CD4 Recipe

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Ever wonder how CD4 cells learn their job? Produced in the bone marrow, they travel to the thymus, a gland in your upper chest, where they're taught to fight infections. It all happens during youth, when our bodies are growing. As we age, the thymus shrinks and fills up with fat; by the time we're at the end of puberty, the gland has essentially retired. Prevailing wisdom says that once that happens there's no turning back. While this isn't a problem for most adults who have enough primed immune cells to last a lifetime, HIV-positive people sometimes need new thymus-taught CD4s to ward off infections.

Researchers at the University of California, San Francisco (UCSF) believe in the potential for thymic revival. They found that the drug Serostim (recombinant human growth hormone) can purge the fat from a nearly dead thymus, allowing it to produce new CD4 cells in people with HIV.

When the UCSF researchers, led by Laura Napolitano, MD, gave the drug to positive people for a year, thymic fat decreased and the quality and quantity of CD4s greatly increased. Moreover, the CD4s kept rising for three months after people stopped taking the drug. Serostim isn't perfect—it's expensive, has side effects like diabetes, and may have to be taken indefinitely to keep the thymus active—and Napolitano cautions that more research is needed to prove its immune-boosting potential. Still, her research is rejuvenating news for people with weakened immune systems.