Flushed out

HIV that hides in resting immune cells must be awakened before it can be eradicated. In the general scheme for accomplishing this, the HIV is activated by opening the tightly coiled viral DNA, leading to the production of viral particles. Drugs prevent the resulting new viruses from infecting healthy cells, and the HIV is eventually flushed out of the body. In a variation that Paula Cannon is testing in mice, T cells are modified to resist HIV, denying the virus new targets if resting infected cells become active.

Histones, proteins that keep DNA in tight coils, are modified by a process called acetylation, causing the viral DNA to unspool. Transcription factors are then able to bind, and viral proteins form. They assemble into new copies of HIV, which emerge from the cell.

When a T cell produces new copies of HIV, they burst forth, leading to the cell’s death. Antiretroviral drugs or intentionally crippled cellular receptors (a technique being tested by Cannon) prevent the new viruses from infecting healthy cells.