LETTERS

Scholarship

"How chemokine receptors came to be recognized as co-receptors for HIV" (right) is described by Harold Varmus, William Paul, and Robert Gallo. On other matters, one writer asks, How are "honest scholars generally" supposed to respond to "scholarship" that "characterizes scientific knowledge as a mere cultural construct"? Another suggests, "Why don't we be reasonable" and say that "some things are culturally determined and some are not"? And research on "neurally based measures" of cognitive function is discussed.

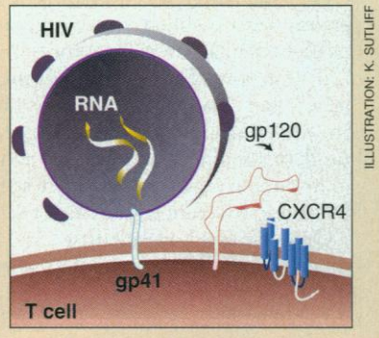

ILLUSTRATION: K. SUTLIFF

AIDS: The Process of Discovery

We were pleased to see recent advances against the human immunodeficiency virus (HIV) proclaimed as *Science*'s Breakthrough of the Year (20 Dec., p. 1988). We wish, however, to correct Michael Balter's description of how chemokine receptors came to be recognized as co-receptors for HIV.

The pivotal finding, to which Balter's article gives only glancing attention, was the identification of a seven-transmembrane protein—initially called fusin, only later recognized as a receptor (CXCR4) for a chemokine (SDF)—as the HIV co-receptor in T cells (Reports, 10 May, p. 872) (*1*). This discovery, which ended a 10-year search by many laboratories for the elusive co-receptors, was based on the use of a screening method that could, in principle, have detected any kind of co-receptor, not just one that happened to be a chemokine receptor. Only after the prepublication announcement and discussion of this result at scientific meetings was it appreciated that HIV co-receptors might be chemokine receptors, thus providing a possible explanation for the inhibition of macrophage-tropic HIV by RANTES and MIP-1 chemokines described some months earlier by F. Cocchi *et al.* (Reports, 15 Dec. 1995, p. 1811) (*2*). With that insight, several laboratories quickly succeeded in showing that CCR-5, the known receptor for these inhibitory chemokines, is the HIV co-receptor in macrophages.

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References

1. Y. Feng, C. C. Broder, P. E. Kennedy, E. A. Berger, *Science* **272**, 872 (1996).
2. F. Cocchi *et al.*, *ibid.* **270**, 1811 (1995).

Balter, in a very nice synopsis of *Science*'s selection for the most important advances of the year, "New hope in HIV disease," focuses on the two major advances: (i) development by the pharmaceutical industry of the new inhibitors of HIV (providing better therapy) and (ii) the discovery of the chemokine control of HIV and use of the chemokine receptors by HIV to enter cells (conceptual advance and possible future therapy and vaccine implications). I agree with his comments, but his reference to the chemokine work is partly wrong. Balter states that the chemokine discovery by Cocchi *et al.* was made at the U.S. National Cancer Institute in Bethesda, Maryland, and at the San Raffaele Scientific Institute in Milan. *All* the work was conceived and done in my laboratory at the National Cancer Institute. None of it was conceived or carried out at San Raffaele. Subsequently, most of us formed and joined the new Institute of Human Virology (IHV) at the University of Maryland, Baltimore, where the work continues. One of us (P. Lusso) moved to San Raffaele but also enjoys a secondary appointment at the IHV.

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Response: The letters by Varmus and Paul and by Gallo reflect behind-the-scenes competition and conflicts well known to most U.S.-based researchers. I believe that in both cases my description of events does not require correction. ***—Michael Balter***

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Characterizing Scientific Knowledge

David Edge (Letters, 8 Nov., p. 904) agrees with me (for which I thank him) about the appropriate response of scientists to false statements by creationists. But he then intimates, citing as evidence a review by M. N. Wise, in *Isis* (*1*), of *Higher Superstition* (*2*), that Norman Levitt and I commit there high crimes of scholarship—ad hominen argument, failure to engage in "open, fair, honest, and well-informed disputation"—and asserts that we "demean" and "will eventually destroy . . . science and reason."

Since we and Edge live on opposite sides of the Atlantic, I doubt that he has observed us in disputation; I suspect that he cannot have read the book to which he refers with such charm, since his accusations refer only to a tendentious and defensive review of it.

Neither Wise nor anyone else has shown that the arguments of *Higher Superstition* are ill-informed or dishonest, and it is not for lack of trying. Edge (and anyone else) has been free since 1994 to respond by showing how we are wrong, which they have not done. To date, among the scores of published reviews, including a few by persons who disliked the book, not one has identified an outright error or instance of dishonesty. The criticisms are about "tone" and "danger" to science and reason, meaning, in this case, danger to the brand of "science studies" we addressed. Ad hominem arguments come not from us, but from our science study critics.

One wonders how scientists, and honest scholars generally, are supposed to respond after more than a decade of "scholarship" that characterizes scientific knowledge as a mere cultural construct, an oppressive, masculinist, hegemonic tool of capitalism and the military, remote from the needs and wisdom of indigenous peoples. Are they supposed to dissect creationist slanders but remain decorously silent about all else?

Who is "demonizing" whom?

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References

1. M. N. Wise, *Isis* **87**, 323 (June 1996).
2. P. R. Gross and N. Levitt, *Higher Superstition* (Johns Hopkins Univ. Press, Baltimore, MD, 1994).

W. Penn Handwerker says (Letters, 22 Nov., p. 1286) that Norman Levitt made a logical error in his dismissal of postmodernism as just so much whimsy and classroom fluff. The same charge could be made against Handwerker's critique. Assuming it's true that everything culturally determined is founded on human understanding, it does not follow that everything found on human understanding is culturally determined. A parallel situation would be to say that because all mothers are women, it must be the case that all women are mothers. Why don't we be reasonable and compromise by saying that some things are culturally determined and some are not?

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Neurons and Reaction Times

As noted in Marcia Barinaga's Research News article of 18 October (p. 344), the