the top of this slack channel!

[2021-07-29 08:28:08]

[Kristian Andersen]

Correct - it's all really simple.

I do appreciate they addressed the letter using my formal academic title, "Boss Man". Just so it's clear who's the boss here.

[2021-07-29 08:30:45]

[Andrew Rambaut]

That is so cool. A keeper

[2021-07-29 08:36:16]

[Kristian Andersen]

I'll frame it. Next to the frame with eDim insults.

[2021-07-29 09:23:43]

[Robert Garry]

[thread - ID: 2021-07-29 07:30:59]

@Andrew Rambaut Actually "fun" to read those early posts and this document - the first version of this which appears to have been Feb 1, but maybe a version history would be interesting to look at. Pretty intense actually ---- but I believe that the two factors that flipped the thinking were the mutational pattern in the RBD showing a likely natural pathway and the plethora of natural FCS and high variability at the S1/S2 junction. [shared file(s): image.png]

[2021-07-29 09:40:14]

[Kristian Andersen]

[thread - ID: 2021-07-29 07:30:59]

@Andrew Rambaut Yeah, I was looking through the version history recently - it's pretty interesting. We switched away from "engineering" quite a bit faster than I remembered - I think one of the main reasons being the comments from Ron, Marion, and Christian. And yes, a much closer look at all the available data.

[2021-07-29 10:19:39]

[Robert Garry]

[thread - ID: 2021-07-29 07:30:59]

@Andrew Rambaut IOWS - science. Also good to remember that we were all literally scrutinizing the sequence since @Eddie Holmes posted it. So not an over-nite conversion.

[2021-07-29 10:58:36]

[Andrew Rambaut]

[thread - ID: 2021-07-29 07:30:59]

@Andrew Rambaut When did RaTG13 and pangolin appear?

[2021-07-29 13:00:15]

[Robert Garry]

[thread - ID: 2021-07-29 07:30:59]

@Andrew Rambaut ThHose would be good dates to have on hand.

[2021-07-30 02:32:21]

[Eddie Holmes]

shared file(s): 2021.07.26.21261142v1.full.pdf

[2021-08-02 16:52:52]

[Kristian Andersen]

Just read that NYC preprint - pretty interesting, if a little messy. And, certainly, controversial - but I can believe it...

[2021-08-02 17:03:33]

[Kristian Andersen]

Speaking of animals - it looks like all the cats are getting here in San Diego Zoo. First the snow leopards and now also all the tigers... I think they were even vaccinated..

[2021-08-02 17:44:00]

[Eddie Holmes]

Yes, I can believe it as well.

[2021-08-03 09:48:52]

[Robert Garry]

According to the MM thread all the vets/handlers are vaccinated too - which suggests that the cats are getting infected by vaccine breakthroughs or visitors. Sequencing would be good to have...

[2021-08-05 13:58:50]

[Kristian Andersen]

So about them deer... Now, THAT is a strong signal. [shared file(s): SARS in deer Aug 2021.pdf]

[2021-08-05 14:12:13]

[Robert Garry]

that's insane!

[2021-08-05 14:12:43]

[Andrew Rambaut]

Must be something to do with drunk deer hunters with MAGA hats

[2021-08-05 14:14:31]

[Kristian Andersen]

It's pretty crazy. I was kinda expecting to see a weak signal I could put down to cross-reactivity, but clearly this ain't it.

I'm guessing deer drinking sips of left-over Bud Light from them hunters with MAGA hats...

[2021-08-05 14:30:38]

[Robert Garry]

There is already a farside cartoon for it!

[2021-08-05 14:31:27]

[Robert Garry]

shared file(s): image.png

[2021-08-05 14:39:23]

[Robert Garry]

shared file(s): image.png

[2021-08-06 13:54:22]

[Kristian Andersen]

I have been trying to figure out why I used "crackpot" back in February 2020 (lawyers asking...) - I can see it was a favorite of mine because of the "Uncanny similarities" paper.. This one is kinda funny though - I guess Ralph came around later... [shared file(s): Screen Shot 2021-08-06 at 13.53.07.png]

[2021-08-06 13:55:00]

[Kristian Andersen]

It's pretty interesting reading all the messages on this channel just when we started - we had a few good points :wink:

[2021-08-06 14:05:41]

[Eddie Holmes]

He's another of those I lost total respect for

[2021-08-06 16:20:24]

[Kristian Andersen]

Talked to both agencies today - they still ain't got nothing... Two weeks to go.

Here's what's funny though - remember that CNN story that broke yesterday about how they're trawling through all this sequence data from China? I think it's the data I gave them that the whistleblower gave us - the old sequencing data sets where he thought there had SARS-CoV-2 reads in them, but they were false positives... That would be funny as hell - I told them there was nothing in there, but hey.

[2021-08-06 16:23:49]

[Eddie Holmes]

No fucking way! Going to be a big few weeks for Team Natural...I think Linfa's paper will show past SARS-CoV infections in people from Cambodia. Perhaps animals as well.

[2021-08-06 19:05:23]

[Robert Garry]

These investigators are probably involved in the LANL analysis of the "reams" of found sequence data reported by CNN a few days ago.

[2021-08-06 19:29:11]

[Kristian Andersen]

Clearly crap, but probably fine to post...

[2021-08-06 19:47:30]

[Eddie Holmes]

Thanks! That

[2021-08-06 19:47:38]

[Eddie Holmes]

That's how I saw it as well.

[2021-08-08 21:18:57]

[Kristian Andersen]

I got a cold call from Fauci tonight - the guy seems scared and distraught, which is super sad. Actual people trying to _actually_ kill him, all thanks to the likes of Jesse and David - he did not have kind words for them...

He said to keep up the good fight and he was really happy we recently put out the preprint!

[2021-08-08 21:21:47]

[Kristian Andersen]

I honestly think he just needed to talk to a sane scientist. Really sad to see this since he's done so much good and is largely responsible for the vaccines - I hope he wakes up a little less jaded tomorrow....

[2021-08-08 21:50:09]

[Eddie Holmes]

Really, wow! I've no idea how he deals with all the hate. Just extraordinary that people think is behind all this. Hopefully things will spin in his favours soon. He as a massively positive following here....when he was on Australian TV the other day it was like the Messiah was speaking. Seriously. People focusing on every word. Very positive.

[2021-08-09 05:33:35]

[Robert Garry]

He is a good man - we'll keep pushing and it is good to have Tony in our corner.

[2021-08-09 17:16:33]

[Kristian Andersen]

From our February 6 summary - no idea why this didn't make it into final print. Good stuff. [shared file(s): Screen Shot 2021-08-09 at 5.15.58 PM.png]

[2021-08-09 17:27:29]

[Eddie Holmes]

Word limit...

[2021-08-15 08:43:45]

[Kristian Andersen]

Alright, need to respond back to the Fucktard Congressmen - lawyers doing all of this. I need to list the participants of our first conference call - do any of you remember if this is correct?

Dr. Robert F. Garry, Jr. (Prof., Tulane University School of Medicine); Prof. Dr. Christian Drosten (Director, Institute of Virology, Universitätsmedizin Berlin); Sir Mike Ferguson (Regius Prof. of Life Sciences, University of Dundee); Prof. Ron Fouchier (Deputy Head, Erasmus MC Department of Viroscience); Prof. Edward Holmes (University of Sydney Faculty of Science); Prof. Marion Koopmans (Head, Erasmus MC Department of Viroscience); Prof. Dr. Stefan Pöhlmann (Head of Infection Biology Unit, Göttingen University); Prof. Andrew Rambaut (Chair in Molecular Evolution, University of Edinburgh); Paul Schreier (Chief Operating Officer, Wellcome); and Sir Patrick Vallance (Chief Scientific Adviser, UK Government).

I'm 99% Francis Collins was on as well, correct? Anybody else / anybody on that list not there?

[2021-08-15 08:47:56]

[Kristian Andersen]

Was Lawrence A. Tabak on?

[2021-08-15 09:59:09]

[Andrew Rambaut]

Pretty sure Francis yes. Rest sounds right. No memory of Tabak (one way or other)

[2021-08-15 13:53:21]

[Eddie Holmes]

Collins definitely
No idea about Tabak
Jeremy will have the full list

[2021-08-15 18:03:56]

[Robert Garry]

Tabak was on the call. Here are the emails I have. It's science. [shared file(s): Feb 1 call emails and follow-up.pdf]

[2021-08-16 14:19:03]

[Eddie Holmes]

Another white-tailed deer paper will be out on bioRxiv soon.

[2021-08-16 14:26:56]

[Kristian Andersen]

Same thing? I wonder what other animals carry this thing and whether there are spill backs into humans...

[2021-08-16 14:33:36]

[Eddie Holmes]

More detail in this one.

[2021-08-16 14:33:39]

[Andrew Rambaut]

Crazy stuff.

[2021-08-16 14:34:10]

[Andrew Rambaut]

Susceptible animals seem to be scatter bombed across the mammalian tree

[2021-08-16 14:34:47]

[Eddie Holmes]

Yes, it's really weird.

[2021-08-16 14:37:42]

[Andrew Rambaut]

I am impressed with myself... would be happy if this one leaked out: [shared file(s): image.png]

[2021-08-16 14:38:25]

[Andrew Rambaut]

But does anyone remember what I was talking about with respect to "reports, but no information, about virus from non-human animals in Wuhan"?

[2021-08-16 14:39:44]

[Robert Garry]

It was the 99% pangolin virus that turned out to be not 99% IIRC.

[2021-08-16 14:44:12]

[Andrew Rambaut]

I am not sure - that wasn't in Wuhan (and we knew it wasn't).

[2021-08-16 14:44:26]

[Andrew Rambaut]

Perhaps it was the bags of cats?

[2021-08-16 14:54:49]

[Robert Garry]

That could be.

[2021-08-16 15:35:26]

[Kristian Andersen]

@Andrew Rambaut - where did this leak? And yeah - I think you were talking about cats if I remember correctly our conversations back then.

[2021-08-16 15:37:14]

[Andrew Rambaut]

I don't think it has leaked - it was just in Bob's PDF document above.

[2021-08-16 15:37:59]

[Andrew Rambaut]

But I am thinking it wouldn't be bad if it did leak. Shows we were discussing all the options at the meeting.

[2021-08-16 15:38:33]

[Kristian Andersen]

Ah, yes. And that whole email thread is great - lots of good science in there (mostly pointing out that I was wrong in my initial concerns).

[2021-08-16 15:38:35]

[Andrew Rambaut]

And I was the voice of reason amongst you CCP hating nutters.

[2021-08-16 15:38:56]

[Andrew Rambaut]

Oh. Hang on you are CCP loving nutters now

[2021-08-16 15:40:06]

[Robert Garry]

I get emails somewhat along those lines...

[2021-08-16 15:40:32]

[Kristian Andersen]

Thing is though - we don't want this shit to leak, because they will spin single words into their little narratives. Happened to me a few times - I mean, my while interaction with Fauci is a textbook example of exactly how this works, yet....

Which also reminds me, since I have yet again gotten hacking attacks - I assume everybody have their emails locked down with strong passwords and 2FA? There are emails that we certainly don't want out there because they'll be spun (several identified in Eddie's FOIA come to mind...)

[2021-08-16 15:42:46]

[Andrew Rambaut]

Yes - I have changed everything recently.

[2021-08-16 15:43:18]

[Eddie Holmes]

Me too

[2021-08-16 15:43:23]

[Andrew Rambaut]

But you are right - my people are fighting the release of any of my emails on the basis of the demonstrable harm it will cause

[2021-08-16 15:43:47]

[Andrew Rambaut]

I assume it will go to the UK Data Commissioner for final arbitration.

[2021-08-16 15:44:40]

[Kristian Andersen]

Personal safety very much at risk here - one of us (most likely me...) could very much end up dead in the street from the bullshit that will ensue. Better not to go there.

[2021-08-16 15:46:08]

[Andrew Rambaut]

I have mentioned armed guards and rocks being thrown at doors to the lawyers - they instantly agreed that the harm defence would be a goer.

[2021-08-16 15:46:35]

[Andrew Rambaut]

Mentioned without names, I should add

[2021-08-16 15:46:39]

[Robert Garry]

Yes - going there: [shared file(s): image.png]

[2021-08-16 17:08:53]

[Kristian Andersen]

On the topic of on-point emails, this reply from Jezza is pretty darn spot on too - everything he says, well, all playing out. [shared file(s): Screen Shot 2021-08-16 at 5.07.59 PM.png]

[2021-08-16 17:21:56]

[Kristian Andersen]

On the topic of emails. My institution (via our outside council) will produce a written response to the two congressmen that requested to see BossMan. I have attached the draft letter - please keep confidential.

One question pertains to emails we would like to include (confidentially) - specifically "Ron's" notes and also Andrew's emails (see attached). These are confidential, but with the likes of Jordan, nothing is every fully certain - so with that in mind, any concerns about us including this email chain? Of course, it's available already, but (unhelpfully) heavily redacted. I'm sure litigation is ongoing though, so the whole thing will probably be public at some point.

Please let me know if you have any concerns about any of this. [shared file(s): Email 2.pdf, Scripps Research Submission to RMs Comer and Jordan 8 16 21 CLEAN.DOCX]

[2021-08-16 17:34:57]

[Eddie Holmes]

I don't think we should release ANY emails unless we absolutely have to. The problem is that if an email is released to one organisation then that acts as a precedent for others to ask. So, I'm strongly against.

[2021-08-16 17:36:36]

[Eddie Holmes]

This is what my lawyers told me.

[2021-08-16 17:37:26]

[Andrew Rambaut]

I have no individual problem with my email going in there - it is exactly what I still believe. But I agree with Eddie.

However - one request/suggestion. If you do send emails it is better not to have them as a nested thread so you can see who responded to who. Just have them as individual emails with their own headers. Also remove my signature from the bottom.

[2021-08-16 17:42:36]

[Kristian Andersen]

I agree with Eddie's concern and I flagged this exact issue with the lawyers. The difference here being that we're dealing with a confidential response to congress and not entities like US RTK.

That said, I'm in agreement with Eddie's concern, so let me relay that to our lawyers - I think they'll chose to _not_ include based on that feedback. (Emails 1 and 3 will be included, but they're already public unredacted).

[2021-08-16 17:51:18]

[Eddie Holmes]

I just don't believe these emails will stay confidential

[2021-08-16 17:52:28]

[Kristian Andersen]

That's my concern too. To be clear though - they might well already have them.

[2021-08-16 17:53:46]

[Kristian Andersen]

(because, presumably, the intelligence community already have them - which is fine, I still find it annoying these were so heavily redacted)

[2021-08-16 18:14:59]

[Robert Garry]

Scripps letter is all fine with me. Yes, you can be sure that Tony gave the Intelligence Community the unredacted emails from February 1, 2. Based on a conversation that I had with the FBI and CIA I'm sure they have had everything (excepting this Slack channel) for some time, including the Bloom emails.

[2021-08-17 23:26:47]

[Eddie Holmes]

In case you missed it: <https://www.biorxiv.org/content/10.1101/2021.08.15.456341v1>

[2021-08-23 23:29:08]

[Andrew Rambaut]

They spotted the DT email: <https://twitter.com/JamesCTobias/status/1428089327414820874>

[2021-08-23 23:29:44]

[Andrew Rambaut]

<https://twitter.com/sciencecohen/status/1429977547370942465>

[2021-08-24 00:56:08]

[Eddie Holmes]

1. Is this through a Fauci FOIA request? If so, why has it come up at all? 2. My 'Here are the facts' email is a really good one for us. I'm happy for it to be out there, although I'll them go through the pain of trying to get it. 3. Perhaps we can get The Seeker to reveal who DT is? That would be fun.

[2021-08-24 01:27:56]

[Andrew Rambaut]

New NIH FOIA I think.

[2021-08-24 01:28:32]

[Andrew Rambaut]

I wonder what Jon will do. He could release the email he got from DT

[2021-08-24 01:29:04]

[Eddie Holmes]

But Fauci was not on those emails

[2021-08-24 01:29:37]

[Andrew Rambaut]

The first one is to Fauci from Kristian

[2021-08-24 01:30:46]

[Andrew Rambaut]

shared file(s): image.png

[2021-08-24 01:31:51]

[Andrew Rambaut]

I am not sure they should have left any quoted email from a third party (i.e., Jon) unredacted?

[2021-08-24 01:34:52]

[Eddie Holmes]

Should be redacted as should all of my reply. Had nothing to do with Fauci.

[2021-08-24 02:09:56]

[Eddie Holmes]

As I don't think Fauci will be able to release party emails we'll probably get another FOIA request now. They'll probably be distracted for a bit now because the WHO thing is out in Nature tomorrow. What will drive them nuts.

[2021-08-24 02:14:15]

[Andrew Rambaut]

Other than sending this to Jeremy and Tony, did we email around each other? I think we were all on Slack by then?

[2021-08-24 02:24:30]

[Eddie Holmes]

Not sure. Because Jeremy was involved we did it through email. It didn't take us long.

[2021-08-24 02:55:36]

[Andrew Rambaut]

But none of the banter, speculation about who it might be, I think? Will check but I am pretty sure it is all on this channel.

Update: not much in email but there is this..

[2021-08-24 02:56:48]

[Andrew Rambaut]

shared file(s): image.png

[2021-08-24 02:59:28]

[Andrew Rambaut]

As you say, the 'Here are the facts:' reply is good should it ever get out

[2021-08-24 03:03:02]

[Andrew Rambaut]

And there is a thread with Jeremy and a WT person (presumably WT not covered by FOI so it would just be an FOI to us and currently we are not releasing).

[2021-08-24 03:05:01]

[Andrew Rambaut]

Jon's reply to us was good too:

```From: Jon Cohen [REDACTED]>

Subject: Re: The authors who wrote the paper saying that SARS-CoV-2 is not human engineered first tried convincing Anthony Fauci of the opposite.

Date: 29 July 2020 at 9:57:57 am AEST

To: Edward Holmes [REDACTED].au>

Cc: "Kristian G. Andersen" [REDACTED]>, Jeremy Farrar [REDACTED].uk>

Thanks Eddie and Kristian. I was not planning on writing about this, but your accounting is interesting and, for what it's worth, convincing.

Whoever wrote this—and I have no idea who the person is—has some inside knowledge about something or another.

When I was covering the HIV origin debates, one question kept returning to people who pushed different theories that were possible but not probable: What, exactly, would it take to convince you?

I think science is a generous process. It says, show me evidence that differs from what I think and I will change my mind. It's not religion. Some people take advantage of this generosity. They push beliefs, not theories, and when



one set of questions they raise are answered, they come up with criticisms of the answers or they latch on to new questions.

Truth will out.

I'm glad to see the origin conversation advancing and that there's a push to gather more data. I've covered many, many outbreak origin stories now, and time again, data emerge that put speculations to rest. Bring it!

All the best,

Jon``

[2021-08-24 03:10:14]

**[Eddie Holmes]**

Will be interesting to see if this takes off. Our reply total supports everything we have been saying.

[2021-08-24 03:18:51]

**[Andrew Rambaut]**

Yup.

[2021-08-24 03:43:10]

**[Robert Garry]**

The famous teleconference - can't wait for the movie version...

[2021-08-24 03:50:17]

**[Andrew Rambaut]**

Lets play 'who should play the participants'?

[2021-08-24 03:50:51]

**[Andrew Rambaut]**

Marion played by Rod Stewart

[2021-08-24 03:55:46]

**[Robert Garry]**

Brad Pitt already said he'd gladly play Tony...

[2021-08-24 09:05:15]

**[Andrew Rambaut]**

<https://twitter.com/sciencecohen/status/1430181277227962375>

[2021-08-24 09:05:32]

**[Andrew Rambaut]**

shared file(s): image.png

[2021-08-24 09:10:43]

**[Robert Garry]**

No animal in the tree - love it!

[2021-08-24 10:03:08]

**[Robert Garry]**

Well done JC.

[2021-08-24 13:59:36]

**[Eddie Holmes]**

Nice one!

[2021-09-01 15:49:36]

**[Robert Garry]**

My response: from FBI "First and foremost, I hope you and those around you fared well during Hurricane Ida. It's encouraging to have received an email from you. Secondly, thank you for the continued dialogue on this important matter. We look to subject matter experts like you for guidance on this very complex issue. I will review this in depth with our other FBI scientists. Please feel free to continue the sharing of information as appropriate - all of it is reviewed. We are always available."

[2021-09-12 16:00:55]

**[Kristian Andersen]**

I'm giving a talk on all this origins stuff on Tuesday - @Eddie Holmes - do you happen to have some good slides? Did you get the timing slide from Joel?

[2021-09-12 16:03:51]

**[Eddie Holmes]**

This is what Joel set me [shared file(s): 20210826.sc2.index.posterior.png]

[2021-09-12 16:04:56]

**[Kristian Andersen]**

Alright, thanks - I can use that. Do you happen to have some good intro slides too? I'm kinda starting from scratch with this one...

[2021-09-12 16:05:47]

**[Eddie Holmes]**

Hang on...

[2021-09-12 16:12:25]

**[Eddie Holmes]**

Here are some slides that I use...I usually give a SARS-CoV-2 evolution talk and stick this stuff in [shared file(s): For Kristian.pptx]

[2021-09-12 16:13:23]

**[Eddie Holmes]**

I hope the formatting is ok...looks strange above but ok when you download

[2021-09-12 16:13:25]

**[Kristian Andersen]**

These are awesome - thanks Eddie! Umbrella man even made it in there... :wink:

[2021-09-12 16:15:48]

**[Eddie Holmes]**

Yes, I love that story. I always show it right at the end...I say something like, 'And I'd like to leave you with an allegorical tale...'

[2021-09-14 03:06:04]

**[Andrew Rambaut]**

@Robert Garry What would you think about a virus with spike 501S and 681S? Would the latter remove cleavage? Perhaps glycosylate? Could this be animal adapted?

[2021-09-14 04:53:41]

**[Robert Garry]**

Interesting - will take a look as soon as I get to the lab

[2021-09-14 05:10:16]

**[Andrew Rambaut]**

Thanks - I will explain why later.

[2021-09-14 06:20:07]

**[Robert Garry]**

So, the Proline at 681 is important for the O-glycans. S at 681 changes the prediction from three to only one O-linked glycan - as @Kristian Andersen has pointed out this likely is involved in regulation of cleavage - rather than any "glycan shielding." [shared file(s): image.png]

[2021-09-14 06:23:11]

**[Andrew Rambaut]**

Interestingly this is actually a R681S mutation

[2021-09-14 06:23:20]

**[Andrew Rambaut]**

(i.e., a Delta)

[2021-09-14 06:27:14]

**[Robert Garry]**

Of course N501 is the a key residue for cross-species transmission. N501T is a key mutation for minks and ferrets. Serine is chemically similar to Threonine.

[2021-09-14 06:27:56]

**[Robert Garry]**

Mutation of two amino acids (K479N and S487T) in palm civet SARS-CoV RBD allows this virus to infect humans (Li, 2008). These changes overcome the species barrier between civets and humans and enable favorable interactions between the RBD and contact residues on human ACE2. Q493 and N501 are the two SARS-CoV-2 residues that have similar interactions with ACE2 as SARS-CoV residues N479 and T487.

[2021-09-14 06:32:57]

**[Robert Garry]**

R681S - That is interesting - hard to predict the effect on cleavage. The fsc is still there of course, but cleavage could be improved (the S might be a better landing site than the R) or decreased. And, the wild-card of the O-glycans not being there.

[2021-09-14 06:34:24]

**[Andrew Rambaut]**

These are the mutations we are seeing (we are not sure how they are linked as they are environmental samples). The last column is me looking outside the SARS-CoV-2 to the bats/pangolins

```

```S:R102T (21867:G>C) conserved
S:D442N (22886:G>A) conserved
S:Y449H (22907:T>C) 449F 449G
S:N450T (22911:A>C) 450S (RaTG13), 450G
S:P499S (23057:C>T) 499S (Cambodian bats)
S:N501D (23063:A>G) 501D (RaTG13), 501T, 501V
S:N501S (23064:A>G)
S:Q506P (23079:A>C) conserved
S:P681S (23603:C>T) missing
S:V772A (23877:T>C) conserved
S:Q779L (23898:A>T) conserved
S:L828I (24044:C>A) conserved
S:G932D (24357:G>A) conserved
S:S937A (24371:T>G) conserved```

```

[2021-09-14 06:35:03]

[Andrew Rambaut]

question is - does any of this spike profile make you think it might be in a non-human host?

[2021-09-14 06:35:55]

[Andrew Rambaut]

501D is interesting as it is in RaTG13 (i.e., one of the residues SC2 ancestors lost)

[2021-09-14 06:36:54]

[Robert Garry]

For completeness - here's P681R - as discussed previously it changes one of the O-linked glycans [shared file(s): image.png]

[2021-09-14 06:36:57]

[Andrew Rambaut]

The loss of furin cleavage and some RBD mutations seems like it might be non-human

[2021-09-14 06:37:56]

[Andrew Rambaut]

There are about 100 681S human genomes on GISAID and some evidence of transmission clusters so can't be a totally unfit virus in humans

[2021-09-14 06:40:52]

[Robert Garry]

The FCS will still be there but most likely not as good as P681R. Totally agree about the N501 S or D maybe non-human. That could be spillback followed I guess by another spillover..

[2021-09-14 06:46:45]

[Kristian Andersen]

That is a weirdly mutates spike...

Often we see charge reversions, but that's not what's going on here - instead we see several hydroxyl groups? There are more S/T mutations in that spike than the two you mentioned.

Novel receptor?

[2021-09-14 06:52:52]

[Andrew Rambaut]

This is highly confidential right now but it is from wastewater in a city. It has been frequently coming up over time and has not been seen in any of the human cases in the city (and as you know we do sequence a lot). We are speculating it is in rats or something.

[2021-09-14 06:53:47]

[Andrew Rambaut]

The good news is probably that this will be less fit in humans and is not a particular threat (above Delta which we already have). Would be interesting though.

[2021-09-14 06:56:54]

[Robert Garry]

Very interesting!

[2021-09-14 07:06:12]

[Kristian Andersen]

Indeed - that is interesting. As you say, could likely be animals, but yes, probably not a concern in humans compared to delta.

[2021-09-14 07:06:55]

[Kristian Andersen]

Don't rodent CoVs have funky FCSs? Question for Stephen...

[2021-09-14 07:30:53]

[Robert Garry]

MHV changes its FCS all the time

[2021-09-14 07:32:05]

[Robert Garry]

See here - no making fun of my tree. [shared file(s): image.png]

[2021-09-21 00:40:05]

[Eddie Holmes]

Got another FOIA from [REDACTED]. This will be declined again and probably end up in court again. This is what my Uni told me (apparently the Uni cyber security people have kindly collated all my emails for me):

[2021-09-21 00:40:09]

[Eddie Holmes]

And for context, the application was another from [REDACTED], Associated Press.

The final scope of the application is:

All University of Sydney email correspondence between personnel of the University's Viral Evolution Lab and:

- Anthony Fauci (email address afauci@niaid.nih.gov, AF10r@nih.gov)_
- Kristian Anderson (email address [REDACTED])
- Marion Koopmans (email address [REDACTED].nl)_
- Andrew Rambaut (email address [REDACTED].uk)_
- Jeremy Farrar (email address [REDACTED].uk)_
- Collins Francis (email address francis.collins@nih.gov)_

containing the search terms "Phytogenic", "coronavirus", "Wuhan", and "GISAID" for the period 15 December 2019 to 15 June 2020.

[2021-09-21 00:41:43]

[Andrew Rambaut]

I can confidently predict that the number of emails containing the words - "Phytogenic", "coronavirus", "Wuhan", _and_ "GISAID" is zero.

[2021-09-21 00:43:46]

[Andrew Rambaut]

Ignoring the spelling of 'phytogenic' this is amateur stuff - what useless keywords.

[2021-09-21 00:48:18]

[Eddie Holmes]

Apparently my Uni people corrected 'phytogenic' to 'phylogenetic'

[2021-09-21 00:48:47]

[Andrew Rambaut]

When they say 'and' do they actually mean 'or'?

[2021-09-21 00:49:10]

[Eddie Holmes]

I guess or.

[2021-09-21 07:58:35]

[Andrew Rambaut]

Going back to this channel for this but this stuff about the DARPA proposal makes me even more angry about the DT letter (if it is indeed Baric) - he knew how suspicious a FCS would look back then.

[2021-09-21 08:00:18]

[Kristian Andersen]

And his attacks on me for even suggesting we needed to take a look at this. He's a two-faced bastard, that's for sure.

[2021-09-21 08:01:59]

[Kristian Andersen]

IMO we really do need to take a close look at what's described in this grant and look back at our (now expanded) alignments to see if anything pops up. E.g., Bob mentioned that there are differences in Laos bat vs SC2 when it comes to N-linked glycans, which isn't particularly reassuring - that's the kind of work described on page 11.

[2021-09-21 08:05:12]

[Andrew Rambaut]

I agree - need to stay on top of this.

[2021-09-21 08:05:42]

[Kristian Andersen]

Yes - this can't (shouldn't) be dismissed out of hand.

[2021-09-21 08:06:07]

[Andrew Rambaut]

If there is anything suspicious - better that we say it and then address it. If there isn't then we can let it blow over.

[2021-09-21 08:06:40]

[Kristian Andersen]

Exactly. I suspect it'll be the latter.

[2021-09-21 08:08:52]

[Andrew Rambaut]

Me too. But it really isn't beyond plausibility that someone went ahead and tried some of this stuff. We just need to re-convince ourselves it is coincidence.

[2021-09-21 08:10:14]

[Kristian Andersen]

Correct - that's the problem. There's a big difference between "the lab was working on bat CoVs" to "the lab was modifying bat CoVs using features we see being unique to SC2".

[2021-09-21 08:10:33]

[Andrew Rambaut]

Key question is - would anyone chose to put the FCS we see in SC2 in and put it out of frame.

[2021-09-21 08:11:21]

[Kristian Andersen]

Would be a very strange way to do it, but not impossible - depending on their cloning strategy.

[2021-09-21 08:12:04]

[Andrew Rambaut]

If you wanted to insert an FCS you would pick the AAs you wanted, pick the codons you wanted and then insert it.

[2021-09-21 08:12:46]

[Andrew Rambaut]

The alternative is that it was inserted in frame and then mutated to make it look out of frame

[2021-09-21 08:14:19]

[Kristian Andersen]

Again, it depends on cloning strategy - if the use restriction enzymes and there would be an easy way to insert an FCS with PCR utilizing REs already present in the sequence, then it could be a way to do it. Not the optimal way, for sure, but sometimes ease trumps perfection.

[2021-09-21 08:16:32]

[Andrew Rambaut]

Would you pick CGG for example? Would you consider what codon to use for an R or just pick one arbitrarily.

[2021-09-21 08:21:23]

[Kristian Andersen]

CGG would be an unusual choice IMO - not a 'optimized' R and sorta middle-of-the-pack as it comes to usage in human genomes. Very rare, of course, in viruses because it's a CpG.

[2021-09-21 08:24:03]

[Andrew Rambaut]

And you have 6 codons to chose from.

[2021-09-21 08:25:24]

[Kristian Andersen]

Correct. Key here too is that if you were to 'optimize' the FCS sequence (as is commonly done for these types of experiments) you would not end up with the FCS sequence we see, including the CGG codons. But again, it doesn't really tell us much.

[2021-09-21 08:26:15]

[Kristian Andersen]

What I think we have to look very closely at are all the specific sites they talk about in the grant and then compare across our alignments - is SC2 unique in those positions compared to, say, the BANAL viruses? Does it flip back to SARS1 at some of these positions, etc.

[2021-09-21 08:26:48]

[Andrew Rambaut]

Yup.

[2021-09-21 08:27:39]

[Kristian Andersen]

I'll get some of this started later today - it's important to get the insights irrespective of what it's going to end up showing.

[2021-09-21 08:28:55]

[Andrew Rambaut]

Would there be any reason to pick the SARS2 backbone for doing these? Assuming they had the genome sequence way back at the start?

[2021-09-21 08:30:30]

[Kristian Andersen]

Well, in the grant they specifically talk about **new** viruses - so a SC2 precursor could have been one of those "low risk" viruses they talk about and then they started fiddling with it.

[2021-09-21 08:34:27]

[Andrew Rambaut]

They would have selected it from candidates by genome sequencing it. I guess they would have seen an ACE-2 binding RBD and thought that is the one to try an FCS in?

[2021-09-21 08:37:08]

[Andrew Rambaut]

Or they just were selecting viruses by seeing if they could get any to culture and then worry about genome sequencing?

[2021-09-21 08:48:58]

[Kristian Andersen]

The former - which is the approach they describe in the grant.

[2021-09-21 08:49:44]

[Kristian Andersen]

Culture is very challenging so I don't think that approach makes sense.

[2021-09-21 09:00:15]

[Kristian Andersen]

Here's what I suggest we do:

- Make (spike) alignments with SC1, SARSr-CoVs, RaTG13(+close friends), Pangos, BANAL, SHC014, rs4237, SC2
- Mark 'key' sites based on what's in the grant - @Robert Garry, can you please help highlight the N-linked glycans based on Wuhan Hu-1 coordinates
- Check to see if there's anything odd between SC2, basal viruses, and SC1
- Look at e.g., codon usage at those sites if anything stands out
- Cross-check with how those sites have evolved during the pandemic

[2021-09-21 09:01:22]

[Andrew Rambaut]

And stay off email

[2021-09-21 09:02:00]

[Andrew Rambaut]

Or carefully curate some emails for the FOI records

[2021-09-21 09:07:39]

[Robert Garry]

OK I'm on my bit...

[2021-09-21 09:07:43]

[Kristian Andersen]

Exactly - let's dig around a little and then start an email chain.

I'm in Zoom calls most of the day, but I'll dive in in the afternoon.

[2021-09-21 09:09:52]

[Kristian Andersen]

Actually, let me get started - I just cleared my calendar for the next hour.

[2021-09-21 09:34:20]

[Robert Garry]

Is this a good set for the SC1 related viruses - or others (some more civet ones)? [shared file(s): image.png]

[2021-09-21 09:35:11]

[Kristian Andersen]

I'm getting (and annotating) the genomes now

[2021-09-21 09:37:43]

[Andrew Rambaut]

Ooh.. Can't wait.

[2021-09-21 09:39:31]

[Andrew Rambaut]

Probably worth having the full genomes aligned even if we only focus on the close relatives in the spike

[2021-09-21 09:41:18]

[Kristian Andersen]

Yup - I'm getting all the full length genomes first and then we can cut alignments out from there. Getting them annotated too - future Kristian will thank present Kristian.

[2021-09-21 11:09:02]

[Kristian Andersen]

Alright, first attempt at an annotated alignment with relevant sequences. Am I missing anything? Any other sequences mentioned in the grant I should include?

@Robert Garry, once I have the coordinates of the N-linked glycs I'll include those in the alignment as well. Once we have all of those annotated, I'll create Spike alignments, including AA and NT versions. [shared file(s): 2021.09.21_alignment-full.geneious]

[2021-09-21 11:45:41]

[Robert Garry]

excellent!

[2021-09-21 13:59:31]

[Eddie Holmes]

What also annoys me is that Peter should have seen this coming and it is worse than he was suggesting a few days ago. He's a jackass. We still have no evidence for SC2 in that lab and they must have sequenced it first. But it is very striking that a bat-derived CoV with an FCS turns up in a city that was on a grant proposing to muck around with FCSs in bat-derived CoVs.

[2021-09-21 14:00:43]

[Eddie Holmes]

I might see if I can talk to Linfa about it.

[2021-09-21 15:25:59]

[Kristian Andersen]

Getting Linfa's take on this would be great - he's on the grant too and he also hasn't mentioned anything about this.

[2021-09-21 15:27:37]

[Eddie Holmes]

I'll get onto it. I'm also going to have to chat to the intelligence folk.

[2021-09-21 16:02:14]

[Robert Garry]

Some of the most valuable info is going to come from sorting out the parallels btwn SC1 and SC2. It's ironic that two KEY pieces surfaced in the past few weeks- the hubel civet viruses and the BANAL bat viruses. With SC1 and a little elbow grease you'll see the adaptations from bat to civet to human and then human to human. With SC2 we'll have all the same genomes except the intermediate host (and I think a good assumption that there is one). In both SC1 and SC2 you've got highly similar N-glycan changes in the NTD followed by very similar and specific RBD changes. It's possible the NTD changes opened the door for the RBD changes. Put the FCS aside - nobody did these previously undiagnosed NTD and RBD changes by design.

[2021-09-21 16:05:51]

[Kristian Andersen]

Yup, all important points Bob. As for the glycans - do you have the coordinates?

[2021-09-21 16:06:11]

[Kristian Andersen]

I'm done with my Zoom calls so I'll focus on this for the rest of the day/night.

[2021-09-21 16:24:57]

[Robert Garry]

For SC2 to laos bat 52 its N 30, 74 and 370.

[2021-09-21 16:25:21]

[Robert Garry]

SC1 coming

[2021-09-21 16:37:56]

[Eddie Holmes]

I'd love to know what a 'human specific furin cleavage site' is.

[2021-09-21 16:48:28]

[Kristian Andersen]

It's not "PRRAR", that's for sure.

