



POSTER PRESENTATION

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# Recombinant DNA/MVA/ChAdV-63-elicited T cells specific for conserved regions of the HIV-1 proteome recognize HIV-1 infected cells and suppress HIV-1

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## Background

Currently, immunogenicity assessments of candidate HIV-1 vaccines in human clinical trials rely on the use of peptides for sensitization of target cells. However, employment of HIV-1-infected cells provides more informative and relevant *in vitro* readouts of HIV-1 recognition.

## Methods

A viral suppression assay (VSA) was developed to assess CD8+ T cell responses to infected autologous CD4+ targets using HIV-1 p24 levels as measured by flow cytometry and ELISA. In parallel, we also investigated live virus infected cells for re-stimulation of vaccine elicited T cells in an IFN- $\gamma$  ELISpot assay.

## Results

HIV-1 infection kinetics is influenced by the multiplicity of infection (MOI) used to infect autologous CD4+ cells, with rapid kinetics observed at higher MOIs. For HIV-1 BaL optimal infection of autologous CD4+ cells was achieved at MOI of 0.05. In the VSA, HIV-1 BaL virus replication was shown to be sensitive to the chemokines MIP-1 $\alpha$  and RANTES added in the absence of effector cells. Pre-activated effector cells indicated increased non-specific background suppression in healthy controls, which was reduced following a prolonged rest before co-culture with autologous CD4+ targets, but led to marked proliferation of the CD8+ T cell effectors. Preliminary investigations in vaccinees show that HIV-1 suppression

mediated by CD8+ T cells can be detected *in vitro* following vaccination and that P24 ELISA has higher sensitivity than flow cytometry. As an alternative to the VSA, an IFN- $\gamma$  ELISpot assay has also been optimized for the use of autologous HIV-1-infected CD4+ cells. Using both of the above assays, preliminary characterization of T cell responses induced in volunteers receiving pSG2.HIV-consv DNA, MVA.HIVconsv and ChAdV63.HIVconsv vaccines will be shown.

## Conclusion

Two assays employing HIV-1 infected target cells were standardised and employed to characterize responses elicited in participants of the HIV-1 vaccine trial HIV-CORE002 in Oxford, UK.

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