

My blog is even lower volume than I originally intended, but I want to revisit the cause of COVID-19. I continue to worry that human arrogance and stupidity could lead to an even worse disaster.

How did COVID-19 begin?

I want to return to the question of the origin of COVID-19. An earlier blog post outlined what I believe to be overwhelming evidence that this dreadful pandemic originated in a Chinese lab, the Wuhan Institute of Virology (WIV). There have been some new developments that are worth discussing.

In a rational world, the issue of the origins of the pandemic is not so important. There is absolutely no doubt that extremely dangerous experiments that could readily have led to a pandemic, were carried out, and more were planned. They need to be shut down. Yet we hear arguments to the effect that there is no evidence that such experiments have caused harm, and so there is no need for more regulation.

So let's summarize incontrovertible facts. As is now well-known, and outlined in an earlier blog, in 2018, a proposal (The DEFUSE proposal) was made to DARPA (part of the Pentagon) to carry out a large study on Coronavirus. A key proposal was to modify a bat virus by inserting a 'furin cleavage site' and examine the result in humanized mice. The principal investigator was Peter Daszak of EcoHealth Alliance, and two other key personnel were Ralph Baric of UNC and Zhiheng-Li Shi of WIV. Dr. Baric is a world-class expert on virus modification and Dr. Shi is in charge of the Bat virus group at WIV.

It's worth quoting from the grant proposal: *...we will intensively sample bats at our field sites where we have identified high spillover risk SARSrCoVs. We will sequence their spike proteins, reverse engineer them [...] , and insert them into bat SARS CoV (WIV, SHCO14) backbones (these use bat-SARSr-CoV backbones, not SARS-CoV, and are exempt from dual use and gain of function concerns) infect humanized mice and assess Capacity to cause SARS-like disease.* (Dual use, refers here to possible military applications).

There has been interest in making Coronavirus more infectious for a long time. The primary route by which COVID infects humans is via a gene ACE2 (Angiotensin-converting Enzyme 2). In 2007 a Chinese consortium published a paper *Mice Transgenic for Human Angiotensin-converting Enzyme 2 Provide a Model for SARS Coronavirus Infection*, in which they describe making a strain of 'humanized mice' which could be infected with Coronavirus in a similar way to humans.

Furthermore, Baric and Shi were authors of a paper in *Nature Medicine* in 2015, in which chimeric coronavirus was constructed. It was shown that the chimera was pathogenic in mouse lung, Concern about the safety of such work is not post-pandemic hindsight. The paper has this remarkable passage:

On the basis of these findings, scientific review panels may deem similar studies building chimeric viruses based on circulating strains too risky to pursue, as increased pathogenicity in mammalian models cannot be excluded. I have

never seen anything like this quote in any other scientific paper and it screams out that it was inserted at the insistence of a referee.

A new development is that an early draft of the DEFUSE proposal has come to light, which makes it clear that the initial idea was to do much of the work at WIV, some of it at BSL-2 security level, which is appropriate for study of mild pathogens such as viruses causing the common cold. This draft, and indeed the submitted proposal suggest to me that Daszak, Baric and Shi thought their work was not dangerous (after all no human pandemic had been caused by a lab leak) and the regulations were just a bureaucratic nuisance.

So we have in 2018, a plan to modify bat virus to insert a furin site and experiment on the modified virus *in Wuhan*. Daszak's response is that the grant was not funded, and so is irrelevant. Just this last week he says: *The lab-leak theory of COVID origins is evidence-free*. In rebuttal, I don't think that any unbiased reader of this blog could think there is no evidence at all for a lab leak. The DEFUSE grant is perhaps not quite a smoking gun, but certainly very strong circumstantial evidence. In our modern world we often seem to see 'no evidence' when what is meant is 'no proof'.

One material issue, is why the proposed DEFUSE experiments were not regulated 'gain-of-function' research. Jeffrey Sachs in testimony to Congress had said that they were. Here is the response by EcoHealth, no doubt written by Daszak:

Because the SARS-related research conducted by EcoHealth Alliance and the Wuhan Institute of Virology dealt with bat coronaviruses that had never been shown to infect people, let alone cause significant morbidity and/or mortality in humans, by definition it was not gain-of-function research. . Let's unwrap this. Daszak is saying that gain-of-function only applies if we start with a human pathogen. So there is no need to regulate research that starts with an animal pathogen and attempts to modify it to be pathogenic in humans. This in spite of the fact that many of our nastiest plagues, such as smallpox and AIDS originated from zoonoses with pathogens jumping to humans from an animal host. In my view Daszak is correct on narrow legalistic grounds (and alarmingly supported by the NIH) but the defence is worse than the original accusation. The idea that it's OK to build a novel pathogen without regulation defies common sense and is deeply irresponsible.

