The Dingell Probe Finally Goes Public

Using evidence from a 9-month investigation by the U.S. Secret Service, John Dingell tried to prove a case of scientific fraud. He found lots of fault—but no fraud

Congressman John Dingell did his level best to pillory Nobel laureate David Baltimore last week. His principal strategem: to catch Thereza Imanishi-Kari at fraud and watch her drag Baltimore down with her. He succeeded in neither count.

Dingell has been in relentless pursuit of Baltimore and Imanishi-Kari, Baltimore's coauthor on a controversial 1986 paper in *Cell*, ever since last spring when he held a congressional hearing to which the authors were not invited (*Science*, 24 June, p. 1720).

Last week, Dingell rectified that omission. As chairman of the House subcommittee on oversight and investigations, whose jurisdiction includes the National Institutes of Health, Dingell held a day-long hearing that was billed as an inquiry on "Scientific fraud and misconduct: The institutional response." At the outset Dingell said, "Our focus today will be on the ability and the will of major research institutions and the NIH to police themselves." Indeed, that was on the agenda, as it was at a follow-up hearing taking place as this issue of *Science* goes to press. (The institutional issues will be the subject of a another article.)

But, as the 4 May hearing wore on, a second agenda could not be mistaken. With staff members Peter Stockton and Bruce Chafin, aided by NIH's self-appointed fraud buster Walter Stewart who is on loan to the subcommittee at Dingell's request, Dingell had marshaled an array of evidence meant to prove that what has been consistently described as a case of error was no such thing. Further, they seemed to be out to show that no fewer than three institutions—Tufts, the Massachusetts Institute of Technology, and the National Institutes of Health—had thoroughly botched investigations of the case by failing to uncover fraud.

Dingell's ace in the hole: the U.S. Secret Service. Since August 1988, Secret Service forensics experts, at Dingell's request, had been secretly reviewing Imanishi-Kari's original notebooks, and examining by fancy photographic analysis an autoradiogram that appeared as figure 4 in the *Cell* paper. Before the hearing, there were rumors that the agents had found pages with altered dates and notes for 1984 experiments that were written with ballpoint ink that wasn't made until 2 years later.

The expectation, or fear, was that the Secret Service would produce a smoking gun. But in the end, there was none—even though there was plenty to support an argument that the preparation of the *Cell* paper was sloppy, and even flawed. A panel of NIH-appointed reviewers acknowledged as much.

The new evidence came down to this:

First: The Secret Service showed, beyond a shadow of a doubt, that Imanishi-Kari altered dates in her laboratory notebooks. (She did it, she said, to correct mistakes.) The agents showed that she transcribed data from 1986 before recording data from 1984, and that she did it on the same pad of lined paper, so that the impression or indentation from the page of 1986 data could be detected on the 1984 page below it on the pad (see "Secret Service Probes Lab Notebooks," p. 644).

One of the ironies of the hearing was the fact that the Secret Service's arguments, point by point, were as difficult to grasp as the science in the *Cell* paper—"Altered repertoire of endogenous immunoglobulin gene expression in transgenic mice containing a rearranged mu heavy chain gene." The agents readily admitted they had no idea about the content of the pages they analyzed—meaning that they had no idea if the

Credit for Whistle-Blower Vanishes

UPI/Bettmann Newsphotos

Margot O'Toole

What should be done to protect whistle-blowers? A portion of the Dingell hearings was devoted to this topic because, as NIH director James B. Wyngaarden acknowledged, the whistle-blower is often "ill treated." Indeed, Margot O'Toole, who raised the principal allegations about the work of her superior, Thereza Imanishi-Kari, has received precious little reward for the professional risk she took in challenging a colleague.

So committee members wanted to know why NIH had at the very least not given O'Toole credit for her conscientiousness. As John Dingell put it: "Although the [NIH review] panel concluded that virtually all of Margot O'Toole's concerns about the paper were correct and serious, its report made no mention of that fact."

But it wasn't always that way: a draft version of the report contained the following line: "The panel was impressed by Dr. O'Toole's response to questions and her intellectual grasp of a very complex system."

But when the final report came out, the O'Toole line was missing. Where did it go? Dingell wanted to know. No one had an answer.

