

The repeated claim that Fauci lied to Congress about ‘gain-of-function’ research

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“At a Senate hearing in May, Dr. Fauci said, ‘The NIH has not ever and does not now fund gain-of-function research in the Wuhan Institute of Virology.’ That was under oath, under testimony. On October 20th, the NIH principal deputy director in writing directly contradicted it.”

— **Sen. Ted Cruz (R-Tex.), remarks at a Senate Judiciary Committee hearing, Oct. 27**

“Last week his agency admitted they had in fact funded gain-of-function research in the Wuhan Institute of Virology.”

— **Sen. Tom Cotton (R-Ark.), at the same hearing, Oct. 27**

In May, we examined a high-profile spat between Sen. Rand Paul (R-Ky.) and Anthony S. Fauci, director of the National Institute of Allergy and Infectious Diseases. At issue was whether the National Institutes of Health had funded “gain-of-function” experiments at the [Wuhan Institute of Virology \(WIV\)](#). At a Senate hearing, Paul said “super viruses” had been created, and Fauci shot back that the senator was “entirely and completely incorrect.”

We [awarded Two Pinocchios](#) to Paul, saying “there still are enough questions about the work at the Wuhan lab to warrant further scrutiny, even if the NIH connection to possible gain-of-function research appears so far to be elusive.”

Readers have been asking for an update ever since a top NIH official sent a letter to Congress on Oct. 20 saying that the nongovernmental organization [EcoHealth Alliance](#) — which received NIH funding to do the research on the potential for bat-specific pathogens in nature to jump to humans — did not report an experimental finding that indicated a spike in viral growth.

Both Cruz and Cotton have cited the NIH letter to assert that Fauci lied to Congress. Cruz even told Attorney General Merrick Garland that Fauci should be prosecuted. The issue is important because of speculation that the virus that caused the [coronavirus pandemic](#) [might have been created in a lab](#). But the NIH letter does not say what they claim — and, in fact, the NIH letter appears to have inaccuracies.

The Facts

This is a complex story, on many levels. We are going to keep focused on what was disclosed in the NIH letter and in the release of grant updates by EcoHealth by the House Energy and Commerce Committee and the Intercept.

Gain of function, in many ways, is basic biological research. It’s done all the time with flies, worms, mice and cells in petri dishes. Scientists create novel genotypes (such as arrangements of nucleic acids) and screen or select to find those with a given phenotype (such as trait or ability) to find new sequences with a particular function.

But it’s one thing to experiment with fruit flies and another thing when the research involves genotypes of potential pandemic pathogens and functions related to transmissibility or virulence in humans.

That’s when gain of function becomes controversial. The idea is to get ahead of future viruses that might emerge from nature, thereby allowing scientists to study how to combat them. But increasingly many scientists have decided the research was potentially dangerous — and, especially in China, not done with the proper safety precautions.

Even now, it’s not clear whether the research funded by EcoHealth in China amounted to gain of function. When the Intercept obtained EcoHealth documents in September, seven of 11 scientists who are virologists or work in adjacent fields [told the Intercept](#) that the work appeared to meet NIH’s criteria for gain-of-function research. Obviously, it’s a matter of dispute within the scientific community.

But Cotton claimed NIH admitted that it had funded gain-of-function research. That’s wrong. No such admission appears in the letter, and NIH officials continue to insist that the EcoHealth work using NIH funds did not constitute gain-of-function research.

In 2014, gain-of-function research was paused for three years as the U.S. government set up a case-by-case review process to oversee funding, known as the Potential Pandemic Pathogen Care and Oversight (P3CO) framework. Under that framework, funding of enhanced potential pandemic pathogens would receive greater scrutiny if research was intended to create such pathogens and if the virus was highly transmissible and could create a pandemic among humans.

There has long been criticism that the P3CO framework had too many loopholes. But the [EcoHealth grant](#), awarded in 2014, does not show that it intended to create an enhanced pathogen or that its experiment posed any harm to humans.

“As sometimes occurs in science, this was an unexpected result of the research, as opposed to something that the researchers set out to do,” Lawrence A. Tabak, NIH principal deputy director, wrote in [his letter](#) to Congress dated Oct. 20. “Regardless, the viruses being studied under this grant were genetically very distant from SARS-CoV-2,” which causes covid-19.

Now let’s turn to the experiment itself, which involved the use of three chimeric (artificial, laboratory-generated) viruses that are capable of replicating efficiently in human cells with the angiotensin-converting enzyme 2 (ACE2), the protein that provides the entry point for the coronavirus to hook into and infect human tissue. The experiment relied on “humanized” mice, meaning they were given an ACE2 receptor that mimicked the human form. (The mice were otherwise unchanged.)

In a report filed with NIH on April 13, 2018, EcoHealth reported that the viral load in the lung tissue of the mice with the chimeric viruses for a few days went up greater than 10,000 times, as expressed in “genome copies per gram of tissue.” (Specifically, the report said, 10 to the sixth power.) This was a strong indication of potential infectivity in humans, though it depends on the specific properties of the viral spike protein.

Tabak’s letter noted that the terms of the grant award required EcoHealth to immediately report a “one log increase in growth,” a 10-fold increase, and it failed to do so. The specific language, [dated 2016](#), was: “Should any of the MERS-like or SARS-like chimeras generated under this grant show evidence of enhanced virus growth greater than 1 log over the parental backbone strain you must stop all experiments.”

