

The accidental spy

Hiroaki Serizawa's promising US academic career was ruined when a favour to a friend led to him being charged with economic espionage on behalf of Japan. He tells his story to David Cyranoski.

In July 1999, Hiroaki Serizawa, then a cancer researcher at the University of Kansas, made a fateful decision: he agreed to let a long-time friend, Alzheimer's disease specialist Takashi Okamoto, store some research materials in his lab freezer. At the time, about a week after the birth of his first child, Serizawa says he gave little thought to the request. But his decision culminated in his conviction in a federal court, and the end of his academic career.

The episode saw the first application of a clause from a 1996 US law drafted to target economic spies working for foreign organizations. Legal experts suggest that the act may need to be changed in the light of federal prosecutors' failure to convict Okamoto, their main target. But Serizawa's experience is a cautionary tale for academic researchers unaware of the extent to which business and legal interests have penetrated their world.

In Japan, where the affair has been front-page news, Serizawa's case has struck fear into the hearts of researchers considering a move to the United States. And the repercussions continue: Serizawa, who wants compensation for his losses, is now squaring off with Okamoto in a Tokyo court.

These legal fireworks were ignited by research on caveolins, a family of proteins active in cell membranes. Okamoto's group at the Cleveland Clinic Foundation in Ohio had found that one of these proteins, caveolin-3, promotes the formation of the plaques that are thought to destroy the brains of Alzheimer's patients (K. Nishiyama *et al. J. Neurosci.* **19**, 6538–6548; 1999).

In early 1999, with new funding and a growing library of cell lines and DNA samples to work with, Okamoto was set to pursue an enzyme — yet to be identified — known as α -secretase. This enzyme cuts the plaque-forming protein in half, and so can prevent plaque build-up in the brain.

But in July 1999, Okamoto suddenly ransacked his own lab. He maintains that he did



On trial: Hiroaki Serizawa ended up with a fine and community service — and lost his funding.

this to prevent one of his research fellows from persisting with “irreproducible” and “reckless” experiments that would bring shame to the research group.

Incriminating evidence

The clinic authorities asked the police to investigate, and it wasn't long before the FBI got involved. Its agents did not accept Okamoto's explanation. An affidavit dated 27 August 1999 accused Okamoto of taking or destroying some 1,000 DNA samples and 250 cell lines developed in his group's research. According to the affidavit, Okamoto “took deliberate and calculated steps” to deprive the clinic of valuable materials.

Eventually, in May 2001, Okamoto was indicted on four counts, the most serious being a violation of Clause 1831 of the 1996 Economic Espionage Act, which covers activities to benefit a foreign organization. “The original intent was to target foreign companies, especially those with state sponsorship,

that steal trade secrets,” says Peter Toren, a New York-based intellectual-property lawyer who helped to draft the act. The clause was invoked in Okamoto's case because he was planning to take up a position in Japan with RIKEN, the Institute of Physical and Chemical Sciences.

RIKEN itself was never accused of complicity. But Serizawa, thanks to the contents of his freezer, was charged with conspiracy to commit economic espionage. Sitting on a couch in the lobby of the Tokyo apartment building of a supporter who has helped bankroll his legal team, the quietly spoken biologist told *Nature* how events unfolded.

Confusion and fear

Serizawa and Okamoto met in the late 1980s at the University of Tokyo, and again when each came to do postdoctoral work in Cambridge, Massachusetts — Okamoto at Harvard University and Serizawa at the Massachusetts Institute of Technology. “We shared information on how to write grant applications and he even gave my family medical advice,” says Serizawa.

Serizawa says he didn't think to question Okamoto's motives when his friend asked him to store the materials. “I could not understand that this was a serious problem,” says Serizawa, who was shocked when federal agents showed up at his laboratory on 2 September 1999 and grilled him for seven hours.

In the end, following a plea bargain in which he agreed to testify against Okamoto, Serizawa was charged only with giving false testimony to the FBI in that first interview. The offending statements — which Serizawa corrected later during the same meeting — were an underestimate of the number of vials that he was holding for Okamoto, a denial that he knew his friend had accepted a job offer with RIKEN, and a denial that he had met Okamoto since receiving the materials.