[2021-09-21 16:48:58]

[Kristian Andersen]

@Robert Garry - I'm using NetNGlyc and since N-linked glycans are easy to predict I think I have what I need

[2021-09-21 16:51:41]

[Robert Garry]

for sc1 the ones I have my eye on are N 29, 73 and maybe 227

[2021-09-21 16:52:49]

[Robert Garry]

variable with close bat viruses like KY417150

[2021-09-21 17:14:25]

[Kristian Andersen]

@Robert Garry what are the key N-linked sites for the DC-SIGN/L-SIGN stuff? I have my eye focused on residue 370 in SC2 (357 in SC1) since that is a FULLY conserved N-linked glycan across all sarbecos, except in SC2 because residue 372 changes from a fully conserved T to an A (via a single A>G transition in the first codon position).

In the RBD there are three N-linked glycans in SC2/BANAL, so two are conserved, one is not.

[2021-09-21 17:19:19]

[Kristian Andersen]

We have some information about what this particular residue does in SC2:
<https://pubmed.ncbi.nlm.nih.gov/34289344/>

[2021-09-21 18:24:13]

[Eddie Holmes]

MHV has RRAR. FCoV has PRRAR. Would they have used the FCS's from these (although different codons)? I note that these viruses been used by groups in Wuhan in a different context:

[2021-09-21 18:24:44]

[Eddie Holmes]

shared file(s): JVI.00948-15.pdf

[2021-09-22 14:05:51]

[Andrew Rambaut]

I think we that maybe we could have a chat tomorrow about the Baric/Daszak shitshow? I would just like to discuss what our strategy should be so we don't get associated with these fuckers.

[2021-09-22 14:11:56]

[Kristian Andersen]

Yeah, I think that would be good - we can't ignore this and I also need to get something back to Tony's team at NIH.

[2021-09-22 14:13:05]

[Kristian Andersen]

Too early Sydney time? [shared file(s): Screen Shot 2021-09-22 at 14.12.46.png]

[2021-09-22 14:13:22]

[Andrew Rambaut]

I was just starting to have fun again looking at Laotian bat viruses...

[2021-09-22 14:13:45]

[Andrew Rambaut]

I can do later if needed.

[2021-09-22 14:15:02]

[Kristian Andersen]

Yeah, me too - and I think those viruses are incredibly important.

How about tomorrow half an hour later?

[2021-09-22 14:15:57]

[Andrew Rambaut]

Good for me. Will let Eddie say what suits him.

[2021-09-22 14:35:58]

[Kristian Andersen]

@Eddie Holmes @Robert Garry - would tomorrow 7am/2pm/4pm/9:30pm work for you?

[2021-09-22 14:39:17]

[Eddie Holmes]

Yes, I can probably make 7 am. 10 pm Edinburgh I think?

[2021-09-22 14:41:13]

[Robert Garry]

just let me know when central time

[2021-09-22 14:41:38]

[Kristian Andersen]

Yeah, 10pm Edinburgh - 4pm central :wink:

[2021-09-22 14:41:46]

[Kristian Andersen]

I'll email a Zoom invite.

[2021-09-22 14:42:48]

[Kristian Andersen]

Emailed invites.

[2021-09-22 14:51:14]

[Robert Garry]

all good

[2021-09-22 14:54:24]

[Eddie Holmes]

Great meeting title

[2021-09-23 12:35:38]

[Kristian Andersen]

Should we invite Joel and/or Mike on the call we have in 1.5hrs? We had a quick chat about the grant on another call this morning and Mike has that upcoming Science debate.

[2021-09-23 12:48:22]

[Eddie Holmes]

No

[2021-09-23 12:50:00]

[Eddie Holmes]

They can be talked to separately.

[2021-09-23 12:50:00]

[Kristian Andersen]

All good

[2021-09-23 13:10:48]

[Robert Garry]

The Dean just called me to his office to fix somebody's crisis - I told him I had 20 minutes, but possible I'll be 5 minutes late. Please start without me.

[2021-09-23 16:26:28]

[Kristian Andersen]

Alignments [shared file(s): 2021.09.21_alignment-spike-aa.geneious, 2021.09.21_alignment-spike.geneious]

[2021-09-23 16:31:22]

[Andrew Rambaut]

<https://docs.house.gov/Committee/Calendar/ByEvent.aspx?EventID=112880>

[2021-09-23 16:32:08]

[Andrew Rambaut]

This document:

<https://docs.house.gov/meetings/SY/SY21/20210714/112880/HHRG-117-SY21-Bio-RelmanD-20210714.pdf>

Authors: David [shared file(s): image.png]

[2021-09-23 16:32:19]

[Andrew Rambaut]

MacOs Version 11.4

[2021-09-23 16:32:52]

[Andrew Rambaut]

From earlier this year - so probably not Relman then.

[2021-09-23 16:35:13]

[Andrew Rambaut]

Jesse's CV <https://brotmanbaty.org/wp-content/uploads/2019/12/BLOOM-JESSE-CV.pdf> [shared file(s): BLOOM-JESSE-CV.pdf]

[2021-09-23 16:35:29]

[Andrew Rambaut]

Must be at least 2018

[2021-09-23 16:35:46]

[Andrew Rambaut]

shared file(s): image.png

[2021-09-23 16:35:55]

[Andrew Rambaut]

10.13.6

[2021-09-23 16:38:29]

[Andrew Rambaut]

```(Microsoft Word - BloomCV.docx)

endobj

84 0 obj

(Mac OS X 10.13.6 Quartz PDFContext)

endobj

85 0 obj

(Word)

endobj

86 0 obj

(D:20191101172036Z00'00')

endobj````

There is a date stamp of 2019 here and he is already on 10.13.6

[2021-09-23 16:54:47]

**[Kristian Andersen]**

Nice ones! Also, I'm wondering about the times - it's likely Adobe is actually showing all of this in \_my\_ time zone and not the original one.

[2021-09-23 16:57:35]

**[Kristian Andersen]**

Confirmed - Acrobat is showing times in \_my\_ time zone, not original :disappointed:. Alright, we don't know whether this could be West Coast or not - but probably somewhere US.

[2021-09-24 13:27:52]

**[Eddie Holmes]**

@Kristian Andersen On that glycosylation stuff the key comparison is actually without the BANAL or any of the viruses collected post-pandemic and perhaps even RaTG13. The key question is whether SC2 has glycosylation patterns that match those proposed in that grant (e.g. clade 2 stuff) in comparisons involving the viruses named in that grant and known about in 2019.

[2021-09-24 13:50:01]

**[Kristian Andersen]**

Hey Eddie. I agree, although I think the comparisons should be to both - where SC2 matches BANAL, we 100% know it's natural. The question is, where SC2 is \_different\_ than BANAL, is any of that described in the grant? The answer to that is a clear no.

BANAL has 23 (predicted...) N-linked glycans, SC2 has 22 - 21 of them are shared with BANAL, so SC1 has one unique N-Glycs (in the NTD), whereas BANAL has two unique N-Glycs (one in RBD, one in NTD). None of these are specifically described in the grant.

Table with the N-Glycs attached. [shared file(s): N-Glycs.xlsx]

[2021-09-24 15:00:48]

**[Robert Garry]**

SC1 has a glycan at 109 that is in the other bat Covs except for RaTG13 and Laos bat 52. It also missing in SC2 spike.

[2021-09-24 15:07:07]

**[Kristian Andersen]**

I'm looking closely at N357 (SC1 coordinates), which is the one SC2 loses (N370 in SC2 coordinates). The glycan at N357 interacts with the N322 glycan on ACE2. What's interesting here - *Rhinolophus macrotis* does not have N322, unlike most other bats and instead has K322. Now, does the missing N357 glycan in SC2 mean it can live happily in *Rhinolophus macrotis*?

Maybe: <https://pubmed.ncbi.nlm.nih.gov/34018203/>

[2021-09-24 15:10:41]

**[Kristian Andersen]**

(pangolins also don't have that ACE2 glycan...)

[2021-09-24 15:34:18]

**[Eddie Holmes]**

Interesting observation. *R. macrotis* has a wide geographic range.

[2021-09-28 02:37:00]

**[Andrew Rambaut]**

@Kristian Andersen @Robert Garry Given we are doing another dive into the 'quirks' of the genome - I have noticed the 'variable loop' is bracketed by 2 of your labelled restriction sites - EcoR1(1336) and Scal(1538). Just saying... if you wanted to insert an RBD, perhaps you would just insert the variable loop. Of course it is in the *Laotian* genomes so that would then support the reverse zoonosis hypothesis! [shared file(s): image.png]

[2021-09-28 05:01:25]

**[Robert Garry]**

I think this "confirms" this comment from Research Square. The cover-up continues. [shared file(s): image.png]

[2021-09-28 15:10:24]

**[Kristian Andersen]**

@Robert Garry - I think you need to spill the beans here... :wink:

[2021-09-28 15:14:53]

**[Robert Garry]**

Someone apparently leaked to CNN that the Chinese increased purchases of PCR equipment in the summer of 2019. Meaning that I guess they were going to release the ~Kracken~ virus on their own ppl about that time. I wasn't too impressed with the data. [shared file(s): image.png]

[2021-09-28 15:15:30]

**[Robert Garry]**

THat's me plotting the data she gave me...

[2021-09-28 15:16:18]

**[Robert Garry]**

I'm sure than Sanjay will explain it very well...

[2021-09-28 15:18:29]

**[Kristian Andersen]**

:rolling\_on\_the\_floor\_laughing:

[2021-09-28 15:21:29]

**[Robert Garry]**

It's really degenerating fast.

[2021-09-28 15:22:04]

**[Eddie Holmes]**

That's spectacular.

[2021-09-28 15:35:14]

**[Eddie Holmes]**

So they bought the PCR machines before the database was taken down. Clever!

[2021-09-28 23:33:20]

**[Andrew Rambaut]**

They put an  $R^2$  for a plot of something against time?

[2021-09-28 23:33:43]

**[Andrew Rambaut]**

That is bonkers

[2021-09-28 23:35:17]

**[Andrew Rambaut]**

Oh - that's you that did the  $R^2$ , @Robert Garry - sorry. Didn't mean to suggest it was inappropriate.

[2021-09-28 23:36:37]

**[Andrew Rambaut]**

If it wasn't for the pesky 2019 value the  $R^2$  would be 0.99 or something. So the 2019 value is definitely super significant.

[2021-09-28 23:38:33]

**[Andrew Rambaut]**

I assume this is cumulative spending? I.e., 10M per year up until 2019 when they spent 30M?

[2021-09-28 23:39:47]

**[Andrew Rambaut]**

*[thread - ID: 2021-09-28 23:39:47]*

Do we know when the financial year spans in China? Could this be 2019/2020 and actually include some pandemic spending?

[2021-09-28 23:41:25]

**[Andrew Rambaut]**

*[thread - ID: 2021-09-28 23:39:47]*

@Andrew Rambaut So probably not...

`In China, the fiscal year for all entities is \*the calendar year, 1 January to 31 December\*, and applies to the tax year, statutory year, and planning year.`

[2021-09-29 04:31:51]

**[Robert Garry]**

My understanding is it's spending per year so not cumulative - just increases- let's see what Sanjay says.

[2021-09-29 04:36:33]

**[Robert Garry]**

&gt;&gt; Over 2019 the number of procurement contracts for the test is required for COVID-19 – the PCR test -- suggests the virus was highly likely to be spreading virulently in Wuhan, China as early as the summer of 2019.

&gt;&gt; The total spent on PCR test systems in Hubei province increased from 2015 to 2018, but a dramatic increase was witnessed in 2019: 10.1M Yuan (2015); 19.1M Yuan (2016); 29.1M Yuan (2017); 36.7M Yuan (2018); and 67.4M Yuan (2019). The total 2019 contract value is higher than the sum of the previous two years.

&gt;&gt; These are the Chinese groups that made the significant and abnormal purchases of PCR equipment in 2019: Wuhan by the People's Liberation Army Airborne Army Hospital (May 2019), The Wuhan Institute of Virology (Nov 2019), the Wuhan University of Science and Technology (Oct 2019) and the Hubei Province Districts Centres for Disease Control and Prevention (May-Dec 2019). October was the month that saw the most total PCR purchases.

>> The researchers collected 1716 PCR procurement contracts from 2007 to the end of 2019 in Hubei province. And by comparison the monthly average of PCR purchases in other provinces didn't dramatically rise in 2019, per the study.

[2021-09-29 04:47:03]

**[Andrew Rambaut]**

You definitely don't use PCR for anything but COVID

[2021-09-29 04:47:10]

**[Robert Garry]**

The whole thing is rather fishy though. What does "procurement contracts for the test" mean?

[2021-09-29 04:50:47]

**[Andrew Rambaut]**

By the way - your graph has the y axis in Yuan x 10<sup>-6</sup> which isn't really that much money :wink:

[2021-09-29 04:51:33]

**[Andrew Rambaut]**

Anyway - you said before that this was for equipment? I think Sanjay or whoever misunderstands that a 'PCR test' is basically reagents.

[2021-09-29 04:52:35]

**[Andrew Rambaut]**

The 2019 figure is basically \$1M

[2021-09-29 04:56:41]

**[Andrew Rambaut]**

If you were setting up a big genomic surveillance lab you could spend that much on machines quite easily

[2021-09-29 04:58:06]

**[Andrew Rambaut]**

The UK spent £22B on setting up the COVID testing system.

[2021-09-29 04:59:13]

**[Andrew Rambaut]**

Obviously if there was any documentary evidence they were ordering PCR primers for SARS-like coronavirus that would be a game changer

[2021-09-29 05:03:28]

**[Eddie Holmes]**

It would be, although the idea that no one said a single word about this on public and social media until December perhaps argues against. I'm sure this is in no way related to the fact that Wuhan held a number of major events in 2019 inc. the World Military Games, and might perhaps have wanted testing systems in place for the outbreaks that often follow mass gatherings.

[2021-09-29 05:05:12]

**[Robert Garry]**

Also well documented that the Hubei Province Districts Centres for Disease Control and Prevention (May-Dec 2019) was moving into new building near the Huanan market in 2019 - they probably got themselves some new PCR machines then. The WIV also something of a work in progress so there are reasons that there may have been bumps in equipment purchases then.

[2021-09-29 05:09:36]

**[Andrew Rambaut]**



And the fact the spending was going up by 10M a year in the previous years.

[2021-09-29 07:34:11]

**[Robert Garry]**

My recommendation to CNN was to not buy into this - of course that will likely be ignored.

[2021-09-29 07:40:25]

**[Kristian Andersen]**

It would be CRAZY if they dive into this - I mean, this is next level stupidity. If ever one needed a perfect example of a cherry picking fallacy, this is it.

[2021-09-29 07:46:50]

**[Robert Garry]**

I do hate to see the media fighting their way to the bottom.

[2021-09-29 07:53:05]

**[Kristian Andersen]**

It's their fight, not ours.

[2021-09-29 14:45:24]

**[Eddie Holmes]**

I do hope they run this because it is so daft. Plus the leakers would need to comment and fit into their scheme.

[2021-09-29 17:55:52]

**[Kristian Andersen]**

Well, that's obviously complete bollocks, but I'm not quite sure how they can reject it - maybe because it's "bioinformatics only"?

[2021-09-29 18:00:58]

**[Eddie Holmes]**

I don't think that's an excuse. It's not dangerous, just horseshit. My view is that things are probably best out in preprints so they can be taken down in public.

[2021-09-29 18:01:39]

**[Kristian Andersen]**

Yeah, that's my take too

[2021-09-29 18:01:46]

**[Kristian Andersen]**

Fucking crazy town - all around.

[2021-09-29 18:03:30]

**[Eddie Holmes]**

Ok. I'll let it through. Chung-I has drunk whatever the Chinese equivalent of Kool-Aid is.

[2021-09-29 23:40:03]

**[Andrew Rambaut]**

I bet it will turn out there are bounties available for high-profile papers that support the party line.

[2021-09-30 13:55:36]

**[Kristian Andersen]**

@Eddie Holmes and @Robert Garry I remember we talked about the environmental samples at the Huanan market being found in drains and on cages, in addition to other places. Do either of you have a good reference for this? I seem to remember reading it in some of the early reporting, including from China.

[2021-09-30 13:59:59]

**[Eddie Holmes]**

Not that I can quite remember but it's early and my brain is not quite working. I'll have a better think after coffee.

[2021-09-30 14:01:03]

**[Robert Garry]**

Here is the map - now that look it makes sense - the samples were collected on Jan1 [shared file(s): image.png]

[2021-09-30 14:04:02]

**[Kristian Andersen]**

Thanks Bob - I think I might also be remembering this:

<https://andersenlab.slack.com/archives/GTGL6LY5C/p1615337838240100>

[2021-09-30 14:05:00]

**[Robert Garry]**

Yeah - I was thinking Koopmans' comment too

[2021-09-30 14:06:19]

**[Eddie Holmes]**

All that stuff was going into Daszak's Lancet report....

[2021-09-30 14:10:04]

**[Kristian Andersen]**

Yeah, WTF.

[2021-09-30 14:10:04]

**[Eddie Holmes]**

So will it ever see the light of day?

[2021-09-30 14:10:53]

**[Kristian Andersen]**

Pretty friggin' important that it does - preferably with more information.

[2021-09-30 14:11:15]

**[Kristian Andersen]**

Bob - do you remember where that figure is from? Is there a table with the labels that have been added?

[2021-09-30 14:19:51]

**[Robert Garry]**

It's came from that Epoch Times newspaper article way back about March 26th in channel - the table with labels translated by Shitao is there.

[2021-09-30 16:02:27]

**[Kristian Andersen]**

Interesting comment from Linfa here - I wrote him a short email after the debate (which he bloody won by a landslide...). [shared file(s): Screen Shot 2021-09-30 at 4.01.21 PM.png]

[2021-09-30 16:03:59]

**[Kristian Andersen]**

Basically what we have been saying since February, 2020 - but Linfa has much better direct insights than we do. Couldn't agree with him more - except that I find even the "research associated" scenario to be hugely unlikely.

[2021-09-30 17:13:17]

**[Eddie Holmes]**

They can't have it both ways. GoF or nothing.

[2021-09-30 17:17:17]

**[Kristian Andersen]**

Jesse wants it both ways - a "little bit" of engineering.

Fuck off - at least be brave enough to say you think Shi cooked it up.

[2021-09-30 17:18:48]

**[Robert Garry]**

That "little bit" is something he should not be able to live down.

[2021-09-30 17:22:02]

**[Robert Garry]**

It assumes Shi had the 99.96% virus aka everything but the 12 nt insert.

[2021-09-30 17:22:07]

**[Kristian Andersen]**

He should just say "I think they put in the furin site" and be done with it - I'd respect him more if he did that.

[2021-09-30 17:23:52]

**[Robert Garry]**

Absolutely - own up to the obvious - that Shi is lying and covering up the lie.

[2021-09-30 17:29:24]

**[Robert Garry]**

Honestly - any one of us would have been off on 4\$ and JB on question one. Linfa was great but too polite. Mike also fine, but had to walk the line with having signed the Bloom letter. JC walking the line of a unbiased journo and Science published the damn letter. Would have been better to have a leaker as "moderator."

[2021-09-30 17:29:30]

**[Kristian Andersen]**

Yup!

... and then realize you have no data to support that claim whatsoever.

[2021-09-30 17:32:04]

**[Robert Garry]**

[https://www.newsweek.com/clown-shortage-hits-irish-circus-after-500-day-hiatus-163449\[...\]atic&utm=1633045804601&subscriberId=613b6ea37aeb51cecb602559](https://www.newsweek.com/clown-shortage-hits-irish-circus-after-500-day-hiatus-163449[...]atic&utm=1633045804601&subscriberId=613b6ea37aeb51cecb602559) Hey Ireland - come over here!

[2021-09-30 17:32:15]

**[Kristian Andersen]**

I wanted Eddie Holmes in that Zoom room - because 4\$Chan would have walked away bleeding and Jesse wouldn't have dared to utter a single word. Next time :wink:

[2021-09-30 17:41:31]

**[Eddie Holmes]**

Next time. Jon told me why he didn't ask me but I can't for the life of me remember what it was. It will be interesting if this debate has any impact.

[2021-09-30 19:27:46]

**[Kristian Andersen]**

I think he might have been concerned that you'd have slaughtered the other people on the panel...

I don't think the debate will have any impact - but glad Linfa got a chance to go on and say what he said. Good peeps.

[2021-10-01 05:17:32]

**[Robert Garry]**

Agree @Eddie Holmes would have decimated - I agree no impact - the only news was Linfa calling out 4\$ about the Shi and no journo is going there. The \*major\* problem with the debate was that it wasn't one. It was a round robin of talking points and except for a few brief comments like Linfa calling out Alina virtually no opportunity to challenge or rebut the nonsense. . Should have been question - answer (1 min)- rebuttal (1 min)- rebuttal (30 sec).

[2021-10-01 05:28:14]

**[Robert Garry]**

First question: Dr Chan - please outline the scientific evidence for a Lab Leak.

[2021-10-03 07:04:25]

**[Robert Garry]**

@Andrew Rambaut !channel yeah - most definitely the template switching or copy-choice error has to involved reading a template 3' to 5'. All you said was true if the template for the jump is a stray mRNA it would need to be reverse complement for going from the neg strand on the replicative intermediate (often visualized as double-stranded) to the pos strand (second round). So as you say the first round (pos to neg for the jump) would generate positive RNA that would encode the modified spikes. Not so sure that there is a huge advantage one way or the other in terms of whether the jump occurs first or second round, There are dozens of rounds of replication both positive to negative (generates replicative intermediates) AND negative to positive which generate mRNAs and genomes.

[2021-10-03 07:05:40]

**[Robert Garry]**

If the template is a related pos RNA virus rather than a mRNA in the same cell then you will have a lot of negative strands. so the question of when the jump happens pos to neg or neg to pos is not an issue.

[2021-10-03 07:12:05]

**[Robert Garry]**

Finally, Mike Worobey pinged me with a different but related question. He wants to do a virological post (and asked me - old school- to help). His hypothesis is that if there is a co-infection with BANAL-20-52 (NSRS at S1/S2) and one of the RmYN02 like viruses such as BANAL-20-116 (NSPAAR) you could generate by a template switch or copy-choice error a virus with something very close to NSPRRARS. It's very possible.

[2021-10-03 07:29:16]

**[Robert Garry]**

So Yuri - the masterblaster - got that part right about the reverse complement (his pango mRNA is the reverse complement), That being said - I am a little biased toward most of the copy choice errors involving mixed virus infections for the reason that the replication machinery for the virus is complicated by the fact that you need the nucleocapsid proteins and other factors bound to the template to get efficient replication "transcription" ( the pos to neg first round or if you a re a neg strand virus the first neg to pos round). Does not mean it can't involve a mRNA - Yuri even found some examples in the literature - just means for me it's much more infrequent.

[2021-10-03 07:46:44]

**[Robert Garry]**

<https://journals.asm.org/doi/10.1128/JVI.79.11.6620-6630.2005>

[2021-10-03 07:49:35]

**[Robert Garry]**

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2908549/>

[2021-10-03 07:54:30]

**[Robert Garry]**

The old schoolers call the first round "replication" (generates the replicative intermediates). The second round they call "transcription"- generates the mRNAs.

[2021-10-03 08:09:22]

[Andrew Rambaut]

Although with all the sub-genomic mRNAs being created in the second round perhaps it is worth distinguishing the actual production of the gRNA from mRNAs

[2021-10-03 08:09:43]

[Andrew Rambaut]

[thread - ID: 2021-10-03 08:09:43]

Also I have always considered transcription to be DNA->RNA?

[2021-10-03 08:23:06]

[Andrew Rambaut]

@Robert Garry The 'second round' takes place in the ER so might be more likely to have lots of other templates to switch too, I guess. But first round will be way more consequential as all progeny would have the insert and the spike proteins would have the FCS.

[2021-10-03 09:04:05]

[Robert Garry]

[thread - ID: 2021-10-03 08:09:43]

@Andrew Rambaut Agree - I don't like the terminology either - usually just say + to - or - to +. and for a positive virus of course as you say - to + can also be creating genomes so "replication" in my mind.

[2021-10-03 09:05:15]

[Robert Garry]

Yes indeed - lots of the accessory proteins are just so the replicative intermediates can associate with membrane.

[2021-10-04 12:51:25]

[Andrew Rambaut]

More FOI requests.

```I request the notes and content of emails sent/recieved and forwarded by Prof. RAMBAUT, for the dates 01-Feb 2020 -> 03-Feb-2020 inclusive.

I also request content, attachments to emails and applicable notes /recordings made to accompany (or otherwise document) any teleconferences which were attended by Prof. RAMBAUT on Sat 1st Feb 2020, the first of which was at 7pm GMT, hosted by Jeremy FARRAR.

Also, I request to confirm whether Prof. RAMBAUT attended the later teleconference hosted by Jeremy FARRAR at ~8pm GMT on Sat. 1st Feb 2020 (this conference having fewer attendees, and lasting "5-10 mins"), and if so, include any applicable documentation regarding this second call.```\nI don't remember a second teleconference?

[2021-10-04 12:55:51]

[Eddie Holmes]

Who's this from?

[2021-10-04 13:07:38]

[Andrew Rambaut]

Journalist apparently - Thacker I would guess

[2021-10-04 13:08:54]

[Andrew Rambaut]

Also loads of other requests for emails, etc. Going to assert the health and safety exemption.

[2021-10-04 13:28:15]

[Kristian Andersen]

It's pretty clear what Thacker is up to. [shared file(s): Screen Shot 2021-10-04 at 13.26.28.png]

[2021-10-04 13:29:05]

[Kristian Andersen]

His "About" page is undoubtedly quite helpful to get the health and safety exemption:

https://disinformationchronicle.substack.com/about?utm_source=menu-dropdown [shared file(s): Screen Shot 2021-10-04 at 13.28.06.png]

[2021-10-04 13:31:13]

[Eddie Holmes]

Yes, he's already accused me of conflicts. He's an arse

[2021-10-04 13:34:43]

[Kristian Andersen]

Arsé, yes - and exceptionally dumb.

[2021-10-05 14:59:37]

[Robert Garry]

So, I'm taking another look at the BANAL-20-50 virus. To be honest I'm starting to think that this is even more than a smoking gun. The BANAL-20-50 nucleoprotein is *99.3%* similar to SARS2 Wu-1 at the amino acid level - that's 3 amino acids in an approximately 400 amino acid protein. The BANAL-20-50 spike is *98.4%* similar to SARS2 Wu-1 at the amino acid level, including the PRRA insert. The long 1ab and 1a polypeptides are pretty much the same story ~98% identical [there is a 9 amino acid insertion in nsp3 - don't hold me to that] in SC2 relative to BANAL-20-50. At least at the amino acid level BANAL-20-50 is SARS-CoV-1.98.

[2021-10-05 15:03:48]

[Eddie Holmes]

Thanks Bob. So where does BANAL-20-50 differ most from SC2?

[2021-10-05 15:09:10]

[Kristian Andersen]

Yes. These viruses are about as far from banal as can be...

[2021-10-05 15:18:20]

[Robert Garry]

Not anywhere that I can see at least at the amino acid level. All of the proteins I've looked at so far are very very similar. Just looking at the proteins, you would really be hard pressed to call this a different virus species IMO. I'm guessing that most of the nt changes are third base changes (codon usage).

[2021-10-05 15:37:56]

[Robert Garry]

From the paper - I think most of that minor orf3a difference is the 9 aa indel. [shared file(s): image.png]

[2021-10-05 16:09:26]

[Robert Garry]

https://www.science.org/doi/10.1126/science.1092002?url_ver=Z39.88-2003&url_r_dat=cr_pub%20%20pubmed Between the coronavirus sequences of the palm civets (SZ3 or SZ16) and each of the human SARS-CoV sequences, the ratios of the rates of nonsynonymous to synonymous changes (Ka/Ks) for the S gene sequences were always greater than 1, indicating an overall positive selection pressure. However, pairwise analysis of the Ka/Ks for the genotypes in each epidemic group (fig. S6) (14) shows that the average Ka/Ks for the early phase was significantly larger than that for the middle phase, which in turn was significantly larger than the ratio for the late phase, which in fact was significantly less than 1 (table S3). These data indicate that the S gene showed the strongest positive selection pressures initially, with subsequent purifying selections and eventual stabilization. For Orf1a, we observed a pattern similar to that for the S gene (table S3). In contrast, Orf1b (nt coordinate: 13,398 to 21,485) seems to be undergoing purifying selection during the whole course of the epidemic. Indeed, it is the most conserved genomic region of SARS-CoV (7).

[2021-10-05 16:11:36]

[Robert Garry]

The "orf 1b" part is about 99.7% similar between SC2 and BANAL-20-50.

[2021-10-06 06:57:56]

[Andrew Rambaut]

The journalist that is behind the latest FOI is Ian Birrell (so no surprises there). He is unhappy with the claim of non-disclosure because of the risk of harm and is threatening to write about Edinburgh's refusal. Our lawyer just wants to get more information in order to defend against this.

@Robert Garry Is it OK that I tell him you had your home attacked with a rock and a message?

@Kristian Andersen Can I say that Scripps provided you with armed personal protection? Was that due to a specific threat?

@Eddie Holmes You have had personal threats of violence I think? I will also say that your university is taking this non-release approach for the same reason.

[2021-10-06 06:58:39]

[Robert Garry]

YES!

[2021-10-06 07:31:41]

[Kristian Andersen]

Assuming names don't go directly to Birrell (that fucker will mention all of this), yes, Scripps had to place armed guards outside our home due to multiple threats. They had to do the same outside my lab - including also installing locked doors and security cameras.

[2021-10-06 07:48:21]

[Andrew Rambaut]

Yes - this is strictly to the lawyer.

[2021-10-06 07:48:54]

[Kristian Andersen]

Ian is such a fuck. Just saying.

[2021-10-06 13:22:10]

[Eddie Holmes]

Yes, I've threats and continual online abuse. For this reason I have not used Twitter for 6 months. Actually, if you look on Twitter you will see that my last post was on April 9th and it was to Ian about the abuse I was getting. I included those face morphing pictures. That was it for me. I've left it there like a head on a pole. Quite useful it is Ian. And my Uni are using the abuse against me as the reason for non-release. They say they have a duty to my mental health and well-being. One case has gone to court and we won.

[2021-10-06 13:43:40]

[Eddie Holmes]

Also, so what if Birrell has a moan in the Mail about the lack of disclosure? He moans continually anyway.

[2021-10-06 14:26:35]

[Andrew Rambaut]

Yes exactly - Birrell wrote a letter to the Principal threatening to write about it so the lawyer just wants to make sure everything is in place to tell him to piss off.

[2021-10-08 15:29:51]

[Robert Garry]

<https://medium.com/@SherlockGNomes/an-engineered-origin-for-the-sars-cov2-genome-47914a6919ad>.

"UPDATE: September 2021

New bat coronavirus genomes (BANAL-20-52, BANAL-20-236, and BANAL-103) have been published that show a high sequence identity to SARS-CoV2 spike protein. Whether a natural ancestor, synthetic template, spill-back

infection, or even perhaps academic fraud has not been conclusively determined."

[2021-10-08 15:30:24]

[Robert Garry]

Wow - just incredible.

[2021-10-08 15:32:37]

[Kristian Andersen]

Technically he is correct. Technically, it also has not been conclusively determined if climate change is indeed caused by human activity.

[2021-10-08 15:50:04]

[Eddie Holmes]

That person should be in the dock.

[2021-10-09 02:53:18]

[Andrew Rambaut]

The emails from Jeremy Farrar - for @Robert Garry's benefit: they are suggesting releasing some of the emails that are out in heavily redacted form about the conference call on the basis that they contain nothing incriminating and the redactions are being used to insinuate they do.

I really feel sorry for Jeremy (and Tony and Patrick) here because they are being accused of being ringleaders in a cover-up where the emails clearly show they were just trying to facilitate open-minded examination of the matter. But my University has taken the same position as Eddie's and is saying all emails are off limits because even their existence is being used to incite abuse and harm. This argument will be considered by the Information Commissioner soon we guess and selective release would undermine this position.

My main concern is that the requests are extremely broad (i.e., all emails between any of us in the last 2 years, all emails in the days 1st-3rd Feb 2020, any email with a Chinese institution) that loosing the broad (and in my view, valid) protection of the harm defence will mean we just open up more and more avenues of attack and FOI requests.

However, given these emails about the Feb call have already been released by NIH and UK Gov in highly redacted form, I don't know if it would be possible for them to coordinate releasing more details from those emails unilaterally. Or just the interactions with Kristian (who is not FOIable)?

[2021-10-09 05:45:59]

[Robert Garry]

I agree there is nothing harmful in the now famous emails re the Feb 1 conference - most of it is public knowledge anyway with perhaps the exception of Fouchier's summary - again not harmful.

[2021-10-09 05:51:28]

[Robert Garry]

I also appreciate the point about protecting the harm defense. As much as the Leakers - the anonymous and occasionally anonymous ones - would like to say we attacked them - it's the opposite. Alina and Blooms attacks on us and other scientists have been brutal. I guess this is where Jeremy is coming from, but yes it could backfire, just opening more worm cans.

[2021-10-09 05:59:15]

[Robert Garry]

Tulane like Scripps is a private institution. That offers some defense against FoIA. No one can demand internal emails. However, our communications with gov entities like NIH are exceptions and subject to FoIA. I've been FoIA'd many times regarding NIH grants as a form of harassment instigated by covidfaker. NIH gets the same request and they have to comply - what happens is that they redact everything except for the title and abstract of the grant. Still the harassment works - it makes the NIH ppl uncomfortable and wastes a lot of time.

[2021-10-09 06:01:41]

[Robert Garry]

There's another restriction on the FoIA requests - releasing the information unredacted requires the permission of EVERYONE on the emails and other documents.

[2021-10-09 06:05:15]

[Robert Garry]

Thus, when covidfaker gets a slimeball journo to FoIA some of my federal grants (at least 5 times) ppl like Pardis/Harvard also have to sign off. Hence with a stroke of a pen covidfaker puts into play a lot of time wasted for me, tulane, nih and my collaborators.

[2021-10-09 06:16:51]

[Robert Garry]

back to Jeremy - this I feel is another place where Peter Daszak hasn't helped out - by orchestrating that first Lancet letter - that JF signed - it makes it look like our Feb 1 call was part of some massive conspiracy to hide SC2 origins at the WIV.

[2021-10-09 07:13:37]

[Robert Garry]

Also, of course Daszak - orchestrated by Metzl is under heavy fire to be fired - I suspect he'll pull what Nathan Wolfe did when Metabiota/Fair's role in screwing up the response to Ebola in WA became evident - They said just wait it will blow over. I think PD and step down as head of EgoHealth by retain some title like CSO.

[2021-10-09 07:15:53]

[Robert Garry]

Also i think the resignation of Francis was not coincidence. There's a better than even chance that the Republicans will take over midterm and who knows if TRump or some Trump clone gets the presidency in 2024. Imagine someone like Relman or worse put in charge of NIH.

[2021-10-09 07:16:22]

[Robert Garry]

Tony and Jeremy no doubt also under heavy fire to resign.

[2021-10-09 07:17:58]

[Robert Garry]

You can bet the 4\$/Ridley book is going to be HEAVY on this Feb 1 call - Alina is obsessed with @Kristian Andersen - Viscount Ridley is gonna use the attack on Jeremy to sell his book.

[2021-10-09 12:46:55]

[Eddie Holmes]

UK Govt rules are that everyone has to agree to the release and I can't do that as it will give the green light to all the other FOIAs. Sorry. I also think it is hopelessly naive to think this release will make things better. Birrell and others will cherry pick the bits for their angle. I can see Ron's causing the anti-GoF mob to go crazy and of course Marion was on the WHO team. It will be spun. The only person who is really moaning about this is Birrell and his mind was made up months ago. I don't think Jeremy is under much pressure. Daszak is obviously a different story. Clearly the aim of Pompeo and the Fox crowd is to vindicate Trump so he can be re-elected.

[2021-10-11 05:43:47]

[Robert Garry]

Honestly, though - Chan's latest set of tweet about the emails cross a line - she's hyping shit like this to gin up sales of her book. Broad (at the top of her Twitter page) is compliant in this BS.

[2021-10-12 14:10:48]

[Robert Garry]

Honestly though, fuck Alina and her privacy invasion - good grief. Scientists need to be able to communicate in private without fear of some asshole coming back later and pointing out shit with perfect hindsight. @Kristian Andersen pointed me to this general area above. Turns out - yeah Delta - Lessons learned - who knew that yes we totally should have been freaking out! [shared file(s): image.png]

[2021-10-12 14:15:49]

[Kristian Andersen]

I still maintain that everything we said there was true - based on available evidence at the time, there was no reason to freak out. Just look at the recent headlines from Newsweek on mutations...

[2021-10-12 14:18:41]

[Robert Garry]

Agreed - my point exactly - all perfectly true and reasonable!

[2021-10-12 14:20:40]

[Robert Garry]

But, idiots like 4\$ would have a field day.

[2021-10-12 14:29:19]

[Kristian Andersen]

Yup.

[2021-10-12 14:29:59]

[Andrew Rambaut]

[thread - ID: 2021-10-12 14:29:59]

Delta is not the double mutant. It doesn't have E484Q

[2021-10-12 14:40:13]

[Eddie Holmes]

It does make my blood boil that Alina - who has legitimized hate and attacks on scientists - is featured as a victim in that Nature piece. No doubt she will milk this on Twitter. She has done more than anyone to create a narrative that if you believe in a natural origin you are part of a conspiracy.

[2021-10-12 14:47:09]

[Kristian Andersen]

I'll be emailing Nature as soon as this comes out to point that out - they have been asking us to fill out the questionnaire multiple times, but I never did. But not to realize that Alina is one of the ring leaders in _exactly what the article is about_ is pretty astonishing.

