

# NIH Funded China's Gain-of-Function Research at the Wuhan Institute of Virology

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The Obama administration's 2014 moratorium on federal funding for certain gain-of-function research did not, in fact, prevent funding of that dangerous activity.

The National Institutes of Health—specifically Dr. Anthony Fauci's National Institute of Allergy and Infectious Diseases (NIAID)—provided funding to EcoHealth Alliance, a New York-based nonprofit studying infectious diseases, and EcoHealth transferred a portion of the awarded monies to the Wuhan Institute of Virology. This funding continued throughout the moratorium.

Wuhan researchers published reports on their techniques and findings, and these papers make clear that the researchers were using NIAID funds for research that can be described as “gain-of-function.” This analysis discusses two of these published papers.

The 2014 moratorium, consequently, pushed American research dollars to the Wuhan facility. The result was that risky work was conducted in China's less-safe laboratory conditions.

Dr. Fauci, due to the publishing of these two papers, either knew or should have known that his institute's grant was used for risky research that met the definition of “gain-of-function.” Consequently, his testimony in May and July 2021 before the Senate Committee on Health, Education, Labor and Pensions was incorrect. There are no good explanations for the incorrect statements he made: Fauci either intended to deceive the Senate or was negligent in the discharge of his duties as NIAID director.

Moreover, NIAID during the moratorium funded China's biological weapons effort and Fauci should have known that was occurring.

## 2014 Federal Pause on Gain-of-Function Research

Gain-of-function research alters an organism genetically, often making a pathogen more contagious or lethal. Sometimes this is done to develop treatments, <sup>1</sup> but enhancing functions is, of course, risky. Gain-of-function research is “dual use” and is at the heart of biological weapons programs.

In 2011, scientists genetically altered the H5N1 or “bird flu” so that it spread between ferrets, setting off a controversy.<sup>2</sup> After this work and other controversial experimentation—especially that conducted by Ralph Baric at the University of North Carolina at Chapel Hill—many researchers called for a ban.

On October 17, 2014, the Office of Science and Technology Policy and the Department of Health and Human Services issued “U.S. Government Gain-of-Function Deliberative Process and Research Funding Pause on Selected Gain-of-Function Research Involving Influenza, MERS, and SARS Viruses.” This document, as its title suggests, halted federal funding “for gain-of-function research projects that may be reasonably anticipated to confer attributes to influenza, MERS, or SARS viruses such that the virus would have enhanced pathogenicity and/or transmissibility in mammals via the respiratory route.”<sup>3</sup>

The 2014 document also called upon the federally funded and non-federally funded research communities to adhere to a “voluntary pause” on research.

The document provided an exception for research “urgently necessary to protect the public health or national security.”

The “pause” did not last long. On January 9, 2017, the White House Office of Science and Technology Policy announced it had issued “Recommended Policy Guidance for Departmental Development of Review Mechanisms for Potential Pandemic Pathogen Care and Oversight.”<sup>4</sup> This document, in the final days of President Obama’s second term, lifted the moratorium on federal funding of gain-of-function research.

## Routing NIH Funding Through EcoHealth Alliance

On May 27, 2014, NIH announced the award of a five-year grant to EcoHealth Alliance. Fauci’s NIAID was listed as the administering institute of the grant, titled “Understanding the Risk of Bat Coronavirus Emergence.”<sup>5</sup>

NIH announced funding of \$666,442 for Fiscal Year 2014. The total amount of the award over the period of the grant was \$3.75 million.

NIH’s grant-award document said the researchers would study “the risk of future coronavirus (CoV) emergence from wildlife using in-depth field investigations across the human-wildlife interface in China.”

The grant document also stated: “Predictive models of host range (i.e. emergence potential) will be tested experimentally using reverse genetics, pseudovirus and receptor binding assays, and virus infection experiments across a range of cell cultures from different species and humanized mice.” This description, on its face, contemplates the use of gain-of-function techniques.

