

CD4⁺ T-CELL CYCLING IN HIV-INFECTED PATIENTS WITH THE DISCORDANT IMMUNOLOGIC RESPONSE TO THE ANTIRETROVIRAL THERAPY

E. V. Saidakova,^{1,2} * K. V. Shmagel,^{1,2} L. B. Korolevskaya,¹ N. G. Shmagel,³ N. I. Gulyaeva,⁴
G. G. Freind,⁴ S. V. Yuzhaninova,⁴ V. A. Chereshnev^{1,2}

¹ Institute of Ecology and Genetics of Microorganisms Ural Branch of the Russian Academy of Sciences, Perm, 614081,

² Department of Biology, Perm State University, Perm, 614990,

³ Perm Regional Center for Protection against AIDS and Infectious Diseases, Perm, 614065, and

⁴ Department of General Medicine, E. A. Wagner Perm State Medical University, Perm, 614000;

* e-mail: radimira@list.ru

In HIV-infected patients the discordant response to antiretroviral therapy (ART) is characterized by a CD4⁺ T-lymphocyte counts recovery violation against the background of the effective viral replication suppression. The reason for the ineffective CD4⁺ T-cell regeneration during the treatment remains unknown. Two groups of HIV-positive patients were examined: patients with a discordant response to ART (n = 20) and individuals with a standard response to the therapy (n = 21). In peripheral blood and lymph nodes of HIV-positive subjects the number of cycling (Ki-67⁺), senescent (CD57⁺) and exhausted (PD-1⁺) CD4⁺ T-lymphocytes of different maturation subtypes has been determined. After *in vitro* stimulation the index of asymmetric division of CD4⁺ T-cells was analyzed. Histological examination of lymph node tissue was carried out. It was shown that in individuals with a discordant immunologic response to ART, intensive CD4⁺ T-cell cycling does not result in their counts increase neither in the peripheral blood nor in the secondary lymphoid organs. In patients with impaired recovery of the immune system, the growth in cell cycling was accompanied by the accumulation of the exhausted CD4⁺ T-lymphocytes. Moreover, in patients with a discordant response to ART, the asymmetric division of the *in vitro* stimulated CD4⁺ T cells was demonstrated. The revealed disturbances can cause the ineffective restoration of the immune system during ART in HIV-infected patients.

Key words: antiretroviral therapy, cycling, HIV-infection, discordant response, lymph node, peripheral blood, T-lymphocytes