[2021-10-12 14:48:17]

[Kristian Andersen]

I guess Richard maybe only emailed Bob and myself... [shared file(s): Screen Shot 2021-10-12 at 14.47.41.png]

[2021-10-12 14:49:42]

[Eddie Holmes]

I never got that

[2021-10-12 14:49:44]

[Kristian Andersen]

What we really need an exposé on is the bullshit 4\$Chan and eDim are doing - that's by far the biggest problem here, not you random fat angry guy from Texas sitting on his couch in his underpants while screaming at his screen about the "dumb elites!!"

[2021-10-12 15:02:57]

[Robert Garry]

[thread - ID: 2021-10-12 14:29:59]

@Andrew Rambaut Glad you're keeping track :wink: - I lose track - interesting how Delta outcompeted Kappa.

[2021-10-12 15:04:31]

[Kristian Andersen]

[thread - ID: 2021-10-12 14:29:59]

@Andrew Rambaut All because of P681R?

I doubt it - I think this bugger might have some tricks outside that spike protein we so fondly focus on...

[2021-10-12 23:32:49]

[Andrew Rambaut]

[thread - ID: 2021-10-12 14:29:59]

@Andrew Rambaut We are looking into that but it has remarkably few other 'defining' mutations - one in M, a couple in N, a couple in 3a and a couple in 7a.

[2021-10-13 13:29:52]

[Robert Garry]

In all seriousness though we probably do need to let someone like the CIA or the White House know about Q61-70. George Gao and probably a lot of other people have the sequences and it's a pretty good bet that there is a reason why they are missing. Early on all the info did was confirm what George and others already knew - the virus came in with the illegal animals. China decided that put China squarely to blame, hence the cover-up.

[2021-10-13 13:40:25]

[Kristian Andersen]

Let's see what we can achieve on our own before moving up the line...

[2021-10-13 13:47:15]

[Andrew Rambaut]

<https://virological.org/t/oct-2021-evd-case-in-drc-linked-to-2018-2020-nord-kivu-evd-outbreak/762>

[2021-10-13 13:49:06]

[Kristian Andersen]

What is going on??!!

[2021-10-13 13:49:33]

[Kristian Andersen]

Is there a spill-back reservoir we're missing?

[2021-10-13 13:54:00]

[Andrew Rambaut]

Just never had this many survivors before

[2021-10-13 13:54:15]

[Andrew Rambaut]

Vaccinated and treated with ABs

[2021-10-13 13:56:36]

[Eddie Holmes]

@Kristian Andersen Sorry, but I can't give permission for my emails being released in any form (i.e. even via Jon) because I've been told that will set a precedent. I've had a bunch of FOIAs that want all my correspondence with China. I don't care if they are released without my permission, as in the Fauci set, but I can't formally agree under any circumstances. I also don't think it will help. I'll reply to Jeremy later.

[2021-10-13 13:56:38]

[Kristian Andersen]

The former we have had previously, the latter not.

[2021-10-13 13:58:20]

[Kristian Andersen]

Yup, totally understand Eddie (which I hope I made clear). I personally do think there's a way to do it without setting a precedent and that's the advice I have been given - but again, totally understand you (and others) can't agree to it.

[2021-10-13 14:02:25]

[Eddie Holmes]

Yes, but I've had 3 FOIAs directly asking for this correspondence. There's one at the moment that will likely go to court. My University would also object to an FOIA on the grounds that the presumption is that this correspondence was meant to be confidential. Which of course it was. Plus the emails don't get into the fact that the intelligence services were informed throughout.

[2021-10-13 14:03:30]

[Andrew Rambaut]

I am in the same position. We have been asked for huge tranches of emails and we are refusing to say what exists even.

[2021-10-13 14:04:41]

[Andrew Rambaut]

I will check with our lawyer but it only requires one of us to say no.

[2021-10-13 14:06:11]

[Eddie Holmes]

I have to say no

[2021-10-13 14:06:30]

[Andrew Rambaut]

That's what I mean.

[2021-10-13 14:07:13]

[Andrew Rambaut]

I don't know what happens if we get overruled - I guess we just have to redact them in the same way they are already redacted

[2021-10-13 14:10:58]

[Eddie Holmes]

Ron's is the most interesting

[2021-10-13 14:12:12]

[Eddie Holmes]

I also suspect a release would not help SAGO

[2021-10-13 14:12:19]

[Kristian Andersen]

I suggest you both just say "no" to Jeremy - or have the lawyers say "no". He/they will then have to figure out what to do next.

[2021-10-13 14:12:45]

[Eddie Holmes]

I said no already. Very clearly!!!

[2021-10-13 14:12:57]

[Kristian Andersen]

You did... Bears repeating :wink:

[2021-10-13 14:13:04]

[Andrew Rambaut]

Creating a whole lot more email to be FOI'ed

[2021-10-13 14:13:15]

[Kristian Andersen]

Yup.

[2021-10-14 09:26:03]

[Andrew Rambaut]

Thanks for your nice words @Eddie Holmes ! [shared file(s): Image from iOS.jpg]

[2021-10-14 12:30:54]

[Eddie Holmes]

That really was a pleasure

[2021-10-18 17:24:42]

[Kristian Andersen]

I assume some of you might have received this for review as well? Seems like pure propaganda to me... I'm going to decline to review it, but kinda curious to learn what exact animals they actually tested (and when). [shared file(s): Screen Shot 2021-10-18 at 5.23.32 PM.png]

[2021-10-18 19:41:26]

[Kristian Andersen]

Dunno if y'all listened to the interview with Patrick Vallance: <https://www.bbc.co.uk/sounds/play/p09yckyr>. He talks about the conference call at ~27:30mins.

[2021-10-19 00:20:09]

[Eddie Holmes]

I don't know about you, but I'm totally sick of hearing about that conference call. And fucked if I'm giving in to a bully like Birrell.

[2021-10-19 06:52:56]

[Kristian Andersen]

Yup, same!

[2021-10-19 07:30:53]

[Robert Garry]

Birrell and Chan are totally obsessed with this...it's insanity.

[2021-10-19 07:48:04]

[Kristian Andersen]

We'll let them - it ain't going nowhere.

[2021-10-22 16:10:43]

[Robert Garry]

<https://www.vanityfair.com/news/2021/10/nih-admits-funding-risky-virus-research-in-wuhan>

[2021-10-22 16:10:55]

[Robert Garry]

"Instead of helping to lead a search for COVID-19's origins, with the pandemic now firmly in its 19th month, the NIH has circled the wagons, defending its grant system and scientific judgment against a rising tide of questions. "It's just another chapter in a sad tale of inadequate oversight, disregard for risk, and insensitivity to the importance of transparency," said Stanford microbiologist Dr. *David Relman.* "Given all of the sensitivity about this work, it's difficult to understand why NIH and EcoHealth have still not explained a number of irregularities with the reporting on this grant.""

[2021-10-22 16:15:12]

[Robert Garry]

Another day another obsessive tweet - documented here: [shared file(s): image.png]

[2021-10-22 16:18:41]

[Eddie Holmes]

The answer to her question is nothing

[2021-10-22 16:22:09]

[Eddie Holmes]

Wasn't even discussed

[2021-11-17 17:15:58]

[Andrew Rambaut]

Just pulling the Baric discussion back to the Zoonati high priesthood - I wonder if the DT letter takes on any new interpretation given what we now know Baric was planning/doing. Makes it seem like an even weirder play to me.

[2021-11-17 17:19:36]

[Kristian Andersen]

Two things that I think are clear - (1) Baric thinks of himself as the only expert and (2) is vindictive. He emailed Jon that shit and signed that Science letter 100% out of spite - I have no doubts about it.

[2021-11-17 17:33:04]

[Andrew Rambaut]

(3) completely delusional and oblivious

[2021-11-17 17:37:19]

[Kristian Andersen]

Possible, but I doubt it - Baric seems very calculated to me.

[2021-11-17 17:38:28]

[Eddie Holmes]

I think he's just trying to protect himself now and distance himself from WIV and Daszak

[2021-11-17 17:38:57]

[Andrew Rambaut]

It seems delusional to imagine it is OK to try and get a journalist to write this report whilst knowing that you had planned to do these things

[2021-11-17 17:39:32]

[Andrew Rambaut]

Good to keep it technical

[2021-11-17 17:39:51]

[Kristian Andersen]

"invertebrate twat" to keep it classy?

[2021-11-17 17:41:25]

[Eddie Holmes]

The lab leak was not the big thing when he wrote the DT letter
Since it has blown up he has tried to distance him from Shi et al
He clearly thinks silence works

[2021-11-17 18:28:17]

[Robert Garry]

Everything comes around - people read the articles. It all gets cataloged and recorded. The problem with Baric is he showed zero class by throwing Shi under the bus. Mike Worobey was at that fun fest with Asher, Quay, Baric, Relman, Bloom and Chan that spawned the SScience ltr- I'm betting MW has some insights. I'm pretty sure it's part of what is motivating MW right now..

[2021-11-17 18:52:19]

[Eddie Holmes]

Indeed. He signed a letter saying that China should be more transparent and is on a hidden grant that proposes to drop FCSs into Chinese bat viruses.

[2021-11-19 07:47:51]

[Robert Garry]

If I'm not mistaken Baric is on Daszak's CRIED center - that must make for some interesting conversation.

[2021-11-19 08:39:29]

[Andrew Rambaut]

Dumbest idea yet - it is mutating itself to death:

<https://www.japantimes.co.jp/news/2021/11/18/national/delta-variant-self-destruction-theory/>

[2021-11-19 08:44:30]

[Kristian Andersen]

Hah - I would like to believe that the GOP is mutating itself to death as well, but I fear it's wishful thinking.

[2021-11-19 08:58:41]

[Andrew Rambaut]

I think someone is trying to use quasispecies theory at the the population level.

[2021-11-19 09:00:04]

[Robert Garry]

Oh --- that's bad...

[2021-11-19 13:06:52]

[Eddie Holmes]

Who did the Japan work?

[2021-11-24 07:28:16]

[Andrew Rambaut]

This variant is completely insane - <https://github.com/cov-lineages/pango-designation/issues/343>

[2021-11-24 07:28:35]

[Andrew Rambaut]

Mutating itself to death, indeed

[2021-11-24 07:29:12]

[Andrew Rambaut]

Check this bit... [shared file(s): image.png]

[2021-11-24 07:30:04]

[Andrew Rambaut]

And a bit of FCS adjacent action... [shared file(s): image.png]

[2021-11-24 07:30:22]

[Andrew Rambaut]

Plus 69/70 del and the nsp6 del

[2021-11-24 07:36:36]

[Kristian Andersen]

Holy shit - that is quite something. The length of that branch... :scream:. What's the N/S on the branch?

[2021-11-24 07:41:47]

[Kristian Andersen]

Just had a look at the list of mutations - so nuts. Getting rid of a lot of serines (although also adding some new ones...) and adding in lysine - the friggin' genome is going to be made out of lysines at some point! Just nuts.

[2021-11-24 08:22:15]

[Robert Garry]

Oh boy - it's getting more polybasic - that's not good....

[2021-11-24 08:23:59]

[Andrew Rambaut]

It must surely be from a immunocompromised chronic infection. Possibly a dual infection with recombination and heavy mutation. But the random traveller in HK has me very worried

[2021-11-24 08:24:34]

[Andrew Rambaut]

Visited South Africa for 20 days - must be a much more prevalent virus than the sequencing suggests

[2021-11-24 08:24:56]

[Andrew Rambaut]

Will cause S gene dropout and I think SA is seeing some signal of that apparently

[2021-11-24 08:29:58]

[Kristian Andersen]

HIV patient or animal reservoir - I'll say 70/30 odds.

[2021-11-24 08:32:43]

[Kristian Andersen]

Bob, presumably the N679K combined with P681H makes this a better FCS, correct? It's interesting to see E484A in there too - presumably E484K was a bit too much.

[2021-11-24 08:33:44]

[Kristian Andersen]

I swear to god - if we see another monster variant gain territory here in November/December, something is driving the emergence. What, I don't know, but "something".

[2021-11-24 08:35:31]

[Robert Garry]

Yes definitely better FCS - the RXXR site really is minimal. Any changes that put positive charges, K, R, H nearby are going to up the efficacy. It already as discussed has an effective furin landing site in QTQT

[2021-11-24 08:37:21]

[Robert Garry]

LPAL goes from a minimal site to multiple basic residues in HPAI... [shared file(s): image.png]

[2021-11-24 08:37:47]

[Kristian Andersen]

Yup. QTQT is a landing site?

[2021-11-24 08:40:50]

[Robert Garry]

yes both are neutral polar amino acids

[2021-11-24 08:42:32]

[Andrew Rambaut]

[thread - ID: 2021-11-24 08:42:32]

I assume you say it cutie-cutie?

[2021-11-24 08:42:37]

[Kristian Andersen]

I had missed that previously, but that's actually kinda interesting - because: [shared file(s): furin_aa_nov21.png]

[2021-11-24 08:43:15]

[Kristian Andersen]

For the non-SC2 viruses they either have QTQT or the indel - but not both. SC2 has both.

[2021-11-24 08:45:17]

[Andrew Rambaut]

The RmYN02-like are quite distant to SC2 in this bit of the genome. Is it not more interesting that RaTG13/BANAL-20-52-like viruses acquired the QTQT motif?

[2021-11-24 08:46:41]

[Kristian Andersen]

Yup - almost looks step-wise.

[2021-11-24 08:46:56]

[Robert Garry]

Indeed - that's always puzzled me.

[2021-11-24 08:48:04]

[Andrew Rambaut]

What would it do without the PRRA insert?

[2021-11-24 08:48:13]

[Robert Garry]

I've think that the enzymes that do the cleavage at R/S also probably benefit by having a "landing pad."

[2021-11-24 08:50:03]

[Andrew Rambaut]

So if you were going to pick a virus from amongst your large bank of samples in which to try popping a FCS insertion you would pick out one with QTQT?

[2021-11-24 08:52:16]

[Robert Garry]

Not without having all the knowledge in hindsight.

[2021-11-24 08:52:52]

[Andrew Rambaut]

Fair enough. I won't tweet that then.

[2021-11-24 08:52:59]

[Robert Garry]

Same argument with the O-linked glycans - without having SC2 as the guidepost - you would not know....

[2021-11-24 08:53:53]

[Robert Garry]

Good - that would just encourage the Leakers...

[2021-11-24 08:54:18]

[Kristian Andersen]

Yeah, very clearly not a conscious choice - just nature doing it's thing. All it took was a virus with a landing site and then stuff comes and goes around that site all the time - just had to be the right sequence that popped in.

[2021-11-24 08:55:08]

[Robert Garry]

Yup - nature - we get to see the brilliance but only afterwards.

[2021-11-24 09:02:01]

[Kristian Andersen]

Some alignments with these sequences combined with relevant SARSr-CoVs - just FYI. [shared file(s): 2021.11.24_alignment_spike_nt.geneious, 2021.11.24_alignment_spike_aa.geneious, 2021.11.24_alignment_spike_aa_minimal_annotated.geneious]

[2021-11-24 09:03:43]

[Kristian Andersen]

This is mind blowing - BANAL-52 is closer to Hu-1 in the spike (in AA space) than the Botswana sequences are.... Holy fuck.

[2021-11-24 09:04:10]

[Kristian Andersen]

98.4% vs 96.9%

[2021-11-24 09:10:58]

[Robert Garry]

Yeah - what I really want to do is put the PRRA into BANAL-52 and see how it does several species.

[2021-11-24 09:11:45]

[Kristian Andersen]

What the heck is up here - Hu1 on top, Botswana at the bottom [shared file(s): Screen Shot 2021-11-24 at 9.07.10 AM.png]

[2021-11-24 09:12:07]

[Kristian Andersen]

In AA space: [shared file(s): Screen Shot 2021-11-24 at 9.07.32 AM.png]

[2021-11-24 09:13:16]

[Kristian Andersen]

Here's the key part of the RBD - contact residues listed in purple above. This makes me believe this could be evolution in a non-human host, so I'll have to change my 70/30 odds to 50/50 based on this alone. This is very interesting. [shared file(s): Screen Shot 2021-11-24 at 9.08.55 AM.png]

[2021-11-24 09:24:22]

[Robert Garry]

Agree - it's freaky!

[2021-11-24 09:24:36]

[Kristian Andersen]

The insertion ("TAGTGCGTGAGCCAGAA") around 630 could be interesting - obviously a short sequence, but it ain't from SC2 itself and the top BLAST results match fungi, cholera, and a fish...

[2021-11-24 09:26:32]

[Robert Garry]

These insertions are rare - wasn't there a preprint or virological post on those a while back?

[2021-11-24 09:27:42]

[Kristian Andersen]

Yeah - same Tom: <https://virological.org/t/putative-host-origins-of-rna-insertions-in-sars-cov-2-genomes/761>

[2021-11-24 09:33:43]

[Robert Garry]

[thread - ID: 2021-11-24 08:42:32]

@Andrew Rambaut But saying it out loud only can get you in deep trouble.

[2021-11-24 09:37:24]

[Andrew Rambaut]

Yes - Tom has identified that insertion in a human mRNA

[2021-11-24 09:37:34]

[Andrew Rambaut]

Somewhere on twitter

[2021-11-24 15:40:57]

[Kristian Andersen]

Interesting - in `_incognito_` mode, searching for "SARS-CoV-2" here's what I get: [shared file(s): Screen Shot 2021-11-24 at 3.39.53 PM.png]

[2021-11-24 15:43:17]

[Kristian Andersen]

(I was after the wikipedia page - which comes `_much_` further down the page...)

[2021-11-25 05:51:05]

[Andrew Rambaut]

B.1.1.529 is looking bad. Probably widely prevalent in RSA, 2 new cases in Hong Kong (no mention of travel this time)

[2021-11-25 05:51:39]

[Andrew Rambaut]

<https://www.youtube.com/watch?v=Vh4XMueP1zQ>

[2021-11-25 06:35:37]

[Kristian Andersen]

Any summary of the video or time stamp to go to?

[2021-11-25 07:07:47]

[Kristian Andersen]

Bob - do we know anything about NSP4? B.1.1.529 is sharing T492I with an extremely rapidly growing lineage in Chile (although I suspect that must almost certainly be doing to epi factors, not that particular mutation, but `:man-shrugging:`): https://outbreak.info/situation-reports?pango&muts=ORf1b%3AT2163I&selected=CHL&loc=USA&loc=USA_US-CA&loc=CHL&overlay=false

[2021-11-25 07:32:35]

[Andrew Rambaut]

Tulio starts at 26 mins

[2021-11-25 08:13:49]

[Robert Garry]

It's involved in remodeling the internal membranes - that where the transcription/replication takes place. [shared file(s): image.png]

[2021-11-25 08:16:44]

[Andrew Rambaut]

This evening I think we may be back to square one with respect to vaccination and prior immunity. New pandemic anyone?

[2021-11-25 08:22:26]

[Robert Garry]

I can model it - not possible to get a structure. It has probably 5 TM domains, which you expect of a membrane remodeler. The TMpred prediction is underlined and I bolded the "by-eye" most likely TMs. There are three internal domains that are in blue and italicized. There is a large external domain that has several cysteines -dicysteines - it's an uneven number so maybe a metal binding spot. The third external domain has a lot of aromatic amino acids - so does the putative fifth TM domain so that's probably the business part of the membrane remodeling. The T492I mutation is shown - it's at the end of the molecule - inside - 4 cysteines that domain could be regulatory.

[2021-11-25 11:19:29]

[Kristian Andersen]

@Andrew Rambaut - I hope you're wrong, but I have been saying that for months - we're just one monster variant away, and maybe this is it... I bloody hope not - but just looking at the mutations, I would be very surprised if an updated vaccine wouldn't be necessary. Not exactly square one, but it ain't great - plus, this is ignoring potential concerned about antigenic sin and/or ADE, but I don't want to think about either of those right now.

[2021-11-25 12:13:22]

[Kristian Andersen]

Let's hope we're just looking at a sampling bias here - because if we're not, it doesn't matter what we do next.
[shared file(s): FFEHAdRVUAQkWKg.png]

[2021-11-25 12:16:38]

[Robert Garry]

Working on our renewal @Kristian Andersen - Hoping this is not part of the justification...."Immunosuppressed individuals are thought to be the source variants, such as Ni that accelerated the COVID-19 pandemic and drove it to new heights."

[2021-11-25 12:18:55]

[Kristian Andersen]

Let's hope not Bob. I think Nu could likely be a big problem, but surely the early data can't be correct.

[2021-11-25 12:23:57]

[Robert Garry]

Nu - sorry - @Andrew Rambaut put Monty Python into my head and it's going to be hard to get away from that image of the knights...

[2021-11-25 12:26:23]

[Eddie Holmes]

That graph and it's header is a bit irresponsible. Can't make those conclusions with focused sampling on a poorly immunized population.

That said, I hope that Moderna and Pfizer have redesigned their vaccines already

[2021-11-25 12:28:55]

[Eddie Holmes]

Both Andrew and I know Sean Nee well. He was not a fan of Monty Python.

[2021-11-25 12:29:56]

[Andrew Rambaut]

It was estimated today that it would take 6-9 months to get an updated mRNA vaccine to deployable stocks.

[2021-11-25 12:33:37]

[Eddie Holmes]

Pfizer were bragging they could get it ready in 100 days...I guess that's not deployable stocks though.

[2021-11-25 12:39:49]

[Kristian Andersen]

@Eddie Holmes - the graph is based on SGTF, not sequencing, so not nearly as biased. That said, it's still biased and it simply can't be correct.

[2021-11-25 12:43:15]

[Kristian Andersen]

If we assume Delta has an R0 of 6, eyeballing that graph would put B.1.1.529 at, what, 15-20? Can't be right.

Problem is, it doesn't even have to be that bad - something with increased R0 over Delta would itself be deeply problematic since we can't get control of Delta as it is. If we then add what is sure to be additional immune escape (possibly near-complete), it'd be disastrous.

So I'm just going to hope that it's all a fluke and that it actually has a significantly lower R0 than Delta because of that weird RBD and then it won't be able to compete.

[2021-11-25 12:46:59]

[Kristian Andersen]

@Andrew Rambaut - who's on the WHO committee?

[2021-11-25 12:50:50]

[Andrew Rambaut]

Long list. Generally the people you might expect.

[2021-11-26 09:04:16]

[Andrew Rambaut]

OK. Peeps. We are definitely considering the human->animal->human origins of Nu (as it may or may not be called).

[2021-11-26 09:04:37]

[Andrew Rambaut]

Would be happy to work with you all on this.

[2021-11-26 09:06:19]

[Andrew Rambaut]

We are currently looking for the closest potentially basal genome in humans but at the moment it definitely looks like being 2020. I am struggling to see how a that could be a chronic infection followed by transmission. I doubt an HIV patient would survive that long with a CoV infection doing all this shit.

[2021-11-26 09:07:08]

[Andrew Rambaut]

A non-human host would also explain adaptation in the RBD to a different ACE-2? It may have antigenic consequences in humans but that is coincidental because it is the RBD

[2021-11-26 09:07:35]

[Robert Garry]

CHeck out the figure in the other channel - 7-of 7 mutations seen in rodents are in Nu - that's unlikely....

[2021-11-26 09:08:15]

[Andrew Rambaut]

We are working with Tulio on this so I would prefer not to broaden it out too much.

[2021-11-26 09:08:37]

[Robert Garry]

Oh yeah!

[2021-11-26 09:09:13]

[Andrew Rambaut]

I got excited because the 679K mutation is also seen in C.1.2 (i.e., in South Africa) _but_ it is a different codon in Nu and doesn't have 681H so probably convergent

[2021-11-26 09:09:51]

[Andrew Rambaut]

Back in the old Beta days we were discussing this critter:[https://en.wikipedia.org/wiki/Genet_\(animal\)](https://en.wikipedia.org/wiki/Genet_(animal))

[2021-11-26 09:10:16]

[Andrew Rambaut]

Apparently is often commensal with humans (living in roofs etc).

[2021-11-26 09:11:09]

[Andrew Rambaut]

I know that Civets are not a favoured host but again, perhaps that would explain the RBD - i.e. mustelids are closer to humans, civets require more adaptation.

[2021-11-26 09:11:28]

[Andrew Rambaut]

Rodents would also be likely, obviously.

[2021-11-26 09:13:45]

[Robert Garry]

Nu does have Y505H previously seen in a lion...plus a few other catty ones.

[2021-11-26 09:14:15]

[Robert Garry]

Genets are cat-like right?

[2021-11-26 09:17:26]

[Andrew Rambaut]

Yes!

[2021-11-26 09:17:42]

[Andrew Rambaut]

Are you updating your Christmas card

[2021-11-26 09:19:39]

[Robert Garry]

Ha - Yeah - and the fact that it's Christmas time may not be purely a coincidence. I was thinking of posting it on virological but I like the approach of something a bit more substantial put up pretty quickly---

[2021-11-26 09:29:15]

[Kristian Andersen]

Sounds good Andrew - and happy to help out with this. This definitely is a weirdo strain, so I think we need to consider seriously the potential animal link - also because of the timing.

[2021-11-26 09:30:43]

[Robert Garry]

Let's do it quickly though- I can update the Christmas card if that's helpful...

[2021-11-26 09:32:48]

[Robert Garry]

I'm already getting over-whelmed with media requests - on the big UK radio stations wanted to interview at 11pm - I didn't...

[2021-11-26 09:37:09]

[Andrew Rambaut]

What we are waiting for now is genomes from other parts of RSA. The initial genomes were extremely targeted to a university outbreak. Interestingly they had already noticed the rise in SGTF in multiple provinces before sequencing Nu. There were not doing much genome sequencing so it is a bit of a rush to get samples from across the country.

So if the new ones lie outside Jo'burg then that gives an older root and more likely a non-RSA origin. If they are all within Jo'burg clade then point source (possibly across the border in Botswana or somewhere).

[2021-11-26 09:42:09]

[Andrew Rambaut]

New Botswana ones are quite interspersed and possibly basal: [shared file(s): image.png]

[2021-11-26 10:05:29]

[Robert Garry]

"The infections were detected in a man who had returned to Hong Kong from South Africa this month, and later in another man staying across the hall in the same quarantine hotel. (Hong Kong requires almost all overseas arrivals to quarantine in hotels for two to three weeks.) *The virus's genetic sequence was identical in both men*, suggesting airborne transmission, according to the city's Center for Health Protection. Both men were vaccinated." Sequences don't look identical on the tree...

[2021-11-26 10:06:11]

[Andrew Rambaut]

Omicron it is!! <https://twitter.com/mvankerkhove/status/1464293032115777536>

[2021-11-26 10:09:20]

[Kristian Andersen]

Damn - they might not want you anywhere near their origin investigations, but at least they have you signed up as Naming Master! :wink:

[2021-11-26 10:10:55]

[Kristian Andersen]

> they had already noticed the rise in SGTF in multiple provinces before sequencing Nu
That bit has me most concerned - although, importantly, we saw exactly the same for beta and that didn't do much outside RSA (for multiple different reasons, mostly just more fit variants).

[2021-11-26 10:16:30]

[Kristian Andersen]

A local company here in San Diego is either going to be extremely pleased or 'effing pissed about this announcement. [shared file(s): Screen Shot 2021-11-26 at 10.15.52.png]

[2021-11-26 10:17:06]

[Andrew Rambaut]

Delta Airlines will be happy if we move on

[2021-11-26 10:18:06]

[Andrew Rambaut]

And I can't imagine why they skipped xi

[2021-11-26 13:43:50]

[Eddie Holmes]

We have something else to discuss. Andrew & I were on a call with Jeremy and Greg Towers from UCL. The short story is that Greg was interviewing a postdoc from WIV and was very concerned about their biosafety. It relates to the attached paper. Basically, they have collected saliva and tissue samples from bats across China which are then stored in VTM. They then culture them to look for rhabdoviruses and Greg is worried that they could have cultured a CoV at the same time. He asked the postdoc what they did to prevent this and he said that they deep sequenced the samples and found no CoV which Greg doesn't think is good enough. Personally, I agree with Greg that this sort of procedure is no longer acceptable. However, I find this a weak theory for the origin of SC2 as it requires a whole series of unlikely events: (i) the bat sample has the virus; (ii) the virus grows in culture; (iii) that virus is then transmitted to the lab worker in an accident; (iv) the furin cleavage site is retained despite culture in VeroE6 and an R. affinis cell line; (v) there is a virus in the sample despite there being no sequence evidence; (v) the infected lab worker then has to pass it on. And of course we now have all the market stuff. That said, they clearly need have a lot of bat tissues at WIV. I know the French authors on the paper and I will follow up with them. Interested in your thoughts. [shared file(s): Luo_viruses-13-00064-v2.pdf]

[2021-11-26 13:47:46]

[Kristian Andersen]

We have known this since the very beginning - I mentioned it on our very first call that I was concerned about them collecting and growing sampling from bats under BSL-2. This work is exactly that.

To be clear, this type of work is approved under BSL-2 almost universally - I can do it at my lab here at Scripps (and, in fact, we have). I'm fully in agreement that further precautions are required, but a single paper like this changes nothing - again, it's no secret this is how it has been done and I/we flagged it on day 1. Adds credence to the fact that we should consider a lab leak, but doesn't change any of the data showing it isn't.

[2021-11-26 13:50:30]

[Eddie Holmes]

I agree. Greg was definitely worried about a lab leak but was more concerned about putting in procedures to improve biosafety and I agree with that.

[2021-11-26 13:53:59]

[Kristian Andersen]

I think we all agree:

- Lab leak a potential concern
 - Actual data strongly pointing to no lab leak
 - Biosafety needs to be strengthened given how widespread SC1-like and SC2-like viruses are across SE Asia
- I don't think anybody with expertise would disagree on any of these points

[2021-11-26 13:54:35]

[Eddie Holmes]

Totally agree.

[2021-11-26 13:55:02]

[Robert Garry]

Me too - consistent from day 1.

[2021-11-26 13:56:10]

[Kristian Andersen]

Yup - not my problem that people are now only discovering this and finding it scary. Typically this line of argument is presented as if new information has been unearthed very recently and it's somehow new knowledge. Complete bollocks.

[2021-11-26 13:56:31]

[Robert Garry]

Not to mention that certain Rhabdoviruses are literally the most deadly viruses on the planet...

[2021-11-26 13:58:43]

[Kristian Andersen]

If this all came down to “what’s the likelihood of a lab leak”, then sure, all of this would be very concerning. However, we have to contend with all the “unlikelihood” that would have to happen upstream and downstream of an actual lab leak for that to explain how SC2 emerged in the human population, plus, of course, actual evidence.

People love to focus on the “lab leak happens” part and then forget about everything else. If you live in that vacuum, sure, it can be hard to convince yourself that’s not how this happened. Problem is, we don’t live in a vacuum.

[2021-11-26 14:03:28]

[Andrew Rambaut]

Perhaps a commentary timed for shortly after the Zoonati paper discussing how, given the origins are now reasonably pinned down, important it is to separate the issues and make some sensible positions on lab risk (and as we discussed this morning the much greater risk from field work)

[2021-11-26 14:03:48]

[Kristian Andersen]

Very good idea!

[2021-11-26 14:05:00]

[Kristian Andersen]

Make it clear that: (1) separate debate on biosafety in the light of how widespread SARSr viruses are, and (2) that continued investigations to understand their emergence is required, including figuring out exactly how SC2 popped up (and SC1 for that matter).

[2021-11-26 14:05:53]

[Eddie Holmes]

Yup, I'm all for that.

[2021-11-26 14:06:38]

[Kristian Andersen]

Let's do it - I actually think this is a really good idea.

[2021-11-26 14:07:41]

[Andrew Rambaut]

Yes. And there are often safe ways of getting much of the data.

[2021-11-26 14:13:36]

[Kristian Andersen]

Yup - and in fact, tying it all back to what we said in our 2018 Nature commentary... Would be extra powerful since so many idiots have brought up that commentary as a proof that we changed our minds - which we didn't. If anything, I think we all would double down on what we said in that commentary.

[2021-11-26 15:13:59]

[Andrew Rambaut]

:+1:

[2021-11-27 08:55:49]

[Robert Garry]

Ichannel Just posting this here - I need to let it cool of for a while and check for errors - sure that there are some. This is the Christmas card updated - Omicron version. I removed Beta and Gamma. This is just Alpha, Delta and Omega. Question is should *1.* I update the prior zoo Virological thread [Garry] or *2.* post as another thread and include you gentleman [Andersen, Rambaut, Holmes and Garry] with a short note about the fact that 7 of 7 of the previously noted postions that have changed after SC2 was put into rodents a show up in one form or another in Omicron or *3.* holdoff for now. [shared file(s): zoo plus Omicron 11-26-21.pdf]

[2021-11-27 08:57:20]

[Kristian Andersen]

This is great Bob - I say you post it as an update to your already existing post so it's all in one neat place.

[2021-11-27 09:17:33]

[Robert Garry]

Probably a good idea to post without much comment - This version corrects some errors. [shared file(s): zoo plus Omicron 11-27-21 copy.pdf]

[2021-11-27 12:36:21]

[Eddie Holmes]

Love it Bob

[2021-11-30 14:15:34]

[Andrew Rambaut]

Had a few journalists saying that omicron started in September. Ian Semple said he had got this from you @Kristian Andersen ? That is way to old in my opinion

[2021-11-30 14:16:24]

[Andrew Rambaut]

Blue is Capetown. Orange is Netherlands

[2021-11-30 14:18:25]

[Andrew Rambaut]

Here is our current tree - and the outgroup at the bottom is probably dodgy stuff [shared file(s): omicron_2021-11-29_179-Italian.masked.ml.tree.png]

[2021-11-30 14:18:57]

[Kristian Andersen]

Agreed - it's based on what Kai put in the Science article. I didn't talk to Ian, but our media departed reached out mentioning that more recent estimates seem to converge around mid-October, with a large degree of uncertainty.

[2021-11-30 14:20:00]

[Kristian Andersen]

[thread - ID: 2021-11-30 14:20:00]

NL, ex-RSA in the tree, correct? (given recent - "IT WAS WIDESPREAD IN EUROPE OVER THE SUMMER!!!")

[2021-11-30 14:20:40]

[Andrew Rambaut]

Yes. Marion says most of them came from Capetown which is eminently plausible in that tree.

[2021-11-30 14:21:52]

[Kristian Andersen]

So this bloody things is widespread _all_ over South Africa and presumably most of Southern Africa as well... Bloody hell, it took off fast.

[2021-11-30 14:21:53]

[Andrew Rambaut]

[thread - ID: 2021-11-30 14:20:00]

@Kristian Andersen Missed this - where was that?

[2021-11-30 14:23:35]

[Kristian Andersen]

[thread - ID: 2021-11-30 14:20:00]

@Kristian Andersen This: <https://twitter.com/dmaccannell/status/1465526465336950784?s=20>.

Duncan taking it on because it's being amplified in US media and everybody is getting pinged about it.

[2021-11-30 14:25:06]

[Andrew Rambaut]

Yes - two independent travellers from Mozambique (Italy and Reunion)

[2021-11-30 14:25:38]

[Andrew Rambaut]

All within the Gauteng/Botswana diversity

[2021-11-30 14:35:26]

[Kristian Andersen]

Do we understand what's going on here? Moritz mentioned that places like Gauteng had ~80% attack rates in previous waves, so I'm almost certain immunity is massively eroded. Question is - do we have increased transmission of Omicron to add to that? My gut tells me yes - simply given the speed here.

[2021-11-30 15:00:31]

[Andrew Rambaut]

I would be surprised if inherent transmissibility is higher than delta. My gut tells me this is due to massive number of new susceptibles and complete lack of any NPIs.

[2021-11-30 15:10:35]

[Kristian Andersen]

I agree on the massive number of new susceptibles, but some of those mutations in the FCS and NTD + outside the spike - not sure those are only involved in immune escape.

[2021-11-30 15:26:54]

[Andrew Rambaut]

NSP6del + Nelly + Pooh is Alpha like .

[2021-12-01 14:09:51]

[Kristian Andersen]

@Andrew Rambaut - thoughts? <https://twitter.com/sebduchene/status/1466161635056254983?s=20>. Wildly different estimates, but it's from Sebastian...

[2021-12-01 14:21:16]

[Andrew Rambaut]

He probably has the bullshit Italian genomes in there. And the South African ones called for reference

[2021-12-01 14:36:24]

[Eddie Holmes]

Sorry, I asked the same question in the other channel before spotting this. I assumed there was an error somewhere.

[2021-12-01 14:40:00]

[Andrew Rambaut]

Just ran BEAST again and now I am getting lower rates and older TMRCA:
2021-10-07 (2021-09-26, 2021-10-18)

[2021-12-01 14:40:34]

[Andrew Rambaut]

Doubling time: 6.7 days (4.7-11.7)

[2021-12-01 14:40:56]

[Andrew Rambaut]

R: 1.62 (1.34, 1.92)

[2021-12-01 14:41:24]

[Andrew Rambaut]

(but nothing like Sebastian)

[2021-12-01 14:43:32]

[Kristian Andersen]

Heh - strange. Given the epi data out of RSA right now though, I'm leaning towards a more recent estimate (and lower doubling time) being the most likely scenario.

[2021-12-01 15:23:11]

[Kristian Andersen]

Andrew - are you okay with me introducing you to the NYC WW folks to compare notes? I realize mentioning the UK stuff might not have been that smart, but I have heard it from a few people. Is there anybody overseeing the wastewater efforts?

