Cure: Memory Stem Cells: Reservoir Backbone?

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Long-living, HIV-infected immune cells that have stem-cell-like properties—meaning they self-renew and produce new cells—appear to be a bedrock of the viral reservoir that prevents antiretroviral (ARV) treatment from clearing the virus. Scientists examined blood samples taken from people newly infected with HIV and again after six to 10 years of treatment. Comparing the genetics of the T memory stem cells between the samples, they found no great difference in the viral sequences. This suggested that the otherwise fast-mutating virus remained in these cells without significant changes for years. Also, the amount of HIV DNA found in these cells remained essentially constant over time, regardless of HIV treatment's success at depleting viral levels in other types of immune cells. In fact, in those taking ARVs the amount of HIV DNA was the highest in their T memory stem cells. The conclusion is that these cells can continuously produce new HIV-infected immune cells while dodging ARV treatment.