



PALL OF SUSPICION

The National Institutes of Health's "China initiative" has upended hundreds of lives and destroyed scores of academic careers *By Jeffrey Mervis*

For decades, Chinese-born U.S. faculty members were applauded for working with colleagues in China, and their universities cited the rich payoff from closer ties to the emerging scientific giant. But those institutions did an about-face after they began to receive emails in late 2018 from the U.S. National Institutes of Health (NIH).

The emails asked some 100 institutions to investigate allegations that one or more of their faculty had violated NIH policies designed to ensure federal funds were being spent properly. Most commonly, NIH claimed a researcher was using part of a grant to do work in China through an undisclosed affiliation with a Chinese institution. Four years later, 103 of those scientists—some 42% of the

246 targeted in the letters, most of them tenured faculty members—had lost their jobs.

In contrast to the very public criminal prosecutions of academic scientists under the China Initiative launched in 2018 by then-President Donald Trump to thwart Chinese espionage, NIH's version has been conducted behind closed doors. Michael Lauer, head of NIH's extramural research, says that

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ademic researchers. And almost two-thirds were removed from existing NIH grants.

NIH's data also make clear who has been most affected. Some 81% of the scientists cited in the NIH letters identify as Asian, and 91% of the collaborations under scrutiny were with colleagues in China.

In only 14 of the 246 cases—a scant 6%—did the institution fail to find any evidence to back up NIH's suspicions. Lauer, who oversees NIH's \$30 billion grants portfolio, regards that high success rate as proof NIH only contacted institutions when there were compelling reasons to believe the targeted scientists were guilty of “scientific, budgetary, or commitment overlap” with NIH-funded projects.

“The fact that more than 60% of these cases have resulted in an employment separation, or a university taking the step of excluding a scientist from [seeking an NIH grant] for a significant period of time, means that something really, really serious has occurred,” Lauer told *Science*.

But others, including some of the scientists targeted and the university administrators involved in investigating them, say the tremendous power differential between NIH and its grantees may be a better explanation for why so many scientists have been axed.

NIH is by far the largest funder of academic biomedical research in the United States, and some medical centers receive hundreds of millions of dollars annually from the agency. So when senior administrators heard Lauer say a targeted scientist “was not welcome in the NIH ecosystem,” they understood immediately what he meant—and that he was expecting action.

“If NIH says there's a conflict, then there's a conflict, because NIH is always right,” says David Brenner, who was vice chancellor for health sciences at the University of California, San Diego (UCSD), in November 2018 when the institution received a letter from Lauer asking it to investigate five medical school faculty members, all born in China. “We were told we have a problem and that it was up to us to fix it.”

THERE WAS A NOTE OF URGENCY in the first email that Wuyuan Lu, a tenured professor at University of Maryland's Institute of Human Virology (IHV), got from a senior university research administrator.

“We have received an official communication from the National Institutes of Health,” Dennis Paffrath wrote to Lu on 20 December 2018. “It concerns the failure by you and the University to disclose outside research support, relevant affiliations and foreign components” of Lu's existing NIH grants.

The NIH letter listed Lu's ties to Xi'an Jiaotong University and Fudan University, including grants NIH said Lu had received from Chinese research agencies. The letter also alleged that his NIH grant had supported work done in China. “I need to know if [this] is true,” Paffrath wrote to Lu. “If not, we will need to work with NIH to help them understand that this is not the case.”

Lu replied the next day, confident that his explanation would clear up what he assumed

was a simple misunderstanding. Some of NIH's allegations, he wrote, appeared to be based on the acknowledgement section of papers with Chinese co-authors in which Lu noted their contributions to the research and the Chinese institutions that had funded them. But those references were a courtesy, Lu explained, and didn't mean his NIH grants were supporting any of their efforts.

In fact, he wrote, the opposite was true: His Chinese collaborations multiplied the payoff from the research that NIH had funded at IHV for more than 2 decades. Lu highlighted the intellectual property his lab generated for the university, telling

Paffrath that “none of it would have been possible without” the talented Chinese students working at IHV through these collaborations. IHV had not only approved his interactions with Xi'an Jiaotong University, Lu added, but had touted them in its newsletters.

Lu accepted some blame. “It can be argued that I should have done a better job disclosing these past activities,” he wrote to Paffrath. “But the truth of the matter is that I did not think they presented any conflict of interest.”

Nor was it clear what he could have done differently, Lu continued. “Even if I had thought [those interactions] should be disclosed,” he wrote, “I wouldn't have known where, how, and what to disclose due to lack of clear guidelines.”

