



Cure: Smaller Reservoir

A smaller viral reservoir could improve prospects for a functional cure.

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People who start antiretroviral therapy (ART) during acute HIV infection experience a faster decline in the viral reservoir in CD4 T cells. Within days after infection, the virus inserts its genetic blueprints into the DNA of host cells and establishes a long-lasting reservoir that is unreachable by antiretro-virals. Using more than 500 blood samples from 67 people in the UCSF Treat Acute HIV cohort who started ART within 100 days after infection, researchers developed mathematical models of HIV dynamics and control. The models showed a biphasic decay of integrated proviral DNA out to one year. During the first phase, lasting up to five weeks, there was a steep decrease in intact HIV DNA, followed by a slower decline during the second phase. For every week ART was delayed, the half-life of intact proviral DNA was about 14 hours longer during the first phase and eight days longer during the second phase. While even very early treatment usually doesn't prevent viral rebound after stopping anti-retrovirals, a smaller reservoir could improve prospects for a functional cure.

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