

Stavudine (d4T, Zerit)

reprinted from www.aidsmeds.com, united states

What is Zerit?

- Zerit is an anti-HIV medication. It is in a category of HIV medications called nucleoside reverse transcriptase inhibitors (NRTIs). Zerit prevents HIV from altering the genetic material of healthy T-cells. This prevents the cells from producing new virus and decreases the amount of virus in the body.
- Zerit, manufactured by Bristol-Myers Squibb, was approved by the U.S. Food and Drug Administration for the treatment of HIV in 1994.
- Zerit must be used in combination with at least two other anti-HIV drugs.

What is known about Zerit?

- One Zerit capsule must be taken twice a day. Although most HIV-positive adults take one 40mg capsule twice a day, the dose can be adjusted according to body weight. If you weigh 132 pounds or more, the correct dose is 40mg twice-daily; if you weigh less than 132 pounds, the correct dose is 30mg twice a day. For HIV-positive adults who have kidney problems or are experiencing peripheral neuropathy as a result of Zerit, the dose can be dropped to 15 or 20mg twice a day.
- Bristol-Myers Squibb is currently developing a new form of Zerit, which will only need to be taken once a day. This new formulation will involve one capsule

containing 100mg of Zerit (Zerit XR). While the FDA has approved Zerit XR, it is not yet available in pharmacies. It is not known when this new formulation of Zerit will be available.

- Children can also take Zerit. The dose for a child depends on their weight. If you are caring for a child who is HIV-positive and has been prescribed Zerit, be sure that you understand the correct dose to give the child. As a child grows, the dose of Zerit will need to be increased.
- Zerit can be taken either with or without food.
- Numerous studies have demonstrated that Zerit is effective for the treatment of HIV when combined with other anti-HIV drugs, usually at least one other nucleoside reverse transcriptase inhibitor (NRTI) and either a protease inhibitor or non-nucleoside reverse transcriptase inhibitor (NNRTI). Zerit should not be taken alone (as monotherapy) or with just one other anti-HIV drug.
- The United States Department of Health and Human Services (DHHS) lists Zerit as a "preferred" NRTI for HIV-positive people starting anti-HIV treatment for the first time. However, the DHHS also stresses that the NRTI Retrovir® (AZT) may be a more suitable option, given that Zerit is more likely to cause lipodystrophy and damage to cellular mitochondria. If it is used, the

DHHS recommends combining Zerit with the NRTIs Epivir® (3TC) or Emtriva® (emtricitabine) plus either the NNRTI Sustiva® (efavirenz) or the protease inhibitor Kaletra® (lopinavir/ritonavir). Alternative combinations have also been shown to be safe and effective.

- The DHHS recommends against using Zerit and Videx® or Videx EC®, two forms of ddI, together in the same drug combination. The risk of side effects, which are similar for Zerit and Videx/Videx EC, are increased when these drugs are used at the same time.
- Therapy with Zerit can cause certain changes (mutations) in HIV's structure to occur. Some mutations will prevent Zerit from working against HIV. Many of these mutations will also prevent Retrovir® (AZT) from working against HIV. Some mutations can also prevent all of the NRTIs from working against HIV. If your viral load does not go undetectable or becomes detectable (and increases) while you are taking an anti-HIV drug regimen that contains Zerit, your doctor can order a drug-resistance test to determine if your HIV has mutations that are causing resistance to Zerit and to help you figure out which NRTIs your HIV is still sensitive to.

What about drug interactions?

- Zerit should not be combined with Retrovir® (AZT). They are “antagonistic,” which means that they do not work well together and can cause additional side effects.
- Zerit should not be combined with ribavirin (Rebetol®; Copegus®). Ribavirin is an oral medication used to treat hepatitis C. Ribavirin can affect the way Zerit is broken down by the body into its active form. This can make Zerit less effective against HIV.
- Methadone, a painkiller used to treat heroin addiction, can decrease Zerit levels in the bloodstream. Drug levels of methadone are not changed when combined with Zerit. There is no need to change the dose of either drug if they are used together.
- Combining Zerit with Videx®/Videx EC® (ddI), another NRTI, may increase the risk of developing lactic acidosis and other side effects. This is especially true in HIV-positive pregnant women

who take both of these drugs together. In turn, the U.S. Food and Drug Administration (FDA) has recommended that HIV-positive women not take these two drugs together while they are pregnant. The Department of Health and Human Services (DHHS) recommends that all HIV-infected adults and children avoid using these drugs together.

- Combining Zerit with Videx may increase the risk of developing peripheral neuropathy, a side effect caused by both drugs. The Department of Health and Human Services (DHHS) recommends that all HIV-infected adults and children avoid using these drugs together.

