Retrovirology



Poster presentation

Open Access

Loss of IL-7Ra is Associated With CD4+ T Cell Depletion, High IL-7 Levels and CD28 Down-regulation in HIV Infected Patients

Bence Rethi*^{‡1}, Caroline Fluur¹, Ann Atlas², Sven Grützmeier³, Angelo De Milito¹, Éva Rajnavölgyi⁴ and Francesca Chiodi¹

Address: ¹Microbiology and Tumor Biology Center, Karolinska Institutet, Stockholm, Sweden, ²Infectious Diseases Unit, Karolinska University Hospital, Solna, Sweden, ³Gay Men's Health Clinic, The Soder Hospital, Stockholm, Sweden and ⁴Institute of Immunology, University of Debrecen, Hungary

Email: Bence Rethi* - Bence.Rethi@mtc.ki.se

from 2005 International Meeting of The Institute of Human Virology Baltimore, USA, 29 August – 2 September 2005

Published: 8 December 2005

Retrovirology 2005, 2(Suppl 1):P84 doi:10.1186/1742-4690-2-S1-P84

Interleukin-7 (IL-7) is a survival factor for naïve and memory T lymphocytes and it also increases T cell proliferation during lymphopenic conditions. Elevated levels of IL-7 have been found in the blood of HIV+ patients, which was considered as a homeostatic response to peripheral T cell depletion.

We showed that HIV infection is associated with an increased proportion of IL-7Ra low/negative peripheral T lymphocytes. Down-regulation of IL-7R α on T cells was correlated with the depletion of CD4+ T cells and also with the increased concentration of serum IL-7. The decreased IL-7R α expression resulted in the reduced survival capacity of T cells in presence of IL-7 and was associated with low Bcl-2 expression. Mostly the memory T cells down-regulated the IL-7R α and we found a strong association between CD28 and IL-7R α down-regulation. Accordingly, only CD28+ T cells responded to IL-7 with strong Bcl-2 upregulation.

The positive effects of IL-7 on survival and homeostatic proliferation of T cells might be severely impaired in HIV-infected individuals due to the decreased IL-7R α expression. Chronic T cell activation may lead to an overall decrease of IL-7 mediated survival signals in HIV-infected individuals.