The “gain-of-function” hysteria

As we shall see, “gain-of-function” is a term with a precise meaning in scientific research. It involves research that investigates how viruses adapt to their environment to increase infectiousness or lethality—regardless of the species of the host—is declared to be “gain-of-function” research and portrayed as a form of biological warfare. China’s investigations of bat coronaviruses which have never affected human beings or even other mammals, become a sinister plot against the United States, and the entire human race (although the Chinese were the first victims of SARS-CoV-2!)

EcoHealth Alliance, a US-based nonprofit group that has played a leading role for decades in investigating viruses and developing scientific understanding of how to protect humanity from those which are pathogenic, has become the first major target of the McCarthyite witch-hunting spearheaded by the House committee, with the collaboration of the Biden administration.

The “admissions” extracted by the committee from Collins and Tabak are completely erroneous and only provided ammunition to the unsubstantiated claims that the work done between EcoHealth Alliance and the Wuhan Institute of Virology was nefarious and malicious. In fact, the longstanding collaboration between these institutions has been extremely productive and developed the scientific understanding of how the evolution of pathogens, in conjunction with human activity, creates the conditions for zoonotic jumps into human populations as seen in the emergence of a series of pandemic events, including SARS, MERS, bird flu and COVID-19.

The NIH has defined “gain-of-function” research as research that will create new viral strains with “enhanced transmissibility or virulence” for viruses that are already “likely highly transmissible and likely capable of wide and uncontrollable spread in human populations,” and “likely highly virulent and likely to cause significant morbidity and mortality in
The methods and results from this collaborative research were conducted with full knowledge of the funding agency, and EHA routinely shared all unpublished data from its research in China with the NIH National Institute of Allergy and Infectious Diseases program office in progress reports, as required by the regular process for NIH oversight of grantee activities.

Genetic sequences relevant to our bat coronavirus research were routinely deposited with NIH’s GenBank database, making them publicly available. Even after the EHA’s R01 grant covering the work in China was terminated in April 2020, EHA continued to file annual reports with the NIH to provide unpublished data.

In addition, EHA submitted analyses of our NIH-supported work for publication in leading international peer-reviewed journals, including results of genetic recombination experiments with bat coronaviruses that were made public years before the emergence of COVID-19. Those dozens of publications have been the principal way that EHA made the results of our research in China available to the scientific community for independent analysis and review.

One study singled out for attention by the House committee claimed that a virus under study by EcoHealth had demonstrated “enhanced growth” and represented a clear and present danger. But those familiar with the study pointed out that these involved bat viruses, engineered to affect mice, but not known to have ever affected humans.

Dr. Angela Rasmussen, a virologist with the Vaccine and Infectious Disease Organization at the University of Saskatchewan, told the Intercept that the experiment had not met the threshold for characterizing them as gain-of-function research, since they involved non-human species. “You can’t predict that these viruses would be more pathogenic, or even pathogenic at all in people,” she said. “They also did not study transmissibility at all in these experiments.”

An even more farfetched claim involves a proposal submitted by EcoHealth for Project DEFUSE to the Biological Technologies Office of DARPA on March 24, 2018. The 3.5-year project, with the cost estimated at $14.2 million, was rejected not because of concerns over the nature of the project but because of the expense. The proposal was to find SARS-like bat viruses found in the wild and reverse engineer spike proteins onto them (work to be done in Dr. Ralph Baric’s BSL-3 lab in North Carolina) to determine which ones were evolving into potential pandemic pathogens, and then to develop targeted vaccines against these viruses.

The project never went beyond a proposal, nor had the Wuhan Institute of Virology ever engaged in such work or ever possessed a virus remotely close to SARS-CoV-2 according to anyone familiar with their research and extant publications. And one would not utilize a virus they had never previously worked with. That did not stop the subcommittee members from making false assertions that the proposal was a first draft of what the WIV allegedly did to engineer the virus that caused the COVID-19 pandemic.

Besides the “big lie” of helping create SARS-CoV-2, subcommittee members claimed that EcoHealth delayed submission of annual reports, and was a poor steward of taxpayers’ monies. These claims are trivial—in the tens of thousands of dollars over an eight-year period covered by an audit by the Office of Inspector General (OIG) of the Department of Health and Human Services. Most of the discrepancies were caused by changes in federal rules, and one report found that NIH actually owed money to EcoHealth. The sole purpose was to throw mud at the group and hope something would stick.

The purpose of these hearings is not to address the truth or falsehood of these allegations. Rather, the “big lie” is given political legitimacy by the state apparatus and can then be used through the media as a means to sway the population at large.

Yet, after four years of the COVID-19 pandemic, not one shred of evidence on a lab-leak origin has been produced by any principled scientist who has taken the question seriously. On the contrary, evidence...
in support of a natural origin has continued to accumulate on a weekly basis including epidemiologic, forensic and zoonotic information that SARS-like and SARS-2-like bat viruses are common in Southeast Asia, and the robust wildlife trade in the region contributed to the development of the COVID pandemic.

