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For a National Effort to Develop A Vaccine to Counteract AIDS

It is feasible and overdue

The time has come for the Government to underwrite a nationwide effort to produce an effective vaccine against HTLV III, the virus that causes AIDS. Though a frightening new disease, AIDS is no longer so novel that such an effort would be premature.

Samples of the virus have been isolated and their entire sets of genes decoded. The human populations for testing and eventual inoculation with a vaccine exist and are ready to volunteer. Yet the communities of physicians, and of public and corporate researchers, seem unable to organize the process. Why is the nation unwilling or unable to expend the effort and money to launch an applied-biology and bio-engineering effort to develop and test a vaccine?

Let's examine what is known about viruses. Most viruses cannot "find" just any human cell; they have to attach to a cell's surface, and the attachment has to be a specific match between a portion of the cell's surface membrane and a portion of the virus's coat. HTLV III is ordinary in its habits much like other viruses. It is remarkable only for the fastidious way in which it chooses the cell it will attach to, enter and take over.

HTLV III must find and attach to a particular kind of white blood cell. This sort of cell is the very one everyone's body needs in order to recognize and reject a multiplicity of micro-organisms, fungi, parasites, yeasts and bacteria. That is the reason AIDS patients suffer from so many different diseases. As the virus takes over these cells, the body loses its defenses and eventually succumbs to one or many of a host of infectious agents.

Two scientific reasons are given for the reluctance to begin a national effort to develop a vaccine. One is that AIDS might be caused by a family of closely related variants of the same virus and that therefore no vaccine could be effective. The other is that there are no animals suitable for initial testing of a vaccine and thus no way to be sure a

vaccine is safe for testing in people.

It seems to me and to some colleagues that these objections, though sound, are not conclusive. The exquisite specificity of HTLV III's recognition of certain white blood cells suggests that all variants of the virus will have in common at least one part of their outer coat — the region that finds and binds to this specific kind of cell.

Gene-splicing is the answer to the second objection and the key to making a vaccine. HTLV III is a new virus, but its known properties so far suggest that it is not so exotic as to be beyond the grasp of recombinant DNA techniques. All the genes of more than one AIDS virus have been isolated and chemically identified. This knowledge should permit scientists to put genes from an AIDS virus into a bacterium. Once they are there, the bacterium, grown in large quantities, can be the source of material for testing as a vaccine. And vaccines produced this way would be totally incapable of causing AIDS.

In the absence of an animal model for AIDS, such vaccines could not now be tested in volunteers, because Government regulations require that new vaccines be first tested in an animal. These rules no longer make sense for vaccines produced by recombinant techniques.

There is at least one other reason for our nation's inability to act: irrational fear and hostility directed at a minority. The population at risk and ready to volunteer for testing is largely homosexual. Our political leaders apparently do not wish to be involved with this minority. As a result, the clock runs out on thousands of victims without even the beginning of an effort to develop the vaccine that might prevent new cases from occurring. This is a social disaster.

Consider what we could be doing. We have a population of homosexuals available for prospective study of such

vaccines. These men, like the estimated million or so Americans who already have antibodies to HTLV III, are highly motivated to participate in the large-scale studies necessary to develop an optimal vaccine.

We have as well a population of perhaps 100,000 people with what is known medically as "AIDS-related complex" — a syndrome in which a person has an AIDS virus in his blood but does not show the full set of symptoms characteristic of AIDS. In addition, there are perhaps 10,000 people with AIDS whose white cells are drastically reduced. These 10,000 have a currently irreversible disease, and many have repeatedly offered themselves for any experimental treatments.

A vaccine for any virus-caused cancer will have to be made by recombinant techniques in order to separate the gene for the vaccine from all cancer-causing genes in the virus. Therefore, if we proceed immediately to organize biotechnology for the production and testing of recombinant AIDS vaccines, we gain time on the eventual production of vaccines for leukemias, lymphomas and other human tumors that are likely to be caused by viruses.

All physicians have taken an oath to do no harm. But in fact they do harm by sitting quietly by, or referring AIDS victims to another physician or hoping the disease will quietly go away after it destroys a few thousand homosexual men and narcotics addicts. It is not enough to offer succor and solace. Physicians and scientists should lobby actively for a nationwide effort to develop an AIDS vaccine. □