

## HIV Hides Out in Bone Marrow Cells

Medications can reduce the level of the AIDS virus in the blood to zero, but HIV doesn't disappear and often roars back when patients stop taking their pills.

Now, research is giving scientists new insight into how the virus manages to hide and avoid the killing powers of medicine.

In a new study, researchers report that the virus lurks in certain bone marrow cells and "reawakens" only under certain circumstances.

The research provides a new target for scientists, but it also presents new challenges because killing off bone marrow cells is a dicey proposition.

Overall, the findings provide "a better understanding of how HIV hides in the body" and could lead to better strategies to kill or control it, said study co-author Dr. Kathleen Collins, an associate professor of internal medicine at the University of Michigan.

Doctors have long known about the ability of HIV -- the AIDS virus -- to avoid being killed off completely by medications. Drugs may prevent the virus from infecting new cells, "but they don't get rid of cells that contain the virus and have potential to make new viral particles," Collins said.

This helps explain why HIV isn't curable. The immune systems of patients may be able to control the virus for a time but later fall victim to a renewed attack and, ultimately, to AIDS.

"A patient cannot be cured of HIV until all sources of infection are eliminated," said Jerome A. Zack, director of the UCLA Center for AIDS Research in Los Angeles.

But where does the virus hide when it's not in the blood? Researchers have suspected that the bone marrow -- which creates blood cells -- could serve as the hiding place.

In the new study, published in the March 7 online edition of Nature Medicine, researchers examined bits of AIDS virus and cells from infected people in the laboratory.

The investigators found that the virus can infect certain kinds of bone marrow cells that are the parents ("progenitors") of blood cells, Collins said.

So why not use a medication to kill all those parent cells, thereby perhaps ridding the body of HIV?

It sounds simple, but killing all of these blood-producing marrow cells would be lethal to humans, Collins said. However, "maybe we could find ways of targeting only the latently infected bone marrow cells," she added.

Zack, the UCLA researcher, said the study findings are convincing, but "we as yet do not have easy ways to eliminate these dormant sources of virus. The challenge to the field is to find all sources of virus -- this study identifies one -- and identify ways to eliminate them. Only by developing strategies to eliminate all the different sources can we purge HIV from the body."

In the long run, study co-author Collins said, the findings could help scientists develop ways to eradicate HIV or turn lifelong medication therapy "into a therapy that might last for a defined period of time." &ndash; [www.businessweek.com](http://www.businessweek.com)