"I did not excise it," said NIH director James Wyngaarden.

"I do not know how the statement disappeared," said NIH panel member Ursula Storb, who remembered that it was in the original.

"We do not have a good explanation," said NIH panel chairman Joseph Davie.

The NIH staff reviewed and edited the final report. Could the staff have deleted the O'Toole line? If so, Dingell wanted to know what that said about the "independence" of the independent panel.

But no staff member was identified as the culprit and none came forward.

Along the way, Wyngaarden volunteered that commending O'Toole "was not a charge to the panel."

Dingell speculated that perhaps the missing commendation was deleted "in the dark of night." ■ B.J.C.

altered or misdated pages meant anything—and no one proved that Imanishi-Kari's notebooks contained phony data.

However, Baltimore called Imanishi-Kari's note-keeping "unorthodox" (as did NIH director James B. Wyngaarden) and said "it certainly is not the sort of practice I'd recommend." But Baltimore defended her ability to reconstruct her data and declared later that he would rather collaborate with "someone who is messy than someone who is not very smart." He called her uniquely able to do the serological work that she does and described her as "the most intensely honest person I've ever met."

Imanishi-Kari met the Secret Service's charges head on. She readily admitted both that she is not a "neat person" and that she often does not record data in formal notebooks at the time she does an experiment—often, she said, because she is engaged in several experiments at one time and stores her data for recording later. In this case, some data were recorded 2 years later.

"Mr. Chairman, I have been through three investigations and I still don't understand what is the charge," said Imanishi-Kari, for whom English is a fourth language, after Portuguese, Japanese, and Finnish.

The Republican members of the Dingell subcommittee seemed sympathetic.

Representative Alex McMillan of North Carolina wondered aloud whether "anyone has ever examined the notebooks of Albert Einstein." Earlier, Representative Norman F. Lent of New York warned his colleagues to approach the day's testimony with "caution" because the "coauthors' opportunity to respond [to the Secret Service] came only after the hearing was scheduled and the adversarial process had begun."

Another piece of new evidence pertains to a photo in the *Cell* paper. The Secret Service made a persuasive case that figure 4—an autoradiogram—is a composite, made up of different exposures. The coauthors first learned that this would become an issue only days before the hearing when Dingell staffers, including Stewart, first questioned figure 4.

A Secret Service agent versed in photo analysis testified that the figure is a composite, and further showed that the data appeared to be presented selectively. In particular, a band representing a transgene had been removed from one of the exposures.

Said Baltimore, had they asked "I could have told them that." A sworn affidavit from *Cell* editor Benjamin Lewin attested to the fact that the journal customarily publishes composites.

Critics take the position that the composite nature of the autoradiogram should have been noted (at least one member of an NIH investigating panel agrees) and that the transgene band should not have been dropped. Coauthor David Weaver, who did the molecular analyses of the data while working as a postdoc in Baltimore's lab, testified that deleting the band was perfectly proper. "Figure 4 shows our observation that, for 14 of the tested cells, only one expressed the transgene"—thus it was not vital to the radiogram. "This is one of the major conclusions of our paper," said Weaver, striking a theme that the coauthors and the NIH panel repeated several times during the day: namely that for all the valid criticisms that can be leveled against the *Cell* paper, the basic observation about genetic control of immunological activity remains true and has been supported in part by subsequent work in others' laboratories.

But Dingell was not readily assuaged. He recalled the days he took chemistry in college and said he had been taught never to leave out data. The data are the data, he was taught. He asked Baltimore whether he would teach students to manipulate their data or to present it factually.

"Photographic data, which is much of what molecular biology is today," is not like the chemistry we learned in school, Baltimore replied, and went on to explain how the radiogram was made and what it shows.

