AIDS AND ANTI-SPERM AUTOIMMUNITY

To the editor:

Your "First Word" editorial on the pathogenesis of AIDS (Dec. '87, p.1249) is timely. It is perhaps overdue to reexamine the whole issue with more scientific scrutiny. It may appear that human immunodeficiency virus (HIV) research holds the answer to the problem of finding a suitable vaccine or anti-viral compound, but I predict that all of these efforts will have limited success. Although HIV may be partly responsible for the development of AIDS, the entire disease syndrome should be reexamined more thoroughly. It seems that researchers have been overlooking an obvious initial step in the development of AIDS, namely the anti-sperm autoimmune disease state. Sperm is a good autoantigenic stimulator because its DNA-protein (DNP) contains protamine instead of the histones found in somatic cell DNP. Introducing sperm into an "unnatural" mucosal environment, such as the rectum, is almost as harmful to the immune system as injecting sperm parenterally. The autoantigenicity of sperm is further enhanced when multiple HLA types are introduced via the sperm from multiple sex partners. Once these autoimmune reactions are initiated, latent viruses and even oncogenes may begin to activate. Human papilloma virus also may be activated by the same process¹. And the recent findings of Winkelstein et al.² that "only the receptive anal/genital contact had a significantly elevated risk of Human Immunodeficiency Virus infection" is compatible with this hypothesis.

References

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MORE ON AIDS PATHOGENESIS

To the editor:

Peter Duesberg's "Challenge to the AIDS Establishment" (*BioTechnology* **5**:1244, Nov. '87) contains, in my opinion, several dangerous simplifications and deceptive arguments.

First, Duesberg seems to find a contradiction between the fact that someone can test positive for antibodies against HIV, yet still come down with the disease. Duesberg seems to

believe that this casts grave doubts on whether HIV is the causative agent of AIDS, given that the usual therapy against viral diseases is vaccination, the precise aim of which is to increase the number of antibodies in the bloodstream against the virus you want to combat.

The problem with Duesberg's argument is that nothing we know presently about the virus implies that it is necessarily spread—either within the body or between individuals—in the free form. Most viruses are indeed spread that way, which makes vaccination a feasible strategy. However, HIV is harbored inside immune cells such as lymphocytes and macrophages, which are found in semen, saliva, and other bodily fluids. (In fact, the early isolations of AIDS virus from semen and saliva were actually isolations of infected macrophages and lymphocytes, which were then screened for the presence of the virus^{1,2}.) If transmission of the virus occurs primarily through fusions of these infected cells with other healthy cells, the virus would always be inside host cells and never exposed to the antibodies circulating in the blood.

It seems that the AIDS virus may also circulate in a free form, given that the immune system is exposed to the virus in such a way that it does build up antibodies against the virus (even if they don't prove to be useful), and that AIDS may be able to be transmitted in blood plasma that is lymphocyte-poor³. Still very much unknown, however, is whether the primary mechanism for HIV spread is through the exchange of free virus or through the exchange and fusion of infected immune cells with healthy cells⁴.

Second, Duesberg seems to set up what is, in my opinion, a "straw man"—an unnecessarily narrow model of HIV action—which he uses to rule out the possibility that HIV could cause immune suppression. Duesberg casts doubt on whether HIV can kill enough T cells to cause immune suppression, given the fact that the virus only seems to infect a small percentage of T cells at any one time. Yet, currently so little is known about how the immune system works that it seems slightly premature to conjecture about how immune suppression in AIDS might occur. T-cell killing by HIV has indeed been a widely discussed model of potential HIV action, and it is valuable that Duesberg points out some of the problems with that hypothesis. However, HIV has been isolated from immune cells other than T cells⁵ (including Langerhans cells⁶), and the

virus potentially has a role in the brain degeneration that is often seen in AIDS cases⁷. The brain is thought to potentially play an important role in immune-system function.

Third, Duesberg carelessly integrates a statistical population effect—the "five-year latency period" he cites—into his stochastic molecular models. He implies that everyone who comes down with AIDS must first carry the virus around for five years. He states that this implies that HIV must reside in an individual T cell for five years, or choose to kill the T cell's fiftieth generation of descendants, etc. Duesberg rightfully finds these prospects unrealistic. It is my understanding, however, that the "five-year latency period" is merely an average. The length of the latency period probably depends on a number of factors, including the kinds of other stresses placed on the immune system.

Another oversight of Duesberg's article is that he does not discuss any of the evidence from animal studies—either apparently related diseases in other animals or experiments involving HIV infection of other primates.

In conclusion, I believe Duesberg raises some interesting points. However, I feel that the preponderance of evidence (none, admittedly totally unequivocal) strongly supports the hypothesis that HIV is the cause of AIDS. I find many of the arguments Duesberg employs against this view to be unnecessarily narrow and ultimately quite unconvincing.

References

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