The US intelligence agencies are well-practiced in the art of forgery and disseminating “black propaganda.” They have spent considerable taxpayer dollars attempting to unearth any possible lead in promoting the false claim that the virus that causes COVID emerged out of the laboratories of the Wuhan Institute of Virology. But they have been unable to substantiate these patently false allegations.

In June 2023, despite some erroneous speculations and unverifiable sound sources, they concluded, “The National Intelligence Council and four other intelligence community agencies assess[ed] that the initial human infection with SARS-CoV-2 most likely was caused by natural exposure to an infected animal that carried SARS-CoV-2 or a close progenitor, a virus that probably would be more than 99 percent similar to SARS-CoV-2.” They also noted, “Almost all intelligence community agencies assess[ed] that SARS-CoV-2 was not genetically engineered. Most agencies assess[ed] that SARS-CoV-2 was not laboratory-adapted … All intelligence community agencies assess[ed] that SARS-CoV-2 was not developed as a biological weapon.”

That the Wuhan Lab conspiracy has acquired the status of a political litmus test was made more evident with the recent deliberate attack on Dr. Peter Hotez, dean for the National School of Tropical Medicine at Baylor college of Medicine in Texas. He is also the author of the recent book, “The Deadly Rise of Anti-Science,” chronicling the real fascistic and reactionary development among various social layers. Hotez, who had called “the parading [of] prominent virologists in front of C-SPAN cameras to humiliate them” as “absolutely atrocious” and “is going to have long-term detrimental effects on science, bio-preparedness and virology,” has been ensnared into this political nightmare.

Although Hotez has nothing directly to do with the investigations into the origins of COVID-19, he has been accused publicly of complicity by the subcommittee in a social media tweet that will only further expose him to the far-right fascistic elements that have repeatedly threatened him with violence for his principled stand against misinformation and anti-science demagogy. Philipp Markolin, whose exhaustive summary of the science behind COVID, published in April 2024, “Treachery Ancestry: an extraordinary hunt for the ghosts of SARS-CoV-2,” said of the attack on Hotez, “The message is crystal clear. Speak up against us and our political myth making, and we will publicly smear and punish you with the power of the state.”

Indeed, the coalition of Republican politicians with their Democratic accomplices across the aisle, in promoting the lab leak lie, is of crucial political significance. Rather than addressing the urgent scientific issues and lessons learned from the ongoing pandemic to better safeguard the world’s population against the threat of another deadly pathogen, the congressional hearings harken back to the anti-communist witch-hunts conducted by then FBI chief J. Edgar Hoover, members of the House Un-American Activities Committee and Senator Joseph McCarthy.

The Times joins the smear campaign

Most reminiscent of the McCarthy witch-hunt has been the filthy role of the liberal media, particularly the New York Times. On the day Anthony Fauci was to testify before the subcommittee, the Times published, in the form of an opinion piece, a hack job by conspiracy theorist Alina Chan, a molecular biologist at the Broad Institute and author of the thoroughly discredited book, Viral: The Search for the Origin of COVID-19, which regurgitates the same nonsensical claims.

The timing of the report, with its false patina of scientific expertise, was deliberate and politically motivated. However much the production value, the commentary can’t hide the stink of the lies it continues to advance without a shred of evidence to back up its discredited assertions. It completely avoids the science that has been amassed to support the natural origin of COVID, while claiming that there is no strong evidence that demonstrates COVID-19 came from an animal at the Huanan market when, in fact, there was extensive wildlife DNA with the SARS-CoV-2 genetic signatures.

Chan’s claims were subjected to a withering critique by Dr. David Gorski, an American surgical oncologist at Wayne State University School of Medicine, in the journal Science-Based Medicine. Laurence Moran also made good use of his pen to warn readers about the outrageous claims made by Chan and the Times. Moran also had previously commented, “The researchers at WIV are highly respected international experts on virology, especially coronaviruses. They published in the best international journals. Since they all deny that they were working with SARS-CoV-2 before the pandemic, the lab leak hypothesis absolutely requires that several hundred researchers are lying and covering up the fact that the virus leaked from their labs. In other words, a conspiracy is an essential part of the lab leak conspiracy theory.”

In the present context, it bears quoting evolutionary biologist and virologist Dr. Edward Holmes’ April 2024 review on the emergence and evolution of SARS-CoV-2. He wrote:

The allegation that SARS-CoV-2 escaped from a research laboratory comes in a wide variety of often mutually exclusive forms, from a willfully engineered bioweapon to an accident during genetic engineering or a routine laboratory procedure and even to a worker infected during bat fieldwork. Whether such an escape is deliberate or accidental, the laboratory in question almost certainly must have known that an incident had occurred, such that their denial necessarily indicates a cover-up.

Although the laboratory leak allegation may at first seem appealing, particularly the coincidence of SARS-CoV-2 first appearing in a city with a large laboratory working on bat coronaviruses, closer inspection reveals that any supposed evidence for a lab leak is at best circumstantial.

Obvious evidence against the laboratory leak allegation is that the first documented cases of COVID-19 were not linked to the WIV nor in the same geographic region of Wuhan. The WIV laboratory of Professor Zhengli Shi, who has been the subject of abundant accusations because of her work on bat coronaviruses, is located more than 30 kilometers from the Huanan market epicenter. Clearly, if the virus first emerged at the WIV, then the location should be the site of at least some of the earliest cases or linked to those cases. It is not.

