Retrovirology

Poster presentation

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

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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-7Rα 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-7Rα 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-7Rα and we found a strong association between CD28 and IL-7Rα 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-7Rα expression. Chronic T cell activation may lead to an overall decrease of IL-7 mediated survival signals in HIV-infected individuals.