

Apricitabine: A New Drug Being Explored for Treatment of HIV Infection

AIDS, or acquired immunodeficiency syndrome, occurs when a person is infected with the human immunodeficiency virus (HIV). Most often, an individual is infected by having sex with an already infected person. A person can also be infected through a blood transfusion or by sharing needles with an infected person. Babies can be infected with HIV from their mothers during birth or through breast milk. More than 33 million people have this infection, with nearly 3 million of them infected in 2007 alone.

There is no cure for HIV. People with HIV eventually die because their immune system is weakened by the virus. Specifically, HIV kills CD4 cells, a type of white blood cell that normally fights infections and cancer. The loss of CD4 cells leaves the immune system unable to fight diseases.

One way to monitor progression of the disease is to measure the number of CD4 cells in an infected person. Another way to monitor the disease is to track the number of copies of viral DNA in the infected person; this indicates whether the virus is spreading or lying dormant. To stay healthy, a person infected by HIV needs to main-



tain a high number of CD4 cells and a low number of viral DNA copies. Combinations of different HIV medications are needed to achieve these goals. Drugs may prolong an infected person's life, but they cannot take the infection away.

A variety of drugs have been developed to treat HIV infection, but many people cannot tolerate the drugs because of side effects, interactions with other drugs, or complicated dosing regimens. Many HIV drugs must be taken numerous times each day, and some medications have very strict requirements regarding how they must be taken for best absorption (eg, with a certain type of food or on an empty stomach). In addition, HIV can mutate to overcome the effects of the drugs, so researchers are constantly looking for treatments with fewer side effects that will be still effective for treating the virus as it changes.

A new drug, apricitabine, seems to meet some of these specifications. It is still being investigated and has not yet been approved by the Food and Drug Administration (FDA). The drug interferes with the spread of HIV infection by in-

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Centers for Disease Control and Prevention
cdc.gov/hiv/resources/brochures/at-risk.htm

National Institute on Drug Abuse
nida.nih.gov/Infofacts/drugabuse.html

serting itself into viral DNA and preventing the virus from making new DNA.

In clinical studies, apricitabine is taken by mouth and successfully decreases the amount of HIV virus in infected people. The drug seems to be effective when taken either once or twice each day. Apricitabine is also effective in people infected by HIV strains that have developed mutations (specifically, the M184V mutation) that make the virus resistant to other HIV medications (such as lamivudine and emtricitabine).

So far, apricitabine has been better tolerated by study patients than most other HIV medications. Headache and runny nose were the most common side effects. Unlike most HIV medications, apricitabine is unlikely to interact with other drugs. The drug is eliminated by the kidneys, so lower doses may be necessary in people with kidney disease.

Apricitabine seems to have advantages over many HIV drugs and it is effective even against some drug-resistant forms of HIV. As a result, this medication appears promising in the treatment of HIV.