What about side effects?

- Lactic acidosis, which can be fatal, and severe liver problems (fatty liver) have been reported in people taking NRTIs. Studies have demonstrated that Zerit is more likely than other NRTIs to cause lactic acidosis, though it is still considered to be a rare side effect. The risk of lactic acidosis increases if Zerit is taken in combination with Videx®/Videx EC® (ddI), another NRTI, or in combination with ribavirin (Rebetol®; Copegus®), an antiviral drug commonly used to treat hepatitis C. Contact your doctor immediately if you experience nausea, vomiting, or unusual or unexpected stomach discomfort; weakness and tiredness; shortness of breath; weakness in the arms and legs; yellowing of the skin or eyes; or pain in the upper stomach area.
- Fatal and nonfatal pancreatitis (inflammation of the pancreas) has occurred with Zerit when taken in combination with Videx and other HIV drugs. Symptoms of pancreatitis include stomach pain, nausea, or vomiting. If you notice these symptoms, stop taking Zerit, and call your doctor right away.
- A common side effect of Zerit is peripheral neuropathy, which can result in pain, tingling, numbness, or burning in the hands and/or feet. Stopping Zerit and starting another nucleoside reverse transcriptase inhibitor (NRTI) that does not usually cause peripheral neuropathy—for example, Retrovir® (AZT) or Ziagen® (abacavir)—is often the best way to stop peripheral neuropathy.

- Less common side effects include allergic reactions, loss of appetite, bone pain (arthralgia), stomach upset, headache, problems sleeping, muscle pain (myalgia), diarrhea, nausea, vomiting, anemia, and pancreatitis. These side effects improve within a few months/weeks of starting Zerit.
- There has been some concern that Zerit might cause, or at least contribute to, changes in body fat (lipodystrophy), most notably a loss of fat in the arms, legs, and face (lipoatrophy). A number of studies have demonstrated that Zerit is more likely to cause this problem than other NRTIs, particularly when it is used in combination with a protease inhibitor (protease inhibitors are also believed to cause changes in body fat). If you notice that the layer of fat beneath your skin in your arms, legs, or face appears to be becoming thinner—sunken cheeks and veiny arms and legs are common symptoms—you should discuss this with your doctor. If you and your doctor suspect that Zerit might be to blame, one option might be to stop therapy with Zerit and switch to another nucleoside reverse transcriptase inhibitor (NRTI).

Who should not take Zerit?

- Before taking this medication, tell your doctor if you have: kidney disease; liver disease; a history of pancreatitis; a history of anemia; a history of lactic acidosis or elevated lactate levels; a history of peripheral neuropathy. You may not be able to take Zerit, or you may require lower doses or special monitoring during treatment, if you have any of these conditions.
- Zerit is classified by the FDA as a pregnancy category C drug. All the FDA-approved anti-HIV drugs are classified as either category B or C. Pregnancy category B means that animal studies have failed to demonstrate a risk to the fetus, but there are no adequate and well-controlled studies in pregnant women. Pregnancy category C means that animal studies have shown an adverse effect on the fetus and there are no adequate and well-controlled studies in humans, but potential benefits may warrant use of the drug in pregnant women despite

potential risks. HIV-positive women who become pregnant should discuss the benefits and possible side effects of anti-HIV treatment to help protect their babies from HIV.

- It is not known whether Zerit passes into breast milk and what effects it may have on a nursing baby. However, to prevent HIV transmission of the virus to uninfected babies, it is recommended that HIV-positive mothers not breast-feed.

Where can I learn more about clinical trials that are using Zerit?

- If you would like to find out if you are eligible for any clinical trials that include Zerit, there is an interactive web site run by amfAR, the American Foundation for AIDS Research.
- Another useful service for finding clinical trials is *AIDSinfo.nih.gov*, a site run by the U.S. National Institutes of Health. They have “health information specialists” you can talk to at their toll-free number at 1-800-HIV-0440 (1-800-448-0440).



For more treatment information, call Project Inform's toll-free National HIV/AIDS Treatment Information Hotline at 1-800-822-7422.

a note about this publication

This publication is reprinted here from another source (www.aidsmeds.com). We do not always have the resources at Project Inform to produce our own treatment information on every treatment topic. In these cases, we try to provide reliable information from other sources but cannot confirm that every fact in these publications is accurate. References to other materials have been pulled. This information is designed to support, not replace, the relationship that exists between you and your doctor or medical provider.

TEXT LAST UPDATED: FEBRUARY 2004