Lu expected his letter to allay NIH's concerns and allow him to continue research that contributed to the institute's search for new therapies to treat cancer and infectious diseases. His boss, renowned virologist Robert



secrecy is necessary to protect the privacy of individual scientists, who are not government employees. Universities consider the NIH-prompted investigations to be a personnel matter, and thus off-limits to queries from reporters. And the targeted scientists have been extremely reticent to talk about their ordeal.

Only one of the five scientists whose cases are described in this article has previously gone public with their story. And only one has pushed back successfully, winning a large settlement against her university for terminating her.

But a running tally kept by the agency shows the staggering human toll of NIH's campaign. Besides the dismissals and forced retirements, more than one in five of the 246 scientists targeted were banned from applying for new NIH funding for as long as 4 years—a career-ending setback for most ac-

Gallo, told *Science* a prominent colleague once called Lu “the most gifted protein chemist in America,” and Gallo says Lu was a valued member of his management team.

But after hearing nothing for 15 months, Lu was told that NIH wanted more information. In his next reply, Lu included lengthy descriptions of each of his research projects with Chinese collaborators and explanations of how they did not conflict or overlap with his NIH funding.

That response was also insufficient, Paffrath told Lu in his next email. NIH wanted still more documents, Paffrath wrote, “and as quickly as possible.” A few weeks later came what Lu interpreted as “a veiled threat” from NIH. “NIH will not continue to be patient in receiving these documents,” Paffrath wrote, “and may pursue other remedies if we do not comply with their request.”

By then Lu’s patience was also wearing thin. For example, NIH had requested English and Mandarin copies of any contracts that Lu had signed with Chinese institutions. “I can’t generate something that doesn’t exist,” Lu wrote Paffrath regarding an affiliation with Fudan that Lu says was “purely honorary ... and with no contractual obligations.”

Lu says he had recurring thoughts of returning to China to care for aging parents. Each time, Gallo told him he could do more to help the world by staying at IHV. But the increasingly bitter exchanges with NIH pushed him over the edge. In August 2020, Lu resigned

his tenured position. He is now a professor at Fudan’s medical school in Shanghai.

“NIH was acting like a bully,” he tells *Science*, “and I decided that I’m not going to waste any more time on this witch hunt.”

Lu doesn’t blame the university, which through a spokesperson declined comment on the case, for his forced relocation. “The university never judged me, never put any pressure on me,” he says. “They were simply the middleman, the messenger.”

LU AND OTHER TARGETED SCIENTISTS interviewed say they had no idea their jobs were on the line when university officials first contacted them. None retained a lawyer at that point. After their initial replies, they often heard nothing for months. And once that silence was broken, most were told their only option was to resign or be fired.

Senior university administrators say they

were surprised by the tone of the NIH letters. “It came out of nowhere, and the accusations were pretty ugly,” says Robin Cyr, who was responsible for research compliance at the University of North Carolina, Chapel Hill (UNC), when the institution received its email in December 2018. “A Lauer letter meant that somebody at NIH thinks your faculty has wrongfully and willfully divulged intellectual property.”

UCSD officials were so alarmed by the accusations in the NIH email they received that they circumvented a committee Brenner created years earlier to work with faculty members to avoid conflicts of commitment. (Research universities, including UCSD, typically allow their faculty to spend 1 day a week on outside activities, including foreign collaborations.) Instead, Brenner says, “the matter went straight to the chancellor’s office.”

The letters also forced administrators to recalibrate their understanding of what types of collaborations needed to be disclosed. “This is the way it works in academia; you collaborate with people,” Brenner explains. “The money [a faculty member] received from NIH was always used in their lab, and then they would collaborate with other people using other funds. And we always thought that was a good thing until we were re-educated and told that it wasn’t.”

NIH’S SUDDEN SHIFT also surprised UNC biochemist Yue Xiong, who had assumed his

ties to China benefited all parties, including NIH. Xiong, who studies protein degradation, had come to the United States in 1983 thanks to a prestigious state-backed graduate scholarship program that allowed China’s most promising young scientists to finish their training in the West. A decade later, he landed at UNC and quickly established himself as a rising star.

“Yue is one of our most important scientists, a rock star, and a model of what we want our faculty to be,” says Brian Strahl, chair of the medical school’s department of biochemistry and biophysics, where Xiong spent 27 years on the faculty.

In 2003, Xiong set up a joint lab at Fudan with a friend and fellow alumnus of that scholarship program: biochemist Kun-Liang Guan, then a professor at the University of Michigan (UM), Ann Arbor. Fudan had reached out to Guan to seek his help in building up its graduate program in the life

sciences, and Guan asked Xiong to join him so the work didn’t interfere with his duties at UM.