[2021-12-01 15:27:40]

[Andrew Rambaut]

Nick Loman has eyes on the WW

[2021-12-01 15:28:59]

[Kristian Andersen]

Seems fitting :wink:.

Lemme ping Nick first.

[2021-12-03 02:30:23]

[Andrew Rambaut]

Just putting this here first - I am not particularly happy with the some of analysis in the market origins paper. As I have said before, a continuous 2D KDE makes no sense for the within market map as it is not a continuous space. I am also not that comfortable with the use of KDEs in Wuhan. A KDE is an estimate of a continuous probability distribution from which the samples are drawn. The contours are then areas that contain a particular proportion of the probability. Saying that the market lies within a particular contour isn't really saying what we are implying it is saying. I think we need to have a discussion about this with Marc, Philippe and Moritz to nail the spatial stats. Or simply go the route of more of a descriptive narrative - show there are spatial correlations but not try and get technical.

[2021-12-03 05:07:01]

[Andrew Rambaut]

I just had a chat with Moritz about this and he agrees about the KDEs - it is not something that any spatial infectious disease epidemiologist would use. I worry it will elicit attacks from people that miss the inherent strength of the signal.

[2021-12-03 05:07:38]

[Andrew Rambaut]

I also think we need to start with by far the strongest piece of evidence and that is the environmental sampling in the market.

[2021-12-03 05:08:31]

[Andrew Rambaut]

If this causes a problem with Mike then perhaps we should split the papers.

[2021-12-03 06:05:56]

[Robert Garry]

Agree with all the above!

[2021-12-03 06:31:26]

[Robert Garry]

I liked the idea of making the market more of a grid. And, details need to be correct - or as correct as we can get them. I tend to believe that this map of the PCR positives is more accurate than some of the other maps. It also

matches the table better as it has stall 29 as the 5 pcr positive stall - stall 29 would thus be the back room of the shop that is in Eddie's pic that clearly is labeled stall 28 and 30 in the pic that babar posted. [shared file(s): image.png, holmes 6 street uncropped.jpg]

[2021-12-03 08:54:46]

[Kristian Andersen]

Good points @Andrew Rambaut - and I also think we need to start with the "within market" stuff since that's by far the strongest piece of evidence. We discussed the usage of KDEs with Marc a few weeks back and he was okay with it - but I'm not sure we gave him a fair chance to think hard about it.

Should you and I maybe have a chat with Mike this weekend to discuss? I think the two stories should go together since having one paper that absolutely nails it is a lot better than have two that kinda nail it.

[2021-12-03 09:14:09]

[Andrew Rambaut]

I agree with keeping them together ideally. And yes - good to have a call.

[2021-12-03 09:16:27]

[Kristian Andersen]

Lemme ping Mike.

[2021-12-03 13:08:26]

[Eddie Holmes]

Great if you can chat with Miike @Kristian Andersen We can't screw this up.

[2021-12-03 13:10:27]

[Kristian Andersen]

Chatting now

[2021-12-12 16:28:33]

[Robert Garry]

WE have about a 100 cases of Omicron on the undergrad campus - they are sending everyone not infected yet home...

[2021-12-12 16:36:30]

[Kristian Andersen]

Lovely jubbly. I'm sure that'll stop it.

We seem to be seeing very rapid growth here in San Diego too - unsurprising, of course, but as soon as we had detected that first one, :chart_with_upwards_trend:

[2021-12-12 17:11:24]

[Kristian Andersen]

Although I have not dug into this in detail myself, I'm fairly certain Bill got this wrong - because, convergent evolution.

<https://virological.org/t/omicron-is-a-multiply-recombinant-set-of-variants-that-have-evolved-over-many-months/775>

[2021-12-12 22:41:09]

[Andrew Rambaut]

Yes - I don't think this is right.

[2021-12-12 22:43:31]

[Andrew Rambaut]

We looked and didn't see any obvious indications of recombination but Bill is very perceptive so possibly needs re-looking at. However, we know these mutations re-occur all the time.

[2021-12-15 13:06:09]

[Kristian Andersen]

Oh, very interesting angle!

[2021-12-15 13:07:03]

[Robert Garry]

Indeed - nice thoughts...

[2021-12-15 13:50:43]

[Kristian Andersen]

This is a great little paper actually - of course, China will use this to say “see, not from China - Europe”.

Also, remember this? <https://andersenlab.slack.com/archives/GTGL6LY5C/p1637771867038000>

Well, some of those Euro Bats have “landing” sites too - you put those together with the Asia Bats, and you have a full FCS, including a nice landing pad.

[2021-12-15 13:50:56]

[Kristian Andersen]

shared file(s): furin_aa_nov21.png, Screen Shot 2021-12-15 at 1.48.02 PM.png

[2021-12-15 13:54:06]

[Eddie Holmes]

Italian bats?

[2021-12-15 13:54:28]

[Kristian Andersen]

Close enough.

[2021-12-15 13:56:10]

[Andrew Rambaut]

Would seem some of these infect various species of dinosaur: [shared file(s): image.png]

[2021-12-15 13:56:57]

[Kristian Andersen]

Ripe for v3.0 of the lab leak.

[2021-12-15 13:57:04]

[Robert Garry]

So it wasn't the meteor after all but SARS-0

[2021-12-15 14:00:15]

[Andrew Rambaut]

They were trying to resurrect a dinosaur and accidentally brought back their CoVs

[2021-12-15 14:06:29]

[Eddie Holmes]

It was George Church using his Epstein money

[2021-12-15 14:20:05]

[Robert Garry]

BSL-0.00003 [shared file(s): Fred%27s_Laboratory.webp]

[2021-12-19 06:33:00]

[Robert Garry]

Chan's latest little twitter rant crosses yet another line.

[2021-12-19 06:33:38]

[Robert Garry]

Now she's ginning up controversy over PO1 to sell her shit book.

[2021-12-19 07:06:45]

[Kristian Andersen]

Full ignore....

[2021-12-19 07:48:25]

[Kristian Andersen]

Also - the usual suspects posted a lengthy comment on the Cell review. Apparently Sri refused to publish it - I wonder why....

[https://www.cell.com/cell/fulltext/S0092-8674\(21\)00991-0#relatedArticles](https://www.cell.com/cell/fulltext/S0092-8674(21)00991-0#relatedArticles)

[2021-12-19 08:06:40]

[Andrew Rambaut]

After all that waffle they just want to add 4 words to our concluding sentence

[2021-12-19 08:14:19]

[Kristian Andersen]

Hah, yeah - apparently so.

[2022-01-06 09:35:45]

[Andrew Rambaut]

Shall we start to think about this piece on assessing risk in virus work we discussed? I think it would be good to push the separation of these issues with the origins debate.

[2022-01-06 10:03:45]

[Kristian Andersen]

Yup - agreed.

[2022-01-06 10:08:22]

[Andrew Rambaut]

One of those Nature perspective pieces like the 2018 pandemic prediction piece?

[2022-01-06 10:09:44]

[Kristian Andersen]

Yup - that's my thinking.

[2022-01-06 10:10:17]

[Kristian Andersen]

That particular paper is very relevant to this discussion, so it could be a follow up to that with a different focus.

[2022-01-07 04:59:11]

[Robert Garry]

So, title something like: Separate Lab Safety assessment from the SARS-CoV-2 origin debate. *OR* Mitigating risks of pathogen research: the SARS-CoV-2 origin debate is a distraction. Could even get more general: Mitigating pandemic risk and talk about stopping fur farming and regular testing of chicken/pig farms, but that would be diffuse and take away from the lab safety issue.

[2022-01-07 05:39:53]

[Andrew Rambaut]

I think we could finish with a statement that failure to separate these issues has cause irreparable damage to understanding the origin and thus is exposing us to further risk from a far more likely source of epidemics.

[2022-01-07 07:03:08]

[Kristian Andersen]

I don't know that we want to elude to the "origin debate" in the title?

[2022-01-07 07:38:00]

[Andrew Rambaut]

Possibly not - see how it goes?

[2022-01-09 15:10:44]

[Kristian Andersen]

Are y'all reviewing David's book? Pretty good stuff so far - it's a lot...

[2022-01-09 15:46:45]

[Andrew Rambaut]

Reviewing it for whom?

[2022-01-09 15:50:04]

[Kristian Andersen]

For David himself - for accuracy.

[2022-01-09 15:50:54]

[Kristian Andersen]

... maybe he emailed it to me first - a lot of pages where my name pop up (and y'all in many of them too).

It'll be a great book - he gets it.

[2022-01-09 16:00:39]

[Eddie Holmes]

He sent me 50 pages as well

[2022-01-09 16:02:59]

[Andrew Rambaut]

Cool. Did chat with him a while back but think the focus of the book has changed quite a bit since then. Look forward to the first decent book of the pandemic.

[2022-01-09 16:04:12]

[Kristian Andersen]

Hah - yeah, I got 40 pages. Andrew, your chat with him is in there plenty - Bob too.

He probably passed it by Eddie and myself first.

I think it'll be a good book - which is more than needed... Plus, he's reputable.

[2022-01-09 16:51:31]

[Eddie Holmes]

David is outstanding

[2022-01-09 16:53:16]

[Eddie Holmes]

I was in Spillover a bit. He said I looked like Yuri Andropov.

[2022-01-10 08:50:03]

[Robert Garry]

looking forward to it - haven't seen any of it...

[2022-01-10 09:04:57]

[Robert Garry]

[https://video.search.yahoo.com/yhs/search;_ylt=AwrEZ_zQY9xhXHUAywIPxQt.;_ylu=Y29sbwNiZjE\[...\].571&si gr=PAaZS6eDj4Wm&sig=0rfMln9fJ7QW&sigi=AxxB1CnDJWPb](https://video.search.yahoo.com/yhs/search;_ylt=AwrEZ_zQY9xhXHUAywIPxQt.;_ylu=Y29sbwNiZjE[...].571&si gr=PAaZS6eDj4Wm&sig=0rfMln9fJ7QW&sigi=AxxB1CnDJWPb) [shared file(s): image.png]

[2022-01-10 09:05:13]

[Robert Garry]

Yeah - he gets it...

[2022-01-10 09:06:02]

[Robert Garry]

Hls Tedx talk is recommended.

[2022-01-11 08:12:47]

[Kristian Andersen]

We're in the news again...

<https://republicans-oversight.house.gov/wp-content/uploads/2022/01/Letter-Re.-Feb-1-Emails-011122.pdf>

[2022-01-11 08:13:15]

[Kristian Andersen]

This time with unredacted comments from the three of you - as always, it's a big nothing burger.

[2022-01-11 08:18:49]

[Kristian Andersen]

At least their questions can be answered in 1 minute...

[2022-01-11 08:38:37]

[Andrew Rambaut]

Quite fine with this...

> I do not have any experience of laboratory virology and don't know what is likely or not in that context. From a (natural) evolutionary point of view the only thing here that strikes me as unusual is the furin cleavage site. It strongly suggests to me that we are missing something important in the origin of the virus. My inclination would be that it is a missing host species in which this feature arose because it was selected for in that host. We can see this insertion has resulted in an extremely fit virus in humans – we can > also deduce that it is not optimal for transmission in bat species

[2022-01-11 09:04:55]

[Robert Garry]

Still 100% valid to this very day....

[2022-01-11 11:10:06]

[Robert Garry]

got a call from newsmax - don't think i'll be responding...

[2022-01-11 11:15:58]

[Kristian Andersen]

Detective 4\$Chan is on the case - full on conspiracy:

<https://twitter.com/Ayjchan/status/1480947600199229444?s=20>.

Can't be long before we'll see her on Fox and, yes, News Max.

[2022-01-11 11:18:26]

[Robert Garry]

And it's way past time for @NatureMedicine to publish an addendum to Proximal Origin to inform readers about its true origin and history.

[2022-01-11 11:18:37]

[Robert Garry]

no just no

[2022-01-11 11:18:41]

[Kristian Andersen]

Haha, yeah, sure.

[2022-01-11 11:20:19]

[Robert Garry]

Curious thing is that 4\$ is the only one who figured out to monetize this origins thingy.

[2022-01-11 11:31:21]

[Kristian Andersen]

I can see Rand Paul has read our paper too - even mentions Bob by name (starts ~4 mins in): <https://twitter.com/bennyjohnson/status/1480943104496652297?s=20>.

Truly reprehensible.

[2022-01-11 11:50:51]

[Kristian Andersen]

Poor Trevor being wrapped up in all of this - also, I'm sad to see that my usual comrades didn't make the cut. [shared file(s): FI13dpWXEAUs_cA.jpeg]

[2022-01-11 12:33:38]

[Eddie Holmes]

He's obviously investigated and presumed I am innocent because I made the cut last year. Phew. [shared file(s): image.png]

[2022-01-11 12:34:54]

[Eddie Holmes]

Mind you, George does look dead-on guilty.

[2022-01-11 12:36:09]

[Kristian Andersen]

And he _is_ guilty in the cover up - just not the creation of the virus..

[2022-01-11 12:37:03]

[Kristian Andersen]

This is all so fucking stupid. Add crazies like Rand Paul and then all this "Project Veritas" bs that's making the rounds today. It's as if the collective brain fell out.

[2022-01-11 12:39:25]

[Eddie Holmes]

The same old shit every fucking day. Our Fauci teleconference must be the only conspiracy in history that involves multiple intelligence agencies.

[2022-01-11 12:39:42]

[Robert Garry]

Small silver lining - total justification of redacting just about everything in a FOIA request.

[2022-01-11 12:41:24]

[Eddie Holmes]

Yes, my Uni are just flat-out rejecting all of them.

[2022-01-11 12:46:49]

[Robert Garry]

this is what happened when you get named checked by Rand Paul [shared file(s): image.png]

[2022-01-11 13:00:45]

[Kristian Andersen]

Hah. Well, at least you didn't say it was "inconsistent with evolutionary theory" Bob :wink:. I don't actually remember this email - I guess you just later realized you were wrong.

[2022-01-11 13:05:27]

[Robert Garry]

yeah - i vaguely remember writing something like that - but wrong - really quite wrong .

[2022-01-11 13:06:31]

[Kristian Andersen]

Yup - definitely wrong. BUT YOU'RE NOT ALLOWED TO BE WRONG BOB!!! Because, if you are, it's just proof you're lying.

[2022-01-11 13:09:53]

[Robert Garry]

Yeah - it's tough being a scientist - considering all those possibilities, following the facts and the data.

[2022-01-11 13:11:04]

[Kristian Andersen]

Wait, looking at this - how did these fuckers get that particular email? It's a private one between the four of us. Did you forward it to anybody?

Here's the original [shared file(s): Screen Shot 2022-01-11 at 1.09.54 PM.png]

[2022-01-11 13:11:57]

[Kristian Andersen]

It's from the "Trying to create a summary...." thread.

[2022-01-11 13:13:02]

[Robert Garry]

I didn't - That's a good question - how did they get that?

[2022-01-11 13:15:48]

[Kristian Andersen]

I don't know... @Andrew Rambaut or @Eddie Holmes - could they have gotten this via your institutions?

[2022-01-11 13:17:45]

[Kristian Andersen]

It looks to me as if these were sections Francis Collins put in an email on 2/2 (based on how it's put here: <https://republicans-oversight.house.gov/wp-content/uploads/2022/01/Letter-Re.-Feb-1-Emails-011122.pdf>).

Did any of us forward our conversation to either Francis, Tony, or Jeremy?

[2022-01-11 13:20:00]

[Kristian Andersen]

Interesting - so take a look at the emails from this section - it's from Francis and we're not on it. [shared file(s): Screen Shot 2022-01-11 at 1.19.16 PM.png]

[2022-01-11 13:21:49]

[Kristian Andersen]

They're quoting stuff attributed to Mike Farzan - but it's actually from one of my emails to Eddie and Andrew, summarizing my conversation with Mike. [shared file(s): Screen Shot 2022-01-11 at 1.20.04 PM.png]

[2022-01-11 13:23:43]

[Eddie Holmes]

No way my Uni sent stuff. Any chance it was hacked? Some of my emails were hacked in the past.

[2022-01-11 13:23:55]

[Kristian Andersen]

@Eddie Holmes - did you forward any of these emails to Jeremy?

[2022-01-11 13:24:45]

[Eddie Holmes]

I'll take a look.

[2022-01-11 13:25:20]

[Kristian Andersen]

Can y'all please double check if any of the Feb. 1 emails were forwarded to anybody? All of these are private, but I think Francis might have had access to them on Feb. 2.

[2022-01-11 13:25:29]

[Robert Garry]

My assumption is that if the FBI or CIA wants to get something off of my computer and if it's hooked into the internet that they can get it.

[2022-01-11 13:28:34]

[Kristian Andersen]

Not really... Question is though - is this from Francis' email (where he put in the sections from you and Mike)? I think so - and that email is Feb. 2.

Eddie, probably you must have forwarded all of these to Jeremy (which would make sense) and then Jeremy forwarded/discussed with Francis? It's either that or something very sinister is taking place - in which case we need the feds involved asap.

[2022-01-11 13:30:37]

[Kristian Andersen]

Actually, hang on - the email is from Jeremy to Francis and Tony. OK, so Eddie, can you please confirm you forwarded (or not...) those Feb 1 email threads to Jeremy?

[2022-01-11 13:35:58]

[Eddie Holmes]

Will do...just tied-up for a few minutes

[2022-01-11 13:37:36]

[Robert Garry]

Interesting - I've never seen the email summarizing the Farzan convo before BTW - but somehow this gets lumped in with my "wrong" email. Curious.

[2022-01-11 13:38:14]

[Kristian Andersen]

Just emailed Farzan so he's aware what's going on here - he might be bombarded right now trying to figure out what the fuck is going on.

[2022-01-11 13:47:10]

[Eddie Holmes]

I can't see that I

[2022-01-11 13:47:40]

[Eddie Holmes]

Sorry...I can't see that I've forwarded these emails to Jeremy or anyone else.

[2022-01-11 13:48:24]

[Kristian Andersen]

That is so weird - can you please check your Feb 1 and 2 emails to Jeremy?

[2022-01-11 13:50:02]

[Kristian Andersen]

In Jeremy's email he says "See thoughts overnight from others" before it's redacted. So I'm wondering if he reached out to you, asked about the conversations you had that day, and then maybe you forwarded some of these emails - either in full, or just excerpts.

To me that'd make the most sense.

[2022-01-11 13:53:21]

[Eddie Holmes]

I can't find it anywhere.

[2022-01-11 13:54:41]

[Robert Garry]

So they an email between Kristian, Eddie aand Andrew (but not Bob) plus an email between the 4 of us, which was typed out at the Nyx Mardi Gras ball on my iPhone somehow ends up in the hands of Republican Congressmen.. I checked that email, no - not forwarded to anyone...

[2022-01-11 13:57:12]

[Eddie Holmes]

Just doing in an interview. I'll check again afterwards.

[2022-01-11 13:58:55]

[Kristian Andersen]

The way I read this, these 2/1 emails ended up in the hands of these GOP congressmen via a 2/2 email from Jeremy to Francis, Tony, and Lawrence. I think one of us must have emailed Jeremy with a "summary of the day" on 2/1. If not, then definitely sinister as fuck.

[2022-01-11 14:02:19]

[Eddie Holmes]

I'll ask Jeremy

[2022-01-11 14:03:19]

[Eddie Holmes]

But if Tony etc had them why were they not released before

[2022-01-11 14:05:54]

[Kristian Andersen]

No, not released before - transcribed as per the Comer/Jordan document.

[2022-01-11 14:14:44]

[Andrew Rambaut]

Nothing was released from Edinburgh - lawyers rejected requests and as far as I know it was upheld (or not appealed to) the registrar. I hadn't even handed over my emails to our own lawyers.

[2022-01-11 14:17:29]

[Kristian Andersen]

Yeah, I think this is coming from Jeremy - this is what they say in the document:

"These emails were originally produced redacted via the Freedom of Information Act and subsequently to Committee Republicans. At the request of Committee Republicans and pursuant to the Seven Member Rule, _*the Department of Health and Human Services made unredacted versions available for an in camera review but not available to the public. Committee staff, to the best of their ability, hand transcribed the contents of the emails*_ and excerpts of those transcriptions are reproduced below. Unless otherwise noted, emphasis is added. "

So Bob's quotes and Farzan's quotes are very likely from Jeremy's 2/2 email - which means that Jeremy either had access to our emails (- Bob) on 2/2 or he was forwarded some of the content from our threads on 2/1. I'm pretty sure it's gotta be the latter.

[2022-01-11 14:28:48]

[Robert Garry]

Have to say it's weird. I'm gonna get several Dr. Garry didn't return out call mentions...

[2022-01-11 14:44:53]

[Eddie Holmes]

Here's our chat after the Farzan email. I say I'll pass the info to Jeremy. But I just can't see the email where I've done that. [shared file(s): Screen Shot 2022-01-12 at 9.42.09 am.png]

[2022-01-11 14:49:58]

[Kristian Andersen]

Ah, yes - so probably there was a separate email to Jeremy where you summarized all of this.

[2022-01-11 14:50:37]

[Eddie Holmes]

Ok, I've found a Word docx with those emails which I assume I sent to Jeremy as an attachment although I can't find the email. It

[2022-01-11 14:51:00]

[Eddie Holmes]

It's possible I texted it to him and he then passed the text to Collins etc.

[2022-01-11 14:51:11]

[Kristian Andersen]

Okay, great - mystery solved! No spooks required :wink:

[2022-01-11 14:51:25]

[Eddie Holmes]

No spooks required.

[2022-01-11 14:51:32]

[Kristian Andersen]

So boring...

[2022-01-11 14:51:40]

[Eddie Holmes]

Disappointing

[2022-01-11 14:52:52]

[Kristian Andersen]

Next time we're accused of covering up the origin of a once in a lifetime global pandemic, let's make sure we do it fucking properly! I want helicopters, bombs, and ninjas!!!

[2022-01-11 14:57:25]

[Robert Garry]

Absolutely - we'll get it right eventually.

[2022-01-11 15:06:43]

[Eddie Holmes]

I hope you are still wearing these Bob... [shared file(s): IMG_1299.JPG]

[2022-01-11 17:25:00]

[Eddie Holmes]

I enjoyed Tony's 'what a moron' comment. Priceless.

[2022-01-11 17:49:40]

[Kristian Andersen]

hah - yeah. And he's so bloody right!

[2022-01-11 18:46:21]

[Robert Garry]

cufflinks - only on special occasions!

[2022-01-11 19:09:53]

[Robert Garry]

Alina tweeting about Deep Throat/Jon Cohen... [shared file(s): image.png]

[2022-01-11 20:26:55]

[Eddie Holmes]

We never referred with Fauci and Farrar was on the reply. If there's one email set I'd be happy to see the light of day it would be those.

[2022-01-11 20:53:17]

[Eddie Holmes]

Actually, Kristian did email Tony. Not sure if he replied.

[2022-01-11 21:05:52]

[Kristian Andersen]

Here's the full email - Tony never replied back (he was probably busy with some important stuff - like vaccines, maybe...) [shared file(s): Screen Shot 2022-01-11 at 9.04.20 PM.png]

[2022-01-11 21:26:18]

[Eddie Holmes]

Discussing emails from 2 years ago. What a total bloody waste of time. Mind you, it would be sort of cool if the internet sleuths revealed the true identity of Deep Throat.

[2022-01-11 21:30:18]

[Kristian Andersen]

[thread - ID: 2022-01-11 21:30:18]

It's disgusting - it's the same old grifting and politics.

[2022-01-12 01:49:58]

[Eddie Holmes]

Scientists believed Covid leaked from Wuhan lab - but feared debate could hurt 'international harmony'
Emails to Dr Anthony Fauci show 'likely' explanation identified at start of coronavirus pandemic, but there were worries about saying so

_By_Sarah Knapton, SCIENCE EDITOR11 January 2022 • 9:31pm

Emails show scientists seriously discussed the laboratory leak theory, but that they feared the debate could damage science in China CREDIT: Hector Retamal/AFP via Getty Images

Leading British and US scientists thought it was likely that Covid accidentally leaked from a laboratory but were concerned that further debate would harm science in China, emails show.

An email from Sir Jeremy Farrar, director of the Wellcome Trust, on February 2 2020 said that “a likely explanation” was that Covid had rapidly evolved from a Sars-like virus inside human tissue in a low-security lab.

The email, to Dr Anthony Fauci and Dr Francis Collins of the US National Institutes of Health, went on to say that such evolution may have “accidentally created a virus primed for rapid transmission between humans”. But a leading scientist told Sir Jeremy that “further debate would do unnecessary harm to science in general and science in China in particular”. Dr Collins, the former director of the US National Institutes of Health, warned it could damage “international harmony”.

Viscount Ridley, co-author of *Viral: the search for the origin of Covid*, said: “These emails show a lamentable lack of openness and transparency among Western scientists who appear to have been more interested in shutting down a hypothesis they thought was very plausible, for political reasons.”

ADVERTISING

In the emails, Sir Jeremy said that other scientists also believed the virus could not have evolved naturally. One such scientist was Professor Mike Farzan, of Scripps Research, the expert who discovered how the original Sars virus binds to human cells.

Scientists were particularly concerned by a part of Covid-19 called the furin cleavage site, a section of the spike protein which helps it enter cells and makes it so infectious to humans.

Summarising Professor Farzan’s concerns in an email, Sir Jeremy said: “He is bothered by the furin site and has a hard time (to) explain that as an event outside the lab, though there are possible ways in nature but highly unlikely.

“I think this becomes a question of how do you put all this together, whether you believe in this series of coincidences, what you know of the lab in Wuhan, how much could be in nature - accidental release or natural event? I am 70:30 or 60:40.”

Later emails showed that by February 4, Sir Jeremy had revised his estimate of a laboratory leak to 50:50, while Professor Eddie Holmes, of the University of Sydney, gave a 60:40 estimate in favour of an accidental release.

The emails also show that Bob Garry, of the University of Texas, was unconvinced that Covid-19 emerged naturally. “I just can’t figure out how this gets accomplished in nature,” he said.

Professor Andrew Rambaut, from the University of Edinburgh, also said that furin cleavage site “strikes me as unusual”.

He added: “I think the only people with sufficient information or access to samples to address it would be the teams working in Wuhan.”

The new details came to light after members of the US Republican House Oversight Committee were granted access to the documents, after complaining that their content had been heavily redacted when released under Freedom of Information requests.

The emails were sent in response to a teleconference between 12 scientists including Sir Patrick Vallance, the Government’s chief scientific adviser, on February 1.

The emails show that by February 2 2020, scientists were already trying to shut down the debate into the laboratory leak theory.

An email from Dr Ron Fouchier to Sir Jeremy said: “Further debate about such accusations would unnecessarily distract top researchers from their active duties and do unnecessary harm to science in general and science in China in particular.”

Dr Collins, former director of the NIH, replied to Sir Jeremy stating: “I share your view that a swift convening of experts in a confidence-inspiring framework is needed or the voices of conspiracy will quickly dominate, doing great potential harm to science and international harmony.”

Institutions which held the emails have repeatedly resisted efforts to publish their content.

The University of Edinburgh recently turned down an Freedom of Information request from The Telegraph asking to see Prof Rambaut’s replies, claiming “disclosure would be likely to endanger the physical or mental health and safety of individuals”.

James Comer, the Republican congressman who secured the unredacted emails, said it showed that experts like Dr Fauci had taken the Wuhan lab leak theory “much more seriously” than they had let on.

Sir Jeremy has been approached for comment but had not replied at the time of publication.

[2022-01-12 01:51:16]

[Eddie Holmes]

[thread - ID: 2022-01-12 01:51:16]

BBC asked me about this. I might go on the record as I'm so angry.

[2022-01-12 02:10:31]

[Andrew Rambaut]

> The University of Edinburgh recently turned down an Freedom of Information request from The Telegraph asking to see Prof Rambaut's replies, claiming "disclosure would be likely to endanger the physical or mental health and safety of individuals".

All of this proves that was a justifiable position

[2022-01-12 02:12:41]

[Eddie Holmes]

Very true!

[2022-01-12 03:31:21]

[Andrew Rambaut]

I have just got a request for comment from Le Monde. I think it might be good to reply and move this out of the USA/UK a bit. Any contact with this guy before (Le Monde is obviously the major paper in France - do they have any prior on leakiness?).

> Dear Dr Rambaut

>

> I hope this message finds you well. As you are probably aware of, there is an ongoing controversy after some NIH emails were disclosed

(<https://republicans-oversight.house.gov/wp-content/uploads/2022/01/Letter-Re.-Feb-1-Emails-011122.pdf>). I am seeking comment from the scientists involved in the discussion, trying to understand why their opinion shifted between the email discussion and the submission of their 'Proximal origin' paper in Nat Med.

>

> Would you have a few minutes to give me your account of the events ?

> Many thanks !

> Best

> Stéphane

>

> --

> Stéphane Foucart

> Le Monde

> service Planète/Science - Environment/Science desk_

>

[2022-01-12 03:32:43]

[Andrew Rambaut]

I am proposing this reply. I would be happy for your thoughts/suggestions:

> Dear Stéphane,

>

> We were asked our opinion as experts in various relevant fields. We provided some initial assessments of the plausibility of the various hypotheses and then undertook a more detailed analysis and review of data (including new data from the Pangolins). All of our conclusions were written in our published and peer-reviewed papers (i.e., in Nature Medicine and then updated in Cell late last year). All of the emails show the establishment of the hypotheses we later outlined in the Proximal Origins paper and then the assessment of these based on the available evidence. Opinions simply shifted as the result of analysis and the examination of new data. Since then more data has been published that further supports our conclusions from that initial review.

>

> Best,

> Andrew

[2022-01-12 04:46:45]

[Robert Garry]

Looks good to me @Andrew Rambaut

[2022-01-12 05:11:30]

[Robert Garry]

[thread - ID: 2022-01-12 01:51:16]

@Eddie Holmes "Bob Garry, of the University of Texas" hmmm hook'em horns!

[2022-01-12 05:13:36]

[Robert Garry]

[thread - ID: 2022-01-11 21:30:18]

@Kristian Andersen Alina ridey - will keep stirring the pot to sell their crap book.

[2022-01-12 05:47:31]

[Robert Garry]

One point about Alina's tweets saying we should retract PO1. IIRC - one of if not the major piece of advice we got on the teleconf and after was to not even mention Lab Leak. Fortunately we didn't take that advice.

[2022-01-12 06:36:56]

[Robert Garry]

Dear Professor Garry,

I'm Maia, an editor at The Intercept, and I'm reaching out with a question regarding the text of transcribed emails and notes released by the House Oversight Committee Republicans yesterday. Your comments from a February 1, 2020 conference call are included within the text, and I'm wondering if you would like to add any context or clarify how your thinking has changed since then.

If you would like to speak with me, my schedule today is flexible! Please let me know, and thank you for your time,

Maia

Maia Hibbett
Associate Politics Editor, The Intercept

[2022-01-12 06:49:53]

[Robert Garry]

The Intercept has been awful...

[2022-01-12 08:48:35]

[Kristian Andersen]

@Andrew Rambaut's email is great - if we respond to anything, let's basically just respond with that! I have pinned it to the channel.

[2022-01-12 08:48:58]

[Kristian Andersen]

Such a waste of time - Bob, we have a grant to write... :wink:

[2022-01-12 11:41:34]

[Eddie Holmes]

I also got the email from Le Monde. I was going to reply in a similar manner to Andrew but a bit more simply and directly.

[2022-01-12 11:46:39]

[Kristian Andersen]

I got it too - I'm not going to respond (they got my auto reply...)

[2022-01-12 11:47:59]

[Robert Garry]

Those poor people in Austin at UTexas are probably getting my inquiries...

[2022-01-12 11:51:54]

[Kristian Andersen]

To be fair - I'm sure they remember you fondly as a spirited PhD student with a sparkling personality.

[2022-01-12 12:12:04]

[Robert Garry]

At least the ones that are still alive 4 decades later. :coffin:

[2022-01-13 05:11:20]

[Andrew Rambaut]

Been looking through the old emails - I want to check they are transcribed properly and haven't been tweaked. This one is interesting (given it has Patrick Vallance talking about it looking balanced). [shared file(s): image.png]

[2022-01-13 05:14:39]

[Andrew Rambaut]

This one is also good - shows we were discussing all of the possibilities: [shared file(s): image.png]

[2022-01-13 05:18:09]

[Andrew Rambaut]

Also - there are links to google docs (only in emails between us). So if FOIs were granted would mean these go public.

Trying to create a summary of the most important takeaways from the discussions today. Please feel free to edit/slash/comment. Hoping that we could maybe share this with Jeremy and Tony tomorrow (if y'all think it makes sense).

[https://docs.google.com/document/d/1HOVHVaaH2wMwAij_Mb-rLTV3QomBai-DwRDcn506OE/edit?usp=sharing`](https://docs.google.com/document/d/1HOVHVaaH2wMwAij_Mb-rLTV3QomBai-DwRDcn506OE/edit?usp=sharing)

[2022-01-13 05:19:42]

[Andrew Rambaut]

I just say this because the complete edit history is in these docs. That may help show that there was not interference but need to check how these might be interpreted.

[2022-01-13 05:21:38]

[Andrew Rambaut]

The very start of this document is actually really good description of our position (i.e., notes from the conference call): [shared file(s): image.png]

[2022-01-13 05:23:15]

[Robert Garry]

Yes - important to remember that the scenarios in PO1 were synthesized from whole cloth. That's why PO1 had such an impact and ppl like Alina hate it. It's because it so clearly and cleanly laid out the possibilities.

[2022-01-13 05:25:52]

[Andrew Rambaut]

It is also important to remember it started as a report to the group that requested our investigation.

[2022-01-13 05:30:46]

[Andrew Rambaut]

Further - the stuff (from Ron, as it happens, not Tony or Jeremy) that it might harm Chinese science in the snippet below - it is the 'accusations' - if not supported by strong data - that he is talking about. [shared file(s): image.png]

[2022-01-13 05:33:02]

[Andrew Rambaut]

From Collins: 'Wondering if there is something NIH can do to help put down this very destructive conspiracy, with what seems to be growing momentum' - again it is the conspiracy they are talking about.

[2022-01-13 05:34:01]

[Robert Garry]

I have a feeling that the final words have not yet been written about the Origins of Proximal Origins.

[2022-01-13 07:51:18]

[Kristian Andersen]

Yeah, the email chains - and especially the Google Doc history - show the whole process very well. It's exactly what we have always been saying.

But only reasonable people would understand that - i.e., <50% of the US public.

[2022-01-13 07:53:22]

[Kristian Andersen]

I expect ALL of this will become public at some point. The GOP will take the house later this year by which time myself and Bob will find ourselves subpoenaed to appear in front of congress. Because of this, it's ultra important we don't give them any further fodder - just pointing out when they're wrong, but without giving any further details than those already known.

[2022-01-13 07:56:08]

[Robert Garry]

True - which makes it all the more important to really nail the Science papers...

[2022-01-13 07:59:42]

[Kristian Andersen]

Yup - focus on the science. (plus, we got a grant to write... :wink:)

[2022-01-13 08:01:56]

[Robert Garry]

Yeah - it's so distracting - I have to talk to a local reporter about Mardi Gras/Omicron now - plenty of opportunity to get in more trouble there.

[2022-01-13 08:02:59]

[Robert Garry]

BTW - the Intercept actually said they would do a correction/clarification...

[2022-01-13 08:17:15]

[Robert Garry]

Just got this - oh boy... [shared file(s): image.png]

[2022-01-13 08:22:57]

[Kristian Andersen]

I would strongly suggest not replying to that - if you do, use the version Andrew drafted.

Also, Wade is back at the NYT? What a disgrace.

[2022-01-13 09:06:35]

[Robert Garry]

Seems he's back.

[2022-01-13 09:10:09]

[Robert Garry]

Good idea but I probably need to respond to the what were the steps question . Here is a draft: Dear Nick,

Cogent perhaps, but as I told the Intercept my initial impression and that of others about the FCS was wrong.

All of the emails regarding the teleconference show the establishment of the hypotheses we later outlined in the Proximal Origins paper and then the assessment of these based on the available evidence. Opinions simply shifted as the result of analysis and the examination of new data. All of our conclusions were written in our published and peer-reviewed papers (i.e., in Nature Medicine and then updated in Cell late last year).

Would you be willing to discuss the steps that took you from one conclusion to the other?

Steps as follows:

1. Shortly after the teleconference we learned about the pangolin coronavirus that has a highly similar receptor binding domain- RBD. This meant that the RBD was natural. If this feature was natural then very likely that the whole virus was natural including the FCS.
2. We examined and reexamined all the hypotheses/data including the FCS – it was clear that that site was undergoing a lot of variation within the coronavirus family.
3. The insertion that generated the FCS is out-of-frame -nobody in a lab would do that. It's a minimal FCS. A researcher would insert PRAR not PRRA.
4. The proline in front of the FCS is not optimal– that's why the variants like Omicron have P681 changed to either H or R.
5. The FCS has O-linked glycans, like FCS in other coronaviruses. These are real and appear to regulate cleavage.

Bottom line is no one engineered the FCS into a SARS-CoV2 progenitor.

Since then more data has been published that further supports our conclusions from that initial review. For example, Since we wrote Proximal Origins we've seen betacoronaviruses that have similar sequences (almost but not quite a FCS) in that region, like RmYN02.