The announcement of the award to EcoHealth predated the federal-funding pause by five months. The pause did not end this grant. NIH continued to fund it, and EcoHealth Alliance transferred to the Wuhan institute \$133,000 a year through 2019 and \$66,000 in 2020.<sup>6</sup>

## EcoHealth’s ‘Killer’ Viruses in China

Peter Daszak, the British zoologist who serves as EcoHealth’s president, did not hide the dangerous nature of his work in Wuhan. On the contrary, he publicly discussed in some detail China’s engineering of pathogens. In February 2016 at the New York Academy of Medicine, Daszak suggested that “my colleagues in China”—almost certainly a reference to staff at the Wuhan Institute of Virology—were making “killer” viruses.<sup>7</sup> Moreover, Daszak has, with co-authors, published papers detailing the research conducted there.

Two of these papers deserve attention, especially in light of Fauci’s categorical denial of funding gain-of-function research in Wuhan.<sup>8</sup> On May 11, 2021, in response to a question from Senator Rand Paul, Fauci said, “Senator Paul, with all due respect, you are entirely and completely incorrect, that the NIH has not ever, and does not now, fund gain-of-function research in the Wuhan Institute of Virology.”<sup>9</sup> Fauci, on July 20, 2021 in response to further questioning from Senator Paul, stood by his denial.<sup>10</sup>

The two papers shed light on the truthfulness of Fauci’s denial.<sup>11</sup> First, Daszak and ten others published a paper titled “Bat Severe Acute Respiratory Syndrome-Like Coronavirus WIV1 Encodes an Extra Accessory Protein, ORFX, Involved in Modulation of the Host Immune Response.”<sup>12</sup> One of Daszak ten co-authors is Shi Zhengli, the internationally famous “Bat Woman” of the Wuhan Institute of Virology.

The paper, the result of work conducted at the Wuhan lab, discussed the engineering of different types of the WIV1 virus and their testing in human cells. “The study established sophisticated reverse genetics and bacterial artificial chromosome techniques to generate recombinant SARS-like CoVs,” Dr. Sean Lin told the Center for Security Policy.<sup>13</sup>

Technically, the paper describes what some call loss-

of-function engineering, in this case the deletion of the ORFX gene. Yet as Lin, a microbiologist and a former lab director of the viral disease branch of the Walter Reed Army Institute of Research, points out, the deletion of a gene or genes does not necessarily lead to the loss or diminution of function of a virus. On the contrary, gene deletion can end up increasing function. “For example,” he wrote, “high-pathogenic H5N1 avian influenza virus was found to be enhanced by a 15-nucleotide deletion in the viral nonstructural gene.”

“The researchers did not know what functions the recombinant virus strain (rWIV1-DeltaX) might result from their work,” Lin wrote, referring to the paper. “In other words, the experiment designs did not preclude the possibility that this recombinant virus could gain additional functions.”

As Rowan Jacobsen writing in the *MIT Technology Review* pointed out, two of the engineered chimeras “replicated well in human cells” and “were, for all intents and purposes, brand-new pathogens.”<sup>14</sup>

“In summary, this study aimed to genetically modify a potential human-infecting SL-CoV strain and generate recombinant viruses subsequently, without prior knowledge of the outcome as being either loss-of-function or gain-of-function,” Lin also noted. “The study, even though designed to be loss-of-function, involved a dangerous virus and could have led to a potential gain-of-function outcome.”

As Lin pointed out, “this WIV1 strain was poised for human transmission.” Therefore, it was the responsibility of researchers to exercise what Lin called “extra caution” for work with this strain. Alina Chan of the Broad Institute of MIT and Harvard echoed this general concern, telling the BBC that research not intended to produce gain-of-function results may end up doing so.<sup>15</sup>

The paper acknowledges funding from the NIH and

carries the project number of the May 27, 2014 award with the notation “NIAID.”

Nine of the authors are shown as affiliated with the Wuhan Institute of Virology, and the remaining two are shown as affiliated with EcoHealth. Moreover, the paper acknowledges the assistance of six researchers, five from the Wuhan institute.

NIH either knew or should have known about this paper. The *Journal of Virology* published it on June 24, 2016. Shi Zhengli’s name on the paper guaranteed wide attention in the scientific community.

