

collegiality and seeming lack of proper recognition of the contributions of others."

Recommended sanctions

Serious misdeeds? Or petty misdemeanors? OSI's scientists proposed three sanctions for Popovic: that he be prohibited from serving as a member or consultant to a Public Health Service (PHS) advisory committee for 3 years; that any grant or contract application he submits to PHS in the next 3 years be accompanied by a certification as to the reliability of the proposed research and procedures for monitoring his work; and during that time any PHS agency considering funding him be advised of the misconduct finding. Because the investigators did not find Gallo guilty of misconduct, it recommended no sanctions against him.

Healy, in her letter transmitting the report to Mason, urged leniency toward Popovic, citing as extenuating circumstances inadequate supervision and language difficulties. For Gallo, she wrote that "[O]ther problems that relate to Dr. Gallo's management of his laboratory...are being addressed by me and others within NIH." She told *Science* she was particularly concerned about the issue of collegiality, and said that this will have to be addressed by Gallo's boss, National Cancer Institute director Samuel Broder, and National Institute of Allergy and Infectious Diseases director Anthony Fauci.

What next?

Will Healy's actions satisfy skeptical congressional watchdogs? Dingell has already indicated that for him, the answer is no. Members of his staff have produced several internal reports detailing what they see as inaccuracies and shortcomings in the OSI report. And Dingell himself has issued a public statement charging that the findings have been "seriously watered down." The subcommittee is being aided by Suzanne Hadley, who was removed from the investigation by Healy (*Science*, 26 July 1991, p. 372). An aide says that Dingell may hold hearings on the matter once Mason acts on the final report, although this aide notes that hearings are difficult to schedule during an election year.

But as difficult as Dingell hearings could be to Gallo, he faces potentially still greater threats. According to Dingell's staff, investigators from the GAO and the HHS inspector general's office are looking into possible fraud in Gallo's patent for the AIDS blood test. These investigations are focusing on allegedly false statements in Gallo's 1985 blood test patent and in a sworn declaration he made in 1986 to defend against a challenge to the patent by the French.

Many scientists may feel less worried, however, about Gallo's future than about the damage this tragedy may be doing to the public trust, as it continues to produce acrimony within the scientific community.

—Joseph Palca

RICHARDS PANEL

Scientist-Consultants Accuse OSI of Missing the Pattern

They were supposed to provide a seal of approval on NIH's 2-year probe of Robert Gallo. The eight distinguished scientists nominated by the National Academy of Sciences and the Institute of Medicine were to monitor the investigation and reassure skeptics who doubted NIH's ability to investigate one of its own most prominent researchers. But now, in the closing days of the NIH investigation, the panel—known as the "Richards panel" after its chairman, Yale biochemist Frederic Richards—is not in much of a position to reassure anyone. Several members have ended up disgruntled and distressed with NIH, and the rest, including the chairman, believe the confidentiality agreement NIH forced them to sign precludes them from any public comment whatsoever. Worse yet, while Richards himself remains in frequent touch with NIH Director Bernadine Healy 2 months after submitting his report on NIH's findings—a report that was critical of a number of crucial conclusions concerning Gallo—the remaining panelists have been left out in the cold, where they read press reports that suggest to them that their advice has at best been ignored. As one angry panelist told *Science*: "Healy flipped us off, essentially—no question about it."

While the Richards panel report (of which *Science* has obtained a copy) generally applauds the thoroughness of the investigation conducted by NIH's Office of Scientific Integrity (OSI), it faults OSI's conclusions on several grounds (see table). In particular, the Richards panel noted that OSI tended to "trivialize" the significance of misstatements in a 1984 *Science* paper by Gallo and his former associate Mikulas Popovic by failing to place them in a "larger context"—a context that would reveal "a pattern of behavior on Dr. Gallo's part that repeatedly misrepresents, suppresses, and distorts data and their interpretation in such a way as to enhance Dr. Gallo's claim to priority and primacy."

