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Poster presentation

P10-10. HIV-1 Gag virus like particles pseudotyped with CD40 ligand to stimulate innate immune responses

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Background

Previous studies with HIV-1 Pr55Gag virus-like particles (VLP) produced via the baculovirus expression system showed that these VLP are able to induce strong humoral and cellular immune responses in mice as well as non human primates. Based on these VLP we generated mammalian derived VLPs and compared them regarding their ability to maturate and activate human monocyte derived dendritic cells (MDDC). Furthermore, we investigated the capacity of CD40 pseudotyped mammalian VLPs to induce the proliferation of B cells.

Methods

Pr55Gag VLP were produced (i) either in insect cells using the baculovirus (BV) expression system or (ii) in mammalian 293T cells after transient DNA transfection. MDDC were generated and treated with the different VLPs and were further analysed regarding maturation and activation via surface staining of CD80, CD83, CD86, HLA-DR as well as cytokine production (IFN, TNF, IL-6, IL-10, IL-12). Mammalian VLP were further pseudotyped with CD40 Ligand and examined regarding their B-cell proliferation capacity.

Results

Ex vivo studies on MDDCs clearly demonstrated that VLP of BV origin, but not VLP produced in mammalian cells triggered MDDC maturation, activation and cytokine secretion. Furthermore CD40 ligand pseudotyped mammalian cell derived VLP are able to induce B-cell proliferation whereas the other VLP preparations showed no effect.

Conclusion

These results clearly indicate that the potency of VLP to induce innate immune responses is not an intrinsic property of VLP. In addition pseudotyped VLPs, are the next forefront in vaccine development to stimulate and induce the innate immunity.

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