TARGETING HIV-1 SANCTUARIES THROUGH IMMUNOTHERAPY

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Summary: (1000 characters)

Antiretroviral therapy has rendered HIV-1 infection a manageable illness for those with access to treatment. However, current antiretroviral treatments are not able to cure HIV-1 infection. In fact, in HIV-1 continues to replicate in 'sanctuary" T cells despite potent antiretroviral therapy (1-4). How HIV persists and continues to replicate in "sanctuary" T cells is not known.

For HIV needs to hijack the T cell signaling machinery in order to successfully replicate (5). Ultimately, how HIV hijacks the T cell signaling machinery, the molecules involved, their subcellular distribution and interacting patterns determine the viral production by the infected T cell. This project wants to determine how HIV hijacks the machinery of "sanctuary" T cells turning them into highly efficient HIV 'factories" (1-4). To address this question, we will use cell biology and signaling with super-resolution microscopy approaches (6, 7). In this project we aim at understanding where and how the HIV persists and replicates in "sanctuary" T cells. This knowledge will be essential for developing rational cure for HIV-infected individuals worldwide.

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