According to the report, a "well-established" and "largely or entirely undisputed" sequence of events supports this charge: First, Gallo's lab established the "crucial" fact that the AIDS virus could be grown in HUT78, yet Gallo and Popovic wrote in their 1984 paper that LAV "has not yet been transmitted to a permanently growing cell line..." To the Richards team, this "constitutes intellectual recklessness of a high degree—in essence, *intellectual appropriation* of the French viral isolate."

Second, Gallo's lab changed the name of HUT78 to HT, obscuring the fact that its cell line was originally developed by Adi

Gazdar, a National Cancer Institute scientist working under John Minna (a point first detailed in *Science*, 22 June 1990, p. 1499). And third, according to the OSI report itself, Gallo's lab slapped restrictions on the distribution of uninfected "H9" cells, or cells cloned from HUT78. Gallo disputes the Richards panel's interpretation of each of these events—see table.

The Richards panel also took issue with the way OSI accused Popovic, but not Gallo, of misconduct for two of the misstatements in the *Science* paper. As a result, the panel says, "[t]he public and/or the Congress will perceive a bias in the treatment of the two principals in the investigation."

Poor oversight. And the panelists complained that the OSI investigation failed to address the "overriding issue" of a lab chief's responsibility to oversee his personnel and "to pay particular attention to the accuracy of major publications which bear his name as author." Because Popovic "had an imperfect command of English and a known inadequacy in record-keeping," the report states, Gallo should have exercised "meticulous scrutiny" over his contributions to the 1984 paper—a failure the OSI report does not address.

"We thought our report was a reasonably serious document questioning the whole state of affairs [in the Gallo lab]," says one panel member. "We told Healy that if it had been our [investigation], we'd have recommended that Gallo be found guilty of misconduct." Instead, this member says, Healy has not acknowledged receipt of the report, and has since told *The Washington Post* that Gallo defended himself effectively against the Richards panel's charges. According to a 27 March Healy memorandum, she has endorsed the OSI report.

This has left a very sour taste in the mouths of some of the panelists. "We took a position we all agreed with, and I'd just as soon not be burdened with the notion that we've signed off on NIH's decisions," says one, adding: "I'd like it well known that we don't agree with NIH's decision." Another member puts the same point more succinctly: "It'll be a cold day in hell before any of us will consult for the U.S. government again."

But the worst aspect of the chasm between Healy and her independent consultants is likely to be the doubt into which the panel's report throws NIH's final conclusions—doubt which NIH adversaries such as Representative John Dingell (D-MI) are already moving to exploit.

—David P. Hamilton

Where Richards and OSI Part Company

The Richards panel* said that OSI's investigation was thorough but took issue with its findings in three chief areas. Responses are taken from the report and Bernadine Healy's covering letter; Gallo's lawyer amplified some of his responses.

Charges

I. OSI "trivializes" its conclusions. "The conclusion section...fails to integrate the findings into a larger context, namely a *pattern* of behavior on Dr. Gallo's part that repeatedly misrepresents, suppresses, and distorts data and their interpretation...." For example:

A. During the fall of 1983, the Gallo lab successfully grew the French virus LAV in HUT78 cells, yet Gallo (and Popovic) "denied propagation of the French virus and stated [in writing] that the French virus had never been transmitted to a permanent cell line."

B. Knowing "that HUT78 was permissive for the growth of LAV," Gallo and his team tried to grow their own isolate in HUT78 in the now famous "pool experiment." They subcloned HUT78 at the same time and introduced "freshly subcloned, HUT78-derived, H9 cells" into the pool culture. "The name of HUT78 was changed to HT, and subclones (H4, H9, etc.) were ultimately designated without reference to HUT78," thereby effectively obscuring the true origin of HUT78 from the AIDS research community.

C. Although he has excused certain errors as stemming from the need for speed to counteract the AIDS epidemic, "Gallo refused to distribute uninfected H9 cells unless collaborative agreements had been secured from the other investigators. We consider [this] to be essentially immoral."