Guan says the duo made sure the research it carried out in China was different from the work NIH was funding, and they hoped the Fudan students might wind up as postdocs in their U.S. labs. (Xiong declined to talk with *Science* but gave approval for colleagues to speak about his case.)

NIH contended Xiong’s NIH grant had been comingled—in what Lauer calls “overlap”—with funding from Chinese entities. “NIH considers the work that was inappropriately disclosed [from foreign sources] to be part of their ecosystem, that is, work that they had funded,” says Cyr, now executive vice chancellor for research at Northeastern University. “So the university had to disprove that, or we had to say it’s inconclusive.”

Cyr says NIH would not accept the latter response. “They just kept saying that we needed to dig deeper,” she recalls. “But the faculty’s stories didn’t change. The narrative was what it was.”

Another sticking point was whether Xiong had a contract with Fudan and had not disclosed it. Strahl and Leslie Parise, his department chair when the investigation was launched, say they were told the alleged contract contained language about intellectual property rights that UNC would never have accepted. But Xiong “kept saying he didn’t remember signing any contract,” recalls Parise, now dean of the University of Vermont’s college of agriculture and life sciences.

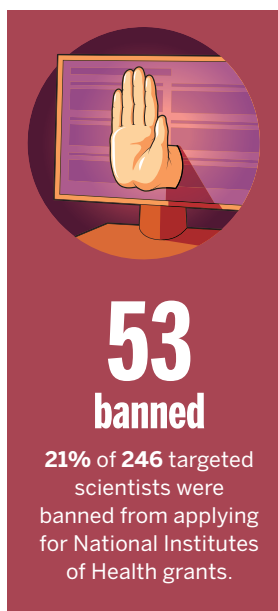
Strahl says he was told repeatedly that UNC’s entire portfolio of NIH grants—which was approaching \$1 billion—was at risk if Xiong wasn’t removed and that anything short of termination wasn’t an option. Cyr also felt that pressure.

“When you have Mike Lauer saying that certain individuals are not welcomed in the NIH ecosystem, that’s a powerful message,” Cyr says. “I get that Congress holds NIH accountable and that NIH felt it was in the hot seat. But in dealing with the problem, you shouldn’t compromise human beings.”

Xiong never saw a list of specific allegations, nor did UNC ever give him any report of its findings. Instead, on 27 May 2020, Xiong was told at a face-to-face meeting with the medical school’s head of human resources that he had 48 hours to decide whether to resign or be fired.

“He wasn’t given any other options,” recalls Strahl, who attended the meeting as Xiong’s new boss. “If you want to resign, that would be fine,” Strahl recalls Xiong being told. “But if you fight this, things won’t end well for you.”

They were both in shock, Strahl says. “All I could say was, ‘I’m so sorry.’ [Xiong] never



expected to be let go. He thought that the truth would prevail.”

Several of Xiong’s colleagues tried to intervene. “We all wrote letters to the chancellor asking him to reverse the decision, but we never even got an answer,” says biochemist William Marzluff, who had recruited Xiong to UNC. A UNC spokesperson declined to comment on the case.

Xiong retired quietly from UNC in July 2020 and is now chief scientific officer of Cullgene, a biotech startup in San Diego he co-founded fueled by some of his work at UNC. Six months after his retirement, a university press release touted a paper Xiong and others had published in a leading journal—but did not mention his departure.

LI WANG IS THE ONLY RESEARCHER *Science* spoke with who was able to overturn her termination, thanks to her union’s collective bargaining agreement. But that isn’t to say she emerged unscathed.

Within a week of receiving an email from Lauer on 6 November 2018, University of Connecticut (UConn), Storrs, officials had removed Wang, a tenured professor of physiology and neurobiology, from her NIH grant and denied her access to the mice she used to study liver metabolism.

But senior administrators soon decided NIH’s claims that Wang held a position at Wenzhou Medical University and had received a grant from the National Natural Science Foundation of China did not hold up. “There is sufficient evidence to show that Dr. Wang is not formally affiliated” with Wenzhou, UConn’s then-vice president for research, Radenka Maric, wrote Lauer on 21 November, and that the grant “was in fact awarded to a different Li Wang.”

