

NEWS

Doubts over biochemist's data expose holes in Japanese fraud laws

TOKYO

An experiment published by biochemist Kazunari Taira is not reproducible, a University of Tokyo committee has concluded. The announcement, made on 27 January, vindicated many scientists who have challenged Taira's work.

But the ongoing investigation is raising more questions than it answers, as the committee seems unlikely to uncover what lies behind the invalid result, or address many of Taira's other papers, at least 12 of which have been questioned. Many in Japan are now calling for clearer guidelines to cover how universities should respond to cases of suspected fraud.

Taira is known for his work on RNA interference, in which small pieces of RNA intercept and regulate the process by which genes are turned into proteins. The molecules block specific genes, and are a powerful tool for studying gene function. Clinical use of the molecules to block the development of certain diseases is also getting under way.

Taira's work is not considered central to the promise of the technology. But so many scientists were trying — and failing — to repeat his work that the RNA Society of Japan became concerned. In April 2005, after several complaints from members, the society asked the University of Tokyo to examine 12 papers written by Taira and his team, including two *Nature* papers, one of which had already been retracted and the other corrected (H. Kawasaki and K. Taira *Nature* 423, 838–842; 2003 and H. Kawasaki and K. Taira *Nature* 431, 211–217; 2004).

The university set up a committee of internal and external experts to investigate. It asked Taira for raw data but he claimed that another author on the papers, Hiroaki Kawasaki, could not locate the proper notebooks. So the committee asked Taira to redo experiments described in four of the twelve papers by the end of December (see *Nature* 437, 461; 2005).

In a report submitted to the committee on 13 January, Taira said his team had reproduced one of these experiments, from a paper in *Nucleic Acids Research* (H. Kawasaki, E. Suyama, M. Iyo and K. Taira 31, 981–987; 2003). In that study, a human enzyme that can cut long RNA molecules into shorter pieces,

useful for RNA interference, is expressed and activated in the bacterium *Escherichia coli*. But the committee rejected the replicated result, partly because its own findings suggested that the experiment used different materials from those in the original work. An external company asked by Taira to repeat the test was also unable to activate the enzyme.

Taira, who denies any wrongdoing on his part, saying that he is not capable of performing such "technical" experiments, blames Kawasaki for the discrepancies. At a press conference on 27 January, a dejected Kawasaki spoke up only to say that the inconsistencies were just a matter of mislabelling. He has denied any wrongdoing.

Taira told *Nature* on Friday that he would not retract the paper, but will continue the tests. He is also trying to confirm experiments from a second paper; efforts to reproduce the third and fourth experiments haven't yet started.

Yoichiro Matsumoto, head of the investigation committee, says it will produce a final report in March. Another university committee may now meet to discuss possible disciplinary actions. But although Taira's credibility has suffered, a full investigation to determine whether fraud was involved is unlikely, because there is no clear legal authority for the

university to carry one out. Without concrete evidence, "we could get sued," says Matsumoto. Most countries either have a governmental oversight body to deal with possible fraud, or research institutions have guidelines in place to determine how to proceed.

Akira Yoshikawa, director of the science ministry's Science and Technology Policy Bureau, says that it is unlikely that Taira or Kawasaki will be investigated for criminal fraud — that is, for seeking funds based on research they knew to be fake — because the results so far have been "grey".

The situation is in stark contrast to the intense investigation that South Korea's Seoul National University (SNU) recently completed into the work of cloning researcher Woo Suk Hwang (see *Nature* 439, 122–123; 2006). There, the SNU conducted independent tests. The investigation team shut down Hwang's lab, examined notebooks and other materials, and conducted in-depth interviews, to reach a firm conclusion within a few weeks.

Jung-Hye Roe, head of research at SNU, says that although there was no clear legal framework in South Korea either, the university president gave the committee "full authority" to investigate — an unprecedented move motivated by a petition of university scientists.

The situation in Japan leaves researchers in the field uncertain about the merits of much of Taira's work. For example, Kunihiko Matsumoto, a biologist at Nagoya University, tried using Taira's technology to block gene activity, but failed to make it work. "I don't know if the problem is the technology or the genes we used," he says.

Many in Japan are now calling for clearer guidelines on dealing with fraud. In response to the Taira case, the government's Council for Science and Technology Policy says it will consider measures, although it's not clear yet what those would be. And the science ministry says a committee will report on the issue by the summer.

But neither is considering creating an independent body, such as the US Office of Research Integrity. "In some countries there is a government office to take care of such things, says Yoshikawa. But in Japan, we are already trying to cut back the number of government officials. The last thing we want to do is open up a new office."

Ichiko Fuyuno and David Cyranoski



RNA-interference researcher Kazunari Taira insists that he will be able to replicate his results.