



# Drug Information

## Anti-HIV Medications (anti-retroviral therapy)

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Anti-HIV medications are an important part of your treatment against HIV infection. They are medications that slow down the growth of the HIV virus. Because HIV is a special type of virus called retrovirus, the medications are usually called “Anti-retrovirals”.

### What kinds of anti-HIV medications are available?

There are different types (or classes) of anti-HIV medications. Each type of anti-HIV medications works by blocking a different protein that the HIV virus need in its reproduction.

Currently there are three major classes of anti-HIV medications available on the market:

- Medications that block the protein “Reverse Transcriptase”, known as Reverse Transcriptase Inhibitors or RT Inhibitors (RTI)
- Medications that block the protein “Protease”, known as the Protease Inhibitors or PI.
- Medications that block the virus from entering the cell, known as Entry or Fusion inhibitors.

### The RT Inhibitors (nukes and non-nukes)

The RT inhibitors, or RTIs, are divided into 3 groups based on differences in their chemical structures: nucleoside RT inhibitors (also called “nukes” or NRTIs), non-nucleoside RT inhibitors (also called “non-nukes” or NNRTIs), and nucleotide RT inhibitors (also called NtRTIs).

- Medications from the class of **nukes** or **RTI** include:
  - AZT (also called Zidovudine or etrovir)
  - ddI (also called Didanosine or Videx or Videx EC)
  - ddC (also called Zalcitabine or Hivid)
  - d4T (also called Stavudine or Zerit or Zerit XR)
  - 3TC (also called Lamivudine or Epivir)
  - abacavir (also called Ziagen)
  - Combivir (a combination medication of AZT + 3TC)
  - Trizivir (a combination medication of AZT, 3TC +Abacavir)
- Medications from the **non-nuke** or **NNRTI** class include:
  - nevirapine (also called Viramune)
  - delavirdine (also called Rescriptor)
  - efavirenz (also called Sustiva)
- The approved medications from the **NtRTI** is:
  - tenofovir (also called Viread)

### The Protease Inhibitors (PIs)

- Medications from the class of Protease Inhibitors include:
  - saquinavir (Invirase and Fortovase)
  - indinavir (Crixivan)
  - ritonavir (Norvir)
  - nelfinavir (Viracept)



- amprenavir (Agenerase)
- Kaletra (lopinavir + ritonavir)

### The Entry (Fusion) Inhibitors

- T-20 (Fuzeon)

### When should I start taking anti-HIV medications?

Starting anti-HIV medications is a big decision. You have to be ready before you start these medications because usually they need to be taken on a regular schedule every day for them to work. This may involve making some changes in your daily routine and lifestyle.

It is important that you find a doctor who is knowledgeable about HIV treatments and is sensitive to your situation and culture to work with you in making these treatment decisions.

In general, anti-HIV medications are recommended if:

- Your T-cell count (measure of your immune system) is less than 350
- Your viral load (measure of amount of HIV virus in your blood) is greater than 55,000
- If you have had any symptoms of HIV disease.

### Which medications should I be taking?

The current standard of HIV treatment includes the use of a combination of at least 3 different anti-HIV medications, including medications from different classes.

There are two major reasons for using combination of anti-HIV medications from different classes together:

1. Using different classes of medications enables you to block different proteins that the HIV virus needs at different steps of its reproduction, therefore combination therapy will be more effective than medication from only one class.
2. The HIV virus can change itself with every reproduction and may become resistant to certain anti-HIV medications, which means that those medications won't be effective at fighting your virus anymore. When different medications are used together, it is much harder for the virus to change itself to be able to resist all the medications together.

When choosing which medications to be used in your combination, your doctor should work with you to consider a combination that:

- Include different types of anti-HIV medications (that attacks the HIV virus at different stages of its reproduction)
- Maximize your ability to take them regularly
- Minimize side effects
- Leave options open for future changes

Ask your doctor or pharmacist for detailed information about each of the medications being recommended for you to take, talk to them about any concerns you have before you start taking these medications.

### How do I know if the medications are working?

If your anti-HIV medications are working (that is, effective in controlling the HIV virus), you should expect:



- A decrease in your viral load (ideally to undetectable level)
- An increase in your T cell count
- Less infections and symptoms related to HIV
- Better general health

By going to your doctor regularly to have check up and blood tests to check your Viral load and T-cells, you would get a better idea if the medications are working for you.

### **When do I need to change medications?**

You may need to change the medications in your combination if:

- The medications are not working (treatment failure)
- They give you very bad side effects

If you need to change medications because your combination is not working, that is, it's no longer effective in controlling the virus, your doctor would usually suggest changing at least 2 of the 3 medications in your combination, or maybe all of them. If you have taken many different HIV medications before, your doctor may need do a special test, called "resistance testing," before changing your medications. This test lets you and your doctor know which drugs will not work against HIV in your body.

If you need to change the medications due to side effects, your doctor may suggest decreasing the dose of the medication that causes problems or replacing it with another medication. In this case you do not need to change all the medications in your combination because the medications are still working.

As we learn more about the effects of the HIV medications and newer medications, the guidelines may change. Please make sure you work with your doctor and pharmacist to get the most up to date information and decide on a medication combination that will work to best meet your specific needs.

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