More recent evidence – we now know the SARS-CoV-2 progenitor or at least a very close relative - it's the BANAL-20-52 bat coronavirus from Laos. This virus is extremely close to SARS-CoV-2 in all of the structural proteins. However, it carries about a 1000 synonymous mutations [mutations that affect the nucleotide sequence but not the amino acid sequence], which is strong evidence that it circulated in an animal that was not a bat before jumping to humans.

Bob G.

[2022-01-13 09:13:08]

[Kristian Andersen]

I strongly suggest not giving him any details - just email him a version of Andrew's email from yesterday. He's going to twist your words and then use them later to yet again get back at you.

[2022-01-13 09:14:24]

[Robert Garry]

Dear Nick,

Cogent perhaps, but as I told the Intercept my initial impression and that of others about the FCS was wrong.

All of the emails regarding the teleconference show the establishment of the hypotheses we later outlined in the Proximal Origins paper and then the assessment of these based on the available evidence. Opinions simply shifted as the result of analysis and the examination of new data. All of our conclusions were written in our published and peer-reviewed papers (i.e., in Nature Medicine and then updated in Cell late last year).

Since then more data has been published that further supports our conclusions from that initial review.

[2022-01-13 09:14:34]

[Robert Garry]

Better?

[2022-01-13 09:17:28]

[Kristian Andersen]

All of the emails regarding the teleconference show the establishment of the hypotheses we later outlined in the Proximal Origins paper and then the assessment of these based on the available *scientific* evidence. Opinions simply shifted as the result of analysis and the examination of new data. All of our conclusions were written in our published and peer-reviewed papers (i.e., in Nature Medicine and ~then updated~ in Cell late last year). Since then more data has been published that further supports our conclusions ~from that initial review~

[2022-01-13 09:17:38]

[Kristian Andersen]

Yes, better, although a few suggested edits

[2022-01-13 09:28:59]

[Robert Garry]

sent that to wade btw

[2022-01-13 09:48:37]

[Kristian Andersen]

The slightly edited version? All good.

He'll probably ask for further information, but just don't reply back - he's got what he needs

[2022-01-13 11:59:53]

[Kristian Andersen]

Agreed - I mean, the guy already wrote about the conference call:

<https://thebulletin.org/2021/08/how-covid-19s-origins-were-obscured-by-the-east-and-the-west/>

[2022-01-13 12:00:12]

[Kristian Andersen]

I wonder what else he was hoping to add... Probably just another juicy spin.

[2022-01-13 12:02:00]

[Robert Garry]

All true - I did like @Andrew Rambaut approach of it's just the scientific process. Wade did use his NYTimes email and claims he's still in the Science Dept so I don't know - might end up there.

[2022-01-13 12:04:45]

[Kristian Andersen]

I can't believe the NYTimes would publish an article by him - that would truly be shocking. I guess we'll see..

[2022-01-13 12:15:36]

[Robert Garry]

Agree he'll spin whatever and it will be painful to watch...

[2022-01-13 13:21:27]

[Kristian Andersen]

One thing to check on that we need to get right with Quammen too - did we post on Virological on 2/9 or 2/16? I think 2/16, no? @Andrew Rambaut

[2022-01-13 13:23:44]

[Andrew Rambaut]

shared file(s): image.png

[2022-01-13 13:24:57]

[Andrew Rambaut]

Need to check if that is the data for the last update.

[2022-01-13 13:25:02]

[Kristian Andersen]

Okay, great - I think David (and others) have this as 2/9 - because of this: [shared file(s): Screen Shot 2022-01-13 at 1.24.38 PM.png]

[2022-01-13 13:25:27]

[Kristian Andersen]

The edit history makes it looks as if it's Feb 9 - but it's not, it's Feb 16 (just checked our email chain too)

[2022-01-13 13:26:09]

[Andrew Rambaut]

Yes - you click on the 'Feb '20' to get the full time stamp

[2022-01-13 13:26:31]

[Kristian Andersen]

I have it on wayback machine too:

<https://web.archive.org/web/20200217170645/https://virological.org/t/the-proximal-origin-of-sars-cov-2/398>

[2022-01-13 13:27:38]

[Andrew Rambaut]

Yeah - the admin can easily and invisibly change the timestamps on Discourse so it shouldn't be used as hard proof

[2022-01-13 13:28:18]

[Kristian Andersen]

Yeah, this is what David has:

"This paper went up promptly as a preprint on Virological (notwithstanding Rambaut's preference for pre-preprint ruminations) on February 9th, while it made its way through the editorial process more slowly at an important journal"

I'll correct him. @Eddie Holmes - if you haven't sent him your edits, can you please include in your edits too?

[2022-01-13 13:35:46]

[Andrew Rambaut]

`notwithstanding Rambaut's preference for pre-preprint ruminations` ? what is he going on about here?

[2022-01-13 13:36:05]

[Andrew Rambaut]

When did it get published?

[2022-01-13 13:36:18]

[Andrew Rambaut]

(in NM)?

[2022-01-13 13:37:38]

[Robert Garry]

17Mar20 - my daughter's birthday...

[2022-01-13 13:38:49]

[Andrew Rambaut]

Did you give her a poster of the paper with its Altmetrics score?

[2022-01-13 13:45:19]

[Kristian Andersen]

Not quite sure what the "ruminations" is about... But I'm sure he'll ask you (he mentioned that he was going to send it to you and Bob once he got Eddie's and my edits back). Here's the full "ruminations" section, with my notes [shared file(s): Screen Shot 2022-01-13 at 1.44.10 PM.png]

[2022-01-13 13:45:33]

[Robert Garry]

That would have been a good idea - she's a pretty big fan of the Zoonati BTW.

[2022-01-13 13:46:07]

[Eddie Holmes]

Will do. I've not even opened the document yet.

[2022-01-13 13:46:43]

[Kristian Andersen]

Gus is very interested in understanding the FULL editing history of PO... (and no - I'm not going to answer him...)
[shared file(s): Screen Shot 2022-01-13 at 1.45.52 PM.png]

[2022-01-13 13:47:14]

[Kristian Andersen]

To say that we submitted PO on Feb. 2 - I mean, come on man... Seriously.

[2022-01-13 13:47:21]

[Andrew Rambaut]

Looking at the edits on virological - I think we may have posted it privately on the 16th, made a few more tweaks and then made it public on the 17th.

[2022-01-13 13:47:51]

[Andrew Rambaut]

Which would fit with the internet archive.

[2022-01-13 13:50:18]

[Kristian Andersen]

Yeah, I think you might be right that it went online Feb 17 UK time - I can see I started emailing it around at 7am on the 17th (MY birthday! Coincidence? I think not....!).

The first one I emailed it to was.... drum roll..... Marc Lipsitch.

[2022-01-13 13:52:47]

[Kristian Andersen]

Which is kinda weird actually... Why the heck would I say it was "highly plausible" on Feb 16, when clearly that wasn't my thinking... Probably because our first version still quite seriously considered lab culture. [shared file(s): Screen Shot 2022-01-13 at 1.51.29 PM.png]

[2022-01-13 14:03:13]

[Kristian Andersen]

Yup, that's the reason - our first (non-peer reviewed) version is more toned down (it's actually pretty good). It's a little strange we mention this part though:

"In theory, it is possible that SARS-CoV-2 acquired the observed RBD mutations site during adaptation to passage in cell culture, as has been observed in studies with SARS-CoV5 as well as MERS-CoV"

We mention the Pangolin CoVs in the paper too, so clearly we must just have failed to connect the two - no, the RBD couldn't have been the result of passage. That realization came with the peer review, so probably the main reason why we made our arguments stronger.

Reading through the whole version history of this paper, we really did a good job - it truly is a prime example of how science (should) work. Proud of the Proximal Boyz :wink:

[2022-01-13 14:37:14]

[Kristian Andersen]

Reading through our emails on 2/17/2020 is hilarious - so many last-minute things and I think I might just have come back from the desert... Eddie spelled my last name wrong!!

[2022-01-13 14:46:26]

[Eddie Holmes]

Perhaps that was deliberate?

[2022-01-13 14:50:21]

[Kristian Andersen]

Good point... We should have kept it - "not me, some other Kristian dude :man-shrugging:"

[2022-01-14 07:46:06]

[Andrew Rambaut]

OK another request (Sunday Times). I am inclined to answer again unless anyone thinks I shouldn't. Here is the request and my proposed reply:

> Dear Andrew,

>

> I'm a reporter with The Sunday Times of London Newspaper. I'm just getting in touch to ask a couple of questions about the teleconference you were a part of in Feb 2020 which has been the subject of speculation this week following the de-redaction of some emails. I suspect you know which one I am referring to - on Feb 1, 2020, organised by Jeremy Farrar.

>

> Following this teleconference, you sent an email to your counterparts in which you say: "If the evolutionary origins of the epidemic were to be discussed, I think the only people with sufficient information or access to samples to address it would be the teams working in Wuhan." _

>

> - I was wondering how it was that you came to author the draft of a paper on that subject which was shared by Jeremy Farrar two days later on Feb 4 and published online in draft form on Feb 16/17. What was it that changed your mind?

>

> Did someone from a team working in Wuhan get in touch? Or perhaps you were convinced by your co-authors?

>

> - More generally, are you able to address growing concerns that during that teleconference there was an agreement made to steer the press and public away from considering the virus as originating in a lab, for political reasons? I ask this because it seems that line was adopted very early on, particularly by your co-author Kristian Andersen (Feb 4), and perhaps before there was sufficient evidence for thinking this couldn't have been the case.

>

> - Were you aware, while you were on that call, that Anthony Fauci had historically funded research at the Wuhan Institute of Virology?

>

> - Contrary to much rhetoric, I see that the idea that the virus escaped from a lab _is_ considered in your proximal origins paper ("We must therefore consider the possibility of a *deliberate or inadvertent* release of SARS-CoV-2"). Why was this deemed less politically inflammatory than the idea that the virus could have been manipulated in a lab?

>

> Any response you could offer today or tomorrow, would be much appreciated as my deadline is midday tomorrow.

>

> Best,

> Madeleine

> --

> Madeleine Spence

> Sunday Times News Review

> Dear Madeleine,

>

> I was asked my opinion as one of a group of experts in various relevant fields. We provided some initial assessments of the plausibility of the various hypotheses and then undertook a more detailed analysis and review of data (including new data from the Pangolins). All of our conclusions were written in our published and peer-reviewed papers (i.e., in Nature Medicine and then updated in Cell late last year). All of the emails show the establishment of

the hypotheses we later outlined in the Proximal Origins paper with the assessment of these based on the available evidence. Opinions simply shifted as the result of analysis and the examination of new data. Since then more data has been published that further supports our conclusions from that initial review.

>

> There was never any concern amongst the group about these hypotheses being politically contentious as we were asked to look at the scientific evidence - in the report we simply went through the hypotheses and considered the evidence for each.

>

> The emails show some of the other participants did express concern that unsubstantiated allegations and conspiracy theories (again with no supporting evidence) were damaging to open scientific investigations but that was not a consideration in our analysis.

>

> My point about about the teams in Wuhan was simply that they would have had samples taken in the market which was the most likely immediate source of the pandemic and information about live animal sales there (we now know these susceptible animals were in the market but didn't at the time). As I say in that email - the missing part of the picture was the intermediate host between the ultimate origins in wild bats and the human population in Wuhan. My opinion on the likely origins were exactly the same then as those published in the Nature Medicine paper and have remained the same. All the reasons supporting these opinions are in the published papers.

>

> Best,

> Andrew

OK - thoughts or suggestions?

[2022-01-14 07:52:22]

[Robert Garry]

Looks good to me Andrew....

[2022-01-14 08:07:45]

[Kristian Andersen]

Looks good to me, although I wouldn't say "updated in Cell" - maybe "expanded upon".

[2022-01-14 09:20:39]

[Andrew Rambaut]

Should I address this - ` Were you aware, while you were on that call, that Anthony Fauci had historically funded research at the Wuhan Institute of Virology?` I mean I was aware that EHA had been doing work with them although I am not sure I knew specifically that NIH funded it. Also it is not correct to say Fauci funded it? It was the grant panels in the NIH surely? Or was there some special mechanism through NIAID's director?

Or just ignore that one?

[2022-01-14 09:21:23]

[Andrew Rambaut]

If pressed I could always say I am not really familiar with US research funding schemes

[2022-01-14 09:24:18]

[Kristian Andersen]

I suggest not answering that question - I don't even think Tony himself was aware to be honest

[2022-01-14 09:29:26]

[Robert Garry]

I agree - it wasn't any special mechanism from the director - just an R01 IIRC - not even sure if that a special mechanism even exists anymore though there are discretionary funds that the institute director and the overall directors have- TF doesn't take part in funding decisions at the r01 level so no not even aware.

[2022-01-14 12:08:12]

[Eddie Holmes]

I got the same email. I will more directly say that Tony and Francis did not tell us what to think and what NIH fund was not discussed.

[2022-01-14 13:14:00]

[Andrew Rambaut]

She replied with a lot of follow up but I have asked to switch to background for now.

[2022-01-14 13:16:20]

[Andrew Rambaut]

Anyone have the timeline? When did we circulate a first draft to the group? She is saying 3 days after the call?

[2022-01-14 13:16:21]

[Kristian Andersen]

Hmmm, not sure you want to give me information? Do you know this journalist and do you know if she's genuinely interested in understanding the science? Because if not, I wouldn't give any further details.

[2022-01-14 13:16:36]

[Kristian Andersen]

shared file(s): February 4 document.pdf, February 6 document.pdf

[2022-01-14 13:16:38]

[Eddie Holmes]

I was quite forceful in my response. I'm not answering any more.

[2022-01-14 13:17:05]

[Kristian Andersen]

Emails out on Feb 4 and Feb 7

[2022-01-14 13:17:13]

[Kristian Andersen]

(with those two documents)

[2022-01-14 13:18:08]

[Kristian Andersen]

These documents will become public at some point and I think we need to figure out a way to get them released before they do. They are _great_ so there are no concerns there, but we all know what happens if DRASTIC picks these up first

[2022-01-14 13:18:25]

[Andrew Rambaut]

I am not going to give further information. But as background I can state some known truths - i.e. Fauci and Collins don't personally hand out grants

[2022-01-14 13:18:35]

[Eddie Holmes]

They are only interested in the narrative that Tony told us to think for political reasons. I said that was total nonsense etc.

[2022-01-14 13:19:12]

[Kristian Andersen]

Yup - and I'd leave it at that. Once we mention that drafts were circulated on certain dates, people would want to see those.

[2022-01-14 13:21:19]

[Kristian Andersen]

It's public knowledge that a draft was circulated on Feb 4, but I'm not sure about Feb 7. What needs to be very clear is that WE wrote the paper and there were NO edits from e.g., Christian and Ron (and certainly none from Tony or Francis - I think maybe Jeremy had a few minor edits). The paper was peer reviewed and that obviously led to several additional changes to the final version. The original version from Virological is here: <https://t.co/nOddbnq2K5>

[2022-01-14 13:25:21]

[Kristian Andersen]

Oh, wow - just read through our old Nature rebuttal... Worth a read. [shared file(s): Nature rebuttal.pdf]

[2022-01-14 13:27:24]

[Eddie Holmes]

Yes, very good. Reviewer #2. Who could it be.

[2022-01-14 13:27:38]

[Kristian Andersen]

Hmmmm. I have a hunch.

[2022-01-14 13:29:26]

[Kristian Andersen]

We really need to figure out what to do about all of this because I think we're getting to a critical point where these documents will go public so it should come from us and not e.g., DRASTIC or congress. The GOP will take the house and Bob and I will be dragged in front of congress - getting this stuff out before in a way in which we 'control' the narrative will be important. I still think we should talk to Jon about it

[2022-01-14 13:39:15]

[Eddie Holmes]

Sorry, but I can't agree to the release of these emails for the reasons I've given before. I think we do nothing. I don't see how DRASTIC could get hold of these. Nature will not allow release of peer review reports.

[2022-01-14 13:40:18]

[Eddie Holmes]

We won't be able to control the narrative. Let's be realistic.

[2022-01-14 13:46:32]

[Kristian Andersen]

The problem is, it's not a question of whether to release them or not - if congress gets involved we have to hand over all these documents no matter what we or our institutions say. Either we control that release or it'll come via congress later this year.

[2022-01-14 13:46:51]

[Kristian Andersen]

At that stage it's a legal process

[2022-01-14 13:47:01]

[Eddie Holmes]

Not my institution

[2022-01-14 13:47:37]

[Eddie Holmes]

Andrew and I are not subject to US law

[2022-01-14 13:47:40]

[Kristian Andersen]

Doesn't matter - the documents were shared with US officials

[2022-01-14 13:48:35]

[Kristian Andersen]

Internal emails between us are a different matter - but not when it comes to the documents that were shared and that I worked on while being supported by NIH grants.

[2022-01-14 13:53:12]

[Eddie Holmes]

Apologies, but I am :100: against sharing these at the moment. I'm not giving into bullies; I will lose all institutional support; and it's delusional to think that releasing them will fix anything - people will pick and choose what they want to believe. I'd wait until it becomes a problem. I don't see that we are anywhere near that at the moment. And going through Jon won't work as he is seen as Zoonati.

[2022-01-14 13:56:18]

[Kristian Andersen]

Here are the relevant documents showing the history of the paper.

The 2/4 and 2/6 drafts will likely become public no matter what since the US Government will already have these. The others are all internal to us and would not become public until congress gets involved (probably towards the end of this year).

Let's discuss this in a couple of weeks - nothing happens right now, but we absolutely do not want Jordan/Comer or USRTK to be the first to release the drafts. [shared file(s): 2020.02.04 Draft.pdf, 2020.02.06 Draft.pdf, 2020.02.17 Nature submission.pdf, 2020.02.29 Nature rebuttal manuscript.pdf, 2020.02.29 Nature rebuttal.pdf, 2020.03.05 Nature Medicine submission.pdf, 2020.03.17 Nature Medicine final.pdf]

[2022-01-14 14:01:27]

[Andrew Rambaut]

> As background -

>

> As far as I know, Fauci and Collins had no ties to the lab in Wuhan. They are directors of NIH and NIAID respectively. Funding from these bodies are not decided by the directors by the funding panels which comprise academics who are seconded for the purpose (the same way that it is done by the UKRI research councils in the UK).

[2022-01-14 14:01:33]

[Andrew Rambaut]

My reply

[2022-01-14 14:01:37]

[Kristian Andersen]

And just to be clear - when/if Bob and I are subpoenaed they may ask to see all correspondence (emails) relevant to the paper and we would have no choice but to comply. Yes, we (especially I, since I'm not a citizen) could plead the 5th, but that would be extremely unwise and my institution would very likely not support that - plus, that'd likely turn into a lawsuit, in which case everything would have to be handed over anyway.

Let's hope it won't get to that! (I'm 95% certain we'll be subpoenaed, but I don't think they'll ask for all our correspondence - unless it ends up in a lawsuit, but that makes absolutely no sense since we're talking about writing g'damn scientific papers! But this is America today...)

[2022-01-14 14:04:49]

[Eddie Holmes]

These are drafts of a scientific paper. They are not an official statement nor an order telling what people should believe. Let's put this in perspective.

[2022-01-14 14:05:29]

[Kristian Andersen]

Agreed - I'm not the one that needs convincing, but the entire GOP (who'll soon have the House) sees this very differently.

[2022-01-14 14:05:51]

[Eddie Holmes]

A paper the conclusions of which I still agree.

[2022-01-14 14:06:29]

[Eddie Holmes]

We'll never ever control what the GOP thinks

[2022-01-14 14:08:30]

[Kristian Andersen]

No, we can't control what the GOP thinks - however, once they take the house, Daszak, Bob, myself, and others will be subpoenaed because they clearly want all this information.

[2022-01-14 14:09:09]

[Andrew Rambaut]

My feeling is that this is basically just an attack on Fauci (to a lesser extent, Collins). Once they have gone as far as they want with that they will move on. I don't really think the GOP cares about what really happened.

[2022-01-14 14:10:45]

[Kristian Andersen]

Correct - but they use us as a way to get at Fauci. "See how all these scientists are lying", "Covering up with/for Fauci", etc, etc. That's where the documents come in - because they'll do exactly what they just did with Bob's emails - take it completely out of context to create a narrative. The same will happen with those two drafts.

[2022-01-14 14:15:52]

[Andrew Rambaut]

Reply:
> Andrew - thanks. I should have been more specific: what I mean is that both Fauci and Collins were aware that NIH funds had been subawarded to the WIV in the past for certain types of research.
> But you make a good point. It was not them specifically.
So I will leave it there.

[2022-01-14 14:19:50]

[Kristian Andersen]

How the fuck are you supposed to know that...?

She might want to ask them instead... I have no way of knowing, but I highly doubt they knew - plus, it was never brought up. Not on the call, not in emails with us.

[2022-01-14 14:21:09]

[Kristian Andersen]

It's sad to see the self destruction brought on by conspiracy theories - literally 99% of news on COVID-19 is either conspiracy theory or articles trying to counter conspiracy theories.

[2022-01-14 14:38:52]

[Eddie Holmes]

And we won't change that. The key email is the one from Ron I think. No way he'll agree to release that.

[2022-01-14 14:43:13]

[Kristian Andersen]

They have that email in full too - but obviously they only released the part where he talked about "conspiracy theories" because the rest of the email very much goes against their narrative. I do hope Ron will release "Ron's notes" at some point.

[2022-01-14 14:51:24]

[Eddie Holmes]

I think we get all the emails ready but hold-off doing anything until it becomes critical. To me, this is the nuclear option and it has serious downstream consequences (because it gives precedent for ALL other emails to be released) so I really don't want to do it. And by critical I don't mean DRASTIC or USRTK. They are small fry and easy to counter, and whatever we release they would pick-and-choose what they want. I honestly couldn't give a fuck about DRASTIC. I don't think drafts of the paper are the issue. It's what we were told in the teleconference.

[2022-01-14 15:07:35]

[Kristian Andersen]

I don't think we should ever release the emails, unless we're forced to via legal proceedings (in this case, either lawsuits or subpoenas).

The drafts are different - they show the linear logic of how we came to our conclusions after the call and why there's absolutely nothing to hide here. I get the sense that they're mostly after those at the moment, but we'll see.

I agree that we should do nothing right now, but let's set up a Zoom in a couple of weeks.

[2022-01-14 15:12:25]

[Eddie Holmes]

I wouldn't release the drafts until it is absolutely necessary. I'm absolutely certain this will lead to a series of unintended consequences.

[2022-01-14 15:15:47]

[Andrew Rambaut]

Agreed. Don't release anything.

[2022-01-14 15:16:00]

[Eddie Holmes]

Plus it's a scientific paper FFS. If people don't like they can just write a response.

[2022-01-14 15:23:53]

[Robert Garry]

or if you are Alina just tweet you f'ing brains out....

[2022-01-14 15:24:55]

[Kristian Andersen]

It's nothing to do with logic - the issue is that there's a DEMAND FOR TRANSPARENCY from the GOP, which includes things like the "Fauci Act" and other complete bullshit. It's all a conspiracy theory, but that matters little once they take over the House - that's when the subpoenas will start flying. As you may recall, I have already been summoned - however, the GOP is currently in the minority so they can't force me and the lawyers acting on my behalf responded to that request via a written response. But again, once they become the majority, they have full subpoena power and that changes everything - it's very important to control as much of the narrative as possible before that happens.

[2022-01-14 15:28:58]

[Eddie Holmes]

I'm sorry, but I just don't agree. Releasing drafts of a paper will not control the narrative and very likely backfire.

[2022-01-14 16:10:00]

[Andrew Rambaut]

I agree with Eddie - keep with line that it is all laid out in the published paper itself. We were just asked to look at the data and say what we thought. We published what we thought.

[2022-01-16 08:15:39]

[Robert Garry]

Another day another attack by Broad's Science Advisor Alina Chan - this time going on about Deep Throat's revelations about the teleconference. Funny thing - neither Deep Throat or 4\$ were on the teleconference. In another time this would be dismissed as hearsay...I'm curious as to whether she's in contact with Jon Cohen...

[2022-01-16 08:26:31]

[Kristian Andersen]

Kinda hilarious to read that - she gets every single fact wrong and, of course, the "WHO Mission" was completely unrelated to what Jeremy was talking about back in February. She really is the Queen of Conspiracy Theories.

[2022-01-16 08:50:04]

[Robert Garry]

Or as @Eddie Holmes clarifies theories that involve [massive] conspiracies...

[2022-01-17 04:39:39]

[Robert Garry]

She's still at it - remarkable that Broad allows these persistent ad hominem attacks.

[2022-01-17 18:58:47]

[Eddie Holmes]

I think that Sunday Times journo will take the same line that PO1 was an attempt to stop the lab leak conspiracy etc I've told her multiple times that our conclusions were :100: driven by the science and that the if the science had suggested something different we would have written something different

[2022-01-17 21:08:06]

[Kristian Andersen]

They're all taking that line - fuck 'em.

[2022-01-20 10:13:18]

[Kristian Andersen]

Alright, I got an email from the Sunday Times reporter as well: [shared file(s): Screen Shot 2022-01-20 at 10.12.43 AM.png]

[2022-01-20 10:14:52]

[Kristian Andersen]

