LETTERS

Company matters

The "important and original contributions to the scientific elucidation of the biology of interleukin-1 (IL-1)" made by "rank and file" researchers at Immunex is described by the former head of the IL-1 project group there (below, the IL-1β molecule). A sociologist who is "somewhat surprised to discover" that sociologists are said to be "afraid of biological ideas" assesses the state of his discipline. And "A cautionary tale," an editorial about problems that can arise when industry funds university research, is discussed by six writers.

CISTRON BIOTECHNOLOGY

IMMUNEX

Interleukin-1 Research

Despite the allegations being made in the Cistron *vs.* Immunex case (E. Marshall, News & Comment, 30 Aug., p. 1162), and despite the obvious irregularities of peer review and research reporting that permeate the whole matter, there remains an undeniable fact—rank and file scientists at Immunex made important and original contributions to the scientific elucidation of the biology of interleukin-1 (IL-1). In this light, Lawrence Bogorad's statement (quoted by Marshall) that "Immunex employees were stealing" is most upsetting to me and, I am sure, to my former teammates.

From 1983 until 1986, I was head of the IL-1 project group at Immunex. During that time, we achieved a total purification to homogeneity of IL-1β (*1*). We determined several partial amino acid sequences from this material in preparation for oligonucleotide-based cloning. Only after we had done this work, which I believe shows that we were truly at the forefront of IL-1 research, did Steven Gillis make us aware of the sequence in Philip Auron's manuscript. Should we have stopped at that point?

As it happened, we pressed on, and although we are now accused of misappropriating Auron's sequence information (*2*), we nonetheless continued to make ground-breaking discoveries about IL-1 that others, including our accusers, appear to have missed. We discovered a second gene for IL-1 (*3*) and found that IL-1α is active in its full-length form, whereas IL-1β must be cleaved in half before it becomes active. We developed high-level production processes for both IL-1α and IL-1β (*4*) and carried them forward into preclinical testing. We identified and cloned the type-I IL-1 receptor (*5*). Pursuing the activation of IL-1β (*6*), we discovered the ICE protease that now stands as a key member of the apoptosis-inducing family of proteolytic enzymes. Yes, Auron and his coworkers cloned IL-1 before we did, but our perseverance and hard work led to much that is of value today.

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On Sociological Biophobia

The idea that sociologists are somehow afraid of biological ideas is indeed a "random sample" (Random Samples, 23 Aug., p. 1049). It is probable that for any arbitrary pair of disciplines there is at least one person in each of those disciplines who attributes decline in his or her own discipline to ignorance of the other.

Sociology, however, is probably the most catholic of the social sciences at the present time. It has a postmodern corner, but it also has a rational choice corner, a Marxist corner, an ethnographic corner, a "grand theory" corner, a conversational analysis corner, and so on. After all, isn't it one of the basic insights of modern

biology that variation is a key to evolutionary development?

It is true that sociology, with its broad range of interests and methods, has indulged in more than its share of social scientific foolishness. It is also true that the same broad range has given sociology more than its share of social scientific successes. When people have money to invest in social research, they tend to spend it on methods invented by sociologists; modern demographic methods and modern market research are two obvious examples. Most of the decent social data on the United States and its population has been gathered by sociologists or by people using methods that sociology pioneered.

After a decade of applying to social data the dynamic algorithms that were originally developed for the analysis of DNA, I am somewhat surprised to discover that I am afraid of biology. Should I expect a delayed reaction? Will I recant? Are there colleagues out there in biophilic social scientific disciplines who have already done this work and published it where my research assistants and I can't find it?

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If sociologists do not know much biology, so biologists do not know much sociology. Otherwise the former head of the Alcohol, Drug Abuse, and Mental Health Administration would not have compared the U.S. inner cities to the jungle and researchers would be looking at guns, not genes, for the origins of the homicide rate.

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Morality Play

In her 26 July editorial ("A cautionary tale," p. 411), Dorothy S. Zinberg reviews the suppression of data for a levothyroxin bioequivalence study funded by Boots Laboratories at the University of California, San Francisco (UCSF), which showed no difference between the Boots drug Synthroid and three generic products. As the UCSF scientist who reviewed the work for the university and attempted to mediate the differences between the company and the investigators, I share Zinberg's concern about the morality of the actions of both the company and the university.

As I was quoted in the *Wall Street Journal* exposé of the issues (*1*), I continue to believe that "the Boots people were deceptive and self-serving" in their review and analysis of the study. At this time, however, I am extremely frustrated to find that the results of the UCSF study are not available to the medical community, with the authors' analysis of the implications of their study, as originally accepted for publication in the *Journal of the American Medical Association*. The paper was withdrawn at the insistence of the university, who presumably feared a lawsuit from the pharmaceutical company.

Zinberg does not mention that Boots Pharmaceuticals has published the results of the study and their interpretation of the data in a new periodical (*2*). The senior author of the paper, Boots' Gilbert Mayor, serves as an associate editor of the new journal.

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