ANTI-HIV DRUG INTERACTIONS

a guide to the interactions found between anti-hiv drugs and common hiv-related therapies

A PUBLICATION FROM
PROJECT inform
Information, Inspiration and Advocacy for People Living With HIV/AIDS

AUGUST 2004

With the number of drugs available to treat HIV and with those that prevent or treat opportunistic infections (OIs), the potential for drug interactions increases. Developing a health management plan and deciding which therapies to include in that plan may seem a daunting task. Not only does each therapy have possible side effects, but each might increase or decrease the benefit of the other drugs you take.

Drug interactions can take various forms, occurring immediately or over several weeks. Some drugs simply should not be used together, while others can be combined only if done with careful monitoring to detect emergency problems. Interactions can also occur when one therapy alters the effect of another. This includes how the other is absorbed in the body, broken down (*metabolized*), distributed or excreted.

A common interaction can occur when two drugs have similar side effect profiles. For example, both ddI and ddC can cause a tingling or pain in the legs, hands or feet (*peripheral neuropathy*). It's not recommended that they be used together because the similar side effects may increase the potential for neuropathy. Similarly, AZT and ganciclovir (a treatment for CMV) may both cause bone marrow suppression, resulting in anemia. However, adding a third drug, G-CSF (Neupogen), can help manage this interaction. In addition, higher blood levels of a drug increase the chance of more side effects.

talking to your doctor about drug interactions

Many people take a variety of therapies at the same time. These can range from experimental and approved anti-HIV drugs to complimentary and over-the-counter medicines. Drug interactions may play a major role in the success of any treatment plan. Unfortunately, they're not always considered when developing a treatment strategy. The following are some suggestions to help prevent drug interactions:

- BROWN BAG MEDICINE CHECKUP. Each time you see your healthcare provider, put all your meds—including over-the-counte and complimentary products—in a bag. Take the bag with you anc have your doctor review those medicines for safety, appropriatene compatibility and instructions for use.
- NEW PRESCRIPTIONS. Each time your doctor prescribes you a r medication, ask him or her if it can be combined safely with your other therapies.
- REGULAR DISCUSSION. Talk to your doctor about making the 'medicine checkup' part of your regular visits. Discuss how best to check for possible drug interactions. (Bring Project Inform's publication, *Drug Interactions*, with you to your appointment.)

As it has become standard medical practice to prevent multiple OIs with different drugs, drug interactions become more of a concern. In some prevention regimens, drug interactions may even cause more harm than good. For example, one drug might reduce the blood levels of another drug, leading to drug resistance. This could result in a particular disease (like HIV or hepatitis) becoming unresponsive to treatment. The added toxicity of many therapies taken together may also outweigh their hopeful benefit for preventing disease. Therefore, healthcare providers and people with HIV should make informed decisions about combining therapies and OI prevention regimens and should carefully check for drug interactions and other side effects.

Unfortunately, most drug interaction studies have compared only two drugs, although most people with HIV often take many more than two. As a result, very little is known about how all the commonly used drugs interact with each other.

In the meantime, it's important to discuss possible drug interactions with your doctor and pharmacist. Before starting a new therapy (experimental, approved or complimentary), consider the possible drug interactions and side effects. Not everyone experiences side effects; and many drug interactions can be managed by monitoring carefully, adjusting the doses, or stopping the therapy as needed.

The following chart should only be used as a guide for possible drug interactions. Remember that these interactions might occur in some people, but not in others. This chart was put together with information from prescription package inserts, anecdotal reports, discussions with pharmacologists and doctors who treat HIV disease, and discussions with drug companies.

glossary and instructions

Throughout the text of drug interactions on pages 3–27, you may find terms and instructions you're not familiar with. A glossary of these terms and dosing instructions can be found on page 27.

Abacavir (Ziagen) plus ...

- 3TC
  Decreases 3TC level by 15% in blood. No dose adjustment recommended.
- Alcohol
  Should be used together with caution. Increases abacavir level by 41% in blood. No dose adjustment recommended.
- Amprenavir
  Increases amprenavir level by 29% in blood. No dose adjustment recommended.
- AZT
  Increases AZT level by 10% in blood. No dose adjustment recommended.
- Chloral hydrate
  Should be used together with caution. May increase chloral hydrate level in blood.
- Methadone
  May decrease methadone level in blood. Check for methadone withdrawal symptoms and adjust methadone dose accordingly.
- Tenofovir
  Should be used together with caution. Although blood levels not affected, tenofovir and abacavir used in combination may speed the development of resistance to both.

