

Poster presentation

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## Increased PD-1 expression in cynomolgus and rhesus macaques during lentiviral infection

David A Hokey\*, Jean D Boyer, Hanna Yoon and David B Weiner

Address: Department of Pathology and Laboratory Medicine, University of Pennsylvania, School of Medicine, Philadelphia, Pennsylvania, USA

\* Corresponding author

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Costimulatory molecules play important roles in immunoregulation. Recent evidence in mice suggests programmed death-1 (PD-1) is a marker for T-cell exhaustion in a murine LCMV model. Here we demonstrate increased PD-1 expression in CD3+ T cells following lentiviral infection in cynomolgus and rhesus macaques with a concomitant increase in CD4+ CD8+ double-positive (DP) T cells. We found DP T cells are PD-1hi and demonstrate a high proliferative capacity in response to lectin stimulation. DP PD-1hi T-cell populations contain functionally active antigen-specific T cells, secreting IFN- $\gamma$  and expressing CD107a upon stimulation using Gag peptide pools. Finally, we report an inverse correlation between PD-1 expression on CD4 single-positive T cells and CD4+ T-cell counts. Our data indicate PD-1 as a possible marker for immune health during lentiviral infection and suggest higher PD-1 expression in chronically infected monkeys is indicative of T-cell stimulation rather than T-cell exhaustion. To our knowledge, this is the first study of PD-1 expression in non-human primates.