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Poster presentation

P18-12 LB. Phase I clinical trial with a new recombinant MVA-BN®-multiantigen vaccine: high responder rate and considerable breadth of immunological response

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Background

The variability of HIV and the appearance of escape mutants are a major obstacle for HIV/AIDS vaccine development. In previous phase I/II studies recombinant MVA-Nef and MVA-BN®-Polytope expressing conserved epitopes from multiple proteins of HIV-1 induced good and broad cellular immune responses and indicated an inhibitory effect on viral replication during treatment interruption (MVA-Nef). To further broaden the immune responses a new MVA-BN®-Multiantigen vaccine candidate expressing full length or truncated HIV-1 proteins (gag, pol, nef, tat, vpr, vpu, vif, rev) has been developed and tested for safety and immunogenicity.

Methods

Fifteen HIV-1 infected patients on HAART therapy with CD4 counts above 350/µl received 2×10^8 $TCID_{50}$ MVA-BN®-Multiantigen at weeks 0, 4 and 12. Cellular immune responses against HIV-1 proteins were measured by IFN-gamma ELISPOT from PBMC preparations. Peptide pools consisted of overlapping peptides: three pools each for gag and pol, four pools for nef and three pools for the remaining proteins.

Results

13 out of 15 (87%) of the subjects generated new or increased HIV specific responses following vaccination independent of their vaccinia prevaccination status. Amongst these subjects 77% (10/13) elicited a response to at least two and 54% (7/13) to at least three HIV proteins. Gag induced the highest magnitude and responder rate. No response was seen against tat and vif.

Conclusion

This MVA-BN®-Multiantigen vaccine induced broad cellular immune responses in HIV-1 infected individuals against most of the expressed HIV proteins in the presence of existing anti-vector immunity. The high number of responders is encouraging and warrants further studies.