Here's my drafted reply - suggestions?

```I can only speak for our own investigations, however the idea that any of our investigations were influenced by politics or political ramifications of particular hypotheses is false and, frankly, absurd. The idea that there was a "preferred narrative" and that people like Drs. Fauci and Farrar had influence over our scientific conclusions (i.e., the idea that there is a conspiracy) is also false - which is clear from e.g., FOIA'd emails and news articles at the time. For example, it is public knowledge that the "origin question" was directly discussed at the level of the White House early in the pandemic - e.g.:

<https://abcnews.go.com/Politics/white-house-asks-scientists-investigate-origins-coronavirus/story?id=68807304ABC>  
ABC

<https://www.nationalacademies.org/news/2020/02/national-academies-provide-rapid-response-to-white-house-on-coronavirus-data-needs>

As others have stated, our conclusions - published in two peer reviewed scientific papers - have been driven strictly by science. That was true in 2020 when the pandemic started and that is true today. Our earlier conclusions have only been further strengthened by additional scientific evidence and analyses - and the absence of evidence from the recently completed investigations by the US intelligence community.

For hypotheses that have been "unduly influenced" by "political ramifications" you need look no further than the narrative around the "lab leak" theory or the many conspiracy theories currently being amplified, including the ones suggesting that scientific investigations were "unduly influenced by the political ramifications of the hypothesis".

Best,  
Kristian```

[2022-01-20 10:24:01]

**[Robert Garry]**

It's good - no suggestions. I got the almost same email. My response will be shorter and perhaps not as collegial.

[2022-01-20 10:24:26]

**[Kristian Andersen]**

Just updated my last paragraph - because, fuck this - time to call a spade a spade.



[2022-01-20 10:25:49]

**[Robert Garry]**

Dear Professor Garry,  
I hope you are well.

I am a reporter with The Sunday Times newspaper and I am writing an article for this weekend's paper about the scientific community's investigations into the origins of SARS-CoV-2.

In this article I suggest that the scientific consensus reached around the possibility of a laboratory origin for SARS-CoV-2, driven in large part by the seminal Proximal Origin paper, may have been unduly influenced by the political ramifications of the hypothesis.

Sorry to say this, but your suggestion is misinformed and completely inaccurate.

I mention that the authors have maintained that the process behind the paper was strictly scientific. It was - I concur.

I also mention that on a February 1 teleconference you felt a natural scenario to be implausible. Again apologies, but that's completely ridiculous. We were looking at the various SARS-CoV-2 origins scenarios - natural and lab-based - agnostically. I was simply putting the best argument forward in the moment that the FCS might have been engineered - it wasn't. Amongst all the other arguments/emails/discussion on this topic I was having it's cherry-picking and completely out-of-context. There were dozens of other contemporaneous emails/conversations where I was arguing the opposite. It's how science is done.

If you would like to respond, please could you do so by my deadline at midday tomorrow? I cannot guarantee that any response will be printed in the piece.

Very best,  
Madeleine

[2022-01-20 10:27:54]

**[Robert Garry]**

This Sunday Times will be bad - I think Wade's will be much worse.

[2022-01-20 10:30:29]

**[Kristian Andersen]**

Yup, I think it'll be complete junk - with more junk to come.

"completely inaccurate" - I'd say "false" - as it's not really "inaccurate" it's just totally false.

[2022-01-20 10:31:49]

**[Kristian Andersen]**

"I also mention that on a February 1 teleconference you felt a natural scenario to be implausible"

This is also false - you did not mention that you felt that a natural scenario was implausible on the call. The quote she's referring to was from a very early email, taken out of context, and did not reflect your opinions on the "origin" question - it's another example of science in progress.

[2022-01-20 10:33:22]

**[Kristian Andersen]**

On that last point, I'd probably stick to a version of Andrew's language - "We provided some initial assessments of the plausibility of the various hypotheses and then undertook a more detailed analysis and review of data (including new data from the Pangolins). All of our conclusions were written in our published and peer-reviewed papers (i.e., in Nature Medicine and then updated in Cell late last year). All of the emails show the establishment of the hypotheses we later outlined in the Proximal Origins paper and then the assessment of these based on the available evidence. Opinions simply shifted as the result of analysis and the examination of new data. Since then more data has been published that further supports our conclusions from that initial review."

[2022-01-20 10:41:52]

**[Robert Garry]**

good suggestions

[2022-01-20 11:06:24]

**[Robert Garry]**

I'm thinking she is mostly going to quote Andrew and Eddie, but we'll see....

[2022-01-20 11:27:23]

**[Robert Garry]**

So distracting - geez...

[2022-01-20 11:42:49]

**[Kristian Andersen]**

Yes - however, we have a grant to write @Robert Garry with a deadline a week from now... :wink: So let's make sure we focus on that - otherwise the conspiracy theorist will actually have been successful in interfering with science!

[2022-01-20 11:43:49]

**[Robert Garry]**

I'm getting there - too much preliminary data - making the hard cuts

[2022-01-20 12:21:17]

**[Eddie Holmes]**

She's e-mailed me a few times. I regret replying now, but this is what I said:

-----

Hi Madeleine,

Let me make this absolutely clear: the narrative that we all thought it was a lab leak and were then told by Tony Fauci to write something very different for political reasons is total and utter nonsense. Pure fantasy.

Basically, a number of us had initial concerns that the virus was engineered (hence my 60/40 quote) so we arranged a teleconference with a group of experts to discuss this and listened to their opinions. As this discussion was taking place the first data from the pangolin coronavirus became available which clearly showed that some of the unusual features found in SARS-CoV-2 were also found in nature. We also did more analysis of the genome data that pointed to a natural origin.

That's it. We had an hypothesis and tested it with the data as it appeared. That's called science. Our conclusions were entirely based on the science - nothing else. We certainly discussed the wider implications of what we were doing but our conclusions were 100% drawn from the science.

Tony Fauci and Francis Collins just wanted to know what the science said. As simple as that. They gave us no direction on what to think. As far I can recall there was no discussion about NIH funding. I consider their behaviour to be impeccable.

This issue has also already been covered in detail in Jeremy Farrar's excellent book - 'Spike'. Take a look.

Finally, there remains no convincing scientific evidence that SARS-CoV-2 is a laboratory escape.

With best wishes,

Eddie Holmes

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Hi Madeleine,

As I said, we certainly discussed the wider implications of what we were doing. So, we did think that getting something out quickly to counter conspiracy theories, but in a balanced way, was important. But - and this is the key point - we only took that stance because the science pointed toward a natural origin. Our conclusions were entirely

drawn from the science. We would not have written what we did if the science had suggested otherwise.

Also, the Proximal Origins paper is just a scientific paper in a scientific journal. It's not an order, not a directive, nor an official position. If people disagree and think the data suggested otherwise they could just write their own paper. And some did. This happens in science every day of every week.

The lab leak theory is based on one central coincidence: the emergence of SARS-CoV-2 in a city (Wuhan) that contains a large lab (the Wuhan Institute of Virology) that works on bat coronaviruses.

The most convincing scientific evidence would be the presence of SARS-CoV-2 in the Wuhan Institute of Virology before the pandemic started. If someone can show me that, I would certainly conclude it was a lab leak.

Best wishes,

Eddie

[2022-01-20 12:38:18]

**[Robert Garry]**

:beer:

[2022-01-20 12:48:57]

**[Eddie Holmes]**

At the end of all the day, they will write whatever they want and simply ignore what we tell them.

[2022-01-20 12:49:54]

**[Kristian Andersen]**

Yup - although still important to put it on the record that all of this is complete nonsense.

[2022-01-20 13:01:16]

**[Eddie Holmes]**

It is surreal to know the exact truth and yet everyone else think something different.

[2022-01-20 13:17:36]

**[Kristian Andersen]**

Yeah, I keep telling people this - it's really surreal to be inside a major conspiracy theory and having all the facts so you can see exactly how crazy all of this is. It's pretty interesting - if it wasn't so fucked!

[2022-01-20 13:24:08]

**[Robert Garry]**

I'm pretty sure that Madeleine is not going to quote the ABC News piece or reveal the whole national academies thing. That little bit of backstory needs not to be relegated to the trashbin of history.

[2022-01-20 13:32:20]

**[Kristian Andersen]**

I updated my email to her a little...

""I can only speak for our own investigations, however the idea that any of our investigations were influenced by politics or political ramifications of particular hypotheses is false. As an expert having worked on viral origin/emergence questions for more than a decade, such conspiracy theories are, frankly, absurd and insulting. The idea that there was a "preferred narrative" and that people like Drs. Fauci and Farrar had influence over our scientific conclusions (i.e., the idea that there is a conspiracy) is also false - which is clear from e.g., FOIA'd emails and news articles at the time. For example, it is public knowledge that the "origin question" was directly discussed at the level of the White House immediately following the February 1 teleconference - e.g.:

<https://abcnews.go.com/Politics/white-house-asks-scientists-investigate-origins-coronavirus/story?id=68807304>ABC

<https://www.nationalacademies.org/news/2020/02/national-academies-provide-rapid-response-to-white-house-on-coronavirus-data-needs>

As others have already stated, our conclusions - published in two peer reviewed scientific papers - have been driven strictly by science. That was true in 2020 when the pandemic started and that is true today. Any suggestions to the contrary are false and insulting. Our earlier conclusions have only been further strengthened by additional scientific evidence and analyses - and e.g., the absence of evidence from the recently completed investigations by the US intelligence community. Our research to more fully understand the origin of SARS-CoV-2 is ongoing.

For hypotheses that have been "unduly influenced" by "political ramifications" you need look no further than the current narrative around the "lab leak" theory or the many conspiracy theories currently being amplified by non-experts, including the ones suggesting that scientific investigations were "unduly influenced by the political ramifications of the hypothesis".

I look forward to reading your article - which I trust will be based on science and not untrue conspiracy theories.

Best,  
Kristian``

[2022-01-20 13:37:44]

**[Eddie Holmes]**

:+1: And I don't remember the bit in PO1 where we mention conspiracy theories

[2022-01-20 13:38:59]

**[Kristian Andersen]**

Nope - we didn't. Maybe we should have...

[2022-01-20 13:39:41]

**[Eddie Holmes]**

The irony is that Madeleine is in fact invoking a conspiracy to shut down a conspiracy

[2022-01-20 13:39:57]

**[Kristian Andersen]**

Yup - I point that out to her.

[2022-01-20 13:40:49]

**[Eddie Holmes]**

I expect a torrent of shit on Twitter

[2022-01-20 13:42:04]

**[Kristian Andersen]**

Gotta get the mob riled up before the actual science lands...

[2022-01-20 13:54:13]

**[Robert Garry]**

that's what's keeping me going

[2022-01-20 13:57:16]

**[Andrew Rambaut]**

It is clear that Fauci/Collins were concerned about the negative effect of unsupported allegations of wrong doing by Chinese groups.

[2022-01-20 14:02:50]

**[Eddie Holmes]**

Which is entirely reasonable. But they gave us no instruction of what to think or write.

[2022-01-20 14:12:27]

**[Kristian Andersen]**

We should \_all\_ be concerned about unsupported allegations (many of which are conspiracy theories) targeting any group - whether Chinese or not. That is absolutely the right approach.

[2022-01-20 14:16:19]

**[Robert Garry]**

Listening to Rep Jordan and seeing some "coverage" on Fox News I can say that some pretty serious unsupported allegations have targeted another group - us.

[2022-01-20 14:18:07]

**[Kristian Andersen]**

Yup, it's no longer about the Chinese - it's all about a stolen election.

[2022-01-21 00:56:18]

**[Eddie Holmes]**

Here - strictly confidential as usual - is another bat CoV, this one from Thailand: RpRB-065. Seems very close to RaTG13. Would this use hACE2 do think? Again, please keep to yourself. [shared file(s): SpikeAlignment.fasta]

[2022-01-21 07:27:25]

**[Kristian Andersen]**

Interesting... Yeah, this is very "RaTG13-like" and has the RaTG13 RBD, not BANAL-52. So it's going to be an ACE2 binder, but not a human ACE2 binder.

Now, go find one with a furin site so we can be done with this shit.

[2022-01-21 11:23:01]

**[Eddie Holmes]**

Thanks, that's what I thought.

[2022-01-21 16:05:37]

**[Robert Garry]**

Is it harrassment if some idiot keeps tweeting lies about you and your colleagues to sell a crap book? [shared file(s): image.png]

[2022-01-21 16:09:04]

**[Robert Garry]**

fun fact \*HarperCollins Publishers LLC\* is one of the Big Five English-language publishing companies, alongside Penguin Random House, Simon & Schuster, Hachette, and Macmillan. The company is headquartered in New York City and is a subsidiary of News Corp. So this explains the book deal...

[2022-01-21 16:12:13]

**[Kristian Andersen]**

Harassment, misinformation, and disinformation - all in one.

[2022-01-21 16:24:01]

**[Robert Garry]**

Ads to the mystery though why 4\$ hasn't been on Fox News. All big one happy Murdock family it seems.

[2022-01-21 16:25:34]

**[Kristian Andersen]**

I \_think\_ Fox might be one step too far for the Broad - it's \_the\_ one thing they mentioned when we discussed her shit ("advised her not to go on Fox News").

Well, fuck them.

[2022-01-21 16:28:38]

**[Eddie Holmes]**

No difference between public and private.

[2022-01-21 16:34:03]

**[Kristian Andersen]**

Nope - that's a favorite little lie of theirs though.

[2022-01-21 16:34:13]

**[Robert Garry]**

True - I'm sure she, Relman eDim etc are monetizing this in other ways...

[2022-01-22 07:19:22]

**[Robert Garry]**

Not sure that this is one that we should just ignore. [shared file(s): image (7).png]

[2022-01-22 07:27:05]

**[Robert Garry]**

When Rand Paul told Tony that PO1 an "opinion piece" I knew that eDim was the one pulling Paul's chains....

[2022-01-22 11:45:42]

**[Eddie Holmes]**

Yes, I agree - that has definitely crossed the line.

[2022-01-23 08:29:19]

**[Robert Garry]**

Chan is definitely slandering and libeling us... [shared file(s): image.png]

[2022-01-23 09:47:14]

**[Robert Garry]**

I suspect deep throat has surfaced and is working with Chan and eDim.... [shared file(s): image.png]

[2022-01-23 10:01:54]

**[Kristian Andersen]**

*[thread - ID: 2022-01-23 10:01:54]*

Nah, she's just going with the FOIA here - she's got no clue.

Somebody must have paid her well to keep going at Proximal - the problem is, a lot of people (scientists) are actually listening to her, which is mind blowing. If people can't look at this and say, "wait, that doesn't make any sense", there's nothing I can do to help them.

[2022-01-23 10:12:29]

**[Robert Garry]**

Not so sure - she and Baric along with Relman were on a Republican /David Asher teleconference where the Science letter was conceived. Baric definitely playing both sides so he might be feeding her clues.

[2022-01-23 10:18:36]

**[Kristian Andersen]**

Yeah, that's true - might be something to it.

[2022-01-23 10:20:39]

**[Andrew Rambaut]**

On the other hand DT was very much from the it was definitely not lab point of view - i.e., the non-cov amateurs came to the conference call thinking it might be lab but were told what the truth was by actual experts

[2022-01-23 10:22:21]

**[Kristian Andersen]**

He's clearly coming from the angle of wanting to discredit us because we stepped on his territory (and I called him out on a few meetings) - so I honestly wouldn't be surprised.

[2022-01-23 10:32:13]

**[Robert Garry]**

Baric also keeping the low profile -which makes me suspect he's sending Chan out to do his dirty work. It wouldn't surprise me to find that Baric and eDim have formed some sort of cabal and are both feeding Paul and Jordan etc. eDim cause he's an ass - Baric to cover his.

[2022-01-23 10:34:50]

**[Robert Garry]**

*[thread - ID: 2022-01-23 10:01:54]*

@Kristian Andersen @Eddie Holmes tanker has turned on the science front - it's the book-sellers, grifers and politicos that are still fanning the Leaker flames. Hopefully those flames turn to dying embers post the two papers hitting....

[2022-01-23 11:14:24]

**[Eddie Holmes]**

The Sunday Times thing is a total non-story: chunks of it are out of Jezza's book.

[2022-01-23 11:18:57]

**[Kristian Andersen]**

Yeah, it's rather bizarre - nothing in there. Such wankers.

[2022-01-23 11:21:35]

**[Andrew Rambaut]**

I think people are actually struggling to make a story out of it

[2022-01-23 11:22:12]

**[Eddie Holmes]**

That the title ends with a question is a common trick when you have nothing.

[2022-01-23 11:23:02]

**[Robert Garry]**

zip-zero-nada

[2022-01-23 11:23:50]

**[Eddie Holmes]**

I'm now glad I spoke to her and she used that quote from me.

[2022-01-23 11:24:07]

**[Eddie Holmes]**

Total silence may have looked bad.

[2022-01-23 11:28:59]

**[Robert Garry]**

Yes - excellent job Eddie. One thing you've got to do - looks like you did it here - with the obviously biased ones is assail their supposed journalistic ethics. Truly . Let them know in plain language that you will if fact call them out if they twist what you told them or misrepresent it.

[2022-01-24 08:35:56]

**[Andrew Rambaut]**

Just to let you know - My FOI-refusal has been appealed (no surprises) so for this stage the Information Commissioner needs to see the emails (they will not be released from there - if they overturn the refusal then it would come back to us for redaction etc.). I did notice one or two that haven't come out through the NIH route that would certainly be latched on to: [shared file(s): image.png]

[2022-01-24 08:37:42]

**[Kristian Andersen]**

A single word change from Jeremy.... Oh, the scandal!

[2022-01-24 08:38:24]

**[Andrew Rambaut]**

We can say that Jeremy only microedited

[2022-01-24 08:39:14]

**[Kristian Andersen]**

FWIW, the US doesn't care about Jeremy and he seems to be able to fight back effectively in the UK press.

[2022-01-24 08:57:16]

**[Andrew Rambaut]**

Yup

[2022-01-24 08:57:59]

**[Andrew Rambaut]**

Also Jeremy is an actual virus expert in his past life

[2022-01-24 08:58:44]

**[Kristian Andersen]**

Yup. And to be honest - this whole email thread clearly shows that he played \_no\_ role in shaping or editing the paper. He had the chance to chime in with substantial suggestions/edits, and he didn't.

[2022-01-24 08:59:17]

**[Andrew Rambaut]**

And shows that Fauci and Collins had nothing to do with it.

[2022-01-24 09:00:17]

**[Kristian Andersen]**

Yup.

[2022-01-24 11:37:31]

**[Eddie Holmes]**

Mine have been appealed multiple times and one has ended up in court so I think they should keep blocking. Plenty of evidence of the harm this is all doing.

[2022-01-24 11:39:38]

**[Kristian Andersen]**

I hope the universities will keep fighting back and not release these (completely irrelevant) email threads. There's absolutely nothing in any of them (quite the opposite), but they'll be red meat for the nutters.

[2022-01-24 11:41:33]

**[Kristian Andersen]**

And, key here - red meat = dangerous. I mean, do they need any more proof than the multiple death threats against everybody involved, included specific plans to assassinate Tony Fauci? We're on that same list.

[2022-01-24 12:07:14]

**[Eddie Holmes]**

And so what if Fauci and Collins had commented on a paper that was about to be sent to peer review? Not sure what law that has broken.

[2022-01-24 12:07:45]

**[Kristian Andersen]**



That too is a very important point.

[2022-01-24 12:08:44]

**[Kristian Andersen]**

I \_do\_ wonder when Fauci realized there was a NIAID sub-contract to the WIV - probably late Feb/Mar. I very seriously doubt he had any clue when we first talked

[2022-01-24 12:09:38]

**[Eddie Holmes]**

No clue I'm 100% certain.

[2022-01-24 13:23:42]

**[Kristian Andersen]**

The GOP is harassing me yet again so I had a quick look at our Feb 4 and Feb 6 drafts. This is kinda funny, but in our Feb 4 draft we mention "conspiracy theories" (probably referring to the HIV insertion preprint, but there were a lot of other crazy shit out there at the time), however, in our Feb 6 draft we \_specifically\_ removed that word.

So, yet again, we actually did the opposite of what the Leakers are accusing us of. I'll let them know that Tony and Francis suggested we take it out :wink:. [shared file(s): Screen Shot 2022-01-24 at 13.21.04.png, Screen Shot 2022-01-24 at 13.21.16.png]

[2022-01-24 13:29:43]

**[Kristian Andersen]**

And now we know who the anti-conspiracy theorist is :bald\_man:. [shared file(s): Screen Shot 2022-01-24 at 13.28.33.png]

[2022-01-24 13:45:26]

**[Robert Garry]**

A lot of good decisions were made during the writing of PO1 - it will indeed hold up very well.

[2022-01-24 13:48:42]

**[Kristian Andersen]**

I'm still amazed at how on-point we were so quickly. We must have worked hard at the time...

[2022-01-24 13:53:08]

**[Eddie Holmes]**

How are the GOP harrassing you?

[2022-01-24 14:10:09]

**[Kristian Andersen]**

JAQing off is what they're doing... Got two emails this morning to appear at "staff meetings", including from good old Comer and Jordan. Talking to our outside council on Wednesday to figure out how best to deal with this.

[2022-01-24 14:19:37]

**[Eddie Holmes]**

I assume you can decline?

[2022-01-24 14:30:41]

**[Kristian Andersen]**

Absolutely, but the problem is that once they take the House (in November) they'll subpoena me (and Bob) and \_that\_ I/we cannot decline. That being a legal process, they could also obtain all our documents, emails, etc. - so the game we're playing right now is to be helpful enough such that we can defuse future developments. It's very tricky.

[2022-01-24 14:55:48]

**[Eddie Holmes]**

I'd put them off for as long as possible. There's nothing in any of this and who knows what we will be debating in November. 10 months is long time in politics.

[2022-01-24 14:58:14]

**[Kristian Andersen]**

That's unfortunately not how these things work - once they take the House they'll look at all the various requests and say "alright folks, what's missing". This'll be on top of their list for certain (several of the folks we have on outside council have worked in the House - on both sides - so they have good intel). Hoping it'll go away is like hoping COVID-19 will go away - it won't, and if they get cross, it only gets worse.

I'll keep you posted on what I learn on Wednesday.

[2022-01-24 15:15:28]

**[Eddie Holmes]**

I'm not saying it will go away but I wouldn't give them anything now. I don't see what that achieves. My University will want all my emails redacted.

[2022-01-24 15:16:10]

**[Kristian Andersen]**

They won't be getting any emails, that's for sure.

[2022-01-24 15:16:51]

**[Kristian Andersen]**

(unless they later request them via a subpoena - then all bets are off)

[2022-01-25 01:59:24]

**[Andrew Rambaut]**

This will be a good one to be subpoena'ed:

> He's about where we were a week ago. He's for escape.

>

> He also said that Peter Daszak, grand wizard of EgoHealth, and some others were writing a piece saying the Wuhan lab were being persecuted.

>

> I'll talk to Jeremy later.

>

> Currently, I'm more concerned that I will run out of underpants.

>

> Professor Edward C. Holmes FAA FRS

> The University of Sydney

[2022-01-25 02:12:44]

**[Eddie Holmes]**

:rolling\_on\_the\_floor\_laughing::rolling\_on\_the\_floor\_laughing::rolling\_on\_the\_floor\_laughing: So good

[2022-01-25 02:13:44]

**[Eddie Holmes]**

Because of a massive storm we had no power for about 5 days. Hence the underpants shortage.

[2022-01-25 04:54:04]

**[Robert Garry]**

Clearly shows the evolution of thought in a short period.

[2022-01-25 04:55:30]

**[Robert Garry]**

Alina and her murdoch media friends would twist the underpants quote.

[2022-01-25 12:16:46]

**[Robert Garry]**

Just got my Quamman email - the excerpts are really really good.

[2022-01-25 12:17:26]

**[Robert Garry]**

This sums up our deliberations so eloquently it almost brought a tear to my eye:

"Only one form of trial-and-error could have produced it, they judged, a form that is tireless, blind, and infinitely persistent: evolution by natural selection."

[2022-01-25 12:18:04]

**[Kristian Andersen]**

BOB - GRANT!!!!!! :wink:

And yes - DQ is great. He should be sending me the whole book draft next week, so I'm looking forward to that.

[2022-01-25 12:18:40]

**[Robert Garry]**

I also mentioned that he should probably acknowledge the Feb 1 teleconference or else the Lab Leak crowd would accuse him of being part of the conspiracy/cover-up.

[2022-01-25 12:34:48]

**[Eddie Holmes]**

You mean you have to write grants? I thought they were awarded automatically.

[2022-01-25 12:36:08]

**[Kristian Andersen]**

I thought so too - that's what Der Fauci said, but I haven't seen the check yet.

[2022-01-25 12:39:34]

**[Robert Garry]**

So many distractions - I think maybe I'll just say that BA.2 is the end of the world as we know it and then maybe they'll leave me alone...

[2022-01-25 12:40:56]

**[Kristian Andersen]**

Well, if you were British Airways, it would be.

[2022-01-25 17:01:50]

**[Robert Garry]**

voice messages [shared file(s): 2392886323\_20220125\_175056 (1).wav]

[2022-01-25 17:03:28]

**[Kristian Andersen]**

Lovely... That's one for the lawyers/FBI - make sure you hand this over so there's a trail.

[2022-01-25 17:04:15]

**[Kristian Andersen]**

Also, it's was \$8.9 million, I believe - although I guess you got more dosh after the initial payoff.

[2022-01-25 17:22:26]

**[Robert Garry]**

Here's tonite's Fox primetime

[2022-01-25 17:27:33]

**[Kristian Andersen]**

[thread - ID: 2022-01-25 17:27:33]

That clip is about Atlanta...

[2022-01-25 17:48:19]

**[Eddie Holmes]**

I might use this service for Tim: <https://www.shitexpress.com/>

[2022-01-25 17:50:31]

**[Eddie Holmes]**

That was a menacing phone call I must say.

[2022-01-25 17:51:05]

**[Eddie Holmes]**

Impressed you can send gluten-free shit. What a relief.

[2022-01-25 17:51:31]

**[Kristian Andersen]**

[thread - ID: 2022-01-25 17:51:31]

Please send a box to the Epoch Times as well: <https://twitter.com/EpochTVus/status/1486119201941114884?s=20>.

This is what gets people riled up - money's involved. I have no idea where the \$50m figure is coming from though...

[2022-01-25 17:54:53]

**[Eddie Holmes]**

Once you start making stuff you might as well go for it. It will be \$100 million soon.

[2022-01-25 17:56:05]

**[Kristian Andersen]**

one million dollars

[2022-01-25 17:56:40]

**[Kristian Andersen]**

Damn, that kinda looks like Evil Dr. Holmes... :older\_man:

[2022-01-25 17:59:28]

**[Eddie Holmes]**

Except I got no cash! Although perhaps I had diamond-studded underpants.

[2022-01-26 04:20:45]

**[Robert Garry]**

[thread - ID: 2022-01-25 17:27:33]

@Kristian Andersen <https://video.foxnews.com/v/6293658048001#sp=show-clips>

[2022-01-26 08:03:04]

**[Robert Garry]**

[thread - ID: 2022-01-25 17:51:31]

@Kristian Andersen 100% correct- that is why 4\$ is very foolish in her wish to "debate me." It's not going to happen, but in the event i get pissed off enough to actually do it I would use the fact that she's monetized her grift, with every branch of News Corp including Harper-Collins, to push unfounded conspiracy theories, misinformation disinformation and outright slander and libel at every opportunity. Can you imagine starting every answer with - there she goes again another conspiracy theory.

[2022-01-27 13:41:43]

**[Andrew Rambaut]**

Hi all. Just been looking at some snippets of DQ's book. Looks good - my only quibble (other than calling the sequence file format a 'fasterfile') is with the timeline of the pangolin genome with the RBD in it. DQ says: > "What the email shows," Andersen said later, on Twitter, in response to criticisms, "is a clear example of the scientific process." [i] They were considering possibilities, lab leak included, engineered virus included, natural spillover included, and they hungered for more data that might support or negate one or another. "It's just science. Boring, I know," Andersen wrote, "but it's quite a helpful thing to have in times of uncertainty." [ii] Three weeks passed, without resolution, carrying the effort into late February. Then came the pangolins. We had the first pangolin sequence very early Feb (it was posted on virological on 31st Jan) and then Tommy's one very shortly after. So the pango RBD was in our very early drafts. And of course we posted the thing to Virological on the 17th Feb. Worth correcting him?

[2022-01-27 13:41:46]

[Robert Garry]

nope not responding Nerozzi, Timothy [REDACTED] >  
Thu 1/27/2022 9:38 PM

To:

- Garry, Robert F

External Sender. Be aware of links, attachments and requests.

Dr. Garry,

My name is Timothy Nerozzi, and I am a writer for Fox News Digital. I am writing to ask you about a conference of virologists convened by Dr. Anthony Fauci in the early days of the pandemic, and subsequent information released by the White House.

To my understanding, early into the pandemic, numerous experts stated that a man-made virus, somehow leaked from a virology lab, was the simplest and most rational explanation for the begins of the pandemic. Notes from the meeting in question show that a lab leak hypothesis was criticized as a danger to "international harmony."

Flashing forward, we are only now reaching a point where suggestions of man-made viruses are no longer being treated as conspiratorial.

Do you believe that the Biden administration, NIH, CDC, or any other national or international organization intentionally obscured or suppressed facts relating to the coronavirus pandemic from the public?

Any comment or insight you can give me would be very much appreciated.

Regards.

Timothy H.J. Nerozzi, FRSA  
Writer, Fox News Digital

[REDACTED]

[REDACTED]

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[2022-01-27 13:46:39]

**[Kristian Andersen]**

Bob, might be worth a simple response. "No, I do not believe that origin theories were obscured or suppressed. I can categorically say that for the work I have been involved with - including the conference call you refer to - such suggestions are false".

[2022-01-27 13:48:58]

**[Kristian Andersen]**

Just received the same email...

[2022-01-27 13:49:21]

**[Kristian Andersen]**

@Andrew Rambaut - yes, worth pointing out the Pangolin "evolution". Here's what I said to DQ in an email:

Definitely looking forward to reading the whole book!! Once I'm out of grant hell (two more weeks), I'd be delighted to read through it if that's helpful.

It's actually interesting reading through the old version of the version of Proximal (via the wayback machine - the current version on Virological is the most recent) to compare it to the final version in Nature Medicine. It's pretty clear that we still considered the "passage" (hypothesis 3) quite plausible at the time - and we had failed to realize the real importance of the pangolin RBD. Fascinating seeing the process of science through this document - even if it's my own :wink:.

[2022-01-27 13:49:50]

**[Kristian Andersen]**

"we had failed to realize the real importance of the pangolin RBD"

That bit is pretty key.

[2022-01-27 13:52:49]

**[Andrew Rambaut]**

Yes - the 7th Feb version on google docs (basically the 'report') doesn't have pangolins in the alignment.

[2022-01-27 13:53:15]

**[Kristian Andersen]**

No - we didn't use the pangolin genomes initially because they were so fragmented.

[2022-01-27 13:53:34]

**[Andrew Rambaut]**

OK. Good. More evidence of science being done

[2022-01-27 13:57:41]

**[Andrew Rambaut]**

From the 8th Feb version on GoogleDocs:

> Although RaTG13 remains the closest relative to 2019-nCoV across the genome as a whole, the Malayan pangolin CoVs are identical to 2019-nCoV at all six key RBD residues. Analyses of these pangolin viruses are ongoing, although they do not carry the furin cleavage site insertion.

[2022-01-27 13:57:51]

**[Robert Garry]**

I think the key for me was when one of us pointed out that "if the RBD was natural, then the whole thing is natural." Also we were arguing all sides of this from the get go - the whole o-linked glycan thing which was discussed on the conf call was pointing to natural although I do agree with K that it's as likely as not that that's a common regulatory

mechanism for FCS rather than immune evasive - still think that it could possibly have some role there though too - the FCS is a major epitope in other class I fusion proteins in SARS-CoV-2 it isn't AFAIK which is strange.

[2022-01-27 13:58:48]

**[Andrew Rambaut]**

And if it is used as a regulatory system there is no way a human designer would know how to do that

[2022-01-27 14:06:44]

**[Kristian Andersen]**

[thread - ID: 2022-01-27 14:06:44]

Yeah, but notice our discussion of "passage". The Pangolin RBD \_disproves\_ that, but we didn't catch that until later - we use the RBD to say "not engineering" but we didn't yet use it to say "not passage". That only came after peer review

[2022-01-27 14:07:39]

**[Kristian Andersen]**

And by disproving - I mean, it disproves that the specific RBD mutations seen in SC2 arose via culture passage, but, of course, it doesn't directly disprove passage itself.

[2022-01-27 14:09:38]

**[Kristian Andersen]**

Thinking of sending this to Fox - because somebody's gotta at least get it on the record... Thoughts?

```Dear Timothy,

No, I do not believe that origin theories were obscured or suppressed, although the question has become heavily politicized by lab leak proponents. I can categorically say that for the research I have been involved with, such allegations, including those recently made in a Fox New Special Report, are false. Our scientific investigations - published in scientific journals - have only been driven by scientific enquiry. Any suggestions to the contrary are false.

The events you describe date back to the Trump White House, and it is public knowledge that the question of origin was taken up by the White House Office and Science Technology Policy, immediately following early discussions: <https://www.nationalacademies.org/news/2020/02/national-academies-provide-rapid-response-to-white-house-on-coronavirus-data-needs#>

As was the case in early 2020, available evidence point strongly towards a natural emergence of SARS-CoV-2, as has been the case for other pandemics.

Best,
Kristian```

[2022-01-27 14:12:40]

[Robert Garry]

Fauci and Collins made zero edits to out papers - the CREID Grant was written, reviewed and scored prior to the Feb 1 conf call.

[2022-01-27 14:15:09]

[Eddie Holmes]

No harm in doing so but it will have zero impact I think.

[2022-01-27 14:20:23]

[Andrew Rambaut]

[thread - ID: 2022-01-27 14:06:44]

@Kristian Andersen Yeah - I agree with that. Will leave DQ's timeline as it is.

[2022-01-27 14:20:45]

[Kristian Andersen]

A few edits. I agree - unlikely to have impact, but need it on the record - and I can't see how it would cause additional harm (which would be the reason to _not_ email them back).

```Dear Timothy,

No, I do not believe that origin theories were obscured or suppressed, although the question has become heavily politicized by lab leak proponents. I can categorically say that for the research I have been involved with, such allegations, including those recently made in a Fox New Special Report, are false. E.g., your report suggested that Drs. Collins and Fauci made edits to our paper - that is false. Your report also suggested we received a grant as a "quid pro quo" - that is also false (and shows a complete lack of understanding of how NIH grants are funded). Further, the grant in question was written, scored, reviewed, and ranked for funding in 2019 - prior to the pandemic.

Our scientific investigations - published in peer-reviewed scientific journals - have only been driven by scientific enquiry. Any suggestions to the contrary are false.

The events you describe date back to the Trump (not Biden) White House, and it is public knowledge that the question of origin was taken up by the White House Office and Science Technology Policy, immediately following early discussions:  
<https://www.nationalacademies.org/news/2020/02/national-academies-provide-rapid-response-to-white-house-on-coronavirus-data-needs#>

As was the case in early 2020, available evidence point strongly towards a natural emergence of SARS-CoV-2, as has been the case for other pandemics. We are continuing our research and have several additional scientific studies forthcoming.

Best,  
Kristian```

[2022-01-27 17:32:35]

**[Robert Garry]**

> Yeah @Eddie Holmes like the: "5. I'll not answer any of your questions if your curiosity is based on the conspiracy of "man made or lab leak of SARS-CoV-2" or some non-sense questions based on your suspicion. No trust, no conversation."

[2022-01-27 17:48:50]

**[Eddie Holmes]**

I enjoyed that one. That Cleary is a total wanker. I responded to an email by him at some point (I forget when) and he posted it straight on Twitter.

[2022-01-27 17:56:20]

**[Kristian Andersen]**

Blocked him a looooooon time ago on Twitter.

[2022-01-28 04:44:51]

**[Robert Garry]**

<https://video.foxnews.com/v/6293888614001#sp=show-clips>

[2022-01-28 18:09:52]

**[Kristian Andersen]**

Well, at least that Fox guy quoted me fairly...

<https://www.foxnews.com/politics/american-scientists-downplayed-covid-19-lab-leak-theory-private-emails> [shared file(s): Screen Shot 2022-01-28 at 18.09.12.png]

[2022-01-28 18:53:53]

**[Eddie Holmes]**

Small win.



[2022-01-29 06:15:22]

**[Robert Garry]**

"After then-President Trump said he would not discount the theory that the virus spread from a Chinese wet market due to unsafe hygiene practices, Collins wrote to Fauci, "Wondering is there something NIH can do to put down this very destructive conspiracy." Clearly, they don't understand what they are writing.

[2022-02-01 14:38:57]

**[Robert Garry]**

Sharri, Asher, Petrovsky, Asher

<https://podcasts.apple.com/om/podcast/what-really-happened-in-wuhan/id1597883159>

[2022-02-01 14:49:38]

**[Kristian Andersen]**

Not exactly the A Team.

[2022-02-01 15:06:06]

**[Eddie Holmes]**

A-hole team.

[2022-02-01 15:11:21]

**[Robert Garry]**

trump too

[2022-02-01 15:15:23]

**[Kristian Andersen]**

He's on the podcast? Time stamp?

[2022-02-01 15:20:15]

**[Robert Garry]**

look further down on other podcasts

[2022-02-01 15:23:25]

**[Robert Garry]**

the donald himself - apparently talking about the stacks of body bags outside wiv [shared file(s): image.png]

[2022-02-01 15:28:51]

**[Kristian Andersen]**

Oh yeah, I remember that. Complete fabrication - as expected.

[2022-02-02 15:37:21]

**[Kristian Andersen]**

Well, I guess we know what's coming:

<https://republicans-oversight.house.gov/wp-content/uploads/2022/02/Letter-to-NIH-Follow-Up1.pdf>

[2022-02-02 15:37:29]

**[Kristian Andersen]**

shared file(s): Screen Shot 2022-02-02 at 3.36.58 PM.png

[2022-02-02 15:40:23]

**[Kristian Andersen]**

"The Republican lawmakers also call for all documents and communications about a possible coordinated effort by top government health officials to conceal information about COVID-19 originating from the WIV and downplay the lab leak theory"

<https://republicans-oversight.house.gov/release/comer-oversight-republicans-again-press-for-...nds-awarded-to-w>

uhan-lab-and-possible-fauci-cover-up/

[2022-02-03 05:55:10]

**[Andrew Rambaut]**

I guess we will all get these letters...

```Dr. Rambaut,

Please see the attached letter from Congressman James Comer, Ranking Member of the House Committee on Oversight and Reform; Republican Whip Steve Scalise, Ranking Member of the Select Subcommittee on the Coronavirus Crisis; and Congressman Jim Jordan, Ranking Member of the House Committee on the Judiciary. We appreciate your assistance and look forward to hearing back from you. Please acknowledge receipt of this letter.

Thank you,

Ashlee```

[2022-02-03 05:56:24]

[Andrew Rambaut]

I should have left it in my junk mailbox where I found it.... [shared file(s): Letter to Dr Rambaut.pdf]

[2022-02-03 05:57:04]

[Andrew Rambaut]

I assume I can safely ignore it and not even acknowledge it.

[2022-02-03 05:58:14]

[Andrew Rambaut]

Does say 'Nature Magazine' though.

[2022-02-03 06:02:29]

[Robert Garry]

Made it to Geneva - I just got the letter too. Their conspiracy theory has so many assumptions that are false.

[2022-02-03 07:15:17]

[Andrew Rambaut]

