

HIV<sub>8</sub> AND THE SIMIAN-HUMAN CONNECTION: MYSTERIES AND CONTROVERSIES

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The recent characterization and molecular cloning of an African primate lentivirus (SIV<sub>sm</sub>) from sooty mangabeys (*Cercocebus atys*) (1) has led to the very suggestive hypothesis that such agent was the common ancestor of both HIV-2 and another primate lentivirus previously isolated from captive rhesus macaques (*Macaca mulatta*) (2), which is now named SIV<sub>mac</sub>. In agreement with previously published data (1, 3), the authors claim that HIV-2 and SIV<sub>mac</sub> might have diverged from SIV<sub>sm</sub> respectively 30–40 and 20 years ago. A possible explanation for this is that due to the highly selective "pressure" generated by the simultaneous presence of many clinically healthy SIV-infected sooty mangabeys, along with large virus (SIV<sub>sm</sub>) concentrations in West Africa, the latter had to adapt to a secondary host (man) in the form of HIV-2. In this regard, the fact that all primary hosts (African green monkeys, sooty mangabeys and mandrills) of SIVs seem to be healthy carriers of their respective agents has recently suggested the interesting hypothesis that SIVs might have become with time endogenous (apathogenic) retroviruses for their own primary species, while remaining pathogenic for related species (4).

The debated question concerning the origin of HIV-2 seems to be solved, but what was then the origin of HIV-1? The possibility that such agent derived 20–40 years ago in Central Africa from an African green monkey (*Cercopithecus aethiops*) lentivirus (SIV<sub>agm</sub>), or from some other primate or nonprimate retrovirus, has been recently considered (4). This HIV-1 and HIV-2 "separate origin theory" was put into discussion by the closer genetic correlations found between SIV<sub>agm</sub> and HIV-2 than between SIV<sub>sm</sub> and HIV-1 (5). On the other hand, if HIV-1 and HIV-2 had a common ancestor (SIV<sub>sm</sub>?), why the need of two distinct viruses, both pathogenic for man, originating from it? And if "genetic pressure" reasons might help understand HIV-2 origin from SIV<sub>sm</sub> in West Africa, could these same reasons apply to HIV-1 origin in Central Africa? Again, if SIV<sub>sm</sub> (which seems to be endemic exclusively in West Africa) (1) was the common progenitor of HIV-1 and HIV-2, how could these viruses have originated respectively in West and in Central Africa? Finally, despite the African origin shared by HIV-1 and HIV-2, why would their respective prevalence and incidence rates be so different, being HIV-1 infection widely diffuse in the world whereas HIV-2 infection being endemic only in West Africa (1) and sporadic in the rest of the world? It appears obvious to believe that further clues to the origin of human lentiviruses will be provided by a definitive answer to the above points and questions.

## References

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