

P19-26. Directing macaque immune responses with an anti-dendritic cell HIV Gag p24 fusion protein vaccine

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Background

One of the novel approaches to increase vaccine efficacy is to target antigens directly to dendritic cells (DC) in lymphoid tissues. C-type lectin receptors are expressed at the DC surface and are used as markers of DC subsets. In this aim, we have developed recombinant fusion proteins associating HIV Gag p24 with mAbs specific for DC surface receptors such as Langerin, DCIR and LOX-1. Our purpose is to understand which DC receptors are most favourable to target for cellular, humoral, or mixed immune responses.

Methods

Non human primates were primed with nanoparticules coated with p24 (p24-PLA) then boosted with anti-Langerin, anti-DCIR or anti-LOX-1 recombinant vaccines fused to p24. A control group of animals were boosted with p24-PLA. Immuno-monitoring of animals was focused on p24 specific T cell responses and the production of specific antibodies in serum.

Results

Anti-Langerin and anti-DCIR mAb-based vaccines elicited comparable p24 specific T cell responses, whereas the anti-LOX-1-based vaccine induced relatively poor T cell responses. By contrast, robust antibody responses were detected in sera from animals of the LOX-1 group and lower levels were detected in animals of the Langerin group. Animals from the DCIR group presented antibody responses similar to animals from the LOX-1 group.

Conclusion

Although these studies need to be extended to priming immunity, this work showed that targeting vaccine antigen to Langerin$^+$ DC favoured the induction of T cell responses whereas targeting LOX-1$^+$ DC favoured the induction of antibody responses.