

others—Hugh McDavitt of Stanford University and Ursula Storb of the University of Chicago—filed a minority opinion in which they disputed the statistical analysis of Imanishi-Kari's data, describing it as "new and untried...in establishing proof of fraud." They also objected to several findings of fraud they felt could plausibly be explained by "alternative interpretations." And the two dissented from the report's severe criticism of the way Baltimore defended the paper, arguing that scientific collaborations are built on trust. "Once you [begin a collaboration], you...tend to believe that person," McDavitt told *Science*. "David didn't have any choice but to support her." McDavitt and Storb did, however, agree that both sets of Table 2-related data had been fabricated.

This draft report is far from the last word on this affair. OSI will incorporate comments from those under investigation into a final document, and recommend whatever penalties it finds appropriate. Those recommendations will also be provided to the accused for comment. The final report must then be reviewed and approved by two additional offices within the Public Health Service before it is officially made public.

OSI deputy director Suzanne Hadley points out that an official finding of "failure to provide truthful information" could lead OSI to refer the matter to the Justice Department for criminal investigation. (Some of the Secret Service evidence has already been impounded by the U.S. Attorney's office in Baltimore.) And the apparent inability or unwillingness of Imanishi-Kari's coauthors—and of Tufts and MIT—to investigate O'Toole's charges thoroughly is already part of yet another NIH inquiry.

John Dingell is not done with the case, either. An aide revealed that Dingell's subcommittee will release its own report on the MIT, Tufts, and NIH investigations within a month. Dingell also plans another subcommittee hearing to which MIT and Tufts officials are likely to be called, probably sometime in May.

The Baltimore report is just the latest in a series of investigations—all inspired by Dingell in one fashion or another—that has many elements of the scientific establishment reeling. Only 2 weeks ago, Stanford University underwent a public hazing for misallocating its indirect costs. According to insiders, it is only a matter of weeks until a long-awaited draft OSI report on the early AIDS research of Robert Gallo is completed. One top official at the National Academy of Sciences privately told *Science* he despairs over the image that U.S. science may be developing in the public mind and on Capitol Hill. And the Baltimore case isn't even over.

■ DAVID P. HAMILTON

Who Found AZT Works for AIDS?

For years, researchers at the National Cancer Institute (NCI), including its present director, Samuel Broder, have argued that they deserve the scientific credit for determining that AZT is an effective treatment for HIV infection and AIDS. But as far as the U.S. Patent Office is concerned, that credit goes exclusively to scientists from Burroughs Wellcome Co., the drug's manufacturer. Last week, however, a coalition of AIDS patients took up the NCI scientists' cause, filing a lawsuit in federal court challenging Burroughs Wellcome's patent. Their aim: to bring down the price of the drug.

Burroughs Wellcome's patent gives the company exclusive rights to market AZT, and critics charged that the company has used its monopoly position to reap big profits. It now costs between \$2000 and \$3000 for a year's supply of AZT, and sales of the drug amounted to \$287 million worldwide last year. If the patent is declared invalid, generic drug companies would be free, with the government's permission, to make AZT. According to a spokesman for Apotex, a company in Canada already making the drug for export to countries that do not recognize patent protection for pharmaceuticals, the price could drop by more than half.

Burroughs Wellcome argues that its researchers were responsible for bringing AZT to the market as an anti-AIDS drug. In the early 1980s, the company argues, its chemists had developed a method for synthesizing the drug and were studying it as an antibacterial agent. In June 1984, the company says it began searching for chemical compounds that have activity against HIV, and in November of that year its scientists identified AZT as potentially useful against AIDS. According to the company, in the spring of 1985, at its request, labs at Duke University, the Food and Drug Administration, and the NCI confirmed AZT's in vitro activity against HIV (it blocks the transcription of viral RNA into DNA). In the summer of that year, the FDA gave Burroughs Wellcome permission to begin trials in humans. A Phase I trial began in July, and by December it appeared from initial patient responses that the drug was helping to restore patients' immune responses.

But throughout that period, NCI scientists, particularly Samuel Broder and Robert Yarchoan and Hiroaki Mitsuya, were also characterizing and developing AZT. For example, in October 1985 Mitsuya, from Broder's NCI laboratory, was first author on a paper in *Proceedings of the National Academy of Sciences* that described AZT's in vitro activity against HIV, and in January 1986 Broder presented evidence of AZT's effectiveness at a scientific meeting (*Science*, 31 January 1986, p. 450).

Michael Davis, a faculty member at the Cleveland-Marshall College of Law, expects Burroughs Wellcome to argue that NCI was merely screening one of its compounds, in which case the company would retain the exclusive patent. NIH scientists, including Broder, will not comment on that question. But the lawsuit, filed by the Public Citizen Litigation Group on behalf of the People With AIDS Health Group, claims that NCI contacted Burroughs Wellcome in September 1984—2 months before the company says it identified AZT as a potential anti-AIDS drug—asking the company to supply potential antiretroviral agents, including nucleoside analogs, to an NCI program aimed at developing AIDS treatments. (AZT is a nucleoside analog.)

Burroughs Wellcome may try to get the suit dismissed on procedural grounds, arguing that Public Citizen's clients have no legal right to bring suit because they are not capable of infringing the patent, an ability required to sue a patent holder. Davis, who is working with Public Citizen on the suit, argues, however, that the people most entitled to challenge the patent are those who use the drug.

Even if the Public Citizen suit fails, Burroughs Wellcome will not be off the hook. Apotex and Novopharm, another Canadian drug manufacturer, have challenged Burroughs Wellcome's Canadian patent. Apotex spokesperson Elie Betito says its U.S. affiliate, Barr Laboratories, plans similar action in the United States. And NIH may get directly into the legal fray. "NIH has been meeting with Burroughs Wellcome over the past several months to discuss the inventorship of the patents relating to AZT," said NIH acting director William F. Raub in a statement last week. "We believe that NCI researchers should have been named as coinventors on these patents." Burroughs Wellcome disagrees and remains confident that it can uphold its patent claims. It may take a court battle to decide who is right.

■ JOSEPH PALCA