Seems like they have also given Fox News the tip-off:

```Good morning,

Could you please comment on the letter you were sent this morning by Republican members of the House of Representatives asking for clarification on why you originally suspected the COVID-19 virus was possibly man created before then suggesting otherwise in the Nature Medicine report entitled, "The Proximal Origin of SARS-CoV-2."

Do you still hold the belief the virus was naturally occurring?

Have you faced any pressure from Dr. Fauci and Dr. Collins to downplay the potential of a man-made virus, as the letter suggested?

Thank you,

Caitlin McFall

Politics Reporter

Fox News```

[2022-02-03 07:35:03]

**[Kristian Andersen]**

Got the same. Maybe worth answering "yes" and "no"?

[2022-02-03 07:42:19]

**[Kristian Andersen]**

As to the letter - @Andrew Rambaut you should pass this on to your university to respond. I assume you won't comply, but it's important to understand that further requests will come. Congress can subpoena foreign nationals and while they can't do anything directly if you refuse to appear, it could/will have consequences for future travel to the US.

They can't subpoena any of us at the moment (unless they get bipartisan support - we have already looked into that and that seems unlikely), but all of that changes in November.

[2022-02-03 08:27:03]

**[Andrew Rambaut]**

And I would answer 'I didn't', 'yes', 'no'

[2022-02-03 08:29:29]

**[Kristian Andersen]**

Hah - simple!

[2022-02-03 08:31:26]

**[Kristian Andersen]**

@Robert Garry - you do need to work with your press office to get this particular quote clarified (or at least have clear answers to it), because it's being brought up a lot and it's quite damaging:

"In fact, Dr. Garry later stated the consensus on the teleconference was "1. Don't try to write a paper at all . . . or 2. If you do write it[,] don't mention a lab origin as that will just add fuel to the conspiracists."

[2022-02-03 08:35:49]

**[Kristian Andersen]**

I'll get clarification from our outside council on the underlying meaning of some of the verbiage in the letters to us - especially "it is imperative you provide answers under oath" and everything under "to allow a full and complete record of these documents to be produced to the Committee in response to future document requests, please:".

Putting these in the letter make me believe they're already thinking about next steps.

[2022-02-03 08:38:25]

**[Kristian Andersen]**

The letters haven't yet gone online on the committee website, but once they do, I expect a lot of press requests will follow. I just asked my institution how they want to handle those (I'll be on the road all day), but I assume we're just going to ignore them.

<https://republicans-oversight.house.gov/letter>

[2022-02-03 08:45:35]

**[Robert Garry]**

The biggest issue is that they are/were attributing that advice to Fauci and Collins Of course they are twisting this totally out of context in other ways too. I didn't state that was the "consensus on the teleconference." It wasn't of course. Not even close. Only that that was among some of the advice we got and specifically NOT advice from Fauci or Collins. Advice BTW we clearly did not follow. as we: 1. wrote the paper and 2. mentioned lab origin.

[2022-02-03 08:58:55]

**[Kristian Andersen]**

Yup, all true

[2022-02-03 09:01:22]

**[Robert Garry]**

I'm gonna forward the ltr to the Dean who will bring in the Uni General Council. Will let him know there are several inaccuracies. We definitely need to let Scripps and Tulane communicate - mixed messages will be twisted. . I'm

pretty sure we'll get the chance to clarify under oath or otherwise.

[2022-02-03 09:25:05]

**[Robert Garry]**

Pretty sure Eddie will get the same. But not sure we need to get all four Unis involved - at the moment - but SR and Tulane should at least communicate.

[2022-02-03 09:27:40]

**[Kristian Andersen]**

Yes. I'll talk to council next week - on my way to Yosemite. For now, ignore - including media requests...

[2022-02-03 10:00:14]

**[Andrew Rambaut]**

Yes. I have forwarded to our senior lawyer to take a look at. But pretty sure they will say ignore it.

[2022-02-03 10:21:51]

**[Robert Garry]**

Ignoring - going out for some pizza with my lovely wife - Abigail and Stefanie coming home tomorrow or latest Saturday...

[2022-02-03 10:27:27]

**[Kristian Andersen]**

All letters online now

[2022-02-03 10:35:44]

**[Robert Garry]**

yes - pizza and beer

[2022-02-03 11:15:10]

**[Eddie Holmes]**

I got the same.

[2022-02-03 11:15:24]

**[Eddie Holmes]**

So did Jeremy

[2022-02-03 11:17:37]

**[Andrew Rambaut]**

I have put my letter on my wall of crazy in the postdoc office

[2022-02-03 13:57:32]

**[Eddie Holmes]**

Just chatting to Jon Cohen (about other matters). His comment on the letter was "You're being accused of being a scientist. How dare you." Guilty as charged!

[2022-02-03 15:02:39]

**[Kristian Andersen]**

We should talk to him about writing an article about all of this

[2022-02-03 22:56:19]

**[Eddie Holmes]**

I did have a long, broad and fun chat Jon. A few highlights were: (i) he agrees that Deep Throat is likely Baric and was leaked the info by Ron; (ii) one good point he made was that Ron was pissed off and being excluded from the paper because he was ostracised after the H5N1 debacle and this his chance to get back with the big boys; (iii) he thinks that China know exactly what the (natural) origin and are keeping quiet.

[2022-02-04 01:25:48]

**[Andrew Rambaut]**

I am pretty sure I remember Ron basically saying he wanted nothing to do with it.

[2022-02-04 01:58:25]

**[Andrew Rambaut]**

Hi all,

I am trying to compile evidence about the sort of hate and violence or threatened violence that results from the selective release of emails and the use of these by bad actors to foment this. This would be confidential and provided to the Information Commissioner who is adjudicating an appeal against our refusal to provide emails under FOI for health and safety grounds. I wonder if it would be useful to compile this for all of us? I know that you, Bob, capture a lot of screenshots of tweets and the like. If there was any chains that go from (say) Alina saying something based on emails to mad randos making threats, that would be useful.

[2022-02-04 02:20:02]

**[Robert Garry]**

I'll work on it...

[2022-02-04 08:19:10]

**[Kristian Andersen]**

I have emails, tweets, etc. will compile.

[2022-02-04 09:01:32]

**[Kristian Andersen]**

On a slow internet connection, so can't pick out individual tweets - but here's a folder to quickly run through: [https://www.dropbox.com/sh/p0bzobefn4spzgf/AAD7aPJs0eUxCiQ4t\\_bnGpAVa?dl=0](https://www.dropbox.com/sh/p0bzobefn4spzgf/AAD7aPJs0eUxCiQ4t_bnGpAVa?dl=0)

@Andrew Rambaut - I'll forward you some emails as well

[2022-02-04 09:06:46]

**[Kristian Andersen]**

A few specific things that have happened:

1. Rocks being thrown at Bob's house with profanities
  2. Multiple phone calls with various levels of threats - I don't record these, but you have the one from Bob
  3. Security at my lab has had to be upgraded - cameras, card access on all doors, all signs with my name / labs name taken down from buildings, walls, etc
  4. Following the Fauci FOIA released emails, I had to have armed escorts with 24/7 armed guards in front of our house
  5. Security at our house had to be upgraded - including 24/7 video surveillance (six cameras...), upgraded deadbolts, door security bars, security system, etc. All of these are still in place
- I'd also point to Nick Wade's articles - he directly states that we need to be held responsible for the pandemic. A lot of people read Nick Wade...

[2022-02-04 09:19:37]

**[Andrew Rambaut]**

Thanks Kristian - these are very useful.

I through a few tweets together but I don't pay much attention. Shall we just create a big document?

<https://docs.google.com/document/d/1buXhSpoh0lftdOUCcRIg8dmQmXFOLVNwEp1JJlHDco/edit?usp=sharing>

[2022-02-04 09:21:02]

**[Kristian Andersen]**

Yeah, might be worth assembling this in a document. Andrew, I also just forwarded you a bunch of emails.

[2022-02-05 02:34:34]

**[Robert Garry]**

Her latest on Jeremy is def in libel territory. [shared file(s): Screen Shot 2022-02-05 at 11.31.05 AM.png, Screen Shot 2022-02-05 at 11.30.45 AM.png, Screen Shot 2022-02-05 at 11.30.23 AM.png]

[2022-02-05 08:07:26]

**[Kristian Andersen]**

It's been particularly nasty over the last month. Completely out of line and very clearly mis- and disinformation.

[2022-02-05 08:25:39]

**[Kristian Andersen]**

Also - NIAID Centers focused on preventing lab infections? Lol - come on - that really is an amazing display of ignorance. :rolling\_on\_the\_floor\_laughing:

[2022-02-05 08:59:29]

**[Robert Garry]**

Too bad Eric is not still at the Broad - he could read her the riot act - professionally of course.

[2022-02-08 04:34:45]

**[Robert Garry]**

@Kristian Andersen I remember this episode differently. Posting for archiving purposes. I am tempted [but I won't] to shoot Todd Frankel an email though. [shared file(s): Fair Eric Lander.png]

[2022-02-08 04:37:51]

**[Robert Garry]**

The other CF tweet [shared file(s): Fair Todd Frankel.png]

[2022-02-08 07:18:36]

**[Kristian Andersen]**

Load of bollocks - as per usual...

[2022-02-08 09:03:36]

**[Robert Garry]**

Notice that he's communicating with the Politico reporter, no doubt hoping to rerun the smear he was selling to his Freetown buddy Todd..

[2022-02-10 02:04:51]

**[Robert Garry]**

saving this here [shared file(s): Christian Drosten rejects allegations of cover-up.pdf]

[2022-02-10 02:17:07]

**[Eddie Holmes]**

Fascinating. I don't like the way it has mixed our paper with the Lancet letter.

[2022-02-10 07:34:23]

**[Kristian Andersen]**

Drosten didn't know about the research at the WIV? That's hard to believe - plus, of course, we discussed it on the conference call...

[2022-02-11 17:41:04]

**[Kristian Andersen]**

For my meeting on Monday, I was wondering if I should propose that all our institutions get together to make a joint statement to really push back on this? Might work quite well - and we would have minimal involvement.

[2022-02-11 18:07:48]

**[Eddie Holmes]**

It would but we would also need to include Butt Lesion and that means talking to him etc  
I'm still strongly inclined to do nothing in response to the letter but a media release if necessary

[2022-02-11 18:16:08]

**[Kristian Andersen]**

Bob and I can't stay radio silent on this and calling out their bs (via our institutions) I think would be the best way to do it. Let's see what our respective outside councils say next week.

[2022-02-11 18:32:02]

**[Eddie Holmes]**

If you go down that path it should be a short statement that we followed the normal scientific procedure and reject any claims that our conclusions were influenced by political considerations and that we stand by our integrity. A bit like my reply to that Sunday Times journalist. Do NOT address the specific points they make.

[2022-02-11 18:45:40]

**[Eddie Holmes]**

I would also wait until after our papers are published as they will totally move the goalposts

[2022-02-12 06:27:13]

**[Robert Garry]**

Just got back home after 2am last night, Agree with all the above - no rush to do anything proactive. The papers are both game-changers. On another tangentially related point one of Dazsak's employees is pushing 4\$ on HER Cols.

[2022-02-12 07:20:04]

**[Robert Garry]**

Speaking of papers - both are getting there. Titles of both are much better now (-thanks to @Andrew Rambaut and @Eddie Holmes for key inspirations... Like the titles both papers could use some tightening and focus before submissions. One of the hardest things to learn as a scientist is that some of that data that you slaved over is not really that interesting and needs to be put in the supplement so it supports but doesn't obscure the main points.

[2022-02-12 17:16:14]

**[Kristian Andersen]**

I'm reading Quammen's draft and this made me fall out of my chair... :rolling\_on\_the\_floor\_laughing:

"Two other memorable Holmes traits are his very bald and nicely rounded head, which seems almost polished as a point of pride, and the fact that everyone calls him Eddie. Speak with molecular virologists anywhere in the world, remind them "But wait, hasn't Eddie said . . ." this or that, and they may not agree with the statement but they will know who you mean. In this field there's only one Eddie."

:bald\_man:

[2022-02-12 17:18:38]

**[Eddie Holmes]**

It was a proud moment for me and all my bald brothers

[2022-02-12 17:19:10]

**[Eddie Holmes]**

We stand united :muscle:

[2022-02-14 14:43:40]

**[Eddie Holmes]**

[https://twitter.com/thackerpd/status/1493321839866748935?s=20&t=cQ0IhmCOPvLrFvDnWdD\\_Qg](https://twitter.com/thackerpd/status/1493321839866748935?s=20&t=cQ0IhmCOPvLrFvDnWdD_Qg)

[2022-02-14 14:53:26]

**[Kristian Andersen]**

Good God these people are idiots.

[2022-02-14 14:57:42]

**[Eddie Holmes]**

Thacker is about the worst.

[2022-02-14 14:58:50]

**[Kristian Andersen]**

If any of your councils would like to connect with our folks, lemme know and we can connect them.

[2022-02-14 15:01:34]

**[Eddie Holmes]**

Thanks. I think my side will leave it as they have no jurisdiction over me.

[2022-02-14 15:02:08]

**[Kristian Andersen]**

Yeah - just keep in mind what that could mean for a future subpoena.

[2022-02-14 15:03:15]

**[Kristian Andersen]**

(as opposed to a simple letter stating a few simple facts - which will show that you are corroborating and something you can point to at a later date)

[2022-02-14 15:04:25]

**[Eddie Holmes]**

Yes, but the subpoena has no jurisdiction over me either.

[2022-02-14 15:04:58]

**[Kristian Andersen]**

Correct - however, I don't know how that could affect future travel, grants, etc.

[2022-02-14 15:09:25]

**[Eddie Holmes]**

I'll testify under a subpoena but I'm not responding to these pathetic accusations from a foreign power. Would be the same for the US, China, Italy, Argentina etc.

[2022-02-14 15:10:57]

**[Kristian Andersen]**

Yup, totally fair - and would probably also be my choice if it wasn't for the fact that I live in this banana republic.

[2022-02-14 15:12:39]

**[Eddie Holmes]**

Yes, you're in a different position

[2022-02-14 15:15:18]

**[Robert Garry]**

I love the part about the official was forced to shred notes ....

[2022-02-14 15:16:22]

**[Robert Garry]**

I'll report back after talk with the lawyers tomorrow.

[2022-02-14 15:17:11]

**[Robert Garry]**

Will encourage them to at least connect a bit.

[2022-02-14 15:18:18]

**[Eddie Holmes]**

The shredding bit is priceless. What bollocks.



[2022-02-14 15:20:38]

**[Kristian Andersen]**

2014 - the cover-up certainly has old roots...

[2022-02-14 15:38:51]

**[Robert Garry]**

Every NIH grant review session ends ceremoniously with throwing all your handwritten review notes into the shredding box. Used to be a bigger deal when everything was on paper- there would literally be a ton of paper to shred at some of the bigger meetings.

[2022-02-14 15:41:51]

**[Kristian Andersen]**

Hah - I had no idea!

[2022-02-15 09:19:58]

**[Kristian Andersen]**

Just FYI - our Outside Council is pretty sure Alan Slobodin wrote yesterday's letter to Fauci and also this press release: <https://republicans-energycommerce.house.gov/news/ec-republican-leaders-launch-probe-into-attempt-to-probe-debate-and-information-on-covid-19s-origins/>

[2022-02-15 09:29:25]

**[Robert Garry]**

Probably not a bad guess.

[2022-02-15 09:31:28]

**[Robert Garry]**

My call nothing - they advised me not to delete any emails.

[2022-02-15 12:36:15]

**[Eddie Holmes]**

Same accusatory stuff. Lucky I don't know who these bozos are.

[2022-02-16 09:14:14]

**[Kristian Andersen]**

Hey folks - can we please take a quick Zoom once Eddie is up?

[2022-02-16 09:15:39]

**[Andrew Rambaut]**

Sure. I am available all evening (except during dinner time which has yet to be fixed).

[2022-02-16 09:15:51]

**[Robert Garry]**

It's 4:15 am in Sydney

[2022-02-16 09:19:46]

**[Kristian Andersen]**

Great. Let's see when @Eddie Holmes gets up - we'll give him a couple of hours :wink:

[2022-02-16 12:11:07]

**[Eddie Holmes]**

Sorry - I may be a couple of hours as we have tradies here.

[2022-02-16 12:58:01]

**[Kristian Andersen]**

Just FYI - draft of letter that'll go back to the GOP'ers tomorrow. [shared file(s): 2.17.22 Scripps Letter\_Dr. Kristian Andersen\_kga.DOCX]

[2022-02-16 12:58:16]

**[Kristian Andersen]**

... and obviously - please keep this confidential.

[2022-02-16 13:09:01]

**[Eddie Holmes]**

I'll read when I get a chance. My Uni were just putting out a press statement:

[2022-02-16 13:09:28]

**[Eddie Holmes]**

"Professor Holmes was part of an international team that carefully and independently considered the origins of COVID-19 and found no scientific evidence that it was due to laboratory escape.

This resulted in the publication of a peer-reviewed scientific paper, \_The Proximal Origins of SARS-CoV-2\_, which was submitted on 17 February 2020. Dr Collins and Dr Fauci played no role in writing this paper.

A number of eminent scientists, including Professor Holmes, initially had concerns that the virus may have a laboratory origin, so they organised a teleconference with a group of experts. Scientific discussion during the teleconference concluded that many of these concerns were unfounded. As the discussions took place, the first data from a coronavirus in pangolins became available, which clearly showed that some of the unusual features found in SARS-CoV-2 were also found in nature. The conclusion that SARS-CoV-2 likely has a natural origin was based entirely on available scientific evidence.

Professor Holmes strongly defends the integrity and independence of his research, which is driven by the pursuit of scientific truth and no other purpose.

\*If asked, how will Professor Holmes be responding to the letter?\*

He will not be responding to the letter."

[2022-02-16 13:26:20]

**[Kristian Andersen]**

Is this online?

[2022-02-16 13:27:19]

**[Kristian Andersen]**

This bit reads quite funny to me:

"A number of eminent scientists, including Professor Holmes, initially had concerns that the virus may have a laboratory origin, so they organised a teleconference with a group of experts. Scientific discussion during the teleconference concluded that many of these concerns were unfounded. As the discussions took place, the first data from a coronavirus in pangolins became available"

It makes it sound as if all of this happened on the conference call - which, of course, isn't true.

[2022-02-16 13:29:29]

**[Eddie Holmes]**

Just a draft. Can be changed.

[2022-02-16 13:31:16]

**[Eddie Holmes]**

"A number of eminent scientists, including Professor Holmes, initially had concerns that the virus may have a laboratory origin, so they organised a teleconference with a group of experts. Scientific discussion during the teleconference concluded that many of these concerns were unfounded. Professor Holmes and his peers did further analysis of the SARS-CoV-2 genome data, which pointed to a natural origin, and during this time the first data from a

coronavirus in pangolins became available, which clearly showed that some of the unusual features found in SARS-CoV-2 were also found in nature. The conclusion that SARS-CoV-2 likely has a natural origin was based entirely on available scientific evidence.”

[2022-02-16 13:33:15]

**[Kristian Andersen]**

I think that might need some work - several things that people can poke holes in. Might be worth lifting some language from my previous answers on this (especially #3):

<https://www.nytimes.com/2021/06/14/science/covid-lab-leak-fauci-kristian-andersen.html>

[2022-02-16 13:34:45]

**[Eddie Holmes]**

What's point #3? I can't read this. Also, it's only going to be used if people ask.

[2022-02-16 13:35:29]

**[Kristian Andersen]**

shared file(s): Lab-Leak Theory\_ Kristian Andersen On His Fauci Email and Covid Origins - The New York Times.pdf

[2022-02-16 13:35:58]

**[Kristian Andersen]**

\*In March, you and other scientists published the Nature Medicine paper saying that “we do not believe that any type of laboratory-based scenario is plausible.” Can you explain how the research changed your view?\*

The features in SARS-CoV-2 that initially suggested possible engineering were identified in related coronaviruses, meaning that features that initially looked unusual to us weren't.

Many of these analyses were completed in a matter of days, while we worked around the clock, which allowed us to reject our preliminary hypothesis that SARS-CoV-2 might have been engineered, while other “lab”-based scenarios were still on the table.

Yet more extensive analyses, significant additional data and thorough investigations to compare genomic diversity more broadly across coronaviruses led to the peer-reviewed study published in Nature Medicine. For example, we looked at data from coronaviruses found in other species, such as bats and pangolins, which demonstrated that the features that first appeared unique to SARS-CoV-2 were in fact found in other, related viruses.

Overall, this is a textbook example of the scientific method where a preliminary hypothesis is rejected in favor of a competing hypothesis after more data become available and analyses are completed.

[2022-02-16 13:37:22]

**[Eddie Holmes]**

I honestly don't see how that differs from what we've said.

[2022-02-16 13:39:18]

**[Kristian Andersen]**

It doesn't if you're a reasonable person. However, just two examples:

“SARS-CoV-2 genome data” &gt; how can you decide it's natural based on genome data alone?

“pangolins became available, which clearly showed that some of the unusual features found in SARS-CoV-2 were also found in nature” &gt; so your conclusions are based only on the pangolin data?

[2022-02-16 13:42:03]

**[Eddie Holmes]**

I have to say I disagree.

[2022-02-16 13:44:01]

**[Eddie Holmes]**

Your lawyers letter says "This was indicative of the view of Dr. Andersen and his co-authors that it was impossible to prove or disprove specific hypotheses as to the origins of SARS-CoV-2" while the PO paper actually says "we do not believe that any type of laboratory based scenario is plausible".

[2022-02-16 13:46:48]

**[Eddie Holmes]**

To me that's a straight contradiction

[2022-02-16 13:47:42]

**[Kristian Andersen]**

Straight from our paper -

“The genomic features described here may explain in part the infectiousness and transmissibility of SARS-CoV-2 in humans. Although the evidence shows that SARS-CoV-2 is not a purposefully manipulated virus, it is currently impossible to prove or disprove the other theories of its origin described here. However, since we observed all notable SARS-CoV-2 features, including the optimized RBD and polybasic cleavage site, in related coronaviruses in nature, we do not believe that any type of laboratory-based scenario is plausible”

[2022-02-16 13:51:19]

**[Eddie Holmes]**

Right, but we do actually then state that no laboratory-based scenario is plausible.

[2022-02-16 13:52:27]

**[Eddie Holmes]**

If I were on the other side I would then ask why you wrote this second sentence?

[2022-02-16 13:54:02]

**[Kristian Andersen]**

Well, that's the genius of that sentence - it says “we do not \*believe\* that any type of laboratory based scenario is \*plausible\*”. “Not plausible” does not mean “impossible”.

[2022-02-16 13:54:17]

**[Andrew Rambaut]**

not-plausible to me means has a non-zero probability but still small

[2022-02-16 13:54:23]

**[Kristian Andersen]**

Yup

[2022-02-16 13:54:46]

**[Andrew Rambaut]**

As Kristian says - the categorical bit is ‘any’

[2022-02-16 13:55:18]

**[Eddie Holmes]**

My problem your letter is that it ends with the its impossible to prove/disprove statement whereas the paper has more.

[2022-02-16 13:55:23]

**[Kristian Andersen]**

“Believe” does a lot of heavy lifting here too - clearly this is our opinion (based on all the data, expertise, etc).

[2022-02-16 13:55:33]

**[Robert Garry]**

Maybe we should jump on that call?

[2022-02-16 13:55:46]

**[Kristian Andersen]**

I have a call with Gates in 5mins unfortunately

[2022-02-16 13:55:53]

**[Andrew Rambaut]**

Bill?

[2022-02-16 13:55:57]

**[Andrew Rambaut]**

Or Mel?

[2022-02-16 13:55:57]

**[Eddie Holmes]**

I can't as I have a plumber here

[2022-02-16 13:56:03]

**[Robert Garry]**

Give him my regards...

[2022-02-16 13:56:36]

**[Kristian Andersen]**

Just the Gates team - I don't expect Bill will show up... And they're probably going to waste my time.

Let's hop on a call tomorrow though - there are a few things we need to discuss

[2022-02-16 13:56:38]

**[Robert Garry]**

Bill and the plumber too Eddie..

[2022-02-16 13:57:21]

**[Andrew Rambaut]**

Prove:  $P = 1$ , disprove  $P = 0$ , plausible (say)  $P > 0.9$ , not plausible  $P = 1$  - plausible

[2022-02-16 13:58:05]

**[Andrew Rambaut]**

Or perhaps Plausible  $P > 0.1$  but not plausible  $P < 0.1$

[2022-02-16 13:58:18]

**[Andrew Rambaut]**

:man-shrugging:

[2022-02-16 14:03:28]

**[Robert Garry]**

It will have to be after 3pm central for me...one of my few lectures I give....

[2022-02-16 14:04:18]

**[Andrew Rambaut]**

I am available anytime tomorrow. Just give me a bit of warning so I don't drink too much wine first.

[2022-02-16 15:38:58]

**[Eddie Holmes]**

Strictly between us, Science are investigating Bogner. A long history of weirdness and fakery.

[2022-02-16 15:57:56]

**[Kristian Andersen]**

GISAID?

Can't say that would make me sad. Are they aware of their little "first genome" scam? I have all the proof if they need it.. Just sayin'

[2022-02-16 16:00:54]

**[Eddie Holmes]**

Will mainly be an expose of Bogner - seemingly making things up for ages - but GISAID will clearly be dragged through the dirt

I sent him sequence release GISGATE stuff on background

[2022-02-16 16:02:22]

**[Eddie Holmes]**

Bogner sounds like a complete fantasist

I told him the GISAID are getting increasingly out of line

[2022-02-16 16:06:12]

**[Kristian Andersen]**

He's such a joke - we're dealing with a whole mountain of GISAID bullshit right now and I'm gonna go to fucking war with them if this continues.

[2022-02-16 16:06:59]

**[Eddie Holmes]**

What are they doing?

[2022-02-16 16:10:38]

**[Kristian Andersen]**

Wanting certain language in press releases, wanting us to code shit for them, wanting us to cite very specific papers (that state they released the first genome), etc, etc. Whenever we push back, they threaten to remove access for outbreak.info - same bullshit they have done with pretty much everybody else, including NextStrain. Difference is that I'm not Trevor and unlike him, I don't give a fuck - burn the house down if that's what it takes!

So tired of Peter's bs - and so is everybody else.

[2022-02-16 16:15:52]

**[Kristian Andersen]**

Yup - have him reach out. I have had beef with these guys for years because of their bs practices.

[2022-02-16 16:20:58]

**[Eddie Holmes]**

This has now been noted...increasing anger

[2022-02-16 16:23:55]

**[Robert Garry]**

Lies and other BS: quickest way to short term gain - it ALWAYS catches up.

[2022-02-16 16:29:40]

**[Kristian Andersen]**

Well, except, Donald Trump is apparently still a thing...

[2022-02-16 22:00:39]

**[Eddie Holmes]**

Should be around tomorrow morning. I could do as early as 6:45 am my time as tea should be stewed enough by then.

[2022-02-17 10:44:10]

**[Robert Garry]**

@Kristian Andersen OK to share contacts of your lawyers with tulane lawyers? Also I have to give a 2 hour lecture staring top of the hour.

[2022-02-17 10:55:21]

**[Kristian Andersen]**

@Robert Garry - yeah, use our TSRI lawyer (Alanna Rutan), who can then coordinate with the larger outside council team. [REDACTED]

[2022-02-17 11:30:46]

**[Eddie Holmes]**

Are we talking? If so I can start in 5 mins. Is there a link?

[2022-02-17 11:35:50]

**[Kristian Andersen]**

!channel - I'm free. Bob/Andrew?

[2022-02-17 11:37:48]

**[Kristian Andersen]**

Wait - Bob said he was giving a two-hour lecture that started 37mins ago, so he's out - let's see where we are when he's back.

[2022-02-17 11:38:25]

**[Eddie Holmes]**

Ok, no worries.

[2022-02-17 11:39:32]

**[Kristian Andersen]**

I'll focus on papers in the meantime..

[2022-02-17 12:57:07]

**[Robert Garry]**

I'm back - 2 hours - I'm too old for that...

[2022-02-17 12:57:51]

**[Kristian Andersen]**

!channel - others around?

[2022-02-17 12:58:28]

**[Eddie Holmes]**

I'm out with the dog but will be back in 15 minutes

[2022-02-17 12:59:35]

**[Robert Garry]**

Send ZOOM @Kristian Andersen?

[2022-02-17 13:00:41]

**[Kristian Andersen]**

Yeah, will do - once Eddie is back. Eddie, please ping the channel when you're ready.

[2022-02-17 13:03:39]

**[Eddie Holmes]**

Will do

[2022-02-17 13:18:01]

**[Eddie Holmes]**

I'm back

[2022-02-17 13:18:28]

**[Kristian Andersen]**

@Robert Garry @Andrew Rambaut - you both around?

[2022-02-17 13:18:49]

**[Robert Garry]**

yes

[2022-02-17 13:23:06]

**[Kristian Andersen]**

lchannel <https://us02web.zoom.us/j/81680270737?pwd=VVNaWm4wNjluQ2dPMY94eJl3UGx5QT09>

[2022-02-17 13:23:12]

**[Kristian Andersen]**

@Andrew Rambaut I hope you can make it as well

[2022-02-17 13:24:22]

**[Eddie Holmes]**

Give me 2 mins while I get a coffee

[2022-02-17 13:37:26]

**[Andrew Rambaut]**

Just saw this. will jump on in a minute

[2022-02-17 16:58:08]

**[Kristian Andersen]**

Here's the letter our council emailed over earlier today. [shared file(s): 2022-02-17\_Ltr from Scripps\_Dr. Kristian Andersen.PDF]

[2022-02-17 19:17:59]

**[Eddie Holmes]**

Thanks for that.

[2022-02-23 12:12:50]

**[Kristian Andersen]**

I have a WaPo reporter (Dan Diamond) asking me a few questions about a conversation he recently had with Fauci. Here's what Tony said about the call - which, of course, is correct. As I mentioned previously, I honestly don't remember what Tony said on the call or if he had any specific questions - do any of you? [shared file(s): Screen Shot 2022-02-23 at 12.11.54 PM.png]

[2022-02-23 12:18:08]

**[Eddie Holmes]**

I seem to remember him asking something like 'give me the probability it came out of a lab?'. I think he wanted a number, although perhaps I'm deluding myself.

[2022-02-23 12:20:10]

**[Kristian Andersen]**

Yeah - some folks on the call asked for odds, but I can't remember whether it might actually have been Jeremy. I'll just say "I don't remember what Tony said"

[2022-02-23 12:20:39]



**[Eddie Holmes]**

He didn't ask many questions because he spent all his time telling us what to think

[2022-02-23 12:21:51]

**[Kristian Andersen]**

Haha, that's right. I guess maybe this is my chance to cash in if I flip.... Hmm - sorry guys, I'll have to throw you under the bus too. :man-shrugging::moneybag:

[2022-02-23 12:23:21]

**[Eddie Holmes]**

No worries. I'm just surprised we've not yet been blamed for the invasion of Ukraine

[2022-02-23 12:25:03]

**[Kristian Andersen]**

Oh, I'm sure we'll hear about that shortly. I'll ping my DRASTIC friends.

[2022-02-23 12:41:11]

**[Robert Garry]**

Tony's quote is great. He really didn't say much at all and I don't remember any specific questions from him. Francis said even less (Francis was at some sort of party). Jeremy said a few things, but mostly just by way of organization. It was mostly a round robin of the other scientists - starting with Kristian. I talked about the FCS [noting FCSs had been inserted before] and the O-linked glycans, which even at that early date didn't seem engineered. Decidedly a mixed set of facts that could swing in a number of different directions with more data. Ron and Marion in particular were pretty outspoken that it had to be natural.

[2022-02-23 13:09:45]

**[Robert Garry]**

That's my best recollection. Tony said VERY little - Francis even less, if anything. They truly were there to listen.

[2022-02-23 13:18:38]

**[Eddie Holmes]**

Sounds accurate to me

[2022-02-23 23:12:07]

**[Andrew Rambaut]**

To listen and then give Kristian \$8M

[2022-02-27 13:04:09]

**[Robert Garry]**

Sorry for nonresponsiveness @Kristian Andersen - offline for a bit of work on the house while Jeanette is still in Geneva helping Stefani with Abi. This is probably an ignore all the way around for the reasons cited in the general thread. First priority - Let's continue to absolutely bullet-proof those papers and fight like hell to get them into Science. My guess is she will try to contact the editors there and that will indeed be worth a fight. Bottom line is that these 2 papers are devastating to 4\$ and the leakers. Let's claim that victory.

[2022-02-27 13:12:30]

**[Kristian Andersen]**

I very much doubt that Caroline will be responsive to an email from her.

[2022-02-27 13:13:20]

**[Andrew Rambaut]**

I think it would just encourage her

[2022-02-27 13:13:46]

**[Robert Garry]**

Yeah - agree on both points!

[2022-02-28 08:17:30]

**[Andrew Rambaut]**

@Eddie Holmes - what do you think about the idea of contacting George, complaining about Jesse's imperialist letter, and suggesting that we try to work in parallel. We may not agree on the interpretation of the data but that is OK - we can at least give honest opinions.

[2022-02-28 12:11:04]

**[Andrew Rambaut]**

@Kristian Andersen Did Mike say what Mitch Benzine was up to? Does it need discussing?

[2022-02-28 12:24:27]

**[Kristian Andersen]**

He didn't say.

[2022-02-28 14:26:35]

**[Eddie Holmes]**

I'm not contacting George. He's off my Christmas card list. He's a lying shit who has destroyed [REDACTED]. Also, he clearly thinks that the analysis is done so if ask to work with him he'll take it as a bit of an insult. At best he'll pass this request to a minion. Plus, any email to George is on FOIA-watch. If you want to contact George please go ahead but I'm not. I'll go through [REDACTED].

[2022-03-03 09:57:20]

**[Robert Garry]**

Letter from House Republicans to NIH. Not too much of note until you get down to the end and Alan Slobodan's name comes up. [shared file(s): 2.24.22-Letter-to-NIH-Acting-Director-Tabak.pdf]

[2022-03-03 12:17:36]

**[Eddie Holmes]**

Determined to find all the rope they can

[2022-03-04 14:35:14]

**[Robert Garry]**

parking this lovely tweet from eDim here... [shared file(s): image.png]

[2022-03-04 15:04:07]

**[Eddie Holmes]**

Pure filth

[2022-03-15 11:03:51]

**[Robert Garry]**

Check out the video from wick <https://twitter.com/Ayjchan/status/1503776578718912521> those are the congressmen with the letters to us...

[2022-03-15 11:18:03]

**[Kristian Andersen]**

It's this one:

<https://twitter.com/imUrB00gieman/status/1503785002907017216?s=20&t=4OAJ3DUQD69QhmyWAlhDyw>.

It's impossible to have a conversation with these people - complete dis/misinformation. Who's the not-Quay guy again? He's actually worse than Quay when it comes to the disinformation.

[2022-03-15 11:30:25]

**[Robert Garry]**

Non quays [https://en.wikipedia.org/wiki/Brett\\_Giroir](https://en.wikipedia.org/wiki/Brett_Giroir)

[2022-03-15 11:31:33]

**[Robert Garry]**

Richard Muller is an emeritus professor of physics at the University of California Berkeley and a former senior scientist at the Lawrence Berkeley National Laboratory.

[2022-03-15 11:34:06]

**[Robert Garry]**

David Asher - worked in Trump Admin under John Ratcliffe Director of NI <https://americanmilitarynews.com/2020/12/chinas-testing-biologically-enhanced-super-soldiers-on-their-own-troops-says-dni-ratcliffe/>

[2022-03-15 11:35:07]

**[Kristian Andersen]**

Ah, yes - Muller, that's the guy. Disgraceful.

[2022-03-15 11:35:49]

**[Robert Garry]**

He and Quay wrote the WSJ article on double Cig

[2022-03-15 11:36:53]

**[Robert Garry]**

It's us vs them in January 2023 if the House falls...

[2022-03-15 11:39:59]

**[Robert Garry]**

Giroir who is from NOLA was on a recent GVN call - he tried to be nice to me.

[2022-03-25 16:54:28]

**[Robert Garry]**

<https://virological.org/t/spike-protein-mutations-in-novel-sars-cov-2-variants-of-concern-commonly-occur-in-or-near-indels/605> I'm wondering if we shouldn't update the INDEL virological post with BA.1 and BA.2. The association of the Omicron mutations in BA.1 and BA.2 with indels is \*even more pronounced\*. Started to draft an alignment, but this should also included Alpha, Beta and Gamma. [shared file(s): image.png]

[2022-03-25 16:57:51]

**[Robert Garry]**

Also as @Kristian Andersen noted something up with the glycosylation sites. BA.2 loses its first N-linked site (which is unlike any other variant of concern AFAIK), but interestingly to me BA.2 picks up a predicted O-linked glycan at 349 that is also present in the BANAL viruses.

[2022-04-01 17:08:03]

**[Kristian Andersen]**

I missed this note from Ian. He didn't even bring this up once, did he? So just an outright lie? [shared file(s): Screen Shot 2022-04-01 at 17.07.05.png]

[2022-04-01 17:29:07]

**[Robert Garry]**

not once - out-right lie.

[2022-04-01 17:30:37]

**[Kristian Andersen]**

@Eddie Holmes and @Andrew Rambaut do you agree?

[2022-04-01 17:37:49]

**[Andrew Rambaut]**

Can't see anything... [shared file(s): image.png, image.png, image.png]

[2022-04-01 17:40:18]

**[Andrew Rambaut]**

Looking at the edits now (in case there was anything added and removed). Actually Ian made a lot more edits than I remembered...

[2022-04-01 17:45:14]

**[Kristian Andersen]**

Oh yeah, he actually did - quite a number of them pretty good. Important to get that right - because that's definitely not what I remember.

As for the GOF though, he's lying. We also have this: [shared file(s): Screen Shot 2022-04-01 at 17.40.44.png]

[2022-04-01 17:55:02]

**[Andrew Rambaut]**

Yeah but we probably don't want to say 'he didn't warn us' because that just sounds like we didn't know or didn't agree.

[2022-04-01 18:01:26]

**[Kristian Andersen]**

Definitely not. But here's the thing - the work at the WIV is exactly why we considered the lab leak in the first place! I knew about all the work in BSL-2 - chimeric viruses, cultures, etc - but it seems like Ian didn't.

Plus, no GOF at the WIV.

[2022-04-01 18:27:57]

**[Robert Garry]**

Some of the nastiest shit out of Alina - hard to believe Broad tolerates this. Parking it here. This is at least 30 Kristian tweets in 2 days. Unbelievable. [shared file(s): Screen Shot 2022-04-01 at 8.24.44 PM.png, Screen Shot 2022-04-01 at 8.23.57 PM.png, Screen Shot 2022-04-01 at 8.23.40 PM.png, Screen Shot 2022-04-01 at 8.22.44 PM.png, Screen Shot 2022-04-01 at 8.22.13 PM.png, Screen Shot 2022-04-01 at 8.21.51 PM.png]

[2022-04-01 20:47:24]

**[Eddie Holmes]**

Again, Jesse's preprint included an email FOIAd from NIH from a Chinese group without their permission, for which they had no right to reply and which wasn't even about the data in hand. Who's the bully?

[2022-04-01 21:06:27]

**[Kristian Andersen]**

Morally bankrupt.

That's what's so unbelievable about "poor Jesse" - have any of these people thought for a moment about the "poor" people he's accusing? Which Bob and I had the nerve to point about? I'm sorry, buddy, but it's the other way around - keep playing the victim all you want.

[2022-04-01 21:06:56]

**[Kristian Andersen]**

To my previous point - Eddie, do you remember Ian mentioning anything about GOF?

[2022-04-01 21:50:40]

**[Eddie Holmes]**

No, that's a complete fabrication. I'm going to challenge him in on it.

[2022-04-04 13:35:31]

**[Robert Garry]**

Cleaned up the "indel" alignment with delta and BA.1/2. Story holds that many of the mutations are in or near indels. Highlighted the N-linked glycans as those also seem to be other areas where some VoC variation takes place. Any objections to posting this in the virological thread as an update? [shared file(s): image.png]

[2022-04-04 14:05:36]

**[Kristian Andersen]**

Very interesting how this is holding up! I say definitely update the Virological post.

[2022-04-05 06:48:43]

**[Eddie Holmes]**

Good plan.

[2022-04-05 06:50:09]

**[Robert Garry]**

it's up.

[2022-04-05 06:51:54]

**[Eddie Holmes]**

Great! I've just been in a plane for 17 hours. Currently in transit in Darwin.

[2022-04-05 07:05:18]

**[Robert Garry]**

THat's a lot of travel. I'm looking forward maybe someday to getting back my wings too.

[2022-04-05 07:05:23]

**[Robert Garry]**

After finishing up the current papers might be worth parking this somewhere in an actual manuscript.

[2022-04-05 07:07:22]

**[Eddie Holmes]**

Travel is not what it was. I'm definitely not going back to the old days.

[2022-04-05 07:08:19]

**[Robert Garry]**

NO surprise that the indel regions of Spike are all in the surface exposed loops shown here in spheres. These regions probably also define "blocks" that can be exchanged in and out during recombination. [shared file(s): image.png]

[2022-04-05 07:11:09]

**[Robert Garry]**

The core structures of the protein - that can be seen here as either beta sheet sandwiches or alpha helices are MUCH less variable. Again no surprise, but sets limits on how much Spike can vary.

[2022-04-05 07:38:56]

**[Robert Garry]**

@Eddie Holmes hope you're still OK with having a cameo on the maybe Science cover. [shared file(s): 2022.04.04\_garry lab cover\_render.pdf]

