Letters

Hood Lab Investigation

I would like to clarify some misconceptions that may have arisen as a result of Leslie Roberts' article "Misconduct: Caltech's trial by fire" (News & Comment, 20 Sept., p. 1344). The statement that "both postdocs have been found to have fabricated data" is absolutely wrong. In fact, I was not accused of fabricating data: I made an honest mistake of representing original data in a figure in a way that had been recommended to me.

Duplications in the figure were used to represent *original data that existed at the time and are still available.* These representations did not change any underlying conclusions or interpretations in the paper. No attempt was made to hide the duplications. Although I had been associated with the publication of a number of research papers from other laboratories, the *Journal of Experimental Medicine* paper (*1*) was the first that I wrote, organized, and documented. When I was faced with the difficulty in presenting the Southern blot data, owing to the fact that the data came from different gels that were run for different lengths of times, I asked my coauthor James Urban, who had become a member of the laboratory a couple of years earlier and who had been my lab mentor, for his opinion on how to prepare the figure. The Southern blot data were meant to show the rearrangement of a germline band from 3.8 kilobases to 4.2 kilobases, a minimal shift in position, that would have been obscured in a single composite owing to the different lengths of time different gels were run. The figure could also have been composed by just presenting each separate gel with its own control without any duplication. From the completion of the first draft until the last draft, the same composite figure was reviewed not only by the coauthors but also by other senior people in the laboratory. Since no one, including Urban or Leroy Hood, even questioned me, I did not doubt the validity of this presentation. These duplications would not have progressed to publication if I had been experienced, had Urban indicated I had misunderstood him, or had Hood reviewed all the original blots and the final figure together at any time before the paper was submitted for publication. Furthermore, I had plenty of time to run all the DNA samples together in a single gel had I been advised properly.

A separate issue concerns the reproducibility of an experiment (figure 2C) in the *Journal of Experimental Medicine* paper (*1*). This figure is the original autoradiograph of a Southern blot and involves no manipulations, since all the samples were run on a single gel at one time. This experiment was repeated several times and discussed with Hood before the blot used in the paper was finally chosen. All the original data have been and are still available. My understanding is that there were two separate attempts in Hood's lab to reproduce this experiment, one of which was successful. I was not approached to try to reproduce the data in a supervised setting and would appreciate the opportunity.

My data files disappeared from the laboratory while I was away from the laboratory and before I had any knowledge that I was even suspected of any improprieties. These files had all the scintillation counting data and a record of frozen cell lines, probes, and vectors during my stay at Caltech. I informed Hood about the disappearance of the data files well before I was told of any accusations. Furthermore, most experiments for which the original data are missing have been or are being corroborated by other laboratories.

I have not been guilty of any deliberate wrongdoing. I believe that justice and due process were denied me by the nature of the investigation at Caltech. I believe I have already suffered greatly for an innocent mistake for which I extend my apologies to the scientific community. Whether I should be the only one to be blamed for this mistake, I leave others to decide, although I believe that it is not justified. I have learned from this experience about seeking authoritative information, although it is sometimes difficult to know what is correct. This points to the importance of strict guidelines within a large laboratory for operations that are thought to be widely known but may be unknown to neophytes. I remain committed to the goal of trying to reveal the secrets of the immune system. I am determined to regain the confidence of my scientific colleagues through carefully controlled and decisive experiments; it is all that I ask.

VIPIN KUMAR
Department of Microbiology and Molecular Genetics, University of California, Los Angeles, CA 90024–1489

REFERENCES

1. V. Kumar, J. L. Urban, L. Hood, *J. Exp. Med.* **170**, 2183 (1989).

In response to Roberts' article "Misconduct: Caltech's trial by fire," I would like to discuss the issue of due process with regard to investigations of scientific misconduct. "Due process of law" is the central guarantee in American and English jurisprudence that there will be no deprivation of legal rights in the act of bringing forth testimony in a procedure and that in the effort to gain an understanding of the truth, fairness, justice, and concern for human rights will imbue the process of revelation. This principle, if strictly adhered to in the case of the investigation of Vipin Kumar in Leroy Hood's laboratory, would have had a significant and meritorious series of effects, in the direction of assigning relative responsibility for the misconduct. It would have allowed Kumar to have proved his contention that he was misled by his colleague and coauthor, James Urban, in the construction of the multipart figure in the *Journal of Experimental Medicine* article (*1*). It also might have permitted Kumar to participate in the disclosure of the extenuating circumstances of the misconduct, which might have mitigated any effects on his future career.