But several virologists told The Fact Checker that genome copies per gram is not necessarily a reliable indicator of the viral load, as the data also could contain genomic material from inactivated, incompletely formed or dead virus.

Viral load (or titer) generally refers to a quantitative assessment of intact virus capable of infection and replication in a tissue culture system, generally using a plaque assay. Genome copy relies on [polymerase chain reaction \(PCR\)](#), a laboratory technique used to amplify DNA sequences — which could be intact virus, but also include genetic material testing positive by PCR but incapable of infection and replication.

It’s a complex subject, so we developed a rough analogy after discussions with several experts.

Imagine that a one-log viral growth is equivalent to an accounting of how many cars are assembled in a factory. Genome copies instead would tell you how many axles are in the factory — but only some of the axles are functional and can be used to make a car, some others are broken and won’t work, and some are in pieces, countable, but not useful at all. (One could also view genome copies as more like a set of instructions for making the parts of a finished car, i.e. a viable virus.)

“RT-PCR [Reverse transcription PCR] can be used to measure the viral genome copies/gram, i.e. the axles,” [Linda J. Saif](#), a veterinarian virologist at Ohio State University, said in an email. “As in your analogy this may not equate to the infectious virus titers, i.e. the whole car, because of incompletely assembled virus fragments, defective non-replicating particles, etc.”

“In virology, many authors call RT-PCR results ‘viral loads,’” said [Stanley Perlman](#), a physician and virologist at the University of Iowa in Iowa City. “It is not the same as infectious virus titers because virus is inefficiently assembled. It may be analogous to cutting circles out of a square cloth, so that there is excess material that is not useful.”

Perlman said “the ratio of infectious to defective coronaviruses ranges from about 1:15 to 1:200, depending on cell type,” meaning 15 to 200 times more genomic sequence would be detected than viable replicating virus.

In a [response to Tabak’s letter](#) this week, Peter Daszak, the president of EcoHealth, emphasized that the report highlighted genome copies per gram. “Viral titers were not conducted in this experiment,” he said, adding that six to eight days later, there was “no discernibly significant difference among the different viral types.”

(Confusing matters, however, a graph in the 2018 EcoHealth report was mislabeled “viral load per gram of lung tissue,” even though the graph’s Y axis is clearly labeled genome copies per gram of tissue.)

[Richard H. Ebright](#) of Rutgers University, a longtime critic of gain-of-function research, dismissed this explanation. “The claim is technically true. PCR is measuring viral nucleic acids, not viruses per se,” he said in an email. “But the claim is factually nonsense. PCR is a standard method for quantifying viral growth,” and “NIH, in the Tabak memo and in subsequent comments, has made it absolutely clear that the NIH interprets EcoHealth’s data as indicating a greater-than-10-time increase in viral growth.”

Robert Kessler, a spokesman for EcoHealth, told The Fact Checker that the experiment was conducted only once and involved only a few mice. He confirmed Tabak’s comment that researchers encountered an unexpected result. “This testing is intended to determine whether strains discovered in the field can infect humans and how efficiently, not to create super viruses,” he said.

“Given the small number of mice, it is also uncertain whether the survival and weight loss data were statistically relevant, and as no further replications of this experiment were performed, we are unable to corroborate these initial results,” Daszak said in his letter to NIH.

Earlier this year, EcoHealth submitted additional data on this experiment, specifically the increase in genome copies in mice brain tissue, in a [fifth update](#) of its research grant. Tabak’s letter suggested the report was filed late and it was the first notice the agency had received on the experiment. As we have noted, the experiment was disclosed in 2018 in the fourth report. The fifth report was due in 2019, but EcoHealth maintains a miscommunication with NIH and a technical

guten led to its delay until this year.

We sent questions to NIH about the failure to note the 2018 disclosure by EcoHealth and why it believed an increase in genome copies per gram would indicate 10-fold increase in viral growth. After a four-day wait, we received this emailed statement: “NIH stands by the letter provided to Congressional Committees in response to their inquiries and released by the House Energy & Commerce. NIH is not commenting on internal deliberations with the grantee beyond the information in the letter.”

James Arnold, a Cotton spokesman, defended his comments.

“While the letter does not use the phrase ‘gain of function’ to avoid the obvious political consequences, it describes work that matches the commonly accepted definition of ‘gain-of-function’ research, as confirmed by members of the scientific community,” Arnold said. “Senator Cotton said the NIH admitted funding gain-of-function research because the NIH did in fact fund gain-of-function research, whether the letter used that phrase or not.”

A Cruz spokesman did not respond to a request for comment.

The Pinocchio Test

EcoHealth’s research has come under increased scrutiny after more details about its work in China have been revealed, either through congressional or journalistic pressure. The NIH letter, flawed though it may be, indicates the federal government is taking a closer look, too.

But we see no reason to change the Two Pinocchio rating we awarded Paul. There is a split in the scientific community about what constitutes gain-of-function research. To this day, NIH says this research did not meet the criteria — a stance that is not an outlier in the scientific community. Indeed, it appears as if EcoHealth halted the experiment as soon as it seemed to veer in that direction.

Meanwhile, Cotton and Cruz are spinning the letter as confirming what it does not say. They are welcome to offer an opinion about its meaning. But, so far, it’s not a fact that NIH has admitted funding gain-of-function research. So they also earn Two Pinocchios.

Two Pinocchios

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