II. Allocation of blame. "There appears to be a discrepancy in the treatment of Drs. Gallo and Popovic. Different standards appear to have been applied." For example:

A. On the OSI report's Allegation 7 (see table on p. 736 for more detail), for which Popovic is charged with misconduct: "The sentence on the [reverse transcriptase] analyses of the samples is found to be a misrepresentation. None of the authors will acknowledge composing the sentence. With no way to identify the actual source, the blame could be distributed among all the authors. Yet the blame has been specifically placed on Dr. Popovic. This appears to be arbitrary...." On the OSI report's Allegation 11, for which Popovic is charged with misconduct: "In the description of the immunofluorescence assay results, the blame for the discrepancy is placed on Dr. Popovic...with no obvious basis for a choice between [him and Dr. Gallo]."

B. On the OSI report's Allegation 8, for which Gallo is criticized but not charged: "The statement that LAV had not been transmitted in a permanent cell line is simply false, and was known to be false at the time the paper was written....There is no way in which Dr. Gallo can be excused from sharing the blame for this misstatement."

III. Allocation of responsibility. The report does not address the overriding issue of the responsibility of the chief of a laboratory to monitor the performance of all personnel...and to pay particular attention to the accuracy of major publications which bear his name as an author. [In this case, the] senior author had an imperfect command of English and a known inadequacy in record keeping. The combination of these facts should have resulted in the most meticulous scrutiny by the chief of the laboratory...."

*In addition to Richards, the panel members who reviewed the report are Alfred Gilman, University of Texas Southwestern Medical Center; Mary Jane Osborn, University of Connecticut Health Center; John Stobo, Johns Hopkins University; Robert Wagner, University of Virginia; and Judith Areen, Georgetown.

Responses

Gallo: (1) The sentence in question refers only to work done by Pasteur Institute scientists; (2) It would have been improper to mention LAV without a full analysis of the virus—an analysis that would have taken weeks; (3) To report an ability to grow LAV in permanent culture before the French did so would have been "making fun" of the French.

Gallo: There was confusion within Gallo's laboratory as to which of several immunologically different cell samples labeled HUT78 actually were HUT78. Popovic said he renamed his sample "HT" to avoid further confusion, not to hide its origins (*Science*, 22 June 1990, p. 1499). He and Gallo have also both argued that in the rush to develop a blood test for AIDS, determining whether HT and HUT78 were really the same cell line appeared to be a relatively unimportant issue.

Gallo: Gallo's laboratory did require H9 recipients to accept certain restrictions, but only from May to August 1984. Gallo asserts the collaborative agreement was required by National Cancer Institute officials. After August 1984, H9 recipients were merely asked not to use the cells commercially and to take safety precautions. Gallo never asked for co-authorship based on his provision of H9 cells. [NOTE: The OSI report mentions the transmittal logs showing infected/uninfected H9 cells going to many scientists. Gallo's records show H9 cells went to 45 labs in 17 countries in 1984 alone.]

Healy: In her transmittal memo, Bernadine Healy wrote: "It appears clear to me that...such doubts were considered and resolved against Dr. Popovic by applying the applicable "preponderance of evidence" standard of proof."

OSI: Different interpretations of the sentence concerning LAV are possible (see section I.C., above). Members of the investigative team differed among themselves in their initial interpretations of the sentence. It does not constitute scientific misconduct.

Healy: In her transmittal letter, Healy writes: "Other problems that relate to Dr. Gallo's management of his laboratory as identified in the OSI report are being addressed by me and others within the NIH in accordance with our responsibilities and authorities and guided by established standards of conduct for scientists employed by the intramural program." [NOTE: Gallo maintains that there was no "known inadequacy in record keeping" by Popovic in 1984 when the research took place. If Popovic did keep inadequate records, that only became apparent in hindsight.]