[2022-04-05 07:40:27]

**[Andrew Rambaut]**

That is amazing!!

[2022-04-05 07:41:39]

**[Eddie Holmes]**

Ha, I love it

[2022-04-05 07:46:31]

**[Robert Garry]**

Glad you like it - we went through several versions - ultimately going with a close-up of the Wall of crazy - my original sketch was too much like a Where's Waldo and too much insider stuff (although I liked it). Science would not have liked animals in cages on the cover. [shared file(s): Garry Lab Science Cover\_Detail\_Concepts v2 (2).pdf]

[2022-04-08 07:16:38]

**[Andrew Rambaut]**

Anyone for BA.4 and BA.5? Straight out of Gauteng/Botswana. Estimated MRCA Nov 2021

[2022-04-08 07:17:30]

**[Andrew Rambaut]**

Has 69/70del (unlike BA.2) and SGTF (and cases) rising in South Africa. Cases in UK, Denmark, Germany - probably elsewhere now

[2022-04-08 07:21:36]

**[Kristian Andersen]**

:see\_no\_evil: :hear\_no\_evil:

[2022-04-08 07:22:23]

**[Kristian Andersen]**

MRCA with BA.1/2?

[2022-04-08 07:22:25]

**[Andrew Rambaut]**

Tulio is cooking these up in his GOF lab

[2022-04-08 07:22:39]

**[Andrew Rambaut]**

No - MRCA within BA.4

[2022-04-08 07:22:45]

**[Andrew Rambaut]**

It is weird

[2022-04-08 07:22:57]

**[Andrew Rambaut]**

Doesn't look like a new selective sweep.

[2022-04-08 07:23:41]

**[Andrew Rambaut]**

Perhaps it was circulating all the time but is now in a slight advantage due to the unusual immune landscape in RSA. Or....

[2022-04-08 07:23:49]

**[Andrew Rambaut]**

perhaps we are all fucked again

[2022-04-08 07:24:05]

**[Andrew Rambaut]**

There are details in the UKHSA tech briefing today

[2022-04-08 07:24:46]

**[Kristian Andersen]**

I'm pretty darn convinced BA.1 infection leads to pretty crappy immunity so a slight advantage in evasion while maintaining R0, well...

[2022-04-08 07:25:36]

**[Kristian Andersen]**

Pretty sure that's what BA.2 did as well (while being even more transmissible - which is unreal!)

[2022-04-08 07:56:33]

**[Andrew Rambaut]**

The question is, did BA.2 require previous peak of BA.1 to make a second peak? Obviously it would still be able to create a first peak in countries where it was the first Omicron.

[2022-04-08 07:57:06]

**[Andrew Rambaut]**

The other thing I am really wondering about now is the 69/70del - it really seems to alternate in UK

[2022-04-08 07:57:59]

**[Andrew Rambaut]**

(OK, only  $P=0.5^3$  so far but if BA.4 takes off that would be  $P=0.0625$ )

[2022-04-08 07:59:19]

**[Robert Garry]**

<https://twitter.com/JamesCTobias/status/1512421544198348802> Meanwhile FOIA drama continues...

[2022-04-08 08:02:09]

**[Andrew Rambaut]**

Jeez they are going to be disappointed when they finally get these things.

[2022-04-08 08:02:33]

**[Andrew Rambaut]**

I think it is probably NIH just trolling them to keep them distracted from their Antivaxx misinformation campaign

[2022-04-08 09:02:47]

**[Robert Garry]**

Alina gets this wrong- it's not an NIH trade secret - it's an @Kristian Andersen trade secret - and the NIH is 100% right to withhold the contents based on that FOIA exemption. [shared file(s): image.png]

[2022-04-08 09:04:16]

**[Robert Garry]**

THE trade secret exemption is actually the most powerful of all the antiFOIA "Infinity Stones."

[2022-04-08 09:51:05]

**[Andrew Rambaut]**

Yeah - Merica being capitalist an all.

[2022-04-08 09:53:09]

**[Robert Garry]**

INdeed.

[2022-04-08 21:35:39]

**[Robert Garry]**

Obviously - @Kristian Andersen has a right to protect his Original Leaker :tm: IP.!

[2022-04-11 21:14:10]

**[Kristian Andersen]**

Ian has access to the PO GDoc... Given his erratic behavior as of late, should I cut him off? He only has access to the main document (including, of course, version history).

[2022-04-11 21:26:45]

**[Eddie Holmes]**

Cut him off.

[2022-04-11 21:28:29]

**[Kristian Andersen]**

Will do.

[2022-04-11 21:29:39]

**[Kristian Andersen]**

Also, I just noticed something quite interesting going back to this:

[https://andersenlab.slack.com/files/UT3183GLT/F023HDS9CQ3/peter\\_daszak\\_who\\_\\_\\_china\\_joint\\_study\\_report\\_for\\_eddie\\_holmes.pptx](https://andersenlab.slack.com/files/UT3183GLT/F023HDS9CQ3/peter_daszak_who___china_joint_study_report_for_eddie_holmes.pptx) [shared file(s): Peter Daszak WHO & China joint study report for Eddie Holmes.pptx]

[2022-04-11 21:30:26]

**[Kristian Andersen]**

That's the same slide deck (or similar) to the one from VF:

<https://downloads.vanityfair.com/ecohealth-alliance/peter-daszak-powerpoint.pdf>

[2022-04-11 21:31:43]

**[Kristian Andersen]**

Do we know which one is earlier? Because there are some very interesting differences...

[2022-04-11 21:32:22]

**[Eddie Holmes]**

Yes! Forget about that one. Not sure which is earlier.

[2022-04-11 21:32:55]

**[Kristian Andersen]**

For example - here's VF: [shared file(s): Screen Shot 2022-04-11 at 21.31.56.png]

[2022-04-11 21:33:32]

**[Kristian Andersen]**

Here's what we have... Notice the arrow isn't in the VF version? (clearly, it's not the \_same\_ slide deck - just slightly different) [shared file(s): Screen Shot 2022-04-11 at 21.32.12.png]

[2022-04-11 21:34:57]

**[Kristian Andersen]**

Also, no Recommendations in the VF version at all - which is peculiar, because.... [shared file(s): Screen Shot 2022-04-11 at 21.33.54.png, Screen Shot 2022-04-11 at 21.34.07.png]

[2022-04-11 21:38:30]

**[Kristian Andersen]**

The title of the VF file is "Peter Daszak WHO China joint study report for NSC 3-24-2021", so that's presumably the date of the presentation. Now, what was the date of what we have... Before or after? I'm thinking before...

Also, notice the peculiar switch of "~Raccoon Dog~" "Mink" in the version we have becoming "~Mink~" "Raccoon Dog" in the VF article... (which we discussed previously). :man-shrugging: [shared file(s): Screen Shot 2022-04-11 at 21.37.34.png, Screen Shot 2022-04-11 at 21.37.58.png]

[2022-04-11 21:40:56]

**[Eddie Holmes]**

Wow! That is odd.

[2022-04-11 21:41:59]

**[Eddie Holmes]**

I think it is 9 'raccoon dog' in the WHO report with the same spelling mistake.



[2022-04-11 21:42:56]

**[Kristian Andersen]**

Actually, I think it's "Mink" in the WHO report - and I switched them around above, so it's Mink in Daszak's version and Raccoon Dog in VF's version

[2022-04-11 21:43:47]

**[Kristian Andersen]**

[https://twitter.com/TheTropaion/status/1510642039595151370?s=20&t=GKclqoRYreBX-1\\_YRchghg](https://twitter.com/TheTropaion/status/1510642039595151370?s=20&t=GKclqoRYreBX-1_YRchghg)

[2022-04-11 21:46:21]

**[Eddie Holmes]**

Right...I agree that it is mink in the WHO and racoon dog in the VF, but there is also racoon dog in one table (Table 10) in the WHO report. The same spelling error is interesting...

[2022-04-11 21:48:59]

**[Kristian Andersen]**

Yeah. Could just be simple spelling errors, but :man-shrugging:

[2022-04-11 21:50:01]

**[Kristian Andersen]**

Also, thank god for metadata - although, this'll get the Leakers go crazy... Look at the original title and create date.

(obviously he just copied an old slide deck...) [shared file(s): Screen Shot 2022-04-11 at 21.48.10.png]

[2022-04-11 21:52:23]

**[Kristian Andersen]**

Do you have the original email with the attachment Eddie? Any chance you can please forward? The modification date is 5/31 in the metadata but our timestamp is 5/30, so that's probably why. I'm wondering if we can see when he last modified that file. Might actually be a \_later\_ version than the VF (the "Mink" / "Raccoon dog" stuff would be consistent with that).

[2022-04-11 22:01:27]

**[Eddie Holmes]**

I'll see what I can find

[2022-04-11 22:01:50]

**[Kristian Andersen]**

Also, slides 1 - the version we have is a later version - possibly from May vs March (and him included the arrow towards the market for excess fatality could have been from my tweets - e.g.:) [shared file(s): Screen Shot 2022-04-11 at 21.57.22.png]

[2022-04-11 22:02:00]

**[Kristian Andersen]**

VF: [shared file(s): Screen Shot 2022-04-11 at 21.54.32.png]

[2022-04-11 22:02:17]

**[Kristian Andersen]**

Our version: [shared file(s): Screen Shot 2022-04-11 at 21.54.24.png]

[2022-04-11 22:07:34]

**[Eddie Holmes]**

Just forwarded you the email.

[2022-04-11 22:28:29]

**[Kristian Andersen]**

Yeah - deleted file... :disappointed: .

[2022-04-11 22:28:56]

**[Kristian Andersen]**

Guys, are these maps public? Because.... [shared file(s): Screen Shot 2022-04-11 at 22.27.54.png]

[2022-04-11 22:29:10]

**[Kristian Andersen]**

(also, note the date)

[2022-04-11 22:29:59]

**[Kristian Andersen]**

Because you can turn pptx into zip, I could get the full-res images: [shared file(s): image28.gif, image29.gif, image30.gif, image31.gif]

[2022-04-11 22:30:36]

**[Eddie Holmes]**

But don't you have the original slides from Daszak? I sent them to you - right?

[2022-04-11 22:32:17]

**[Kristian Andersen]**

I have the version from here on Slack, yes. All good - I think the 5/31 date is correct, so what Daszak emailed you is a \*later\* version than the VF.

Eddie, okay for me to share those maps to the other channel without giving details of where I got them? I think it's important Alex and Josh can get a chance to sleuth these....

[2022-04-11 22:32:43]

**[Eddie Holmes]**

Go for it!

[2022-04-11 22:33:07]

**[Kristian Andersen]**

Great! I feel like I have seen these before though, so maybe the WHO report.... I'll check again.

[2022-04-11 22:35:00]

**[Eddie Holmes]**

Here the slides I have from Peter. Dated July 24 2021 but I think I downloaded them on May 31st. [shared file(s): Peter Daszak WHO & China joint study report for Eddie Holmes.pptx, Market Slides.pptx]

[2022-04-14 07:05:56]

**[Andrew Rambaut]**

@Kristian Andersen - thinking of leaving twitter. Had enough of it really. Any advice? I believe if you deactivate then you have 30 days to reactivate before it is deleted?

[2022-04-14 07:09:50]

**[Robert Garry]**

It's a good question to the right person. Was @Kristian Andersen happier? Better work-life balance? With or without twitter?

[2022-04-14 07:36:31]

**[Kristian Andersen]**

Good idea @Andrew Rambaut - if you no longer see the benefit (which, honestly, is difficult to see), just go in and deactivate it. You actually have 1 year to reactivate if you want (just make sure you tick the 'one year' box), so you can always revive it. I didn't actually know you could deactivate, which is why I tried the auto-delete thing first.

Absolutely no downside to it and it's MUCH better for work-life and work and life balance.... For me, the only real downside was that I really missed engaging with the folks on Twitter that I like - all of them scientists.

[2022-04-14 07:38:31]

**[Andrew Rambaut]**

Yeah - the banter was fun. But I would much prefer randos not paying any attention to it. I will start a shadow account with protection on and offer a premium service to my elite followers.

[2022-04-14 07:42:34]

**[Kristian Andersen]**

The banter WAS fun - I really do desperately miss the days where Nick Loman was the only one who actually had followers and the rest of us were just trolling Nick. Good times.

I'd suggest setting up a random anno account and just follow the few scientists you actually enjoy following (like Nick...) - that way you can still get some of the good aspects of Twitter, while not having to engage at all. As a bonus, you don't \_have\_ to follow the other scientists that you don't really want to follow, but you \_kinda\_ have to when it's your normal account. Sadly, people like myself fall into that latter category because I tweet too much and it's sad - maybe I should change that :wink:.

[2022-04-14 07:45:57]

**[Kristian Andersen]**

Thinking of this - I'm wondering if we should set up a larger Slack channel and include the rest of the gang? You probably already have something similar with ARTIC?

[2022-04-14 07:46:05]

**[Andrew Rambaut]**

Yeah - I will create an anonymous follow account. Obviously will create a stir amongst the leakers/conspiracy nuts which will be amusing.

[2022-04-14 07:46:20]

**[Kristian Andersen]**

I enjoyed the fuck out of that!@

[2022-04-14 07:47:22]

**[Andrew Rambaut]**

I could be fun to have a mega slack just for banter with a large group from twitter

[2022-04-14 07:48:30]

**[Andrew Rambaut]**

Another reason to leave Twitter:

[https://tech.slashdot.org/story/22/04/14/1034242/elon-musk-offers-to-buy-twitter-for-41-billion?utm\\_source=slashdot&utm\\_medium=twitter](https://tech.slashdot.org/story/22/04/14/1034242/elon-musk-offers-to-buy-twitter-for-41-billion?utm_source=slashdot&utm_medium=twitter)

[2022-04-14 07:50:27]

**[Kristian Andersen]**

Yeah, let's get a bigger mega Slack. I'll ping Nick about it.

And yes, so Elon's going to buy it - good time to exit.

[2022-04-14 13:09:46]

**[Eddie Holmes]**

Best move I made in 2021 was to get off Twitter. I've been inactive for a year. So much better. I truly detest Twitter as it is now.

[2022-04-14 14:15:17]

**[Kristian Andersen]**

It's an awful, awful place. Maybe having Elon buy it could be a good thing - burn the piece of shit to the ground!

[2022-04-14 14:23:27]

**[Eddie Holmes]**

Indeed. Something has to change because it is totally broken at the moment.

[2022-04-14 14:24:57]

**[Kristian Andersen]**

Yup. And if what's broken simply stayed on Twitter, then fine - but the problem is that social media is fucking over the whole bloody world at the moments. Pandemics, wars, science, politics - doesn't matter - it's all fucked.

[2022-04-14 14:29:45]

**[Robert Garry]**

100%

[2022-04-14 16:17:19]

**[Robert Garry]**

Who is the Virus Hunter Dr. Nathan Wolfe?

BY RHODA WILSON ON APRIL 13, 2022 • ( 7 COMMENTS ) [shared file(s): Who is the Virus Hunter Dr. Nathan Wolfe\_.pdf]

[2022-04-14 16:26:27]

**[Kristian Andersen]**

The abstract is a single sentence... Packs quite a punch, though.

[2022-04-14 16:38:48]

**[Eddie Holmes]**

He seriously needs to be taken down. Total charlatan.

[2022-04-15 09:41:36]

**[Andrew Rambaut]**

OK. I have downloaded my data and disabled my account. I can't see any option other than 30 days to deletion. But I think I will re-register my name as a private account to stop any shenanigans. Am also creating a read-only sock puppet.

[2022-04-15 09:42:41]

**[Andrew Rambaut]**

let me know if you see any fun conspiracies in the twitter verse.

[2022-04-15 09:44:06]

**[Kristian Andersen]**

Weird - you don't have the 12 months option? Might be because I'm verified...

Enjoy the silence - it's fucking liberating. [shared file(s): Screen Shot 2022-04-15 at 09.43.24.png]

[2022-04-15 10:09:04]

**[Andrew Rambaut]**

Yeah - didn't get that. I even reactivated and deactivated to see if I missed it. Must be verified.

[2022-04-15 10:25:54]

**[Kristian Andersen]**

Maybe you only get it if you set up "auto-delete" first :wink:

[2022-04-20 12:34:50]

**[Robert Garry]**

Don't waste time -I'm parking here, but someone pointed me to this deep dive into the world of crazy.  
:exploding\_head: <https://odysee.com/@pauluswyns777:d/rixey2:0>

[2022-04-20 12:37:08]

**[Kristian Andersen]**

I (skim) read his Medium post - completely crazy. They're all melting down - and just all unbelievably stupid. I think the only one that might have a somewhat functional brain is Yuri - and good lord, that's not saying a lot.

[2022-04-20 12:38:25]

**[Robert Garry]**

True Yuri>Alina

[2022-04-20 12:39:41]

**[Robert Garry]**

eDim, Bloom and Relman - just gaming this...

[2022-04-20 12:39:45]

**[Kristian Andersen]**

I think Alina (who isn't DRASTIC) is probably quite a bit brighter than Yuri - but is instead immensely evil and self-obsessed. Yuri isn't evil - he's just dumb. And self-obsessed.

[2022-04-20 12:41:49]

**[Robert Garry]**

immensely evil and self-obsessed - good observation - she found a way to monetize her gift as well.

[2022-04-24 09:31:33]

**[Andrew Rambaut]**

New EBOV case in Equateur DRC is definitely a new zoonotic jump not a survivor-associated case. (confidential at the moment - going up on virological today). Quite divergent from the 2020 outbreak and has a good time signature: [shared file(s): image.png]

[2022-04-24 09:35:12]

**[Robert Garry]**

Ah- good to know!

[2022-04-29 06:11:00]

**[Robert Garry]**

What was Ian emailing Tony about on 3/24/20? From a recnt RTK Foia. [shared file(s): image.png]

[2022-04-29 06:23:52]

**[Andrew Rambaut]**

Perhaps he had another lesion and he wanted an inspection?

[2022-04-29 06:37:19]

**[Robert Garry]**

Timing suggests something regarding PO1 - perhaps something to do with Deep Throat?

[2022-04-29 07:26:01]

**[Kristian Andersen]**

He got Covid.

[2022-04-29 07:42:05]

**[Andrew Rambaut]**

With someone as egotistical as Lipkin it could literally be anything

[2022-04-29 07:44:55]

**[Kristian Andersen]**

He got Covid. I'm sure it's about that (and it's the subject...).

[2022-04-29 07:47:24]

**[Andrew Rambaut]**

Makes sense. Everyone was talking about Covid but Ian would make it about himself

[2022-04-29 07:48:39]

**[Andrew Rambaut]**

I guess he would have had a reasonable chance of ending up on a ventilator back then

[2022-04-29 07:49:06]

**[Kristian Andersen]**

Yup, that's my thinking as well.

[2022-04-29 07:56:32]

**[Robert Garry]**

<https://ph.news.yahoo.com/coronavirus-hits-expert-ian-lipkin-035151784.html>

[2022-04-29 07:57:45]

**[Robert Garry]**

At least he didn't go on the Today show 5 days in a row...

[2022-04-29 12:56:53]

**[Robert Garry]**

Kristian - hope your your CDC grant writing is progressing. Any insight into the paper progress - something about the BEAST? I see you added @Eddie Holmes to the Pekar channel. Marc's OK? Easy for so many cooks to get bogged down.

[2022-04-29 13:05:26]

**[Kristian Andersen]**

Honestly not sure where Mike is on revisions - I'm buried by the grant. I talked to him about it last week, but I haven't seen much progress - maybe ping him with a DM?

[2022-04-29 13:10:55]

**[Robert Garry]**

Yeah - Marc's comment kinda thru me off...

[2022-04-29 13:15:21]

**[Kristian Andersen]**

Which one?

[2022-04-29 13:21:41]

**[Robert Garry]**

"Marc was overly pessimistic about informativeness of data and should never be left (partially ... at least Joel stepped in) alone with executive biology-based decisions."

[2022-04-29 13:21:55]

**[Kristian Andersen]**

Oh - I think that likely had to do with SARS1.

[2022-04-29 13:26:10]

**[Robert Garry]**

Ah yeah - someone - You and Stephen should write that SARS1 stuff up. Not a big rush after 20 years but important to put the multi-transfers out there with the Hubai civets - problem with trying to write a Science paper when the Editor wants it tight is you can't include everything in the detail you would like.

[2022-04-30 10:49:33]

**[Robert Garry]**

I don't agree with this summary by exLLer MC.. And JC's BINGO would not be my response. What happened is that WE threw out a bunch of scenarios - many people on the call trashed us for even considering Lab Leak. Franky the most substantive thing I took away was that we needed to be circumspect about the computational prediction of O-linked glycans, which we were. [shared file(s): image.png]

[2022-04-30 10:54:28]

**[Kristian Andersen]**

Everything said on the call we had already internally discussed and considered. Full stop. There's nothing more to it - other than sour grapes from Baric.

[2022-04-30 11:06:27]

**[Robert Garry]**

100%

[2022-04-30 11:09:45]

**[Robert Garry]**

Plus, the call was explicitly private/confidential as it should have been. Everyone on the call signed up for that stipulation.

[2022-04-30 11:17:46]

**[Robert Garry]**

Another black mark from me for Jesse - that call was confidential too. Yet he felt the need to blast out with his own spin. eBan failed to mention she was publishing JB's notes and you and I were left to say basically that we weren't going to discuss details about a confidential call with heads of NIH. NO opportunity to respond to JB's BS.

[2022-04-30 11:19:27]

**[Robert Garry]**

It should be obvious why Tony, Francis and Lawrence refuse to release those private emails re the confidential calls and summary of confidential consultations with experts.

[2022-04-30 11:23:27]

**[Robert Garry]**

If govt officials can't privately consult with experts and not assure those experts that everything they say will not be later revealed and raked over how can said experts be expected to be free to provide unfettered consultation? Next time it might be something really important :face\_with\_rolling\_eyes:

[2022-05-02 17:40:24]

**[Eddie Holmes]**

@Andrew Rambaut USyd won a FOIA court case last week. I'm not sure these will be useful for you, but there are the rulings etc. [shared file(s): Kang v University of Sydney [2022] NSWCATAD 135 Amended.pdf, Kang v University of Sydney [2022] NSWCATAD 135.pdf]

[2022-05-03 07:27:24]

**[Robert Garry]**

I think quite useful - way to go @Eddie Holmes

[2022-05-11 14:41:36]

**[Robert Garry]**

Seriously - Who is pushing this crap and how much is JB contributing to the propagation of this nonsense?

[2022-05-23 12:29:09]

**[Kristian Andersen]**

Did you guys get the invitation to the SPIKE dinner in London in July? My plan is to decline, unless, of course, y'all are planning on attending it?

[2022-05-23 12:38:16]

**[Robert Garry]**

no - I think you are special @Kristian Andersen

[2022-05-23 12:43:54]

**[Andrew Rambaut]**

I did - and I can't go as I think I will be in Ghana.

[2022-05-23 14:06:07]

**[Eddie Holmes]**

Dear Eddie,

I hope you're well.

Wondering if you're following the MPX story?

A well-placed source told me that there will be some research coming out this week from Europe showing that MPX can be transmitted sexually through the semen (/?vaginal fluid) of an infected person, reminiscent of Ebola virus disease.

It seems possible that MPX has been spreading sexually (in addition to close, personal contact and large droplets) forever/some time, but it's only now that it hit a population where that could be detected more easily.

It also seems possible that the genetic changes that people are just starting to sort out in could have tweaked this ability a bit.

Do you have any thoughts on this?

Kindest regards,

Jason

[2022-05-23 14:10:54]

**[Robert Garry]**

Lot's of things are possible. I guess. I think he's a good reporter...

[2022-05-23 14:11:30]

**[Eddie Holmes]**

Need to see the data before commenting

[2022-05-23 14:13:04]

**[Robert Garry]**

It's reported that there are genital lesions. Don't see why it needs to be in semen or vagina fluids per se.

[2022-05-23 14:13:48]

**[Eddie Holmes]**

Exactly

[2022-05-23 14:14:20]

**[Andrew Rambaut]**

Hah - just got that email from Jason too. Agree with genital lesions.

[2022-05-23 14:14:54]

**[Andrew Rambaut]**

I wonder if there is a tendency to get lesions at the site of infection first. This would facilitate sexual transmission.

[2022-05-23 14:15:38]



**[Andrew Rambaut]**

But also mean it isn't specifically an STD - it will just act as one if that is the nature of the contact.

[2022-05-27 12:29:19]

**[Eddie Holmes]**

Dr. Holmes,

Reaching out with U.S. Right to Know in Washington for comment about an email we obtained through a Freedom of Information Act request (see attached). It suggests that all theories about the origins of COVID were still on the table for you and Dr. Farrar as late as Feb. 8, 2020.

As we understand it, that's four days after an early version of your highly influential paper "The Proximal origin of COVID-19" was shared with<https://protect-au.mimecast.com/s/ZvyUCgZ0N1ilmEwRMuNqUhs?domain=dropbox.com>; Anthony Fauci.

Could you help me understand why it seems that a paper dismissing the possibility of a lab accident was drafted before you and your collaborators had reached a firm conclusion?

And could you please share the summary of your discussions as of Feb. 8 that is referenced here (it's redacted in our docs)?

All of the docs we received via this FOIA request are attached for your verification.

We're hoping to get this story up in the next couple of hours (EST), but I know it's very early in Australia so please let me know ASAP if you plan on commenting and need more time to reply. And we are happy to add comment after the story is live.

Thanks so much,

--

Emily Kopp

[2022-05-27 12:30:49]

**[Eddie Holmes]**

Did you get that one? She attacked a ton on FOIA docs which largely having nothing to do with us.

[2022-05-27 12:31:04]

**[Eddie Holmes]**

Straight to the bin.

[2022-05-27 12:32:04]

**[Eddie Holmes]**

shared file(s): 2021.05.12 DO NOT RELEASE 21-018\_Part I.pdf

[2022-05-27 12:33:09]

**[Eddie Holmes]**

Obvious what their story will say.

[2022-05-27 12:33:29]

**[Robert Garry]**

She's an idiot - if you read PO1 it's clear that lab origin is still on the table.

[2022-05-27 12:34:20]

**[Eddie Holmes]**

Definitely an idiot.

[2022-05-27 12:35:44]

**[Robert Garry]**

how many times is it necessary to explain that we examined everything agnostically?

[2022-05-27 12:36:24]

**[Kristian Andersen]**

Lol - no, I didn't receive anything. It appears Emily never read our paper, nor does she understand the concept of a "draft". Back to school, Emily - then try again.

[2022-05-27 12:37:07]

**[Robert Garry]**

the dimmest bulb...

[2022-05-27 12:37:24]

**[Kristian Andersen]**

Not even dim - it's not on at all. Hilarious, really.

[2022-05-27 12:38:23]

**[Eddie Holmes]**

I can see the headline "Draft Proximal Origins paper was not finalized". Damming.

[2022-05-27 19:16:31]

**[Eddie Holmes]**

I've blocked her emails but found this in the bin: "Just an update. We're going to publish on Tuesday because of the holiday here in the U.S."

[2022-05-27 19:28:09]

**[Kristian Andersen]**

Can't wait!

:face\_with\_rolling\_eyes:

[2022-05-27 19:43:30]

**[Eddie Holmes]**

Same old, same old. Who cares. Did you look at that PDF of the emails? What was the point in sending me that?

[2022-05-27 19:48:50]

**[Kristian Andersen]**

I skimmed through it. The first one mentioned you but the rest looked useless

[2022-05-27 20:16:39]

**[Eddie Holmes]**

That was it. We considered all theories.

[2022-05-28 04:19:40]

**[Robert Garry]**

Shocking, but true.

[2022-05-28 05:19:22]

**[Robert Garry]**

@Kristian Andersen et al - you might want to go over Worobey2022 one mo' time. It's very much getting there, but still I think the writing could be a bit crisper and punchier - too many words and complex sentences in a few cases. The "In sum" paragraph is [still] redundant IMO.

[2022-05-28 05:20:39]

**[Robert Garry]**

great job on the R2R @Kristian Andersen

[2022-05-28 05:20:50]

**[Andrew Rambaut]**

I agree that we don't need the summary. The paper is already concise enough.

[2022-05-28 05:23:21]

**[Robert Garry]**

Yeah - plus cutting "in sum" would have the virtue of getting closer to the 4000 word guidance.

[2022-05-28 05:46:33]

**[Andrew Rambaut]**

I did a lot of trimming a while back to get us to 3750 words so we had a bit of space for additional stuff. But we are back up to 4335. Removing the In sum paragraph would get us to about 4135 so we should definitely remove it. I will see if I can get a few more trims to take us down to 4000

[2022-05-28 06:31:57]

**[Kristian Andersen]**

I'll get on the paper once Mike's done with his passes. Yes, needs editing for clarity.

[2022-05-28 07:42:31]

**[Andrew Rambaut]**

I just told him off for adding more stuff. He tends to do that.

[2022-05-28 07:46:32]

**[Kristian Andersen]**

I noticed... :wink:

[2022-05-28 07:54:26]

**[Andrew Rambaut]**

He just wants to preempt criticism which is fine but you have to draw the line (or at least put it in supplementary and tell the reader to go there).

[2022-05-28 07:57:58]

**[Robert Garry]**

I makes no sense snatching defeat out of the arms of victory by needlessly bucking the editor.

[2022-05-28 07:58:14]

**[Kristian Andersen]**

Yeah, and we have to be very careful that we cater to the scientific community and not to Twitter

[2022-05-28 07:59:05]

**[Andrew Rambaut]**

There seems to be an issue with Paperpile because this is a word document. You ok if I convert it to a GoogleDoc?

[2022-05-28 07:59:48]

**[Kristian Andersen]**

Okay with me - and yes, going to Word and then back to Google is a problem... Bob, I'm looking at you :wink:

[2022-05-28 08:05:06]

**[Robert Garry]**

:disguised\_face:

[2022-05-28 08:06:24]

**[Andrew Rambaut]**

I will wait for Mike to do his changes.

[2022-05-28 13:23:21]

**[Eddie Holmes]**

I've been over it a few times and have gotten it to the right length and it read well. Then someone else has a go and it stuff gets added again. Someone needs to say enough.

[2022-05-28 13:25:10]

**[Eddie Holmes]**

Joel took control of the other paper which was fine apart from the blatant mis-positing of commas.

[2022-05-28 13:48:49]

**[Robert Garry]**

Been there too - the stuff that gets added usually has been said somewhere else and said better. Or, it's unnecessary. Maybe @Kristian Andersen can put a lock on...

[2022-05-28 14:05:49]

**[Kristian Andersen]**

It's in Mike's hands right now because stuff still had to be added in response to new analyses and the reviewers. Once he's done I'll go in and :scissors: - I'm not worried about length

[2022-05-28 14:13:46]

**[Eddie Holmes]**

Trying to anticipate what Caroline wants is not the way to write the paper. Stick to what the science says.

[2022-05-28 14:17:07]

**[Kristian Andersen]**

Agreed. Although she was \_very\_ specific about a few things we had to include, including the possibility of reverse zoonosis.

[2022-05-28 14:41:10]

**[Robert Garry]**

Just need to land this plane...getting there.

[2022-05-29 10:33:41]

**[Robert Garry]**

Under 4000 words - don't tell anyone....

[2022-05-29 11:12:52]

**[Andrew Rambaut]**

Yeah - been quietly cutting redundant words out here and there.

[2022-05-29 11:20:32]

**[Robert Garry]**

Excellent work @Andrew Rambaut Heroic actually! :male\_superhero:

[2022-05-29 11:21:59]

**[Robert Garry]**

I'm pretty sure that the Science editors will remove a lot of colons, semi-colons and conjunctions...

[2022-05-31 11:53:29]

**[Andrew Rambaut]**

Yeah right, sure [shared file(s): Image from iOS.jpg]

[2022-05-31 11:55:50]

[Robert Garry]

:rolling\_on\_the\_floor\_laughing:

[2022-05-31 11:57:07]

[Robert Garry]

Emily Plops - she hysterical...

[2022-05-31 11:58:23]

[Kristian Andersen]

Would be much easier if she'd just read the paper(s)...

[2022-05-31 12:00:31]

[Robert Garry]

Worobey2022 down to the final reference list and a few minor dregs...

[2022-05-31 12:02:47]

[Kristian Andersen]

Yup - chatting with Mike now.

[2022-05-31 13:06:37]

[Robert Garry]

Emily found my email address too - she's going to get the same response as @Andrew Rambaut [shared file(s): image.png]

[2022-05-31 13:08:50]

[Kristian Andersen]

What's this Feb 7 meeting again?

[2022-05-31 13:11:08]

[Robert Garry]

Feb 1 was a bunch of scientists talking - not a big deal. Not sure about Feb 7. - that as a date of one of the PO1 drafts not a mtg. As usual Plops gets it wrong.

[2022-05-31 13:12:45]

[Robert Garry]

good job on the R2R - anything else a red flag?

[2022-05-31 13:13:32]

[Kristian Andersen]

Nope, we're good with the R2R - just need to make sure the right figures/tables are included. Everything else ready to go - just waiting for Mike to push the button.

[2022-05-31 13:14:34]

[Robert Garry]

Somehow I think this was harder than it had to be - but good to be at this point...

[2022-05-31 13:14:55]

[Kristian Andersen]

Agreed...

[2022-05-31 13:15:19]

[Kristian Andersen]

Our Feb 6 conclusion, btw.

""The evolution scenarios discussed above are largely indistinguishable and current data are consistent with all

three. It is currently impossible to prove or disprove either, and it is unclear whether future data or analyses will help resolve this issue. Identifying the immediate non-human animal source and obtaining virus sequences from it would be the most definitive way of distinguishing the three scenarios.

The main limitation of what is described here is our clear ascertainment bias. We are looking for features or evolutionary aspects that could help explain how 2019-nCoV lead to such a rapidly expanding human epidemic, yet the specific features we are trying to find may be the exact features one would expect in a virus that could lead to an epidemic of the magnitude currently observed. Before 2019-nCoV 'took off' and started the current epidemic, it is plausible that many stuttering transmission chains of highly similar viruses could have entered the human population, but because they never took off they were never sampled. It is extremely important to keep this in mind as any inference about the plausibility of various scenarios about the evolution and/or epidemic potential of 2019-nCoV is attempted.

To further clarify the evolutionary origins and functional features of 2019-nCoV it would be helpful to obtain additional data about the virus - both genetic and functional. This includes experimental studies of receptor binding and the role of the furin cleavage site and predicted O-linked glycans. The identification of a potential intermediate host of 2019-nCoV as well as sequencing of very early cases, including those not connected to the market, could also help refute the passage scenario described above. Even in the light of such data, however, it is not guaranteed that data can be obtained to conclusively prove all aspects of the initial emergence of 2019-nCoV."""

[2022-05-31 13:16:18]

**[Kristian Andersen]**

But, we were settled on "engineering" at that point.

""Analysis of the virus genome sequences clearly demonstrates that the virus is not a laboratory construct or experimentally manipulated virus""

[2022-05-31 13:18:29]

**[Robert Garry]**

Yup - the multi-transfer hypothesis - I think this got cut from PO1 - brilliant though in hindsight...

[2022-05-31 13:21:09]

**[Kristian Andersen]**

Yup - we were on-point pretty darn quickly. Honestly, the way I remember it, it took us longer - but those were some veeeeeeeeeeeeery long days, I do remember that!

[2022-05-31 13:25:28]

**[Robert Garry]**

what's remarkable is the amt of speculation about that call and then PO1 itself - just crazy. But, I suspect we'll get to revisit all this again - and then probably again - under oath...which will be just fine...

[2022-05-31 13:27:33]

**[Robert Garry]**

BTW isJOsh Levy making progress on revising the figures? Some of the font sizes are way too small and Science will be picky...

[2022-05-31 13:30:38]

**[Kristian Andersen]**

I think we'll wait until the proof - full focus on getting the submit button pushed as fast as possible.. :wink:

[2022-05-31 13:39:22]

**[Robert Garry]**

OK

[2022-05-31 13:44:12]

**[Robert Garry]**

Hangup is making one combined reference list and getting the supplemental material references into the style of Science.

[2022-05-31 13:44:19]

**[Robert Garry]**

i think

[2022-05-31 13:58:24]

**[Robert Garry]**

progress....

[2022-05-31 14:02:45]

**[Eddie Holmes]**

Has there ever been a scientific paper discussed as much as PO1?

[2022-05-31 14:07:10]

**[Kristian Andersen]**

On the Origin of Species.

Close second.

[2022-05-31 14:07:27]

**[Eddie Holmes]**

That's a book.

[2022-05-31 14:07:42]

**[Kristian Andersen]**

Dammit.

[2022-05-31 14:07:58]

**[Eddie Holmes]**

Bad luck Chaz.

[2022-05-31 14:08:57]

**[Eddie Holmes]**

I'd like to see some FOIA requests between Darwin and Wallace.

[2022-05-31 14:21:22]

**[Eddie Holmes]**

Unrelated, but I note that monkeypox is ranked 24th on the risk list, below rabies for which human-to-human transmission has never been reported.

[2022-05-31 14:31:50]

**[Eddie Holmes]**

Sorry, I meant on that Spillover tool rank list

[2022-05-31 14:36:08]

**[Kristian Andersen]**

GVP crap, right?

[2022-05-31 14:40:17]

**[Robert Garry]**

yes

[2022-05-31 14:46:10]

**[Eddie Holmes]**

Yes, GVP + PREDICT crap. Another one they missed.

[2022-05-31 14:46:38]

**[Robert Garry]**

<https://twitter.com/curefinder/status/1531716517724921857> seems that eDim is hooked up with covidfaker today as well.

[2022-05-31 14:51:32]

**[Robert Garry]**

Talk about a toxic gumbo...

[2022-05-31 14:51:34]

**[Kristian Andersen]**

*[thread - ID: 2022-05-31 14:51:34]*

Lol. Just connecting dots...

[2022-05-31 14:52:27]

**[Eddie Holmes]**

It's actually shocking to read this. Extraordinary.

[2022-05-31 14:54:22]

**[Kristian Andersen]**

Yup. It's as if people have lost their minds. :shrug:

[2022-05-31 14:57:28]

**[Robert Garry]**

*[thread - ID: 2022-05-31 14:51:34]*

@Kristian Andersen not so super-villains unite...

[2022-05-31 14:58:13]

**[Eddie Holmes]**

Absolute madness.

[2022-05-31 20:23:29]

**[Eddie Holmes]**

Emily Plops is at it again. Not sure who this Kottek guy is.

[2022-05-31 20:30:25]

**[Kristian Andersen]**

Such a giant waste of time. Read the fucking papers, people.

[2022-05-31 20:42:31]

**[Eddie Holmes]**

So dumb.

[2022-06-01 01:17:57]

**[Robert Garry]**

foia's for sr and tulane coming i'm sure...

[2022-06-01 01:34:57]

**[Andrew Rambaut]**

I have no record of a meeting on the 7th. Nothing in my diary, no mention in emails.

[2022-06-01 01:41:45]



**[Andrew Rambaut]**

Ah. I get it. She sees the document 'Summary.Feb7.pdf' and assumes it is the summary of a meeting (the 'series of TC meetings' that Jeremy mentions). Whereas it is actually our first draft based on the only meeting we had and the work we had done in the intervening time.

[2022-06-01 01:46:48]

**[Andrew Rambaut]**

If she was sensible she would simply ask everyone for the document 'Summary.Feb7.pdf' that was attached to the email from Jeremy, as she knows it exists and would probably be obtainable by FOI. I am not sure that the 'risk of harm' defence that we gave for an email dump would extend to a request for a specific document like that so she would probably get it. And it would be a crashing disappointment when it turns out to be entirely consistent with what we published.

[2022-06-01 02:16:30]

**[Eddie Holmes]**

[thread - ID: 2022-06-01 02:16:30]

It's unclear what USRTK have asked USyd for. Clearly will be a lot of emails though. I do sort of hope that they publish something about a meeting on the 7th. That will show how dumb they truly are.

[2022-06-01 03:31:37]

**[Robert Garry]**

These conspiracy theories about cabals of evil virologists are all the Lab Leakers have at this point. These latest papers should, but won't, end the "controversy." However, all that will be left on the LL "side" will be the ones trying to score cash or political points.

[2022-06-01 03:49:05]

**[Robert Garry]**

[thread - ID: 2022-05-31 14:51:34]

@Kristian Andersen parking [shared file(s): Screen Shot 2022-06-01 at 5.46.45 AM.png, Screen Shot 2022-06-01 at 5.46.38 AM.png, Screen Shot 2022-06-01 at 5.46.21 AM.png, Screen Shot 2022-06-01 at 5.46.09 AM.png, Screen Shot 2022-06-01 at 5.46.00 AM.png, Screen Shot 2022-05-31 at 3.05.19 PM.png, Screen Shot 2022-05-31 at 10.47.55 AM.png]

[2022-06-01 03:58:01]

**[Robert Garry]**

[thread - ID: 2022-05-31 14:51:34]

@Kristian Andersen delete lander tweet [shared file(s): Screen Shot 2022-06-01 at 5.57.28 AM.png]

[2022-06-02 10:26:41]

**[Robert Garry]**

Plops plops <https://usrtk.org/biohazards-blog/foia-reveals-another-secret-call-on-covids-origin/> It's hysterical...

[2022-06-02 10:27:35]

**[Robert Garry]**

"Requests to Farrar, Dzau, McNutt, each of the five "proximal origin" authors, and NIH to see notes from the Feb. 7 meeting were not returned."

[2022-06-02 10:30:56]

**[Andrew Rambaut]**

'Six pages of notes from the Feb. 7 discussion are fully redacted'

[2022-06-02 10:31:03]

**[Andrew Rambaut]**

That would be the draft then

[2022-06-02 10:31:08]

**[Kristian Andersen]**

“Top virologists may have continued privately discussing “all theories” of the pandemic’s origin in the days after they began outlining an influential article that dismissed the lab leak theory in February 2020, an email obtained by U.S. Right to Know suggests.”

No shit, Sherlock :wink:

[2022-06-02 10:32:08]

**[Robert Garry]**

Scandalous!

[2022-06-02 10:33:21]

**[Kristian Andersen]**

Gotta love the title of the PDF document they link to... [shared file(s): Screen Shot 2022-06-02 at 10.32.45.png]

[2022-06-02 10:36:38]

**[Kristian Andersen]**

“FOIA reveals another secret call on COVID’s origin”.

What call? The article doesn’t say...

[2022-06-02 10:38:42]

**[Robert Garry]**

Her whole article is to reveal the nonexistent other secret call. You're right-bulb is not on at all.

[2022-06-02 10:40:46]

**[Kristian Andersen]**

I strongly encourage them to continue this type of reporting - perfect example of how absurd it all is.

[2022-06-02 12:57:38]

**[Robert Garry]**

*[thread - ID: 2022-06-01 02:16:30]*

@Eddie Holmes Just want to note @Eddie Holmes that your wish was granted.

[2022-06-02 13:15:20]

**[Eddie Holmes]**

*[thread - ID: 2022-06-01 02:16:30]*

@Eddie Holmes Unbelievable! But hilarious.

[2023-06-27 16:09:18]

**[Kristian Andersen]**

unarchived the private channel

[2023-06-28 20:44:44]

**[Kristian Andersen]**

archived the private channel