Serizawa blames the mis-statements on confusion and fear. “They showed up with a subpoena, and I had no idea what that was because in Japan we have no such system,” he says. “I was surprised when I realized that I was really under investigation.”

On 28 May 2003, Serizawa was sentenced to a \$500 fine, 150 hours of community service and three years on probation. “I had no idea what an impact this would have on my career,” he says. The American Cancer Society terminated Serizawa's grant; felons are not eligible for funding from the National Institutes of Health within three years of their conviction; and the University of Kansas, where he had worked since January 1997, would not let him do any more research.

Serizawa eventually found employment



Vial plot? Takashi Okamoto (below) was accused of stealing samples from his lab at the Cleveland Clinic (left) after his lab was ransacked.



outside academia. In November 2003, he was appointed chief scientific officer at Life-Science Catalyst Partners, a consulting firm in Palo Alto, California, that aims to build collaborations in biotechnology between Japanese and US companies. Serizawa appreciates the irony of someone who was once accused of being a spy taking such a job. But he cannot forget his ordeal. "I miss research and academia," he says.

Serizawa blames Okamoto for losses including some \$500,000 in legal fees, about \$200,000 of which have been covered by his support group. He is suing his former friend for \$770,000 in compensation. The court will have to sort out contradictory views on what happened. For example, Serizawa says that Okamoto should have stated publicly that his friend had no prior knowledge of the contents of the vials. "His testimony was crucial information," says Serizawa. "No one else knew what happened."

According to Serizawa, his wife called Okamoto and asked for help, but Okamoto hung up on her. Serizawa's support group has the registered mail documentation for a

three-page letter sent — when they couldn't locate Okamoto — to Okamoto's lawyer, ex-wife and parents pleading for him to "appear in public and discuss the truth of the incident". But Okamoto denies that he was ever approached to do anything on his friend's behalf. "I was never asked to come to Serizawa's defence," he asserts.

While Serizawa's legal team was preparing his defence, Okamoto was back in Japan, fighting efforts to have him extradited. Finally, in March this year, a Tokyo court judged that Okamoto's deeds were not carried out to benefit RIKEN — and, for the first time, Japan refused a US extradition request.

Broken friendship

Okamoto had by then been forced to resign from RIKEN. In September 2001, he moved to the Sea of Okhotsk Hospital, in the small town of Tanno at the northern tip of Japan. He still maintains his innocence, and is angry that he spent 57 days in jail awaiting a decision on his appeal against extradition. "I couldn't see my patients, I was deprived of my rights, and I suffered terrible emotional pain," he told *Nature*.

Those complaints cut little ice with Serizawa's supporters. "As a scientist and as a human, Okamoto has the responsibility to apologize to Serizawa," says Ken-ichi Arai, former director of the University of Tokyo's Institute of Medical Sciences.

A decision in Serizawa's suit against Okamoto could come as early as next month. Meanwhile, legal experts are debating what

the case means for clause 1831 of the Economic Espionage Act. Some believe that the difficulty of proving that someone's actions were intended to benefit a foreign organization makes the clause toothless. "It would be hard to convict anyone," suggests Robert Kneller, an expert on intellectual property at the University of Tokyo.

But researchers should not rest easy. Clause 1832 of the same act lists most of the same crimes without the stipulation of benefiting a foreign entity. It carries a lighter maximum penalty, but is being used to convict foreigners.

The 2003 report from the National Counterintelligence Executive underlines the US government's tough stance: "Foreign businessmen, scientists, academics, and government officials from more than 90 countries continued targeting sensitive US technologies and corporate trade secrets in both 2002 and 2003," it noted. The report blamed this in part on the United States' "commitment to global information sharing through academic and scientific exchange".

This could mean closer scrutiny of academic laboratories. "My sense is that, despite the publicity given to several cases, the bulk of the scientific community remains unaware of the Economic Espionage Act," says Mark Frankel, director of the Program on Scientific Freedom, Responsibility and Law at the American Association for the Advancement of Science in Washington DC. Serizawa's advice on that point is clear: ignorance is not bliss. ■

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