

his statement to *Science*, "during the investigation procedure, there were many violations of due process by Caltech."

On a more fundamental level, Sercarz also questions whether a university with an interest in protecting its reputation can really be impartial. "No one knows what the ideal procedure is. But when the principal investigator [lab chief] is someone powerful like Lee Hood, the university may want to decrease his involvement in the alleged misconduct and blame everything on the postdoc. That could lead to a distortion. In general, having an external committee of experts might make the investigation more impartial."

It is now up to OSI to determine whether Kumar got a fair shake or whether, as Sercarz believes, there are lingering questions.

The aftermath

The Hood group is now recovering from what has been a very tough year. Says Hood: "It was a traumatic experience for everyone involved, not just for the accused but for all around them." Like everyone else, they are wondering how it could have happened—and how to prevent it from happening again.

Hood and his co-workers are now trying to replicate some of the crucial experiments performed by Urban and Kumar. Says Hood: "We can't redo it all. It is a tremendous amount of work." He has also instituted tighter controls in his lab. The committees didn't find any "major shortcomings" in Hood's procedures, says Jennings—in fact, Jennings calls them "pretty good"—but there was obviously room for improvement. "You would hope the procedures would pick up the problem," says Jennings. Hood has now formalized the review process, so that each paper is now reviewed by three people inside the lab. There is considerably more emphasis on dealing with raw data, not merely a synopsis of findings. And Hood now also requires everyone to keep a bound lab notebook—and has made clear that it is the property of Caltech, not of the scientist.

When the dust settles, Caltech officials plan to take a look at how well they handled their trial by fire, to see if any of their investigatory procedures should be changed. In the interim, faculty members are debating whether to offer a course for new graduate students on the rules of scientific conduct. Explains Jennings: "The community has always figured that you just know how to do these things, such as how to handle data. But maybe people would benefit from a course spelling out the rules on keeping research data. It would be an opportunity to ensure more formal acquaintance with issues and procedures we used to take for granted."

■ LESLIE ROBERTS

Draft of Gallo Report Sees the Light of Day

A copy of the investigation into early AIDS research by Robert Gallo and his colleagues has leaked to the press

PORTIONS OF A CLOSELY HELD DRAFT REPORT written by the National Institutes of Health's Office of Scientific Integrity (OSI), titled "Comprehensive Review of Dr. Robert Gallo's 1983-84 HIV Research (OSI 89-67)," finally became public this week. *Chicago Tribune* reporter John Crewdson, in a long article in last Sunday's edition, published excerpts from a copy of the report that he had been given access to. Those excerpts confirm what *Science* reported last month: The draft report accuses Gallo's colleague Mikulas Popovic of misconduct for misstatements and inaccuracies that appear in a 1984 *Science* paper (11 May, p. 497) describing the first successful attempt to infect a permanently growing cell line with the virus that causes AIDS—a crucial step in the development of a blood test to detect the presence of the virus. The draft report concludes that Gallo, chief of the National Cancer Institute laboratory of tumor cell biology, shares some of the blame

for the alleged misstatements. While his actions "do not meet the formal definition of misconduct," the draft report states, "they warrant significant censure."

NIH officials lost no time in condemning the leak of the report. "Speculation about the outcome of the investigation on the basis of the draft document deprives the subject of basic fairness, because only the final report will reflect the responses of Drs. Gallo and Popovic to the preliminary findings," said John Diggs, NIH deputy director for extramural affairs. It will be Diggs' responsibility to decide what to do with the report once it is completed, since NIH director Bernadine Healy has recused herself from all OSI activities (*Science*, 9 August, p. 618).

Insiders say OSI has decided that the report requires substantial rewriting—and indeed that is being done as *Science* goes to press. But reports that the conclusions are being left essentially the same could not be

Czechmate?

For more than 6 years, the answers to some key questions about who in Robert Gallo's lab did what in editing a landmark—and now controversial—1984 *Science* paper resided in a box in Prague, Czechoslovakia. Mikulas Popovic, Gallo's collaborator and first author of the paper, took several early drafts of the manuscript to Prague in the summer of 1984 and left them with his sister, apparently for safekeeping.

These early drafts contain specific references, penned by Popovic, of work he had done with a virus sample sent to Gallo's lab in 1983 by Luc Montagnier of the Pasteur Institute. Handwritten annotations on these drafts indicate that Gallo had deleted the references from the paper. "Originally, as I understood it, data would be included about the French virus in the manuscript," Popovic told *Science* in an interview last month. "Later Dr. Gallo said, 'No we will publish later in a collaborative paper.'" Gallo has confirmed this account, adding that he intended to publish two papers about the French virus jointly with Montagnier. Gallo's lawyer, Joseph Onek, says this plan fell through because the French researchers wanted to publish a more complete paper on their own. By the time Popovic secreted the drafts in Prague, Gallo and Montagnier were engaged in a bitter fight in part over how much work Gallo's lab had done with the French virus.

The drafts of the *Science* paper came to the attention of the Office of Scientific Integrity (OSI) only as a result of a slip-up. In March of this year, OSI accidentally sent Popovic a tape of a meeting of the three-member scientific panel advising OSI on the investigation. Popovic discovered from the tape that OSI's report would be highly critical of him, in part for omitting references to the French virus from the paper. Popovic and his lawyer, Barbara Mishkin, realized that OSI did not have copies of all drafts of the 1984 paper—as they assumed—so they gave them the originals. ■ J.P.

confirmed by *Science*. Lawyers for Gallo and Popovic have claimed that the draft report contains significant errors of fact and interpretation. "If that is the case, I can assure you that the report will be significantly revised," Diggs told *Science*.