Several other aspects of the treatment of this case were prejudicial. For example, Caltech prematurely "relieved" Kumar of his duties when the investigation was barely under way (at issue was an allegation of misrepresenting the source of lanes in a misguided attempt to beautify a Southern blot, but not an allegation of data fabrication; no changes in the conclusions of the manuscript were introduced). Was it necessary to banish Kumar before the investigation, flawed as it was, reached a conclusion? Furthermore, Hood, with the approval of the Caltech provost, Paul Jennings, blanketed the immunologic community with a "warning" letter providing his assessment of the situation during the early stage of the investigation; this was not done during or after investigation of Urban's reported misconduct. Despite professional interest in this information, by our lab and perhaps 20 others, and despite our collaboration with the Caltech group, the concern for the scientific community by Hood and Jennings did not prompt them to write a letter to me about Urban's reported misconduct. In particular, I was a coauthor on a paper with Urban and Hood (*2*) and therefore might have been regarded as a reasonable recipient of such a letter.

Other breaches of due process or fairness in the treatment of this case include (i) the failure to provide a rapid, thorough investigative procedure with the essential aspect of cross-examination; (ii) the submission of the disingenuous retraction of the *Journal of Experimental Medicine* paper transferring all responsibility to Kumar and also not permitting him to see or sign it; (iii) the fact that, at the appeal stage of the investigation, Kumar was not permitted a lawyer; and (iv) that Kumar could not keep abreast of the

accusations against him because, until the very end of the investigation, no transcripts of the testimony of others were provided to him.

With a timely, yet thorough, local investigation, it should be unnecessary to make premature announcements that might have devastating consequences for the accused, such as the loss of a future job. In this case, it appears that Kumar "took the rap" for the trio of coauthors—Kumar, Urban, and Hood. Without protection for junior members of a laboratory, it will generally be the case that the university will seek to defend its top faculty: if someone is to be sacrificed, it clearly will be the junior scientist. Therefore, it is evident that current procedures chosen to examine scientific misconduct often subvert due process and may result in reaching incorrect conclusions. Simple changes would enhance fairness, for example, inviting external, nonuniversity members onto the investigative panels, as well as adoption of standard judicial safeguards, such as cross-examination and full disclosure.

ELI E. SERCARZ
Department of Microbiology and Molecular Genetics, University of California, Los Angeles, CA 90024–1489

REFERENCES

1. V. Kumar, J. L. Urban, L. Hood, *J. Exp. Med.* **170**, 2183 (1989).
2. J. L. Urban *et al.*, *Cell* **54**, 577 (1988).

Roberts describes Caltech's finding that data were fabricated and the subsequent withdrawal of several research papers in the laboratory of Leroy Hood, but does not discuss the core issues. What are the laboratory conditions that allow fraud to take place and who is ultimately responsible for the quality of work that gets reported?

Laboratory chiefs now appear to be judged by the appropriateness of their response to uncovered fraud and not by establishing laboratory conditions that guarantee that scientifically questionable or suspicious findings are not published. Only the principal investigator can be ultimately responsible, and we ask how a director, even one of Hood's caliber, can realistically extend that guarantee to 65 researchers, many of whom are trainees. In the not too distant past, principal investigators were involved in many steps of the research process, from bench to publisher. We need to return to this tradition. Paying more attention to the process of science is the only way we can guarantee the quality of its product.

JOSEPH BRESSLER
JOHN LATERRA
Kennedy Research Institute and Department of Neurology, Johns Hopkins Medical School, Baltimore, MD 21205