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SANTA BARBARA • SANTA CRUZ

SCHOOL OF MEDICINE
Department of Microbiology
and Immunology

SAN FRANCISCO, CALIFORNIA 94143

July 8, 1985

To: Members of the human retrovirus subcommittee
of the Retrovirus Study Group

From: Harold Varmus *HV*

I have now received results of our straw poll from all but three members of our group, two of whom have already taken strong positions in favor of certain names. On the whole, the clearest messages to emerge from the poll are that no single name among those proposed is entirely satisfactory, and that we are all better at finding reasons to oppose a name than at defending one (and proselytizing in its favor).

Despite the anticipated difficulty of locating a consensus, I was pleased to find among the responses a strong inclination to reach some agreement and to implement it through the editors of journals and other means. Since there is considerable skepticism (which I share) about the fruitfulness of a meeting (the funds for which are not readily available in any case), I have decided to air my own response to the opinions I have received thus far, in hopes that the proposal I shall make either will be greeted with general agreement or will prompt a yet better solution to our impasse.

As I see the problem at this stage, the names proposed for the AIDS-associated viruses can be grouped in four categories: (i) those identical or nearly identical to names originally proposed by investigators who have isolated strains of the viruses in question (some of these names could also be placed in subsequent categories, but they are distinguished by the political implications of their use, implications which obviously impede acceptance in certain quarters); (ii) names that make use of the disease states (AIDS and lymphadenopathy syndromes) with which the viruses are associated; (iii) names that invoke some aspect of pathophysiology, referring either to cell tropism or the effect of these viruses upon immunocyte function; and (iv) names intended to neutralize the political and scientific problems posed by the names in other categories by assigning numbers to each group of human retrovirus in some pre-determined (e.g. historical) sequence.

Category (i). Even without responses from some of the more ardent partisans, it is apparent that it would be most difficult to achieve a consensus for the names HTLV-III, LAV, and ARV. HTLV-III has raised considerably more opposition than the others (over half of those polled adamantly oppose its use) because of what most of us judge to be clear and fundamental differences between the AIDS-associated viruses and HTLV-1 and -2. Thus, despite the wide use of the name HTLV-III in the press and among clinicians and patients, there seems to be substantial opinion within our group that the name is scientifically

inappropriate and that it is not too late to implement a name that will serve us all better in the future. I concur with these views. Opposition to LAV and ARV is partly political, partly based upon concerns about use of pathological terms, and partly concerned with maintaining uniformity in retroviral nomenclature (e.g. the name should begin with a term for the host). In my opinion, neither of these names is good enough to warrant satisfying one political faction after disappointing another.

Category (ii). Two sorts of serious objection have been voiced against names that incorporate the names of disease states, in particular AIDS. First, we have received the clinical opinion (not, of course, shared by all) that names that include the term AIDS, especially those such as human AIDS virus or human AIDS retrovirus, will prove troubling in the contexts of medical care and public health policy. I am dubious about such contentions for several reasons, among them the many precedents the public tolerates (e.g. polio and hepatitis B viruses) and the "evanescence of euphemism" noted by John Coffin. However, the opinions on this matter are of sufficient weight to encourage selection of a name that at least diminishes the implication that infection with the virus is tantamount to the appearance of AIDS. The second major objection is that no name is likely to cover the full clinical spectrum induced by the virus, so that associating the virus with AIDS or lymphadenopathy syndromes will ultimately prove to be misleading and insufficient. Although there is merit in this argument, I do not find it strong enough to reject candidate names; we live happily with the names of many viruses that are frequently encountered in clinical situations other than those for which they are named.

Category (iii). Names in this group are potentially satisfying on theoretical grounds, but there is also considerable danger of generating names that will later prove to be highly inappropriate or insufficiently specific. For example, I am attracted to some of the proposed names that evoke the immunodepressive functions of the AIDS viruses (e.g. HIV and HTLV), but I am bothered by the lack of specificity: several other kinds of viruses have suppressive actions on the immune system, though only one kind has been rigorously associated with AIDS. If we were to break accepted convention and include the term retrovirus in the name (e.g. human immunodeficiency retrovirus or HIRV), matters would be improved in some respects but still confused by the immunodepressive properties of HTLV-1 (pointed out by one of our members) or by similar properties of any subsequently identified human retroviruses. Moreover, the situation could then become very confused if the new virus differed as much from the AIDS viruses as the AIDS viruses differ from HTLV-1. (At this point, such confusion is unlikely to arise from the use of names based upon diseases [Category (ii)]; the viruses we recognize as the probable causes of AIDS are sufficiently established that the isolation of another apparent etiological agent from patients clinically similar to AIDS patients would be an occasion for defining a new clinical entity. In this vein, it is interesting to note that the most recent issue of the MMWR [copy attached] provides new guidelines for the diagnosis of AIDS that include serological or virological evidence for infection with "HTLV-III/LAV".)

