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Practical cure for HIV a controversial vision

JUST a few years ago, anyone who talked of a cure for the AIDS virus would in all likelihood have met with a sad, ironic smile.

Yes, HIV could be treated. But wiped out? Only in dreams.

This wisdom had deep roots. In 1996, antiretroviral drugs began to turn the tide against HIV. By suppressing the pathogen, they helped patients dodge a death sentence.

But early joy that this was the end of HIV was replaced by cruel disappointment, for scientists discovered "reservoirs" where residual pockets of the virus hole up.

As soon as the drugs are stopped, HIV rebounds from these lairs, attacking the CD4 immune cells with fresh contempt.

Yet a growing band of scientists is confident that these final redoubts can be assailed. They have a lofty, dazzling but also controversial vision of a practical cure for the human immunodeficiency virus (HIV).

The goal was formally embraced at the world forum on medical science for AIDS,

where the group issued a declaration, the "Rome Statement," and a broad three-pronged strategy.

"It's the right moment to stimulate research for an HIV cure, using a multidisciplinary approach," said the group's leader, France's 2008 Nobel laureate Françoise Barre-Sinoussi, who in 1983 co-identified HIV as the source of AIDS.

"We are very optimistic that a functional cure is possible."

The campaign has named a scientific working group, including some heavy-hitters in research, and urged the quest to be numbered among the priorities in the war on AIDS.

Today, less than 100 million dollars is spent annually on "reservoir" research, a figure dwarfed by the hundreds of millions devoted to HIV vaccine research and the billions spent on drugs.

The four-day conference in Rome gathers 5,500 specialists, ranging from virologists to pharmacologists and disease trackers.

Among the avenues for "reservoir"

research is a component of the immune system called resting memory T cells.

Like an inactivated programme in a computer, they lie dormant, sometimes for decades, and are invisible to the immune system.

They leap back into life when immune defenders spot an intruder they have seen before.

An HIV patient has about a million infected resting memory T cells, research has found.

One approach, called "shock and kill," will be to activate these residual cells so that they start to crank out viruses, and are thus identified and destroyed.

Other potential "reservoirs" are the brain, the genital area, the gastro-intestinal tract, blood stem cells and immune forces called macrophage cells.

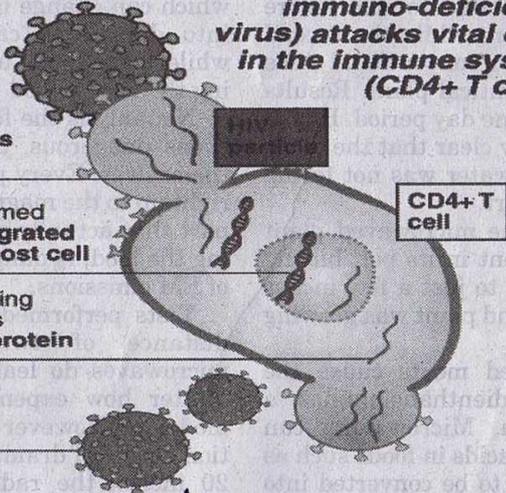
Even so, once the virus has been flushed out and attacked with new drugs, it is unlikely to be wiped out entirely. The more modest goal right now is to destroy its numbers as far as possible, crippling its ability to rebound.

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HIV / AIDS

HIV (human immuno-deficiency virus) attacks vital cells in the immune system (CD4+ T cells)



The HIV particle fuses with the host cell membrane so its contents can invade the cell

The HIV's RNA is transformed into DNA so it can be integrated into the genome of the host cell

The cell's process for making protein from its own genes also manufactures HIV protein

The new virus particles migrate to other cells to infect them

AIDS: acquired immunodeficiency syndrome

- ▶ The final stage of HIV infection
- ▶ Occurs when the CD4+ T cells count is below 200/mm³ (the normal count is 800-1,200/mm³)
- ▶ This level of deficiency in the immune system can take years to reach
- ▶ AIDS sufferers commonly suffer from cancer or opportunistic infections such as tuberculosis, and neurological conditions

AFF