

## AIDS process from an evolutionary perspective

**Vladimir Zajac**

Cancer Research Institute BMC SAS, Slovakia

The idea that HIV itself is an etiological agent responsible for AIDS is generally accepted. According to this claim, the virus was transmitted to people from monkeys in Africa through random contacts 35-50 or even 100 years ago. This idea has not been sufficiently substantiated from an epidemiological or statistical point of view. From the historical point of view, the most important changes in human health have occurred during a series of epidemics, especially in Europe. The largest plague epidemic - Black Death - was caused by *Yersinia pestis* bacteria transmitted by rats and their blisters. It began in 1346 in Italy, from where it spread throughout Europe and Asia. It did not hit America and sub-Saharan Africa. After epidemics, the population decreased by 30-50%. The epidemic survived those who had mutation of delta 32 in the CCR5 co-receptor, which is predominantly expressed in T cells. The mutation protects not only the *Yersinia pestis* infection but also the pox virus and HIV. The "Black Death" epidemic has increased the number of mutations in the Caucasian population to 10-20%. Although the

role of *Yersinia pestis* in the "Black Death" epidemic is indisputable, some accompanying symptoms of the epidemic raise some doubts. S. Scott, Ch. Duncan introduced the theory that "Black Death" may be caused by hemorrhagic viruses. This version corresponds to the speed, intensity of the epidemic, long incubation period allows the carrier to travel and infect more people. Our results suggest that HIV is very likely to be an integral part of human beings since the beginning of our existence and leads to the conclusion that HIV has participated in the Black Epidemic along with *Yersinia pestis*. The combination of these two agents has made the epidemic so devastating and leads to the removal of HIV carriers in the Caucasian population. In Sub-Saharan Africa, this epidemic did not occur, so HIV was not removed from the population. Therefore, there is no CCR5 $\Delta$ 32 mutation and the HIV level in the population is much higher than in other parts of the world.