

AIDS from the perspective of the process of evolutionVladimir Zajac¹, Ciernikova S¹, Wachsmannova L¹, Stevurkova V¹, Mego M² and Krcmery V³¹Slovak Academy of Sciences, Slovakia²National Cancer Institute, Slovakia³Saint Elizabeth University of Health and Social Sciences, Slovakia

There is increasing evidence, pointing out that GIT and other mucosal tissue and not the blood are the main places of HIV infection and CD4+T cells loss. These findings go along with the new studies about the role of bacterial translocation in the gut as central driver of AIDS pathogenesis. Bacteria can induce in the gut and the vagina transcription of silenced genes, including HIV-1 provirus. The HIV-1 has been also detected in the bowel crypt cells and lamina propria. We have identified HIV-like sequences and HIV-like proteins in bacteria and yeast in a cohort of 80 HIV positive patients from intestinal tract of American and Slovak HIV-positive patients and respiratory tract of Cambodian and Kenyan HIV-positive children. Detected sequences were for 90% homologous with the corresponding sequences of HIV-1. Using monoclonal antibodies (MAB) against HIV-1 antigens p17, p24, gp41 and p55 we have identified HIV-like proteins in bacterial extracts of most tested patients. HIV-like protein was detected by MAB against HIV-1 gp120 in *Candida* species of all Cambodian and Kenyan samples. Specific properties of patient's microbiota was found by co-cultivation with HL-60 cells and significant reducing the viral load in a cohort of AIDS patients after administration of probiotics *E. coli* Nissle 1917 as well. From these results it can be hypothesized to show that the bacteria and yeasts can act as a natural host of the sequence of HIV from the beginning of mankind. Throughout a series of epidemics, most individuals harboring many pathogenic microbes with HIV sequences excite. This tremendous longtime sanitary process took place mainly in Europe, Asia and North Africa. However, administration of antibiotics, drugs and anal intercourse induced intestinal dysbiosis and pathogenic bacteria were re-propagated. When a pathogenic microbe carrying the HIV sequences moved to a larger scale, penetrates from the intestinal tract into the blood, infected/lysed lymphocytes and began the process of immunodeficiency. Presented hypothesis answered many until now unanswered questions: Origin of HIV, absence of "gold standard" in Africa, connection of AIDS with TBC in Africa, the rarity of complete viral particles detection in the material from AIDS patients and others. According to our results there is a strong objection against dogma that HIV was transmitted to humans from apes in Africa about 35-50 years ago on the route of accidental contacts. On the basis of evolutionary process we submit proposals for an explanation of one of the most serious problems concerning this disease, which is a large-scale HIV positive in Africa.

Biography

Vladimir Zajac has completed his PhD in 1982 at the Cancer Research Institute of Slovak Academy of Sciences in Bratislava, Slovakia, where he has worked as the Head of Department of Cancer Genetics from 1996 to 2010. He has joined the Medical Faculty of the Comenius University as an Associate Professor of Genetics in 2007. He has published 71 papers mostly in reputed journals and he was the Editor of the book "Bacteria, viruses and parasites in AIDS process" (InTech, 2011).

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