



POSTER PRESENTATION

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# Vaccination with dendritic cells loaded with HIV-1 lipopeptides elicits broad T cell immunity and control of viral load in HIV infected patients

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## Background

The DALIA trial tested the hypothesis that immunization with HIV peptide loaded Dendritic Cells (DC) may improve HIV immune responses and help to contain viral replication.

## Methods

19 pts with CD4 >500 cells/mm<sup>3</sup> and HIV RNA <50 cp/ml under HAART received at W0, 4, 8 and 12 ex-vivo generated IFN- $\alpha$  DC loaded with HIV-1 lipopeptides. Analytical treatment interruption (ATI) was conducted from W24. HAART resumption regardless of the reason and CD4 <350 cells/mm<sup>3</sup> (or <25%) were considered as end points. HIV-specific immunity was evaluated at baseline, W16, and W48 using: i) ex vivo IFN- $\gamma$  ELISPOT; ii) intra cellular staining; iii) multiplex analysis. PBMCs were stimulated with HIV peptide pools. Student t-test and Wilcoxon signed-rank tests were used with estimation of the False Discovery Rates (FDR) for controlling test multiplicity.

## Results

Vaccine regimen was well tolerated. Following ATI, all pts experienced a viral rebound in 14 days in median (IQR 8-27). Median highest observed VL (peak) was 5 (4.28-5.23) log<sub>10</sub> cp/ml. Three patients resumed HAART and eight had CD4 <350 cells/mm<sup>3</sup>. Median (IQR) SFU/106 PBMC rose from 186 (140-670) at baseline to 761 (470-1154) and 1878 (1102-4443) at W16 and 48, respectively. At the same time points the breadth of the response (nb of peptide pools) increased from 1 (1-3) to 4 (2-5) (P=.009) and 6 (3-7) (P=.008). % of polyfunctional CD4+ (> 2 cytokines

among: IFN- $\gamma$ , TNF- $\alpha$ , IL-2) increased from 0.026% (w-4) to 0.32% (w16) (P=.002). Respective % of CD8+ were 0.26% and 0.35% (P=.005). Production of IL-2, IFN-g, IL-21, IL-13, IL-17 increased significantly at W16 (FDR<.05). An inverse correlation was found between the peak of VL and % of polyfunctional CD4+ (r=-0.63, FDR=.007), production of IL-2 (r=-0.67, FDR=.006), IFN-g (r=-0.58, FDR=.01), IL-21 (r=-0.66, FDR=0.006) and IL-13 (r=-0.78, FDR=.001).

## Conclusion

DC vaccination elicited polyfunctional HIV-specific responses associated with a reduced peak viral load following ATI.

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