Investigation of CD8 T Cell Dynamics in Pathogenic and Non-pathogenic SIV Infection

Ponraj, Angelin

Sooty Mangabeys (SMs), natural hosts of SIV, maintain levels of CD4 T cells and do not progress to AIDS. Rhesus Macaques (RMs) model HIV infection in humans. The purpose of this data collection was to observe and analyze the effect SIV has on the levels of CD8 T cells-specifically the effector memory (EM) and central memory (CM) T cells within SMs and RMs. The qualified scientists in the lab sampled the blood of both SIV infected and uninfected RMs and SMs and quantified levels of CD8 T cells by flow cytometry. Data was acquired through flow cytometry and analyzed by the student researcher through FlowJo. It was first found that the CD4 frequency in RMs decreased as a result of infection while the CD4 frequency remained constant in SMs. After infection, the RM CD8 frequency increased while the absolute CD8 cell count remained constant. On the other hand, it was observed that the SM CD8 frequency and absolute count increased after infection. Finally, it was shown that the frequency of RM EM and CM cells remained constant. Within the SM population, the EM frequency and absolute count increased while the SM CM remained constant. Therefore, the differential CD8 T cell loss between the two species may suggest that increased levels of antiviral CD8 T cells may be critical in preventing SIV progression to AIDS.

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