The use of the terms lymphotropic or T cell lymphotropic within names in

Category (iii) raises similar problems of specificity, as well as the further problem of accuracy. Many different viruses are, of course, lymphotropic and even T cell tropic. Moreover, these terms tend to imply tropism exclusively for the cell type named, yet recent work indicates that the AIDS viruses (like the T cell leukemia viruses) are able to infect other cells (e.g., neural cells) and perhaps cause disease at other sites. I foresee future confusion and regret about the choice of such names.

Category (iv). At least three of our members favor taking refuge in this category, away from the political and theoretical turmoil of the preceding categories. There is undeniable appeal in this maneuver: a system of sequential numbering of human retroviruses appears at least superficially rational, and similar systems are alleged to work well for other types of viruses. There are, however, some serious problems. First, the very neutrality of these names makes them difficult to remember. As long as we are dealing with only HRV-1,-2, and -3 there will be no problem, but remembering the characteristics of twenty different viruses named only by number would be a challenge. Second, institution of such a system to name the AIDS-associated viruses would create problems in other sectors. The widely-promulgated and agreed upon names for human T cell leukemia viruses-1 and -2 would have to be changed, and we would have to consider the proper place for the human foamy viruses. (A possible alternative would be to provide sequential numbers for human oncoviruses, spumiviruses, and lentiviruses; however, in my opinion, the definition of a lentivirus is still not sufficiently secure to ensure correct categorization of any member other than visna. And one of our respondents informs me that the alleged homology of the AIDS viruses to visna is due only to short tracts of adenylic acid in both genomes.) A third problem concerns abuse of the numbering system by assignment of what is intended to be a species number to new, but not novel, isolates. This is likely to happen in part (as one committee member notes) because such numbering systems are commonly used to identify strains within a viral species. Adding new numbers within an existing convention is much easier than gaining acceptance for an entirely new name, and the result is likely to be chaos unless someone wishes to establish a clearinghouse for assignment of numbers. (I doubt many of us would volunteer for that task.) In sum, I am not persuaded that our current difficulty is best resolved by a solution that runs counter to long established and generally successful traditions in retrovirology---in large part because I think this solution has many problems of its own.

Where does this generally negative discourse leave us? In my review of the problem, it seems to me that, despite objections to all categories, the objections to the names in Category (ii) are the least troublesome. As a result, I have become a belated proponent of the name human AIDS-lymphadenopathy virus (or human AIDS-lymphadenopathy associated virus), both abbreviated HALV. Although you should note the distinction between this name and that proposed recently in Nature by Flossie Wong-Staal (hers is human AIDS/lymphotropic virus and hence belongs to both Categories (ii) and (iii)), the shared abbreviation has the advantages of being novel, pronounceable, and sufficiently similar to existing names for AIDS viruses to be quickly recognized and politically

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inoffensive. To those who worry about the inclusion of an acronym within an acronym, I would plead for immunity to pedantry. To the more serious concern about patient and public response to the name, I would point out that the name only states what everyone knows (i.e. that the virus is associated with AIDS) and that it emphasizes as well the diversity of associated syndromes (e.g. lymphadenopathy and, by implication or medical explication, less disease or none). Furthermore, I would conjecture that if the name were accepted, it would soon be known and referred to as "HALV", without great attention to the full particulars. I don't foresee much difference in the clinic between describing the consequences of a positive antibody test for HALV or for HTLV-III.

I invite all of you to respond at length to this memo---both to the analysis of the problem and to my recommendation. But to insure a swift sampling of opinion, I would again ask that you (also) fill in a brief poll on the following sheet and return it to me promptly.