IMANISHI-KARI CASE

Baltimore Defends Paper at Center of Misconduct Case

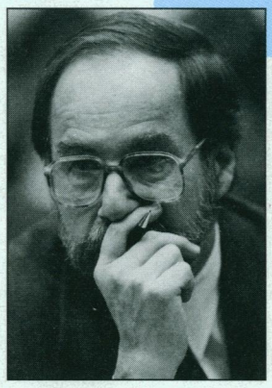
The first phase of a lengthy public hearing in the celebrated case of Tufts University immunologist Thereza Imanishi-Kari ended late last month after testimony from Nobel Prize–winning molecular biologist David Baltimore. Baltimore took the stand to defend Imanishi-Kari against charges that she falsified data in a paper, co-authored with Baltimore and four other scientists, that was published in *Cell* 9 years ago. The testimony from the Massachusetts Institute of Technology scientist was part of a strategy by Imanishi-Kari's lawyers to show that the paper's findings have held up under scientific scrutiny, and that this indicates that the data on which they were based are valid.

The hearing, which began on 12 June, is a proceeding, resembling a trial, conducted by a three-member appeals board of the Department of Health and Human Services (HHS). Last November, the Office of Research Integrity (ORI), an investigatory branch of HHS, concluded that Imanishi-Kari "not only fabricated and falsified critical areas of the reported results, but in denying the original misconduct, she further compounded these violations by fabricating data that she claimed supported her initial findings" (*Science*, 2 December 1994, p. 1468). ORI charged her with 19 separate counts of scientific misconduct and proposed that she be banned from receiving federal funding for 10 years. Imanishi-Kari immediately exercised her right to appeal ORI's findings. The current hearing is the first chance for Imanishi-Kari—who because of ORI's findings was forced to give up her position at Tufts as of 1 July—to cross-examine witnesses and rebut evidence brought against her. Says ORI Director Lyle Bivens: "We have to make our case from square one."

The first phase of the 5-week hearing featured 3 weeks of testimony from both sides on the circumstances surrounding the preparation of the *Cell* paper, the statistical analyses ORI experts used to support their conclusion that key data were fabricated, and the data's scientific relevance. ORI plans to present the backbone of its case—forensic evidence that Imanishi-Kari altered her lab notebooks to record experiments that ORI claims were never done—when the appeals hearing resumes.

The opening testimony came from many of the dramatis personae familiar from congressional hearings and government inquiries into this case from years past. On the government's side, Margot O'Toole, the postdoc in Imanishi-Kari's lab who was the first to point out problems she saw with the *Cell* paper, gave a detailed summary of how she said she discovered that data had been fabricated. She was followed by Nobel Prize–winning molecular biologist Walter Gilbert of Harvard University, an O'Toole champion, who reiterated his opinion that key data in the *Cell* paper were fraudulent because they did not accurately reflect data in Imanishi-Kari's lab notebooks.

Perhaps the most notable new testimony came from Baltimore. He and all the other co-authors of the *Cell* paper—except Imanishi-Kari—retracted the paper in 1991, when the Office of Scientific Integrity, ORI's predecessor, first concluded that some data had been fabricated. In spite of that retraction, Baltimore's 2 hours of testimony was largely an attempt to defend the scientific validity of the paper, which implied that the expression by an immune cell of a foreign antibody gene can somehow influence the cell's own intrinsic antibody repertoire.



Baltimore conceded that today few immunologists accept the *Cell* authors' interpretation of their data—that antibody expression is governed by a complex network of interactions among antibodies. But he insisted that the findings have been supported by subsequent studies from other labs. "It's safe to say that everything the paper had to say has been confirmed," he told *Science* after he had finished his testimony, citing an article in *Immunological Reviews* last year by a team led by Pasteur Institute immunologist Antonio Coutinho reporting results showing a pattern of antibody expression after introduction of a foreign gene similar to that shown in the *Cell* paper. An immunologist who testified on Imanishi-Kari's behalf, John Kearney of the University of Alabama, also reported what he calls "supporting evidence" for the *Cell* paper. Kearney's lab, which has for the last decade been studying "V_{H81x}" immunoglobulins from a family of mouse antibodies, found that expression of these antibodies showed a pattern similar to that seen in the *Cell* paper. "Our findings suggest that the results in the *Cell* paper were well represented," Kearney told *Science*.

Baltimore argues that the fact that these studies support the *Cell* paper's surprising conclusion indicates that Imanishi-Kari's data were valid. He says that in his opinion, Imanishi-Kari could not have "foreseen" her findings based on previous experiments—and therefore could not have fabricated the data. "I can't imagine how anybody would think Thereza would fake those data, since no one could have known in 1986 that those were the right answers," he told *Science*.

ORI lawyers don't buy that argument. "The main issue is not whether the fundamental findings have been replicated, but that [the data] were fabricated," Bivens told *Science*. When the hearing resumes on 21 August, ORI will present statistical and forensic evidence to back its conclusion that, no matter how correct the paper's findings may be in hindsight, some of the data were fabricated. Imanishi-Kari, who will testify, and her lawyer, Joseph Onek of Crowell and Moring of Washington, D.C., are expected to call scientific experts to contest the forensic evidence.

The defense team is also expected to argue that Imanishi-Kari's records were simply sloppy, rather than fabricated. Baltimore suggested this line of defense when he testified, for example, that Imanishi-Kari's notes were scribbled on paper towels and other random bits of paper often left "yellowing on her windowsill." From this chaos, Baltimore said Imanishi-Kari could reliably summon data on specific experiments. "It was a rare talent," he said. And he suggested that Imanishi-Kari is not the only scientist to practice haphazard record-keeping. "I've known scientists who've kept surprisingly skimpy notes," he testified.

"No one could have known in 1986 that those were the right answers."
—David Baltimore

The appeals board, consisting of two government lawyers and an outside immunologist, is not expected to issue its verdict until several months after the hearing ends. According to Bivens, the board has the latitude to "uphold any or all" of the 19 misconduct charges. The board can also recommend different sanctions to HHS, such as changing the length of the proposed 10-year funding ban. If the board does find for ORI, Imanishi-Kari's only recourse would be to take the case to federal court.

–Richard Stone