This published paper throws into doubt various statements—effectively denials— relating to NIAID funding, including a categorical statement from NIH itself. “NIH has never approved any grant to support ‘gain-of-function’ research on coronaviruses that would have increased their transmissibility or lethality for humans,” NIH told the *Washington Post’s* Fact Checker in 2021. “The research proposed in the EcoHealth Alliance, Inc. grant application sought to understand how bat coronaviruses evolve naturally in the environment to become transmissible to the human population.”<sup>16</sup>

Although the second sentence of the NIH statement is technically true, NIH had to know its money was used for the dangerous research it denied funding. The first sentence is true only if one defines “gain-of-function” so narrowly so that it loses any practical meaning. The paper reported on research that in fact created two new pathogens, the essence of gain-of-function. Therefore, the research fits within the definition of that term for all intents and purposes.

EcoHealth Alliance’s statement on the topic, therefore, is also deceptive. “The NIH has not funded gain-of-function work,” said Robert Kessler, the non-profit’s spokesman, to the *Washington Post*. “EcoHealth Alliance was funded by the NIH to conduct study of coronavirus diversity in China. From that award,

we subcontracted work with the Wuhan Institute of Virology to help with sampling and lab capacity.”<sup>17</sup> Daszak’s name on the paper indicates that NIH money went to more than mere “sampling and lab capacity.”

The second paper of importance is Ben Hu, Lei-Ping Zeng, Xing-Lou Yang, *et al.*, “Discovery of a Rich Gene Pool of Bat SARS-Related Coronaviruses Provides New Insights into the Origin of SARS Coronavirus.” The paper was published by *PLOS Pathogens* on November 30, 2017.<sup>18</sup>

Senator Paul, in his July 20, 2021 clash with Fauci, referred to this paper to back his contention that Fauci’s institute funded gain-of-function research at the Wuhan Institute of Virology.

Senator Paul during the Senate hearing cited Richard Ebright, a Rutgers University molecular biologist, as saying, in the senator’s words, that the “research matches, indeed epitomizes the definition of gain-of-function research.”<sup>19</sup> Fauci, by reaffirming his blanket denial of ever funding gain-of-function research at the Wuhan Institute of Virology, indicated his disagreement.

The *PLOS Pathogens* paper cites NIH as one of its funders and carries the project number of the May 27, 2014 award to EcoHealth along with the notation “NIAID.”

Of the 17 co-authors of this paper, 14 are shown as affiliated with the Wuhan Institute of Virology. Daszak is also shown as a co-author.

The paper does not describe typical gain-of-function research but shows that the Wuhan Institute of Virology was engaged in especially risky gene-splicing, nonetheless. Dr. Shi’s team, according to Dr. Li-Meng Yan in comments to the Center for Security Policy, “made chimeric viruses based on a bat virus, WIV1.”<sup>20</sup> Shi switched spike proteins from different novel bat

viruses to WIV1, and these new viruses can bind to the human ACE2 receptor. As Yan, a Chinese virologist now in the U.S. studying coronaviruses, wrote: “This shows that WIV1, as engineered, can potentially infect humans.” The engineering of these chimeric viruses does not technically add to function, but the creation of new viruses is as dangerous as gain-of-function engineering, Yan stated.

The *Washington Post’s* Fact Checker states “the EcoHealth funding was not related to the experiments, but the collection of samples.”<sup>21</sup> That statement is hard to reconcile with the language of the May 27, 2014 grant description, quoted above, and the two papers described in this analysis.

Even if the Fact Checker’s statement were correct, money is, of course, fungible and the two papers clearly show funds were used to support risky research.

If Fauci did not know of both papers described above, his NIAID failed to properly administer grant money.

## **NIH Funding Useful to the Chinese Military**

There is, however, a far more important issue than the truthfulness of Fauci’s testimony or his failure to properly administer a federal grant. As Dr. Yan, who fled Hong Kong in April 2020 to report on China’s coronavirus experimentation, states, both the bat virus samples Dr. Shi collected and her experimentation furthered China’s biological weapons program.

The NIH’s funding of such research, whether the research constituted gain-of-function or not, was useful to the Chinese military. The People’s Liberation Army, the military of China’s Communist Party, almost certainly has maintained a biological weapons program prohibited by the Biological Weapons Convention; Chinese military researchers for at least a decade have published numerous articles and books

describing the bioweapons China needs and will use.

Money is fungible. Moreover, China’s regime maintains a doctrine of civil-military fusion, meaning the military has access to, among other things, any technology it wants. Consequently, research at the Wuhan Institute of Virology—and other laboratories in China—is potentially military.