Dingell dropped his pursuit of the data and turned his attack directly on Baltimore. A third potentially damaging piece of evidence in the case is the so-called "Eisen letter" which Baltimore wrote to MIT scientist Herman Eisen on 9 September 1986. (Eisen had been brought into the case by the dean of MIT who asked him to conduct an initial review of Margot O'Toole's complaints about the *Cell* paper.) The letter was written the night after Eisen told Baltimore that Imanishi-Kari had said she knew that a reagent had not worked. In the letter, which came to light in the subcommittee's sweep of documents (*Science*, 28 April, p. 412). Baltimore referred to a "remarkable admission of guilt" but suggested nonetheless that no retraction of the data was necessary because (i) the reagent was not crucial to the central scientific finding of the paper and (ii) because a retraction would hurt the reputation of coauthor David Weaver whose contributions to the paper were entirely separate from Imanishi-Kari's and not under any cloud at all.

"A reading of the letter is that your instinct was not to go public," Dingell said to Baltimore, implying a cover-up. Thus, it could be interpreted as evidence that scientists cannot be trusted to investigate their own.

"I Am Not a Neat Person"

Scientists, it is thought, keep orderly records of their data. The ideal researcher takes an hour or more at the end of the day to transcribe experimental results into laboratory notebooks that will be a formal account of the day's work. But not everyone meets that ideal. Certainly, Thereza Imanishi-Kari does not—and now, as the result of an extraordinary attempt to find fraud, her imperfection has been found out.

Ken Heinen

Thereza Imanishi-Kari

The Secret Service went over a couple of Thereza Imanishi-Kari's notebooks line by line in an examination that revealed, beyond a shadow of a doubt, that she does not record her data in an orderly or even contemperaneous fashion.

"I would like to tell you about my meeting with the Secret Service last week. That was a big shock . . . because I have always been a believer in telling the truth and it sounded to me like they were saying I made things up. . . . Now I've had a chance to see some of these new charges and to me they make no sense. What they seem to be saying is that I am not a neat person. Well, that's true. I do keep *my notes* in what seems to others as a messy condition. But I know my notes, I know where they are and how to read them. That's what's important. After all, they are *my* notes. I'm the one who has to understand them.

"As I understand it, the things the Secret Service talked about only have to do with matters that were not included in the *Cell* paper. I haven't heard anything or anyone say our results in the paper were incorrect. If anyone does think so, we still have the mice and anyone who is qualified can try the experiments again." ■ B.J.C.

Not so, said Baltimore, who admits that he is "not proud" of having written the letter, which begins "After much thought . . . ." In retrospect, Baltimore describes the letter as one written from "a sense of outrage and loss of trust." He explained it this way.

"In September 1986 Dr. Eisen had a chance conversation with Dr. Imanishi-Kari and thought he heard her say that a reagent used in the study didn't work. . . . Instead of calling Dr. Imanishi-Kari and asking her about it, I fired off a letter to Dr. Eisen." A day or two later, Baltimore learned that Eisen had misunderstood what Imanishi-Kari said (a common happening because of her limited command of English) and the whole case became what Baltimore calls "inoperative."

Nevertheless, he said, "I trust that the subcommittee understands my profound regret for writing this letter and will accept the statement that I fully understand that when a serious error has been made, it must be fully acknowledged."

The hearing reverted to Imanishi-Kari's note-keeping. Dingell asked her how it is possible that page 121 could have been written before page 5 in one of her notebooks. "It doesn't surprise me. This is quite possible. I've been doing that for a long time," she said. "That's the way I am."

Dingell's final thrust was to attack Baltimore and Imanishi-Kari for refusing to cooperate, refusing to answer questions. "We've spent a lot of time on this," he said. "Your response leaves us with the same questions we had at the beginning. I am not satisfied."

He also berated Baltimore's lack of cooperation by saying "You have not been charged with fraud."

By now it was after 6:00 p.m. at a hearing that started at 10:00 a.m. Baltimore wasn't going to take it any more.

"Yes, I was [charged with fraud]," he told Dingell. He cited a *Boston Globe* article that came out even before last year's hearing, in which Dingell staffer Peter Stockton is quoted as saying "At certain times, it appears to be fraud and other times, misrepresentation." Then, with evident anger, he referred to charges made recently by Dingell's aide on-loan, Walter Stewart, that were reported in the 3 February issue of *Science*. At a meeting on fraud, "your staffer Walter Stewart" likened scientists' response to fraud to the Nazi holocaust. Waving a copy of the *Science* article, Baltimore read that Stewart wrote the word "Holocaust" on the blackboard. "I do not like being compared to a Nazi," he declared.

