Baltimore Cleared of All Fraud Charges

But NIH officials demand further clarification of scientific details in disputed Cell *paper that has been under investigation since 1986*

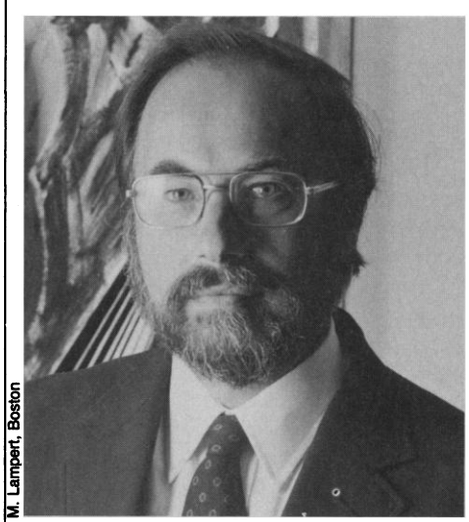
AFTER an official investigation lasting nearly a year, and unofficial involvement that began in 1986, the National Institutes of Health has found no evidence of "fraud, misconduct, manipulation of data, or serious conceptual errors" in a controversial research paper coauthored by Nobel laureate David Baltimore. But in a move that can certainly be described as "unusual," the director of NIH has ordered the authors to amplify a clarification of technical errors that was recently printed in *Cell*. "It is significant to note that it was only recently that the coauthors acknowledged that some correction in the literature is warranted," Wyngaarden says in his "decision" memo on the case, adding "It is unfortunate that despite the growing challenge to the validity of their research, the coauthors apparently did not undertake a comprehensive review of their data until they met with the NIH scientific panel." Baltimore challenges the need for further clarification to *Cell* and says that it "is simply wrong to say that we didn't get together to go over the data. We did, and thought we'd resolved it."

The central finding of the disputed paper is that a gene from one strain of mouse actually affected the production of immune cells in a second strain of mouse, thereby suggesting that the transferred gene or "transgene" played a novel and potentially important role in regulating the immune system. The paper,* published nearly 3 years ago in *Cell* (25 April 1986), may be one of the most investigated research articles of all time.

It has been investigated by scientists at the Massachusetts Institute of Technology, where some of the research was done. It has been evaluated by a trio of experts at Tufts, where some of the coauthors are working. It has been analyzed in 37-page detail by Walter Stewart and Ned Feder of NIH, two gadfly NIH scientists who first went public with charges that the Baltimore manuscript was flawed. It has been the subject of hearings by two committees of the U.S. Congress. It has been investigated by a special three-person panel of experts convened by the NIH. And it has been studied by at least ten NIH officials who evaluated the investigation by its own panel of experts.

Altogether, hundreds of thousands of taxpayers' dollars have been spent investigating the data and circumstances surrounding publication of this paper which, even after all this attention, remains difficult for nearly all researchers to fully understand.

In the beginning, a postdoc named Margot O'Toole went to her superior at Tufts University to say that the paper contained serious errors. O'Toole at the time was working in the Tufts laboratory of Thereza Imanishi-Kari, formerly of Massachusetts Institute of Technology. O'Toole claimed that some of Imanishi-Kari's claims could not be supported by the laboratory record. O'Toole did not conduct any of the disputed experiments. However, she did review the manuscript before publication and her own unpublished but related experiments are referred to in the *Cell* article.



M. Lampert, Boston

David Baltimore. *"I feel vindicated" by NIH's final judgment in this case.*

Although NIH officials hope that their final report, which NIH director James B. Wyngaarden signed on 30 January, will bring an end to the Baltimore case, they may be indulging in wishful thinking.

First, there is the matter of the paper's content. In the 18 November 1988 issue of *Cell*, Imanishi-Kari, Baltimore, and coauthors acknowledged three "misstatements" in the original paper. They acknowledged, as they had from the outset, that a claim that a reagent called Bet-1 is specific for IgM(a) is an overstatement. The reagent binds preferentially but not exclusively to the immunoglobulin. They corrected two errors in one of the tables including this: the data represent hybridoma wells, not isolated clones, which would indicate a purer identification of the molecule.

But more is demanded. Having issued the opinion that the paper contains no serious errors, NIH and the review panel are asking that further corrections be sent to *Cell*, including replacement data for the wells in table 2 and a discussion of the significance of the error regarding Bet-1 specificity. (The authors argue that there is no material significance, while the panel says concerns on this point "raise questions about the reliability of these data and their interpretation.")

Baltimore, Wyngaarden, and a by-now ever present band of lawyers will be in touch on this, with any letter to *Cell* going to Wyngaarden first for his approval. In a statement to *Science*, Baltimore had this to say: "If further clarification of the paper seems warranted, we will respond appropriately. . . . However, we do not see that [either the panel or its reviewers] have identified such questions."

Meanwhile, O'Toole has raised the stakes in controversy through her own response to the NIH panel's draft report. Having repeatedly stated that she never alleged fraud, only error, in the paper, O'Toole is now on record as telling NIH that the draft is a "wholly inadequate scientific analysis" that fails to answer specific allegations—namely that "the report draws important conclusions from experiments that Dr. Imanishi-Kari stated had not been done."

Imanishi-Kari, and three Tufts scientists who have seen the data, all told NIH in writing that O'Toole is simply wrong.

Congress, which is by no means bored with the issue, or fully satisfied with the investigations, may well hold more hearings on this much studied case.

■ BARBARA J. CULLITON

*"Altered repertoire of endogenous immunoglobulin gene expression in transgenic mice containing a rearranged mu heavy chain gene," by David Weaver *et. al.*

Previous news articles on this controversy have been published in the following issues of *Science*: 16 December, p. 1499; 2 December, p. 1240; 15 July, p. 286; 1 July, p. 18; 24 June, p. 1720.