Lauer wasn’t willing to accept those results, according to emails obtained by *Science* from UConn through a Freedom of Information Act (FOIA) request. On 28 November, Lauer wrote Maric, now UConn’s president, that there were “at least four publications” that listed “Dr. Wang-UConn as affiliated with Wenzhou” and reminded Maric “to consider those publications as part of your ongoing reviews.” Lauer also told Maric that “NIH thought a reasonable person would consider it more likely than not that Dr.



156
removed

63% of 246
targeted
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NIH grants.

Wang-UConn received financial support for her research” from the Chinese grant.

Lauer suggested UConn officials contact the FBI, and in a subsequent email Maric told Lauer it had given UConn “additional information regarding Chinese talent programs, foreign affiliations, and key search terms.” UConn used FBI techniques to search Wang’s emails, she told Lauer, and obtained “a forensic image of [Wang’s] laptop ... that appear to contradict her denials.”

UConn then changed its mind about Wang’s innocence. “We cannot certify Dr. Wang as being honest, trustworthy and forthright,” Maric told Lauer on 19 February 2019.

One month later, UConn banned Wang, who at one point held five NIH grants, from applying for NIH funding for 3 years, and in July the university decided to fire her. Wang resigned on 19 September 2019, 1 day before her termination went into effect.

Wang had already filed a grievance, which was rejected. But she had another way to fight back: A collective bargaining agreement gives UConn faculty the right to seek outside, binding arbitration in employment disputes.

Wang took advantage of that mechanism, in which an independent arbitrator conducts its own inquiry and issues a ruling that both parties have agreed to accept. The quasi-judicial process, which includes testimony from both sides, was conducted by the American Arbitration Association (AAA), and in November 2021 its arbitrator ruled in Wang’s favor. In a 56-page decision, AAA’s Peter Adomeit ordered UConn to pay Wang \$1.4 million in compensation for being suspended and terminated “without just cause.”

Wang declined to speak with *Science*, and her lawyer said a nondisclosure agreement prevents him or Wang from discussing the case. UConn officials also declined comment.

Adomeit’s ruling, which *Science* obtained from UConn through its FOIA request, excoriated UConn officials for an investigation it characterized as deeply flawed.

“[Interim Provost John] Elliott’s claim that the University ‘has lost confidence’ in Dr. Wang is true,” Adomeit wrote. “But it was their fault, not hers. They relied on false evidence. [Wang] tried to correct them, but they wouldn’t listen.”

“They ‘lost confidence’ because they only listened to one side of the story,” the decision continued. “Their minds were closed. They had no interest in contrary evidence.”

Adomeit found the university’s use of the results from its audit of Wang’s computer to be especially egregious, criticizing lead investigator Michelle Williams’s analysis. “Dr. Williams reached her conclusions without conducting metadata analysis on whether Dr. Wang wrote, modified, or accessed the computer data,” Adomeit wrote. Williams, he explained, “became convinced, after visually inspecting the forensic image of Dr. Wang’s computer, that Dr. Wang was lying, despite website evidence to the contrary.”

BESIDES CONDUCTING flawed investigations, some universities seem to have cracked down even harder than NIH demanded. That was the case for UCSD neuroscientist Xiang-Dong Fu.

Fu, who studies neurodegenerative diseases including Parkinson’s, was hired by UCSD in 1992 and earned tenure in 1998. That was also the year colleagues at Wuhan University, where Fu did his undergraduate studies, solicited his help in building up their research programs.

“You are already coming [to Wuhan] to visit your parents, so maybe you can provide some advice to our young faculty and work with their students?” Fu recalls being asked at dinner during one of those visits home. “If you have someone with similar research interests and some students, then I’d be happy to help out,” he says he replied.

Five years later such an opportunity arose, and Fu began to tack on 2 or 3 days at Wuhan every few months after spending a weekend with his parents. In 2005 his hosts formalized his role by naming him a visiting professor, and over the next 3 years he was paid \$1000 a month for 2 months’ work with funds from a government program for domestic scholars.

From 2012 to 2016, Fu was again supported by Wuhan through China’s Thousand Talents program, which was created to lure back Chinese-born scientists working abroad. Those who agreed to spend at least 9 months a year in China received generous salaries and lavish research funding. Given his full-time faculty position at UCSD, Fu chose the much less lucrative second tier,

91%
China

For **225** of the cases
China was the
country of concern.

85%
male

199 of the targeted
scientists are men.

81%
Asian

182 of the targeted
scientists self-
reported as Asian.

which came with a modest monthly stipend. In return, he spent several weeks a year at Wuhan and the Institute for Biophysics at Peking University, where one of his former Wuhan students was now a faculty member.

