POSTER # 347

Vaccination with Autologous Dendritic Cells Pulsed with Autologous HIV-Infected Apoptotic Cells

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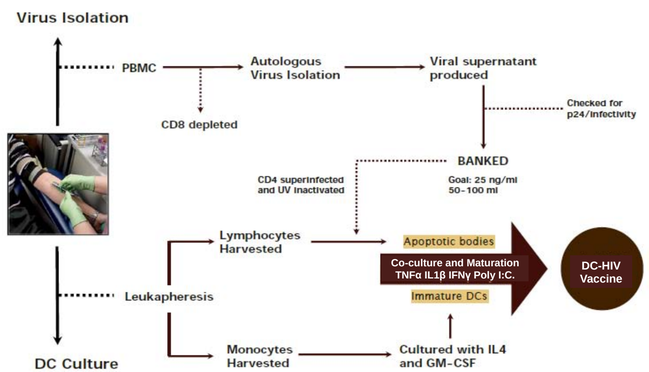
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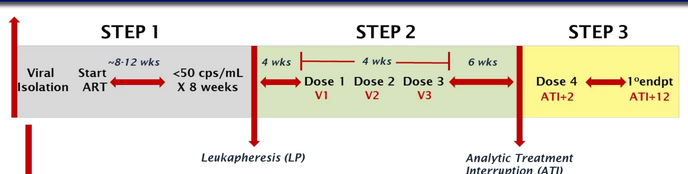
BACKGROUND

- **Mature dendritic cells (DCs) express high levels of peptide-MHC complexes, costimulators, and cytokines making them the most efficient antigen-presenting cells for T cell responses.** (Abbas 2012)
- **DCs have been shown to enhance CD8⁺ T cell responses to consensus HIV-1 Gag peptides.** (Huang 2010) **Furthermore, mature DCs loaded with HIV-1 IIIb-superinfected apoptotic cells resulted in the highest IFNγ production by autologous PBMCs.** (Zhao 2002)
- **We evaluated the safety and tolerability of a therapeutic HIV vaccine composed on autologous DCs pulsed with autologous, inactivated, HIV-1 infected apoptotic cells (DC-HIV vaccine). We also evaluated the effect of the vaccine of viral load setpoint 12 wks after treatment interruption.**

DC-HIV VACCINE PRODUCTION



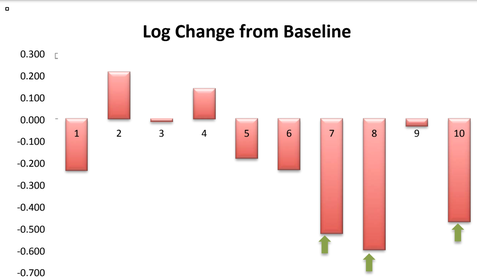
STUDY SCHEMA AND DEMOGRAPHICS



- 10 subjects completed the study (all male; 3 African American)
- Median baseline* HIV-1 RNA = 33,888 (range 3017-63800)
- Median CD4 at entry = 486 (range 377-881)
- Median duration of HIV diagnosis = 27 months (range 11-59)

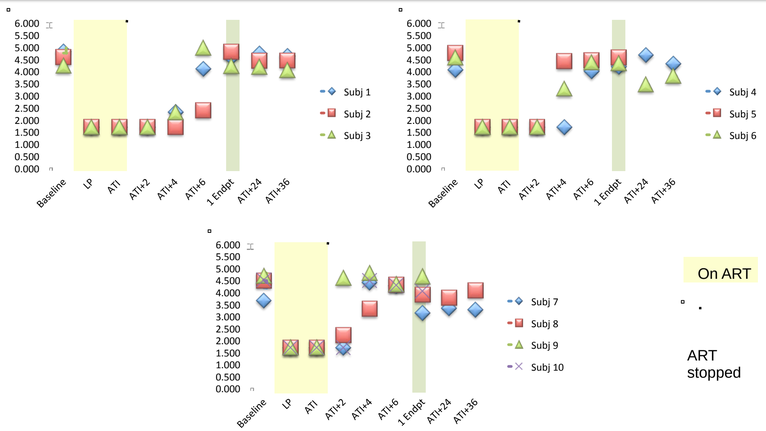
*2 measurements prior to ART

HIV-1 RNA 12 WEEKS AFTER TREATMENT INTERRUPTION (1º ENDPOINT)