Especially troubling in this regard is the assignment of Major General Chen Wei to head the BSL-4 unit at the Wuhan Institute of Virology, perhaps as early as “late 2019” as a new report suggests.<sup>22</sup> She is considered “China’s top biowarfare expert.”<sup>23</sup> There are, of course, no good explanations for the assignment of a military officer of her expertise to head a nominally civilian facility of this kind.

The research embodied in the two papers discussed above is of obvious use to the Chinese military, and this means Fauci’s NIAID was, as a practical matter, supporting China’s biological weapons program.<sup>24</sup>

## **ABOUT THE AUTHOR**

GORDON G. CHANG lived and worked in Asia for almost two decades. He is the author of [The Coming Collapse of China](#), [The Great U.S-China Tech War](#), [Nuclear Showdown: North Korea Takes On the World](#), and [Losing South Korea](#). His writings on China and North Korea have appeared in the *New York Times*, the *Wall Street Journal*, *Commentary*, *National Review*, *National Interest*, and *Barron’s*. Chang has given numerous briefings in Washington and other capitals and frequently appears on CNN, Fox News Channel, Fox Business Network, Bloomberg, CNBC, MSNBC, and Newsmax.

## Endnotes

1 See Rebecca Moritz, “Why Gain-of-Function Research Matters.” Colorado State University, June 21, 2021, <https://source.colostate.edu/why-gain-of-function-research-matters/>.

2 See Martin Enserink, “Scientists Brace for Media Storm Around Controversial Flu Studies,” *Science*, November 23, 2011, <https://www.sciencemag.org/news/2011/11/scientists-brace-media-storm-around-controversial-flu-studies>.

3 White House Office of Science and Technology Policy and the Department of Health and Human Services, “U.S. Government Gain-of-Function Deliberative Process and Research Funding Pause on Selected Gain-of-Function Research Involving Influenza, MERS, and SARS Viruses,” October 17, 2014, <http://www.phe.gov/s3/dualuse/Documents/gain-of-function.pdf>.

4 White House Office of Science and Technology Policy, “Recommended Policy Guidance for Departmental Development of Review Mechanisms for Potential Pandemic Pathogen Care and Oversight,” January 9, 2017, <https://obamawhitehouse.archives.gov/sites/default/files/microsites/ostp/p3co-finalguidancestatement.pdf>.

5 National Institutes of Health, “Understanding the Risk of Bat Coronavirus Emergence,” May 27, 2014, <https://reporter.nih.gov/project-details/8674931#details>.

6 See Glenn Kessler, “Fact-Checking the Paul-Fauci Flap Over Wuhan Lab Funding,” *Washington Post*, May 18, 2021, <https://www.washingtonpost.com/politics/2021/05/18/fact-checking-senator-paul-dr-fauci-flap-over-wuhan-lab-funding/>.

7 “Where Will the Next Pandemic Come From?” New York Academy of Medicine, New York City, February 23, 2016, <https://www.c-span.org/video/?404875-1/pandemics>.

8 Fauci was generally aware of the possibility that NIAID funds were used for gain-of-function research. Included in correspondence released on

June 1, 2021 pursuant to a Freedom of Information Act request is an October 1, 2017 e-mail message from Daszak to Fauci. That message forwards an unpublished paper describing work, conducted by Shi Zhengli, analyzing whether a particular bat virus could infect humans. Daszak in his message states this: “We’re also doing assays to find out if it can infect human cells in the lab—so far no evidence of this.” Daszak also notes in his message that the work was supported with his grant administered by NIAID. Also of interest is Fauci correspondence concerning a January 31, 2020 article in *Science*. Journalist Jeff Carlson in a June 5, 2021 Twitter thread describes and summarizes Fauci’s reactions to that article, [here: https://twitter.com/themarketwork/status/1401303548046893056](https://twitter.com/themarketwork/status/1401303548046893056).

9 Hearing, “An Update from Federal Officials on Efforts to Combat COVID-19,” Senate Committee on Health, Education, Labor and Pensions, May 11, 2021, <https://www.help.senate.gov/hearings/an-update-from-federal-officials-on-efforts-to-combat-covid-19>.

