

## China's Lavish Funds Lured U.S. Scientists. What Did It Get in Return?

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**Highlight:** For years, China's Thousand Talents recruitment plan attracted U.S. scientists with its grants. Investigators now say China used the program to steal sensitive technology.

### Body

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For years, China's Thousand Talents recruitment plan attracted U.S. scientists with its grants. Investigators now say China used the program to steal sensitive technology.

More than a decade into his career as an organic chemist, Jon Antilla found a solution to the grinding task of fund-raising that, increasingly, was squeezing out his time in the laboratory.

Leaving a tenured position at the University of South Florida, he relocated to Tianjin University in China, where he was awarded a grant through a Chinese recruitment program, Thousand Talents.

He wasn't alone: Colleagues in Tianjin's chemistry department had given up tenured positions at the University of California, San Diego, and Texas A&M, among other prestigious institutions, attracted by China's readily available funding.

"We have time to think here," Dr. Antilla said. "You can think about your research."

As Dr. Antilla proceeded with his academic career, United States officials changed their view of China's recruitment programs, which they say have been used to steal sensitive technology from American laboratories.

In 2019, the Department of Energy barred its personnel from participating in recruitment programs from a handful of countries, including China. A few months later, a Senate committee declared China's recruitment programs a threat to American interests.

Thousand Talents grantees have become a focus for law enforcement authorities in the United States, tasked by the Justice Department with rooting out scientists who are stealing research from American laboratories. Dr. Antilla, like the vast majority of grantees, is not under suspicion.

Last week, federal prosecutors charged Charles M. Lieber, an acclaimed Harvard chemist viewed by many as a future Nobel laureate, with lying to federal authorities about his affiliation with Thousand Talents.

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Andrew E. Lelling, the United States attorney for the District of Massachusetts, described the program as “a very carefully designed effort by the Chinese government to fill what it views as its own strategic gaps,” including nanotechnology, Dr. Lieber's specialty.

When Dr. Lieber entered into cooperation with Chinese partners, he “was by definition conveying sensitive information to the Chinese,” Mr. Lelling said. “The moment he works at Wuhan University of Technology and conveys it to his Chinese counterparts, that research and expertise is now at the disposal of the Chinese government, because that's how it works in China.”

Dr. Lieber was charged with one felony count of lying to federal investigators. He has not entered a plea or responded publicly to the charge. Peter K. Levitt, Dr. Lieber's attorney, declined to comment for this article.

Security analysts are now scrutinizing a range of Chinese talent programs and the foreign scientists who have applied to them.

“One question would be, is this a bug, or a feature of these programs, to have a link to espionage?” said Elsa B. Kania, an adjunct senior fellow in the Technology and National Security Program at the Center for a New American Security. She said she hoped the response by the United States would be “surgical.”

“It is important to course-correct where some of these activities and behaviors are problematic, or even egregious, without causing collateral damage to this critical landscape of global research and innovation,” she said.

A spokeswoman for China's embassy in Washington, Fang Hong, said the Thousand Talents program was similar to the recruitment programs of other countries, intended to promote international cooperation in science.

“The Chinese government firmly opposes any breach of scientific integrity and ethics,” Ms. Fang said. Violations uncovered by the United States government, she said, reflected the actions of individual scientists, not the Chinese government.

“It is extremely irresponsible and ill intentioned to link individual behaviors to China's talent plan,” she said.

A more emotional response came from Rao Yi, a Chinese neurobiologist who, after 22 years in the United States, returned to China and said he was one of the scholars who proposed the Thousand Talents program.

“After decades of brain drains of scientist from China, Chinese economy can now afford to recruit scientists and support them to carry out basic science which will be of benefit to mankind,” Dr. Rao, the director of the Chinese Institute for Brain Research, said in a written response to questions.

Allegations that the program was used to steal intellectual property were “a fat lie,” he said.

When the Thousand Talents recruitment program began in 2008, aiming to entice Chinese scientists overseas to bring their research back to China, it hardly raised an eyebrow.

Many scientists were recruited to the talent programs, enticed by starting salaries that can be as much as three or four times their existing salaries. More than 10,000 joined, according to William Hannas, who was a member of the Senior Intelligence Service at the Central Intelligence Agency.

Dr. Hannas, now lead analyst at the Center for Security and Emerging Technology at Georgetown University, is the co-author of a forthcoming book on what he described as China's “informal” technology transfers.

Not all talent program scientists were at universities. About 300 were government scientists and about 600 worked for United States corporations. A quarter were with biotech firms, according to James Mulvenon, director for intelligence integration at SOS International, a private defense contractor. He is a Chinese linguist, and the co-author, with Dr. Hannas, of the book on China's technology transfers.

Until recently, much about the Thousand Talents program was public.

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Universities mostly steered clear of investigating researchers, worried about being accused of racial profiling and threatening academic freedom, Dr. Mulvenon said.

Even stipulations in some talent program contracts, like ones requiring that China own intellectual property, did not raise alarms.

