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Poster presentation

P17-10. A new AuxoGTU-HIV B DNA vaccine induce very long lasting HIV specific T cells response which is efficiently boosted with HIV LAI lipopeptides

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Background

Prime-boost strategies are thought to increase the durability and the breadth of vaccine induced responses and we have recently shown that the use of a novel DNA vector, auxo-GTU®-MultiHIV-B is able to induce high level and long-lasting HIV specific T-cell responses in macaques. In addition, lipopeptides based on a palmitoyl group can efficiently process and present peptides by dendritic cells to CD8+T cells and have been shown immunogenic in animal models and in human.

The objective of this study was to boost auxo-GTU®-MultiHIV-B induced T-cell responses with lipopeptides based HIV-1 vaccine after 2 years of last DNA vaccine injection.

Methods

Cynomolgus macaques were primed with three (weeks 0, 4 and 12) intradermal injections (ID) with or without electroporation of auxo-GTU®-MultiHIV-B DNA vector. Animals received two distant booster injections of a multi-component vaccine composed of 5 HIV LAI lipopeptides containing peptides derived from HIV-1 Gag, Nef and Pol proteins.

Results

ID with auxo-GTU-MultiHIV-B DNA followed by EP induced IFNγ producing cells lasting for 3 years after the last plasmid injection. Production of IFNγ by PBMC was observed in response to all injected lipopeptides. After a single injection of Lipo5, we observed an increase in IFNγ production of PBMC against Gag17-35 and Gag253-284 lipopeptides in auxo-GTU-MultiHIV-B primed animals. A second Lipo5 injection increased these responses and induced IFNγ responses against Nef66-97 and Nef116-145 lipopeptides. Furthermore, we observed that two injections of Lipo5 were sufficient to induce IFNγ response against the 5 studied lipopeptides in one naïve macaque indicating that Lipo5 can prime an HIV specific response in macaques.

Conclusion

HIV-1 based lipopeptides are able to induce poly-epitopic T-cell responses in macaques and efficiently boost responses primed two years ago by DNA vaccination.