Although Fu says his superiors knew about and had approved his activities, UCSD officials concluded that Fu had violated NIH's disclosure rules. In February 2020, UCSD banned him from applying for NIH funding for 4 years.

"They said that I did not follow certain procedures. OK, that's fair," Fu says. "I probably failed in many different ways." A UCSD spokesperson says the university "will not comment" on his case.

Such a ban would have been professionally fatal for most academic biomedical researchers. But a \$9 million grant from a philanthropic initiative, Aligning Science Across Parkinson's, and patient donations allowed Fu to keep his lab going.

NIH told UCSD it regarded Fu's penalty to be sufficient punishment, according to multiple sources. *Science* has also learned that Brenner, now head of the neighboring Sanford Burnham Prebys research institute, told top UCSD officials he opposed any further sanctions. But UCSD continued to investigate Fu's ties to China. In a May 2021 report it concluded Fu had repeatedly violated UCSD's code of conduct for faculty pertaining to conflicts of commitment.

Fu didn't learn about the second investigation until July 2021 and didn't receive a copy of it until 6 months after that. In the interim he was invited to reply to the report, sight unseen, but told he "could not dispute the investigator's findings."

In January 2022, Fu was given the choice of either resigning or accepting a 4-year, unpaid suspension from the university that would ban him from campus and his lab. In March Executive Vice Chancellor Elizabeth Simmons submitted an official request that Fu be terminated, and in late April a faculty disciplinary committee recommended he be suspended without pay for 2 years.

"I probably failed in many different ways. ... But I still have a dream to chase."

Xiang-Dong Fu,
Westlake University



Fu filed a grievance, contending that many of the report's findings were incorrect and that the university had failed to follow its own procedures. More than 100 UCSD faculty members petitioned to lighten Fu's penalty, saying the continued prosecution of Fu "appeared rigged to assure the University lawyers would win their case rather than have justice be served."

UCSD officials never replied, says Christopher Glass, a professor of cellular medicine at UCSD who organized the petition, nor did Fu get a response to his grievance. On 5 December 2022, Fu "reluctantly resigned" after being told his 2-year campus suspension would go into effect on 1 January 2023.

Last month he accepted a position with the fledgling Westlake University, China's first private research university. There he hopes to spend the next few years refining a technique to convert brain cells called

astrocytes into new neurons. His goal is to validate the controversial approach and use it to develop possible treatments for neurodegenerative diseases. "I don't need a huge lab, and I don't need 10 years," 66-year-old Fu says. "But I still have a dream to chase."

His move to China represents a huge loss for U.S. science, says Glass, who occupied an office next to Fu for 30 years. "He's an amazing scientist, incredibly productive," Glass says. "You couldn't ask for a better next-door neighbor."

EVEN FOR SCIENTISTS who keep their U.S. jobs after surviving NIH scrutiny, the experience can take a heavy toll.

Guan had rocketed up the academic ladder after joining UM's biological chemistry department in 1992. A 1999 profile in its alumni magazine that marked his MacArthur genius award the previous year called him "one of the great scientific minds of his generation."

His success in elucidating the cell signaling pathways involved in organ development and cancer attracted Fudan's attention, leading to the joint lab he set up with Xiong. The collaboration was no secret.

"My [then-]dean even offered to install a video conference link so it would be easier for me to communicate with people at Fudan," Guan recalls. And when Guan joined the UCSD faculty in 2007, he says his new bosses "were fully aware and very supportive of the collaboration."

Once Lauer's letter arrived in late 2018, Guan says, he cooperated fully with UCSD's investigation. "Whatever they asked for, I gave it to them," he says. "Passwords. My passport. All my travel records. I had a contract with Fudan University, and I gave them a copy of that." He also relinquished his existing NIH grants.

In 2019, the university concluded he had violated its code of conduct by failing to disclose research support from foreign sources and banned him from applying for NIH funding for 2 years. Guan says his work in China "was totally irrelevant" to what NIH was funding him to do, although he acknowledges he was "inconsistent" in reporting income from Fudan.

Guan says he never received a letter describing the allegations he was facing or a report on the outcome of the university's investigation. But, "UCSD did what it could" to keep his lab afloat, he says, and he was able to win new NIH awards once the suspension ended in 2021. Even so, his lab has shrunk dramatically, and he's no longer taking on new graduate students for fear that he won't be able to support them for the duration of their training.

His love of science has also suffered.

"I used to work very hard," he says. "Now, sometimes, I wonder what was the point of all the effort I made."

"And I'm one of the lucky ones," he continues. "I don't know how many people that NIH wanted to stop are able to start again. Maybe none." ■

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