10 Hearing, Senate Committee on Health, Education, Labor and Pensions, “The Path Forward: A Federal Perspective on the COVID-19 Response,” July 20, 2021, <https://www.help.senate.gov/hearings/the-path-forward-a-federal-perspective-on-the-covid-19-response>.

11 The two papers analyzed in this paper are discussed in House Foreign Affairs Committee Minority Staff, “The Origins of COVID-19: An Investigation of the Wuhan Institute of Virology,” August 2021. The Committee Minority Staff rely on these two papers in coming to their conclusion that “researchers at the [Wuhan Institute of Virology], in conjunction with U.S. scientists and funded by both the PRC government and the U.S. government, were conducting gain-of-function research on coronaviruses at the [Wuhan Institute of Virology].”

12 Lei-Ping Zeng, Yu-Tao Gao, Xing-Yi Ge, *et al.*, “Bat Severe Acute Respiratory Syndrome-Like Coronavirus WIV1 Encodes an Extra Accessory Protein, ORFX, Involved in Modulation of the Host Immune Response,” *Journal of Virology*, June 24,

2016, <https://journals.asm.org/doi/10.1128/JVI.03079-15#B2>.

13 Sean Lin, e-mail message to author, July 22, 2021.

14 Rowan Jacobsen, “Inside the Risky Bat-Virus Engineering That Links America to Wuhan,” *MIT Technology Review*, June 29, 2021, <https://www.technologyreview.com/2021/06/29/1027290/gain-of-function-risky-bat-virus-engineering-links-america-to-wuhan/>.

15 Reality Check Team, “Coronavirus: Was US Money Used to Fund Risky Research in China?” BBC, July 22, 2021, <https://www.bbc.com/news/57932699>.

16 See Glenn Kessler, “Fact-Checking the Paul-Fauci Flap Over Wuhan Lab Funding.”

17 Ibid.

18 Ben Hu, Lei-Ping Zeng, Xing-Lou Yang, *et al.*, “Discovery of a Rich Gene Pool of Bat SARS-Related Coronaviruses Provides New Insights into the Origin of SARS Coronavirus,” *PLOS Pathogens*, November 30, 2017, <https://journals.plos.org/plospathogens/article?id=10.1371/journal.ppat.1006698>.

19 Hearing, “The Path Forward: A Federal Perspective on the COVID-19 Response.”

20 Li-Meng Yan, e-mail message to author, July 24, 2021.

21 Glenn Kessler, “Fact-Checking the Paul-Fauci Flap Over Wuhan Lab Funding.”

22 “The Origins of COVID-19: An Investigation of the Wuhan Institute of Virology.” Previous reporting suggests Chen Wei took over the BSL-4 lab in January 2020. See Minnie Chan and William Zheng, “Meet the Major General on China’s Coronavirus Scientific Front Line,” *South China Morning Post* (Hong Kong), March 3, 2020, <https://www.scmp.com/print/news/china/military/article/3064677/meet-major-general-chinas-coronavirus-scientific-front-line>.

23 anzhong Huang, “U.S.–Chinese Distrust Is Inviting Dangerous Coronavirus Conspiracy Theories,” *Foreign Affairs*, March 5, 2020, <https://www.foreignaffairs.com/articles/united-states/2020-03-05/us-chinese-distrust-inviting-dangerous-coronavirus-conspiracy>.

24 An upcoming book from Australian journalist Sharri Markson makes the case that Fauci’s NIAID was funding the Chinese military. See Sharri Markson, “US Paid Chinese People’s

Liberation Army to Engineer Coronaviruses,” *Australian* (Sydney), June 4, 2021, <https://www.theaustralian.com.au/science/us-paid-chinese-peoples-liberation-army-to-engineer-coronavirus/news-story/4adee56c1433fad332a76ffe043390ea>. France in 2015 warned the U.S. of activities at the Wuhan Institute of Virology. See Eleanor Bartow, “France Warned the US in 2015 About the Wuhan Lab It Helped Build, Former COVID-19 Investigator Claims,” *Daily Caller*, July 26, 2021, <https://dailycaller.com/2021/07/26/france-wuhan-lab-david-asher-state-department/>. This warning should have prompted NIAID to halt funding going to the Wuhan Institute of Virology.



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