

Poster presentation

Open Access

## Selective Regulation of CD8 T Cell Immune Function by IL-21 in HIV Infected Individuals

Subramaniam Krishnan<sup>1</sup>, Natasa Strbo<sup>1</sup>, Lesley White<sup>1</sup>, Michael Kolber<sup>2</sup>, Wayne Kindsvogel<sup>3</sup> and Savita Pahwa\*<sup>‡1</sup>

Address: <sup>1</sup>Departments of Microbiology and Immunology, Miller School of Medicine Miami, FL, <sup>2</sup>Medicine, University of Miami, Miller School of Medicine Miami, FL and <sup>3</sup>Zymogenetics, Inc., Seattle, WA

Email: Savita Pahwa\* - spahwa@med.miami.edu

\* Corresponding author ‡Presenting author

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):P154 doi:10.1186/1742-4690-2-S1-P154

### Background

HIV infection is associated with skewed maturation of CD8 T cells, accumulation of cells in pre-effector stages and impaired effector function. Two g-chain signaling cytokines, IL-21 and IL-15, are known to enhance IFN- $\gamma$  in antigen-specific CD8T cells in humans and murine models and to synergize with each other. This study investigated IL-21 effects on CD8 T cells of HIV infected subjects.

### Methods

Fresh peripheral blood mononuclear cells of healthy donors (n = 7) and HIV+ patients (n = 10, CD<sup>4</sup>>4200 mm<sup>3</sup>, VL<200 copies/ml) were cultured for 5 days with IL-21 (50 ng/ml) or IL-15 (50 ng/ml) and analyzed for the expression of intracellular perforin and cellular proliferation (CFSE-dye dilution) in maturation subsets of CD8 T cells based on expression of CD45RA/CD62L.

### Results

By itself, IL-21 addition significantly increased perforin, particularly in effector memory (EM) CD8 T cells (62%  $\pm$  8 vs 27%  $\pm$  7) and proliferation of this subset (10%  $\pm$  3 vs 0.5%  $\pm$  0.1) only in HIV subjects. In contrast, IL-15 upregulated perforin in central memory and EM CD8 T cells and induced proliferation in all CD8 maturation stages in all subjects.

### Conclusion

IL-21 selectively augments EM CD8 T cell proliferation and perforin in HIV+ individuals, whereas IL-15 induces pan CD8 T cell activation in both, healthy and HIV+ indi-

viduals. The EM CD8 T cells of HIV+ patients are more responsive to IL-21 than healthy control cells.