



# NUCLEOSIDE ANALOG REVERSE TRANSCRIPTASE INHIBITORS IN DEVELOPMENT

**NOTE:** several fact sheets describe drugs that are being tested against HIV:

- Fact sheet 430: non-nucleoside analog reverse transcriptase inhibitors (NNRTIs or non-nukes)
- Fact sheet 440: protease inhibitors
- Fact sheet 460: attachment and fusion inhibitors
- Fact sheet 470: new classes of antiviral drugs
- Fact sheet 480: immune therapies

*These drugs have not been approved by the Food and Drug Administration (FDA) for use against HIV.*

## NUCLEOSIDE ANALOG REVERSE TRANSCRIPTASE INHIBITORS

These drugs stop HIV from multiplying by blocking the reverse transcriptase enzyme. This enzyme changes HIV's genetic material (RNA) into the form of DNA. This step has to occur before HIV's genetic code gets combined with an infected cell's own genetic codes. The nucleoside analogs (often called "nukes") mimic the building blocks used by reverse transcriptase to make copies of the HIV genetic material. These fake building blocks disrupt the copying.

## NUCLEOSIDE ANALOGS (NUKES) IN DEVELOPMENT

**Apricitabine (ATC, AVX754)** by Avexa (formerly **SPD754** by Shire Pharmaceuticals) has shown good activity against HIV that is resistant to 3TC (Epivir). It is starting Phase III studies. Apricitabine seems well tolerated. It is being studied in a twice-daily dose.

**DAPD (amdoxovir)** is being developed by RFS Pharm. It is in Phase II studies. Some eye problems were detected in early studies and are being studied carefully.

**Dexelvucitabine (DFC)**, formerly known as Reverset, is being developed by Pharmasset. DFC is taken as a pill, once a day. It has shown activity against HIV with resistance to various antiretroviral drugs.

**DOT (Dioxolane thymidine)** is being studied by the University of Georgia in Phase I trials.

**Elvucitabine (ACH-126,443, Fd4C)** by Achillion Pharmaceuticals is a once-daily drug with activity against HIV that is resistant to several other nukes. It is also effective against hepatitis B. It has successfully completed one year of a Phase II study.

**MIV-210 (FLG)** by GlaxoSmithKline and Medivir shows good activity against HIV with resistance to other nukes. It is in Phase I trials.

**Racivir** by Pharmasset Inc is active against HIV and hepatitis B in laboratory studies. In a Phase I/II study, Racivir showed anti HIV activity that lasted more than 2 weeks after the drug was stopped. The makers hope that Racivir can be used as a once-daily drug.

## NUKES NO LONGER IN DEVELOPMENT

The following drugs are no longer being developed for use against HIV:

- **Adefovir dipivoxil (bis POM PME)** by Gilead Sciences
- **Alovedine (MIV-310, FLT)** by Boehringer Ingelheim and Medivir
- **dOTC (BCH-10652, BCH-10618)** by BioChem Pharma
- **KP1461** has been put on hold due to disappointing results from a clinical trial.
- **FddA (Beta-fluoro-ddA,**
- **Lodensine)** by US Bioscience
- **GW420867X** by GlaxoSmithKline
- **Lobucavir** by Bristol-Myers Squibb
- **SPD756** by Shire Pharmaceuticals

*Reviewed September 13, 2009*