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DEPARTMENT OF BIOCHEMISTRY

PAUL BERG
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July 12, 1982

Prof. Sir Hans Kornberg
Marine Biology Laboratories
Woods Hole, MA 02453

Dear Hans,

In some inexplicable way your letter disappeared before I could answer it, but my memory has not yet deteriorated to the point where I can't remember its essentials and respond to some of your concerns.

First let me say that I'm pleased by your comments about my lecture and the work it summarized. Often in trying to make the material understandable to a group that is unfamiliar with the intricacies, some of the subtleties, problems and opportunities are missed. Perhaps, someday we'll have an opportunity to talk about science at greater length especially so that I can hear your presentation, which, unfortunately, I had to miss.

Concern about our Defense Department's interest in gene manipulation techniques for biological warfare (BW) had already been the subject of a recent discussion with Maxine Singer. Moreover, you must know that the subject has also been discussed in the Recombinant DNA Advisory Committee, and in several recent commentaries in Nature and Science (see enclosed).

Frankly, when BW was first raised as a reason to oppose recombinant DNA (RD) research, I was skeptical of the argument because we have long known how to make very nasty, deadly organisms and toxins but have not mastered their use. It seemed to me it was not the absence of exotic methods constructing deadly organisms that was the limiting factor for producing and employing BW systems. My information was that BW was foresworn and discarded by the military because problems associated with containment, dissemination and decontamination made them relatively ineffective weapon systems. Indeed, it was probably their ineffectiveness, rather than humanitarian grounds, that made the treaty banning their development acceptable to the U.S., U.S.S.R. and others. If that perspective is correct, having more sophisticated ways of making deadlier organisms did not make their production any more attractive. My analysis was strengthened by the ready concession in 1975-6 by the U.S. Disarmament Agency and the Soviets that the treaty each had subscribed to specifically prohibited development of new BW agents by any means, old, as well as newly discovered approaches. The U.S. disarmament agency still insists that we are observing the treaty's proscriptions and that we will not undertake development of new biological warfare agents. Realistically, however, I suspect that the treaty will stand only as long as it serves the "national interest". Suspicions, or information of Soviet non-compliance would create great pressure on the military to abrogate the agreements.

Prof. Sir Hans Kornberg

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As I interpreted your concern it is that RD techniques have become so sophisticated and successful that, given the will, money, and high level research, it would be possible to make BW weapons that overcome the handicaps of previous systems; in short, you are asking if we are able to convert a lousy weapons system into an effective and, therefore, attractive one?

I certainly have never spent much time trying to think about how we or others might create effective BW agents. But given the level of distrust and paranoia that exists, it would surprise me to learn that those charged with the responsibility of the Nation's defense have not thought about that question. The article in Nature (see enclosed) suggests that things have gone beyond thinking about it and that the military is undertaking active research along those lines. However, I have learned recently that the first bracketed paragraph in the Nature article is wrong and that Budiansky is in the process of publishing a retraction of that portion. Also, I am told that the following two paragraphs were misleading in that no explicit request was made to NAS to provide a study of the potential use of RD technology for BW, although there are suspicions that that was their intent. The actual agreement indicated in the second bracketed paragraph is, however, correct.

If we accept the statement in the last bracketed paragraph then we are back to where we thought we were prior to Budiansky's "false" alarm. The only thing I can see doing is remaining alert to new hints or disclosures. For the present I do not intend to become involved in this debate. If you want to find out more, talk to Maxine Singer when she's in Woods Hole next month for the Academy Council meeting or to Dave Baltimore who has been in the thick of it for some time.

I hope you are having a good summer in Woods Hole. We had a delightful visit last week from Michael and Veronica Stoker. Perhaps there will be an occasion soon when we can meet in Cambridge.

With best regards to your family.

Sincerely,

A handwritten signature in dark ink, appearing to be the name 'Paul' written in a cursive, slightly stylized script.

PB/e

Enclos.

cc: Dr. Maxine Singer