Cure: Dual CRISPR

Researchers tested a dual CRISPR approach in mice with humanlike immune cells.

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Researchers have developed a combination approach that aims to eliminate HIV using two types of CRISPR, a gene-editing tool that acts as molecular scissors to cut out selected segments of DNA. Antiretroviral therapy can keep HIV replication suppressed, but the virus inserts its genetic blueprints into the DNA of human cells and establishes a long-lasting reservoir that makes a cure nearly impossible. Researchers tested a dual CRISPR approach in mice with humanlike immune cells. One CRISPR tool targets genes for the CCR5 receptor, which most strains of HIV use to enter CD4 T cells, while the other snips out integrated HIV genes in cells that are already infected. They found that replication-competent HIV was eliminated in 58% of mice that received slow-release antiretrovirals plus both types of CRISPR. Using highly sensitive tests, they could not detect intact HIV in the blood, spleen, lungs, kidneys, liver, gut, bone marrow or brain. The researchers next plan to test the dual CRISPR approach in monkeys before moving on to human trials.