In 2018, Jeff Sessions, then the attorney general, announced a "China initiative" after several cases came to light of scientists illicitly providing China with technology and research findings paid for by federal agencies. Its goal was to increase the investigation and prosecution of Chinese economic espionage-related crimes in the United States. China soon removed the list of Thousand Talents members from the internet. It recently changed the program's name to National High-end Foreign Experts Recruitment Plan.

There was a complication for the United States investigations, though: In academia, with its tradition of exchange and openness, researchers from China were integrated into American labs. Scientists are allowed to collaborate and give seminars in other countries. Most universities have loose regulations about outside employment and income. Until very recently, most federal agencies had no regulations prohibiting employees from belonging to Chinese talent groups.

Suppose, Dr. Hannas said, a scientist in a university lab or a high-tech company learned valuable techniques. And suppose that scientist then signed a contract to work in a Chinese lab on similar technology.

"Is it illegal? Probably not," he said. "Is it unethical? Hell, yes."

So far, Dr. Mulvenon said, prosecutors have focused on discrete violations instead of arguing that the programs can be a form of espionage. They have accused researchers of transgressions such as not revealing large payments and research funds from China when federal grants require them to disclose outside funding.

Among the cases brought by federal prosecutors last year was that of You Xiaorong, a researcher who left a job in Atlanta in which she researched BPA-free coatings for beverage cans used by the Coca-Cola Company. The indictment asserts that Dr. You, who is known as Shannon, was offered a Thousand Talents award "based on the secrets she stole." She is alleged to have transferred trade secrets worth \$120 million, uploading files to her Google drive and taking photographs of industrial laboratory equipment. Ms. You has pleaded not guilty.

Many investigations of academics are still in progress, but some accusations have been made public. Officials at M.D. Anderson Cancer Center in Houston and at the National Institutes of Health, for example, found emails and documents that they say revealed flagrant violations by some academic scientists, such as grant reviewers who sent confidential grant proposals detailing research plans to colleagues in China. In other cases, the N.I.H. said, researchers were getting patents or starting companies in China based on research carried out at a United States university with support from the federal government.

Dr. Mulvenon said explicit transgressions are thought to be only a part of the problem of keeping valuable United States technology safe.

It is, he said, a gray area. "It's not a case of them stealing technology by infiltrating a computer," he said "What we are seeing is them relieving the rest of the world of technology by means that are not necessarily illegal."

He added, "We can't say, 'We don't want to do research with the Chinese.'"

Peter Zeidenberg, a lawyer who is representing two dozen Chinese and Chinese-American scientists who are under investigation, noted that prosecutors in most of the cases have not alleged any technology transfers, and were focused instead on the scientists' failure to disclose grants.

"They're taking an unbelievably heavy-handed approach to this," said Mr. Zeidenberg, a partner in the Washington, D.C., firm Arent Fox. "There is no compliance training on these forms. It's just a form you get every year. Until very recently, nobody paid any attention this stuff. Now they're cracking the whip and they're treating these people like felons."

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Scores of Western scientists have applied for Thousand Talents grants over the years. In interviews, several described their decision as straightforward: China had money available.

"When you get above a postdoc level, everybody applies to every country in the world," said Tim Byrnes, an assistant professor of physics at N.Y.U.'s campus in Shanghai, who received a Thousand Talents grant in 2016. "People are crossing borders all the time, and eventually congregate where there is the most money. China is now pouring huge amounts of money for research."

Like the other grantees who were interviewed, Dr. Byrnes said he had never had to submit any reports on his research to the Chinese government, and that all his research is published in academic journals. He said Thousand Talents was similar to other international grant programs.

"It's only because it's from China that everybody has this kind of opinion of it," he said.

Already, he said, any affiliation with the program is damaging the prospects of scientists seeking funding from the United States government. "If I write this information down, immediately the probability of the success of this or that grant sort of plummets," he said.

Dr. Antilla, the organic chemist who relocated to Tianjin, said there were indeed ethical minefields for recipients holding positions in China and the United States, and that he eventually decided to move his work entirely to China to avoid them.

Particularly thorny, he said, is the practice of maintaining laboratories in both China and the United States.

"There are questions about intellectual property — how do you share data, if you share it at all," said Mr. Antilla, now a professor of chemistry at Zhejiang Sci-Tech University. "It could be tricky. What are the rules?"

But he said he was always scrupulous about reporting the money he received to his employers in the United States. It worried him, he said, that Thousand Talents was "getting a bad name."

"Basically, I think my science is for the world," he said. "There's nothing that China is getting from my science that they're keeping from the world. I publish everything I get."

PHOTOS: Charles M. Lieber, above, the head of Department of Chemistry and Chemical Biology at Harvard, left, was charged last week with lying about his link to Thousand Talents, a Chinese recruitment program. (PHOTOGRAPHS BY KATHERINE TAYLOR/REUTERS); Rao Yi, a Chinese scientist who said he helped propose the Thousand Talents program, said accusations it was used for intellectual theft were "a fat lie." (PHOTOGRAPH BY GILLES SABRIÉ FOR THE NEW YORK TIMES)

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