Repeating that he was "not satisfied" with the results of his hearing, Dingell gaveled the day to a close.

In one regard, Baltimore and Imanishi-Kari emerged victorious. A large contingent of scientists came to the hearing to lend moral support. Students from Baltimore's lab at the Whitehead Institute took the train from Boston, bearing a good luck card signed by 257 Whitehead staff.

And the scientific brass came too. Nobelists Daniel Nathans from Hokpins and Marshall Nirenberg from NIH were there. So was Harold Varmus of the University of California at San Francisco. Phillip Sharp, Gerald Fink, Robert Weinberg, and Mark Ptashne were among the Boston contingent. Eric Kandel of Columbia and Norton Zinder of Rockefeller came from New York. Howard Schachman of Berkeley attended. All in support of Baltimore and of science. They all share Baltimore's view that Congress's intervention is way out of proportion to the importance of the case and that "American science can easily become a victim of this kind of government inquiry." Baltimore offered to meet with Dingell to discuss the issues in a less "vituperative" environment, an offer, he noted, he had made before in a letter to the chairman.

As the hearing broke up, Baltimore and Imanishi-Kari were deluged with congratulatory hugs. "It was heartwarming to get such support," Baltimore said. "I needed it."

But there was also a sense of caution, even fear. "Dingell now is like a wounded animal," said one. There's no telling what will come next. ■ BARBARA J. CULLITON

A Question of Intent

Fraud, it is generally agreed, can be defined by intent. On that ground alone, Thereza Imanishi-Kari, who has been implicitly accused of fraud in immunological research, handed committee chairman Dingell a tough challenge. "I would like to ask you," she said, "to think about what possible motive I might have had to cheat."

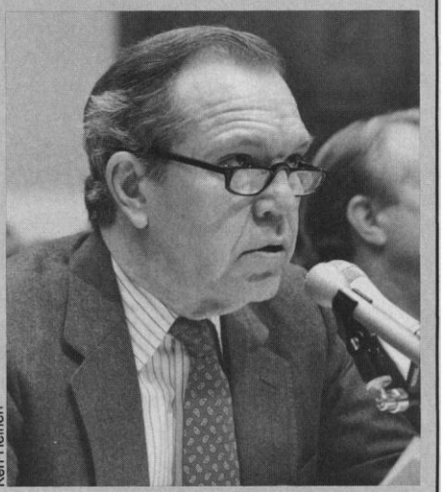
Cheating, she suggested, would be suicidal. "For very personal reasons it was important—actually, it was vital—that the data for these experiments were exactly correct. These experiments are the ones that hopefully will guide scientists in trying to cure diseases of the immune system.

"One of these diseases is lupus, which is an autoimmune disease. The data in the *Cell* paper and the related experiments in my lab can lead directly to a cure for this potentially fatal disease. The scientific literature shows that. Articles on lupus, more than any other disease, cite our *Cell* paper.

"Mr. Chairman, I have lupus. My sister died from lupus. That was in my mind all the time I was doing my research. . . .

"If I had fabricated data, it would have misled scientists, wasted their precious resources, and retarded their efforts to cure the disease that killed my sister and threatens me." ■ **B.J.C.**

NIH to Use Forensics



Ken Heinen

James B. Wyngaarden

Most scientists would be aghast at the thought of turning laboratory notebooks over to the U.S. Secret Service for forensic analysis. But that is exactly what a House subcommittee has done. And NIH is now on record as saying that, if circumstances called for it, the institutes would employ forensics experts too. In fact, it has just done so.

NIH director James B. Wyngaarden, perhaps sensing an opportunity for conciliation (and worried that Dingell had found a smoking gun), decided to match the subcommittee's call.

"In connection with our reopening of the investigation, we have contacted the Office of the Inspector General . . . to determine what assistance they might offer us in analyzing the forensic evidence," he said.

Furthermore, he'd do it again.

" . . . [O]ur task, difficult as it may be, is to be more alert to those situations in which a forensic examination may be needed. For this reason, in the future when there are questions about data authenticity or availability, we plan to have an individual with forensic experience work with each panel of scientists NIH appoints." ■ **B.J.C.**