

Oral presentation

Open Access

## Baculovirus-Derived HIV-1 Virus-Like Particles (VLP) Activate Dendritic Cells and Are Cross-Presented to Induce In Vitro T-Cell Response

L Buonaguro\*<sup>‡1,3</sup>, ML Tornesello<sup>1</sup>, E Aricò<sup>2</sup>, FM Marincola<sup>2</sup>, R Lewis-Kamin<sup>3,4</sup>, RC Gallo<sup>3</sup>, GK Lewis<sup>3,4</sup> and FM Buonaguro<sup>1</sup>

Address: <sup>1</sup>Viral Oncol. and AIDS Ref. Center, INT "G. Pascale", Naples, Italy, <sup>2</sup>Immunogen. Lab., Dept. Transf. Med., NIH, Bethesda, MD, USA, <sup>3</sup>Division of Vaccine Research, IHV, UMBI, MD, USA and <sup>4</sup>Dept. Microbiol. Immunol., UMB, MD, USA

Email: L Buonaguro\* - buonaguro@umbi.umd.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):S70 doi:10.1186/1742-4690-2-S1-S70

### Aim

to evaluate the ability of the baculovirus-expressed HIV-VLPA to induce the maturation and activation of monocyte-derived dendritic cells (MDDCs).

### Results

the VLP-activated MDDCs show an enhanced Th1 and Th2-specific cytokine production and the effects of VLPs on MDDCs are, to some extent, mediated through intracellular Toll-like receptors signaling. The VLP-loaded MDDCs are able to induce a primary and secondary response in autologous T cells, using an *in vitro* immunization assay. Moreover, the genomic transcriptional profile of VLP-activated DCs show, by gene microarray analysis, the upregulation of several genes involved in the immune response.

### Conclusion

Our results show that baculovirus VLPs activate MDDCs and may "cross" over to the endogenous pathway to gain access to MHC class I, inducing CD8+ cytotoxic T cells activation. The intra-cellular Toll-like receptors appear to be involved in this process; additional signaling pathways induced by VLPs in the MDDCs are currently under evaluation. These data give an insight into the mechanisms of the cellular immunity induced *in vivo* by VLPs, which may be extremely useful to optimize and modulate the immune response.