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LETTERS

HIV and AIDS

The article "Keystone's blunt message: 'It's the virus, stupid' " by Jon Cohen (News, 16 Apr., p. 292) describes the state of the art of AIDS research, but also the state of the minds of AIDS researchers (*1*). Cohen writes that to AIDS researchers it is either a "conundrum," or "many puzzles," or a "disparity" that "the immune system collapses despite . . . only minute amounts of HIV . . . ." Yet they reject an alternative explanation as an "anti-HIV hypothesis" and dissidents with the slogan "It's the virus, stupid." Is a non–HIV-AIDS hypothesis stupid because it is an anti-HIV hypothesis?

The drug-AIDS hypothesis I have proposed is not a puzzle. It predicts AIDS after individuals inject themselves with psychoactive street drugs (as more than 80,000 American AIDS patients have done) and after they inhale mutagenic and toxic nitrites (as many male homosexual AIDS patients have done) for the 10 years that it is said that HIV requires to cause AIDS (*1*). It also predicts immunodeficiency from the killing of the highly proliferative cells of bone marrow with the DNA chain terminator AZT (*2*), which is currently prescribed to more than 200,000 HIV-positive people with and without AIDS (*1*).

Indeed, the recent summit of HIV trackers that Cohen reviews has provided the best alibi yet for HIV: "Using creative new techniques . . . that are much more sensitive than previous methods, several scientists have found that there is far more HIV in infected people than was previously thought." For example, "quantitative competitive PCR" (polymerase chain reaction) analysis was shown by George Shaw and his colleagues (M. Piatek, Jr., *et al.*, Reports, 19 Mar., p. 1749) "to be as much as 60,000 times more sensitive than culture-based plasma viremia assays at detecting HIV in plasma." But does it help the emperor to wear clothes that can only be seen with "creative new techniques"?

In my view, Shaw and his colleagues virtually prove, with an impressive and exhaustive collection of new data, that HIV is not the cause of AIDS. (i) During the primary infection, before immunity, there are 10 to 10^4 infectious HIVs and 3×10^5 to 2×10^7 HIV RNAs per milliliter of plasma. Thus the new technique sees indeed 10^3 to 10^5 times more RNA than infectious HIV. But there is no AIDS, and the T cell counts are normal. (ii) After immunity, there are no infectious HIVs and about 10^3 to 5×10^5 HIV RNAs per milliliter of plasma. There is also no AIDS, and the T cell counts are normal or almost normal. (iii) Once immunodeficiency is acquired and AIDS appears, there are no infectious HIVs per milliliter in 5 out of 27 cases, fewer than 25 in 6 out of 27 cases, and 10^2 to 10^5 in 16 out of 27 cases. HIV RNAs range from 3.6×10^4 to 9×10^6 per milliliter, despite the complete absence of T cells, the presumed source of HIV, in several HIV RNA-millionaires! The fluctuation of infectious HIV from 0 to 10^5 in otherwise identical AIDS patients indicates to me that HIV is not the cause of AIDS, but instead an optional opportunist of immunodeficiency.

If HIV were the cause of AIDS, T cells would drop and AIDS would appear during the primary infection, when HIV titers are high and there is no antiviral immunity. But if it were an opportunist of an immunodeficiency induced by another cause such as drugs, its titer might be either high or low or zero, exactly as Shaw and his colleagues report. Thus HIV appears to be just another AIDS opportunist like *Pneumocystis carinii*, candida, cytomegalovirus, and so forth. Sound stupid? And are the more than 3000 documented HIV-free AIDS cases (*1*) stupid too?

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Response: Duesberg's views on the pathogenesis of AIDS (*1*), responses to his hypothesis from other investigators (*2*), and comments on the rhetorical approaches Duesberg has employed in presenting his views (*3*) have been sufficiently documented in the literature to preclude the need for recapitulation here. Suffice to say that, in contrast to the interpretation offered by Duesberg, we believe our results, along with the data presented in recent publications by Pantaleo *et al.* (*4*) and Embretson *et al.* (*5*), in combination with an extensive body of clinical, epidemiological, and laboratory data accumulated over the past 12 years [reviewed in (*6*)], are

consistent with a central role for HIV-1 in the pathogenesis of AIDS. While Duesberg is entitled to his opinions, we share neither his views on the pathogenesis of AIDS nor his interpretation of our results.

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There is no question that people infected with HIV will eventually develop AIDS, and one should take every precaution to avoid becoming infected. There is also no doubt that we could cure AIDS if we could eliminate HIV from the body of infected individuals. Unfortunately, this is an unrealistic goal. In order to develop more effective AIDS treatments that might induce remission, we need to pay more attention to the human immune system, and not just the virus. As in the many other mammalian diseases associated with retroviruses, the immune system itself is partly to blame for AIDS. In this sense, the political slogan, "It's the virus, stupid," may be counterproductive.

In a recent clinical trial of an experimental AIDS vaccine (*1*), we found a statistically significant negative correlation between the proliferation of CD8-type lymphocytes and the survival of CD4-type lymphocytes. An increase in CD8 cells and a decrease in CD4 cells are both characteristic of AIDS, and the latter leads to the immune deficiency that characterizes the disease. By "correlation," we do not just mean that CD8 cells increased as CD4 cells decreased. If it were that simple, both phenomena could be independent effects of HIV infection. We also mean that a vaccine used to reduce CD8 cells caused a rebound in CD4 cells. This would not be possible if the virus were the whole story.

Perhaps a more compelling example is the response of an HIV patient who was injected with a test dose of monoclonal antibodies that produced a marked decrease