Cure: Gene Therapy

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Researchers significantly reduced HIV levels in mice with a genetic therapy that prompts immune cells to better fight the virus. First they engineered a molecule known as a chimeric antigen receptor (CAR) and inserted a gene that gives rise to that molecule into blood-forming stem cells. (Blood-forming stem cells produce all kinds of blood cells, including the immune cells HIV targets. A CAR is a two-part receptor that in this case recognizes HIV and instructs immune cells to locate and kill infected cells.) Then the scientists transplanted those cells into mice genetically engineered to have human immune systems.The transplant ultimately gave rise to immune cells that could kill HIV in the mice. Consequently, the mice experienced an 80 to 95 percent drop in viral load.The researchers concluded that such a genetic therapy might work in humans living with HIV.

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