- **Three of the ten subjects had a ≥0.4 log_{10} decrease in plasma HIV-1 RNA compared to their pre-treatment baseline.**

VIRAL REBOUND FOLLOWING TREATMENT INTERRUPTION

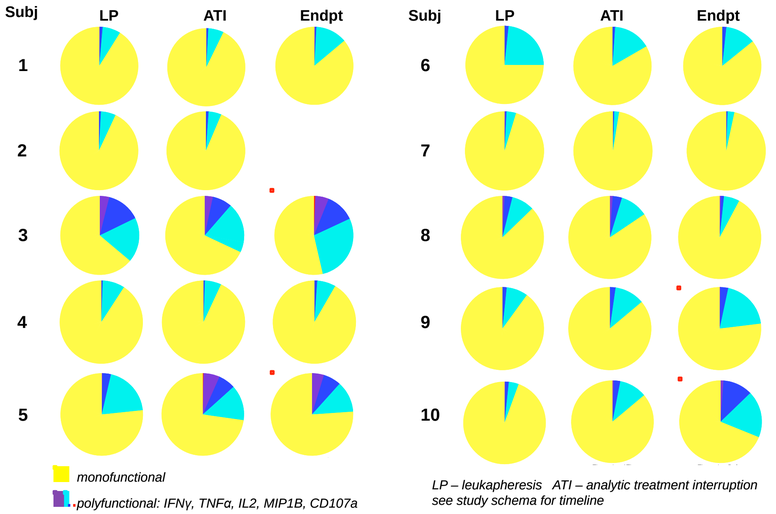


- **2/10 subjects had detectable plasma viremia (using a commercial assay) as early as 2 weeks after treatment interruption.**
- **At 6 weeks after treatment interruption, all subjects had detectable plasma viremia.**

CONCLUSIONS

- DC-HIV vaccine was safe and well-tolerated . It did not prevent viral rebound during treatment interruption but was associated with a modest decrease in viral load setpoint 12 weeks after treatment interruption in 3/10 subjects.
- Post-vaccine increase in polyfunctional CD8⁺ T cell response to Gag peptide was observed in only 4/10 subjects and only 1 of the 4 had a decreased viral load setpoint at primary endpoint compared to the pre-ART baseline.
- Vaccination led to a modest and transient increase in T cell activation as well as in the frequency of MDSC.

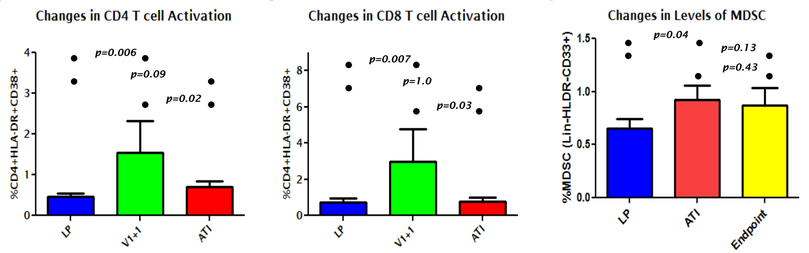
POLYFUNCTIONAL RESPONSE TO HIV-1 GAG PEPTIDE BEFORE (LP) AND AFTER VACCINATION (ATI) AND AT 1º ENDPOINT (Endpt)



LP – leukapheresis ATI – analytic treatment interruption see study schema for timeline

- **4/10 subjects had an increase in CD8⁺ T cell polyfunctional response to HIV-1 Gag after vaccination. Of these 4, only 1 had a decrease in HIV-1 RNA setpoint at primary endpoint.**

INCREASE IN T CELL ACTIVATION AND MDSC FREQUENCIES



- **CD4⁺ and CD8⁺ T cell activation levels increased after the first vaccine dose. These returned to baseline by the time of treatment interruption (ATI)**
- **There was a modest increase in myeloid-derived suppressor cells (MDSC) frequency after the three vaccine doses (ATI).**

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