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In Science, Error Isn't Fraud

By Robert E. Pollack

Prof. David Baltimore of the Massachusetts Institute of Technology is under attack by Representative John Dingell of Michigan. Why should anyone outside of the Government or basic biomedical research care? To begin with, it is a good story; beyond that, the process of scientific investigation itself is at stake.

Dr. Baltimore has a Nobel Prize in medicine, directs the prestigious Whitehead Institute for Biomedical Research and is one of the country's leading and most well-funded researchers. Mr. Dingell is a respected legislator with a long record of rooting out fraud and mismanagement in Government.

In 1986, Dr. Baltimore and his colleagues published a research report on immunology in the journal *Cell*, one of hundreds he has authored or co-authored. Former members of his laboratory claimed that some of the results in this paper were falsified.

Based on these claims, M.I.T. and the National Institutes of Health undertook extensive reviews of the work and concluded that Dr. Baltimore's group had not committed fraud but had made a number of small but real errors in their paper. Dr. Baltimore acknowledged this in a letter to the N.I.H. published in *Cell*.

The N.I.H. has recently reopened its investigation and Mr. Dingell apparently believes that Dr. Baltimore and his group committed a fraud. He has subpoenaed many of Dr. Baltimore's notes and letters, as well as

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Dingell's inquiry is a witch hunt.

the letters and notes of a large number of people who have worked with him in the past seven years. He has scheduled a series of Congressional hearings for next week.

Dr. Baltimore's reputation is at stake, but the rest of us will be affected by the outcome of these investigations as well. What has come under a legislative cloud for the first time in a very long time, perhaps ever in this country, is the legitimacy of the scientific method itself. This is an immediate and serious threat to science and medicine.

The N.I.H. will have the last word on Dr. Baltimore's published research. But as I understand the Congressman's case, it is that published science must be free of error, and that error itself indicates bad faith and fraudulent intent. This is wrong. Published error is at the heart of any real science. We scientists love to do experiments that show our colleagues to be wrong and, if they are any good, they love to show us to be wrong in turn. By this adversarial process, science reveals the way nature actually works.

Science differs from politics, or religion, in precisely this one discipline: We agree in advance to simply reject our own findings when they have been shown to be in error. There is no shame to this. The freedom to

make mistakes and admit them is at the core of the scientific process. If we are asked to forswear error, or worse, to say that error means fraud, then we cannot function as scientists.

We need only to look at a neighboring field — electrochemistry — to see science in action. Have scientists in Utah discovered table-top nuclear fusion? I don't know. Congress doesn't know. The point is: No one knows, and there is no way to find out except by this legitimate search for error we call science. If those in Utah prove to be right, they will be famous; if they are wrong, they will still be good scientists.

I fear that science is about to be put to an unfair and dangerous test by Congress. I cannot claim to be an uninterested party: I am a grateful recipient of N.I.H. grant support for my own research, and it would be disingenuous not to acknowledge my deep respect for the peer review processes that define the funding of biomedical research in this country.

But as dean of Columbia College, I have a second concern. Already, too few young people are choosing to be scientists. This fall, 300 of our 800 graduating seniors will be starting off to law school. If Congress legislates against error in science, there is no chance that a sensible young person will choose to be a scientist, and there will be precious few of us to continue the work.

If we as a country make science a field for only those who enjoy a good lawsuit, we will have shut the door on our future as a technologically serious nation. Clearly Congress cannot wish to do this. I would welcome a Congressional initiative to deal with fraud as such, but I fear that the way Dr. Baltimore is being treated means that witch-hunts are in the offing.