The Times would have been well aware of Holmes’ recent comprehensive report and all the ones preceding it, including the still-relevant Proximal Origins of SARS-COV-2 by Kristian Andersen and colleagues that the subcommittee had attempted to discredit. They would have also taken notice of the numerous critical reports deriding Chan’s failure to address these in any honest manner and, instead, obfuscate the truth. Simply put, Chan only gets one thing right, and that is that the pandemic started in Wuhan.

But instead of inviting Holmes, Daszak, Andersen or Michael Worobey to offer a countervailing opinion and address the flaws in Chan’s
hypothesis, the *Times*’ David Leonhardt doubled down on Chan’s lies in the newspaper’s “Morning newsletter.” He offered perhaps the stupidest and most simplistic argument for the lab leak lie, that because the WIV was located in Wuhan, and the pandemic broke out in Wuhan, the two must be connected. All this makes a mockery of science.

A sufficient rebuttal is provided two years before this wretched piece of sophistry, in a study by Shi, Daszak and colleagues from August 2022 published in *Nature*. Their findings revealed a high diversity of SARS-related coronaviruses across a large geographic swath that includes southern China, northeastern Myanmar, Laos, and northern Vietnam. Their modeling estimated that around 66,000 people are infected with SARS-related coronaviruses each year.

It has been estimated that around 300 million people in these regions are at risk, and that the wild animal live-trade involved an estimated 14 million people as of 2016. Given these facts, a natural origin zoonotic spillover, rather than a handful of scientists working at a high-level security facility accidentally leaking the virus, is a far more likely explanation. Aside from the fact that all early cases centered around the Huanan market, there is no evidence that anyone at the WIV ever contracted COVID in this period. And had they, the epidemiological map would have been a far different one than has been revealed.

Aside from the recognition that all the recent pandemics of the modern era have occurred between people and animal interfaces which considerably raises the threat posed by H5N1 in US dairy farms, there has never been a pandemic that was ignited by a lab leak in modern history. Moreover, of the 55 lab incidents noted by Wikipedia since 2001, 18 occurred in the US.

Daszak is on record that the scientists working at the WIV are some of the world’s best and highly disciplined and principled. Independent investigations into biosafety issues have not demonstrated any lapses, despite attempts by the likes of ProPublica and *Vanity Fair* to disparage efforts by the Chinese to advance their research capacity on such critical areas of investigation. Their experiences with SARS in 2002 and with influenza outbreaks, all due to the wild animal trade, necessitated such work. One cannot overstate that international collaboration is equally vital for Chinese researchers as it is for all scientists engaged in such work.

Dr. Zhengli Shi of the WIV, who continues to work tirelessly on these questions, wrote in an August 2021 article in a French scientific journal, “From SARS and MERS to COVID-19: a journey to understanding bat coronaviruses.” “Some species of bat coronaviruses, including SARS-CoV and MERS-CoV, have a high genetic diversity and wide distribution. In addition, these bat coronaviruses have the particularity of using, for interspecific transmission, molecules present on the surface of human or other animal cells as receptors.”

Shi continued, “First, we should increase our knowledge of potentially unknown pathogens found in nature. Second, there is a need to better understand the factors that cause emerging infectious diseases. Third, it is important to monitor the entire chain of transmission of a pathogen that may potentially be responsible for an emerging infectious disease. To achieve these goals, elements of basic research including the discovery of viruses and the development of diagnostic methods, the assessment of potential risks of interspecific infection of wildlife-borne viruses, pathogen ecology, screening of a broad spectrum of antiviral drugs and pilot studies on vaccines need to be implemented over the long term. Last but not least, all countries must work together to combat current and future emerging infectious diseases, sharing all their scientific data without any restrictions.” [Emphasis added]

On February 19, 2020, in defense of Shi and Chinese scientists, Daszak and other scientists penned an important and prescient letter in *The Lancet*. They wrote:

> The rapid, open, and transparent sharing of data on this outbreak is now being threatened by rumors and misinformation around its origins. We stand together to strongly condemn conspiracy theories suggesting that COVID-19 does not have a natural origin. Scientists from multiple countries have published and analyzed genomes of the causative agent, severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), and they overwhelmingly conclude that this coronavirus originated in wildlife, as have so many other emerging pathogens.

> This is further supported by a letter from the presidents of the US National Academies of Science, Engineering, and Medicine and by the scientific communities they represent. Conspiracy theories do nothing but create fear, rumors, and prejudice that jeopardize our global collaboration in the fight against this virus. We support the call from the Director-General of WHO to promote scientific evidence and unity over misinformation and conjecture. We want you, the science and health professionals of China, to know that we stand with you in your fight against this virus.

Principled scientists and researchers are being subjected to the diktats of the state. Their work and livelihood are under threat simply for allowing their scientific inquiry to lead them to correct answers and deepening their understanding. It is the international working class that must come to their defense. And it is vital for scientists interested in the defense of their work to turn to the working class and engage in the struggle for an international socialist perspective.