There was a related back and forth between Tony Fauci (giving evidence to the Senate) and Senator Rand Paul. Senator Paul accused Fauci of funding gain-of-function research at WIV. Fauci denied this and said that Paul did not know what he was talking about. Legalistically Fauci was correct, and the NIH funded work was not gain-of-function under a definition that very probably Fauci himself had drafted, However it is the case that NIH has sent tens of millions of dollars via EcoHealth to WIV under Fauci's guidance to do risky research, potentially creating novel pathogens. So Senator Paul was technically wrong, but morally right.

Here are some questions that Daszak could easily answer but won't.

- How much of the DEFUSE work had been done before the grant was

rejected?

- WIV used to maintain a large database of Coronavirus sequences. In fall 2019, with no adequate explanation the database was pulled offline. Do you have a copy, or a copy of an earlier version?
- When the grant was turned down you must have had dialog with WIV about the next steps. Please share these communications.
- What do you know about virus work at WIV in 2019?
- 18 scientists including myself and Ralph Baric wrote a letter to *Science* magazine saying we need a better investigation of COVID origins. Do you agree?

So let's present incontrovertible facts.

1. As early as 2007, Chinese scientists developed a strain of humanized mice, to investigate infectivity if coronavirus.
2. In 2015 Baric and Shi publish a paper on making chimeric coronavirus to investigate likely infectivity in humans. At the time this work was recognized as potentially very dangerous.
3. In 2018 Daszak, Baric and Shi propose modifying bat coronavirus by, among other things, inserting a furin cleavage site and carrying out experimental work *in Wuhan*. At least at one time some of this work was planned to be carried out at BSL-2, a very low security environment.
4. In late 2019 the COVID pandemic begins with the epicenter in Wuhan. COVID virus has a furin cleavage site.

People like me, who think that COVID originated in a Chinese lab, have been accused of being anti-Chinese, or even racist. It is true that I think the Chinese government is lying about what happened and has engaged in a large-scale cover-up. But the old radical journalist Izzy Stone used to say that 'all governments lie', There is overwhelming evidence that US officials (Tony Fauci and others) put pressure on the media and on individual scientists to say that science shows that a lab leak was improbable. Of course science shows no such thing. The motivation here seems to be that WIV received tens of millions of dollars of US funding, and if WIV was the source of the pandemic there would be some 'splainin to do. This all suggests that if COVID had originated in a US government lab, the US would also have tried a massive cover-up.

Summing up:

- It is very probable that COVID-19 originated in an accidental virus escape from WIV.

- It is essentially certain that attempts were made by US officials and some virologists to deny the possibility of a lab-leak, and especially the likelihood that US science is implicated in this disaster. In 2020 claiming that COVID might have been caused by a lab leak would result in you being labeled as a conspiracy theorist.
- Beyond any doubt some senior virologists including Daszak, Baric and Shi wanted to carry out experiments in Wuhan which were insanely dangerous.

We still see arguments to the effect that there is no evidence that viral research has ever caused a pandemic, and so little or no regulation is needed, Incidentally I have the strong impression from the DEFUSE grant and leaked emails, that Baric and Daszak thought their work was very low risk and any regulation was just a bureaucratic nuisance to be bypassed if possible.

Right now there is controversy about whether regulations limiting gain-of-function work need to be tightened. Some virologists are saying that it's important not to limit research. But I believe that virology initiated the COVID-19 pandemic causing planet-wide economic loss, massive suffering and twenty million deaths. If some more limitation of research can prevent another pandemic I am all in favor.

Further reading:

1. VIRAL (by Alina Chan and Matt Ridley)
2. Many many tweets by Alina Chan
3. A very strong statement by Jeffrey Sachs.
<https://www.jeffsachs.org/newspaper-articles/t335agp59fnltwp4te9zggsta6rmc8>

Sachs has superb credentials as a judge of what probably happened and has long experience in public health. He also headed a commission organized by the Lancet magazine on public health implications of COVID. Sachs thinks that a lab-leak origin for COVID is highly probable, and is sure that parts of the US government engaged in a cover-up of US involvement with WIV in highly dangerous research.

4. A website and organization – *Biosafety Now* <https://biosafetynow.org>
A group providing much information on how current research has potential to start another pandemic.

Finally, a plea for all concerned to avoid unnecessary rudeness. As in most controversial issues these days, too often rational argument is replaced by insults.