The OSI report accuses Popovic of misstating the length of time he kept the AIDS virus in continuous culture; not having positive reverse transcriptase results before he tried to infect cell lines with pooled virus samples, as the *Science* paper stated; mischaracterizing the accuracy with which he could determine how well the virus was growing in culture; and mislabeling inconclusive results as "ND" for "Not Done" when in fact they were done. The report also criticizes, but stops short of labeling as misconduct, Popovic's failure to describe accurately the origins of the cell line used to grow the virus.

As for Gallo, the report is highly critical of the way he ran his lab, slamming him for being too tolerant of Popovic's poor record-keeping and imprecision in reporting his results. Gallo's failings as a lab chief "created and fostered conditions that give rise to falsified/fabricated data and falsified reports." A three-member committee of scientists advising OSI on its investigation was split on whether to recommend that Gallo himself be accused of misconduct.

The report deals only with allegations of improprieties in the reporting of the results in the *Science* paper. It does not deal directly with the bitter battle between Gallo and Pasteur Institute virologist Luc Montagnier over the origins of the virus Popovic grew in his cell line. That dispute, formally settled in 1987, keeps threatening to flare up after revelations that the French virus apparently contaminated Gallo's laboratory.

In a 59-page rebuttal to OSI's draft report, with a cover letter dated 6 September, Popovic's lawyers Barbara F. Mishkin and Edward L. Korwek of the Washington, D.C., firm Hogan and Hartson, blast OSI for "irresponsible and unfounded allegations, biased and haphazard investigations, and improper public disclosures of confidential and procedurally flawed proceedings." The rebuttal, which was released to *Science*, reiterates in greater detail most of the points Popovic made in a letter and statement he gave to *Science* last month (16 August, p. 728). Popovic denies any misconduct and claims that the OSI report's authors misunderstood some of the points they accused him of misreporting.

The usually loquacious Gallo has been muzzled by NIH authorities and will not speak about the report. But his lawyer, Joseph Onek of the Washington firm of Crowell and Moring, disputes charges that

Gallo was a poor lab manager. The report states: "The chief problem with his conduct was what he did not do, i.e., his failings as laboratory chief and senior author of the papers." "All those charges are totally stupid. First of all, they are derivative of charges against Popovic which are totally wrong," says Onek. "Secondly, to make charges about Gallo's style based on his relationship with one person is utter nonsense." Onek declined to release Gallo's rebuttal.

One great irony in this investigation is that no one has challenged the overall validity of Gallo and Popovic's work. The alleged falsifications "did not negate the central findings of the [1984 *Science*] paper," according to the OSI draft report.

Although the formal investigation has been dragging on for more than a year, there is still more to come. A sequence analysis of the viruses that Gallo and Popovic used to create their first infected cultures has now been completed. That analysis may shed additional light on when Gallo's lab became contaminated with the French virus. Those results, along with the Gallo and Popovic rebuttals, will be wrapped into a final report. Some informed sources think that could be available in weeks, but others, used to the glacial pace of OSI investigations, think it will be at least the new year before the story is finally concluded. ■ JOSEPH PALCA

Societies Complain About Ethics Rules

Like many journal editors, Thomas Birmingham, who for 4 years served as editor in chief of the prestigious *Journal of Geophysical Research*, *Space Physics*, kept pretty busy. Birmingham now estimates that running herd on some 550 manuscripts a year took up nearly three-quarters of his time. "And I put in some long hours," he says. Birmingham, however, wasn't employed by the American Geophysical Union (AGU), the publishers of the journal. He was a space physicist at NASA's Goddard Space Flight Center, an arrangement that appears to have suited both NASA and AGU just fine. Recognizing the "mutual benefits" and the "prestige" NASA would gain, the two organizations even signed a memorandum of understanding in 1985 that explicitly permitted Birmingham to use his "official time" to serve as editor.

Soon, however, federal scientists, eager to help out scientific societies—and to reap the professional honors that such commitments often bestow—could find themselves blocked by government ethics rules. Published in the *Federal Register* on 23 July, a set of proposed revisions to federal ethics standards includes language that would prohibit federal employees from using official time "to administer the internal affairs of any [professional] organization or to carry out its business affairs, or to attend or to participate in meetings or events that primarily serve those purposes." An attorney with the Office of Government Ethics, which issued the rules, said the intent is simple: "We don't want federal employees doing other people's work on government time."

Officials at scientific societies have howled in protest. "These rules would make federal scientists second-class citizens," says AGU president Fred Spilhaus. "They wouldn't have a chance to assume leadership roles in scientific societies and to receive professional recognition." Robert Park, director of the American Physical Society's (APS) Washington office, voiced similar concerns in an electronic newsletter he sends out to APS members: "If academia and industry took the same position, it would mean the end of scientific societies."

The effects of the proposed rules might also extend beyond the federal workforce itself. "It's more and more common to see agencies like the Department of Energy making an attempt to apply [federal employee regulations] to contractor employees," says Jerry Hudis, a former associate director at Brookhaven National Laboratory and now a vice president with the private contractor that runs the laboratory. "I can see that being a bone of contention."

The societies have one firm ally in the federal government: presidential science adviser D. Allan Bromley, who says he is "very concerned" about the new rules. And the President's Council of Advisers for Science and Technology (PCAST) agreed last Thursday to submit a letter critical of the proposed standards to the Office of Government Ethics before the period for public comment closes on 20 September. "People were pretty upset," says one PCAST member. "When you need to turn something around quickly, you do it." ■ DAVID P. HAMILTON