Letters

Human Immunodeficiency Viruses

The undersigned are members of a subcommittee empowered by the International Committee on the Taxonomy of Viruses to propose an appropriate name for the retrovirus isolates recently implicated as the causative agents of the acquired immune deficiency syndrome (AIDS). Adoption of an internationally acceptable name for this group of viruses has become an important issue because of the widespread interest in AIDS and its origins and because of the multiplicity of names currently in use. Thus the several isolates of what are now evidently closely related members of the same virus group have been called lymphadenopathy-associated virus (LAV), human T-cell lymphotropic virus type III (HTLV-III), immunodeficiency-associated virus (IDAV), and AIDS-associated retrovirus (ARV). At present, two compound names (HTLV-III/LAV and LAV/HTLV-III) are also used in scientific publications, and the colloquial name, the AIDS virus, is often used by the press.

We are writing to propose that the AIDS retroviruses be officially designated as the human immunodeficiency viruses, to be known in abbreviated form as HIV.

We have considered several issues that bear upon this proposal. (i) The name conforms to common nomenclature for retroviruses, beginning with the host species ("human"), ending with "virus," and containing a word that denotes a major (though not the only) pathogenetic property of the prototypic members of the group ("immunodeficiency"). ("Feline leukemia virus" and "mouse mammary tumor virus" are two well-known examples of such names for retrovirus species.) (ii) Although the name clearly connects the viruses to the disease with which the virus group is associated, it does not incorporate the term "AIDS," which many clinicians urged us to avoid. (iii) The name is readily distinguished from all existing names for this group of viruses and has been chosen without regard to priority of discovery. (iv) The name is sufficiently distinct from the names of other retroviruses to imply an independent virus species, a group of isolates that can presumably exchange genetic information readily with each other but not with members of other known retrovirus species. These other species include the human T-cell leukemia viruses (for example, HTLV-1 and -2), which will continue to be named according to a convention adopted by several leading investigators in September 1983. (Although Roman numerals are often used to indicate the type of HTLV, Arabic numbers were originally prescribed in the agreement and are thus used here.) (v) Retroviruses isolated from subhuman primates and found to be genetically related and biologically similar to HIV's should be designated as immunodeficiency viruses of the appropriate host species [for example, simian immunodeficiency virus (SIV) or African Green monkey immunodeficiency virus (AGMIV)]. (vi) Because HIV isolates are numerous and display considerable genetic heterogeneity, particularly in the *env* gene, it will be necessary for each laboratory to assign subspecies designations to their isolates. We recommend that each laboratory adopt a code with geographically informative letters and sequential numbers to identify their isolates [for example, the 42nd isolate at the University of Chicago could be described as HIV (CHI-42)]. Initially, the existing, well-characterized isolates, such as LAV-1, HTLV-IIIB, or ARV-2, should be identified as such in publications to ease the transition to a unified nomenclature. (vii) Any future isolates of human retroviruses with clear but limited relationship to isolates of HIV (for example, more than 20% but less than 50% nucleic acid sequence identity) should not be called HIV unless there are compelling biological and structural similarities to existing members of the group.

We hope that this proposal will be adopted rapidly by the research community working with the viruses.

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EDITOR'S NOTE: Myron Essex and Robert C. Gallo, who are also members of the Human Retrovirus Subcommittee, did not sign the above letter.

Diatoms and Acid Rain

Marjorie Sun's briefing "Academy study dispels doubt on acid rain" (News & Comment, 28 Mar., p. 1500) directs our attention to a new NAS report (*1*) that strengthens the connections between acid rain, recent lake acidification, and fish losses. She singles out for comment a form of evidence that was very useful to the NAS committee—namely the remains of diatoms in sediment cores and their use for reconstruction of *p*H history of lakes. Because of the absence or scarcity of old direct *p*H measurements of lakes, this indirect approach has been most helpful for determining whether, when, and to what degree lakes have been acidified.

I would like to take issue with Sun's statement that the diatom approach is "a new method developed by the committee." The diatom method has been in use for several years for quantitative reconstruction of lake *p*H history relating to acid rain (*2*). This method of acid rain research was developed from earlier uses of sedimentary diatoms for reconstruction of lake acidity (*3*) and these, in turn, were based on findings that diatoms are good indicators of *p*H (*4*). Numerical techniques applied in recent work were derived largely from those pioneered by paleooceanographers for reconstruction of sea-surface temperatures based on sedimentary remains of Foraminifera (*5*) and by paleoclimatologists for reconstruction of climates based on pollen remains in lake sediments (*6*). In the 1980's the diatom method has been refined (*7*) and extended to parameters in addition to *p*H (*8*) for greater relevance to lake acidification, and the method is being applied with increasing frequency (*9*). On the basis of these developments by numerous scientists, the NAS committee and particularly D. F. Charles, who compiled and summarized the diatom results for the committee (*1*), have strengthened the case for the control of acid rain.

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REFERENCES

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2. R. B. Davis and F. Berge, in *Ecological Impact of Acid Precipitation*, D. Drabløs and A. Tollan, Eds. (SNSF Project, Ås, Norway, 1980), pp. 270–271; A. Del-Prete and C. Schofield, *Arch. Hydrobiol.* **91**, 332