

What is the role of bacteria in AIDS?

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A cluster of evidences has accumulated to date indicating that the main site of HIV infection and CD4+ T cell loss is in the GIT and other mucosal tissue rather than in blood. Thus the pathogenesis of HIV infection is presumably centered on these mucosal viral “target” cells. The HIV-1 was also detected in bowel crypt cells and the lamina propria. Since these cells are in close vicinity to intestinal bacteria, promoted the idea that bacteria may also be involved in the pathogenesis of AIDS. It has also been expressly proven that various forms of HIV reservoirs persist in practically all patients receiving HAART. The recent studies suggest that the palette of viral reservoirs in human body is probably very much wider.

Bacterial DNA isolated from the intestinal tract of American and Slovak HIV/AIDS patients and DNA of bacteria and yeasts isolated from respiratory tract of Cambodian and Kenyan HIV positive children were tested for HIV-1 sequences by PCR using specific primers for gag, pol and env genes of HIV-1. The PCR products synthesized on template of these DNA, were found to be for more than 90% homologous to the corresponding HIV-1 sequences. In Western blotting analysis were in these bacteria identified HIV-like proteins using monoclonal antibodies against HIV-1 antigens p17, p24, gp41 and gp120. Molecular weight of detected proteins are mostly not in accordance with corresponding viral proteins. Differences between profile of detected bacterial proteins by using MAbs against HIV-1 antigens of American and Slovak on the one side and Cambodian and Kenyan patients on the other one, are very probably results of evolutionary process. The presence of HIV sequences in commensally bacteria of the patients may be explained as follows: 1) HIV was transferred into intestinal bacteria from human cells, in particular out of macrophages and lymphocytes; 2) intestinal bacteria are a natural host of HIV sequences in a form of virus or “virus like particles”.

Biography

Vladimir Zajac has completed his PhD. in 1982 from the Cancer Research Institute of Slovak Academy of Sciences in Bratislava (Slovakia), where he was from 1996 the head of Department of Cancer Genetics. He joined the Medical Faculty of the Comenius University as Associate Professor of Genetics in 2007. He has published 56 papers mostly in reputed journals and he was editor of the book „Bacteria, viruses and parasites in AIDS process“ (InTech).

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