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Reducing HIV Reservoirs by Induced Activation of Latently Infected Cells

Treatment of patients infected with HIV is effective at lowering the serum viral concentration to below the limits of detection, but the virus persists in reservoirs of latently infected cells, such as resting memory T cells. Because the latent pool may serve as a source for reemergence of the virus after the cessation of treatment, speeding its decay is a necessary step toward eradication of HIV from the patient. One strategy for reducing the latent pool is to artificially activate memory T cells.

We present a model of viral infection including anti-retroviral therapy and activation of latently infected cells. We explore the relative roles of homeostatic proliferation and transient viremic events in maintaining the latent pool. Using this model, we evaluate the potential use of artificial activation to enhance HIV treatment.