

**What is a retrovirus? Can fusion inhibitors save lives?
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Acquired Immunodeficiency Syndrome (Aids)

The most severe result of HIV infection, occurring when the immune system is effectively disabled.

People with Aids often have infections of the lungs, brain, eyes and other organs. They may often also experience severe weight loss, diarrhoea and certain types of cancer.

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Antibodies

Proteins produced by the immune system to neutralise infections or malignant cells.

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Antigen

Any foreign substance, such as a virus, bacterium or protein, that triggers an immune response by stimulating the production of antibodies.

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Antiretroviral drugs

Substances used to kill or inhibit the multiplication of retroviruses such as HIV.

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CD4+ cell

An immune system cell which plays a key role in orchestrating the way the immune system attacks foreign invaders. HIV infection leads to the destruction of these cells, leaving the immune system less able to fight infection. A normal CD4+ count in a healthy, HIV negative adult is usually between 600 and 1200 per cubic millimetre of blood. In an Aids patient it is usually below 200.

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Combination therapy

Two or more antiretroviral drugs or treatments used together to achieve optimum results against HIV infection and/or Aids. Combining drugs has proved to be more effective at reducing the amount of the HIV in the body than the use of single drugs by themselves. An example of combination therapy would be the use of two nucleoside analogue drugs plus either a protease inhibitor or a non-nucleoside reverse transcription inhibitor.

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Fusion inhibitors

A class of drugs which prevent HIV from penetrating the host cell. There is currently just one fusion inhibitor available, Fuzeon.

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DNA

Deoxyribonucleic acid (DNA) molecules are known as the building blocks of life. They carry the genetic information necessary to create cells and to ensure that they function in the right way.

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Enzymes

Proteins that stimulate particular chemical reactions.

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Highly active antiretroviral therapy (HAART)

A combination of three or four different drug treatments which has been found to be an effective way to block the progress of HIV, and to reduce the amount of virus to the level where it becomes undetectable in a patient's blood.

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Human immunodeficiency virus type 1 (HIV-1)

The virus which is thought to cause most cases of Aids. Infection occurs when the virus inserts its own genetic material into a host cell, preventing it from carrying out its natural functions and turning it into an HIV factory.

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Human immunodeficiency virus type 2 (HIV-2)

A virus closely related to HIV-1 that has also been found to cause Aids. It was first isolated in West Africa.

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Immune system

The body's defence mechanism, which seeks out and destroys foreign invaders.

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Integrase inhibitors

Drugs currently under development which interfere with HIV's integrase enzyme. Integrase plays a key role in the process where the HIV virus inserts its own genetic material into the host cell in order to use the cell to make new virus particles.

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Kaposi's sarcoma

A type of cancer closely associated with Aids. It usually appears as pink or purple painless spots on the skin or inside the mouth. It can also attack the eyes and occur internally.

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Long-term non-progressor

An individual who has been living with HIV for at least 7 to 12 years and has a stable CD4+ cell count despite not having had antiretroviral therapy.

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Macrophage

A large immune cell that devours infectious material and other foreign invaders, as well as stimulating other immune cells. Macrophages can harbour large quantities of HIV without being killed, acting as reservoirs of the virus.

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Opportunistic infection

An infection which occurs in people with defective immune systems and is caused by an organism that does not usually cause illness in people with healthy immune systems.

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Protein

A large molecule composed of one or more chains of smaller molecules called amino acids. Proteins are required for the structure, function and regulation of the body's cells, tissues and organs. Examples are hormones, enzymes, and antibodies.

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Protease inhibitors

A class of antiretroviral drugs, designed to interfere with the action of HIV's protease enzyme. Protease works as "chemical scissors" to cut up newly created chains of protein into smaller pieces. These pieces are then used to build new HIV virus particles.

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Resistance

Experts are concerned that HIV is becoming immune to previously effective drugs. This is because the virus has the ability to mutate rapidly.

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Retrovirus

A rudimentary form of virus which carries its genetic information in the form of RNA. This means that it can easily be copied into the DNA of the host cell's chromosomes. HIV is a retrovirus - some other members of the retrovirus family cause cancers.

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Reverse transcriptase inhibitors

Drugs which interfere with an enzyme called reverse transcriptase, which HIV needs in order to copy its genes into the host cell and reproduce itself. These are the oldest class of antiretroviral drugs, and come in three different forms, each of which has a slightly different mode of action. The three types are: nucleoside reverse transcriptase inhibitors, nucleotide reverse transcriptase inhibitors and non-nucleoside reverse transcriptase inhibitors.

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RNA

A molecule similar in structure to DNA which transmits genetic information from DNA to other parts of the cell, and controls certain chemical processes within the cell.

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T cell

A white blood cell which orchestrates the immune system's response to infected or malignant cells. CD4+ cells, which HIV targets, are a particular type of T cell.

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Transmission

The process by which the virus is passed from one individual to another. HIV is transmitted through body fluids, particularly blood, semen, vaginal secretions and breast milk. The most common forms of transmission are through unprotected sexual intercourse, by sharing needles when injecting drugs and from mother to child when breastfeeding.

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Viral load

The amount of HIV in the blood, measured in the number of copies of the virus per millilitre of blood plasma.

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