Acyclovir (Zovirax) plus ...

- Probenecid
  Increases acyclovir level in blood.

Adefovir (Hepsera) plus ...

- Amikacin
  Should not be used together. Increases risk of kidney toxicity.
- Amphotericin B
  Should not be used together*. Increases risk of kidney toxicity.
- Cidofovir
  Should not be used together*. Increases risk of kidney toxicity.
- Foscarnet
  Should not be used together*. Increases risk of kidney toxicity.
- Gentamicin
  Should not be used together*. Increases risk of kidney toxicity.
- Ibuprofen
  Should be used together with caution. Increases adefovir level by 23% in blood and may increase risk of kidney toxicity.
- Kanamycin
  Should not be used together*. Increases risk of kidney toxicity.
- NSAIDS
  Should not be used together*. May increase risk of kidney toxicity.
- Pentamidine (IV)
  Should not be used together*. Increases risk of kidney toxicity.
- Tenofovir
  Should not be used together*. Increases risk of kidney toxicity.

Adefovir plus ... (continued)

- Tobramycin
  Should not be used together*. Increases risk of kidney toxicity.

Amphotericin B (Fungizone) plus ...

- Adefovir
  Should not be used together.* Increases risk of kidney toxicity.
- Amikacin
  Should be used together with great caution. May increase risk of kidney toxicity.
- Anticancer drugs
  Should be used together with great caution. May increase risk of kidney toxicity and low blood pressure.
- AZT
  May increase risk of bone marrow toxicity.
- Cidofovir
  Should not be used together*. Increases risk of kidney toxicity.
- Clotrimazole
  May interfere with the activity of amphotericin B.
- Corticosteroids
  Should be used together with caution. May decrease potassium level and increases risk of heart problems.
- Cyclosporine
  Should be used together with great caution. May increase risk of kidney toxicity.
- ddC
  May increase ddC level in blood and increase risk of peripheral neuropathy.
- Digitalis
  Use together with great caution. May increase risk of heart problems.
- Fluconazole
  May interfere with the activity of amphotericin B.
- Flucytosine
  Increases antifungal activity in test tubes but also increases risk of bone marrow and kidney toxicity.
- Foscarnet
  Should be used together with great caution. May decrease number of red blood cells and increases risk of kidney toxicity.
- Ganciclovir
  Should be used together with great caution. May increase risk of bone marrow toxicity.
- Gentamicin
  Should be used together with great caution. May increase risk of kidney toxicity.
- Itraconazole
  May interfere with the activity of amphotericin B.
- Kanamycin
  Should be used together with great caution. May increase risk of kidney toxicity.
- Ketoconazole
  May interfere with the activity of amphotericin B.

Amphotericin B plus ... (continued)

- Miconazole
  May interfere with the activity of amphotericin B.
- Pentamidine (IV)
  Should be used together with great caution. May increase risk of kidney toxicity.
- Tenofovir
  Should not be used together*. May increase risk of side effects.
- Tobramycin
  Should be used together with great caution. May increase risk of kidney toxicity.

Amprenavir (Agenerase) plus ...

- Abacavir
  Increases amprenavir level by 29% in blood. No dose adjustment recommended.
- Alcohol
  Should not be used together. Alcohol and the oral formulation of amprenavir increases risk of side effects.
- Alprazolam
  May increase alprazolam level in blood.
- Amiodarone
  Should be used together with caution. May increase risk of side effects. Requires monitoring concentration of amiodarone.
- Antacids
  Amprenavir should be taken 1 hour before or 1 hour after taking antacids.
- Astemizole
  Should not be used together*. Increases risk of side effects.
- Atazanavir
  Atazanavir may increase amprenavir levels in blood.
- Atorvastatin
  Should be used together with great caution. May increase atorvastatin level in blood.
- AZT
  Increases AZT level by 31% and increases amprenavir level by 13% in blood. No dose adjustment recommended.
- Bepridil
  Should not be used together*. Increases risk of side effects.
- Carbamazepine
  Should be used together with caution. May decrease amprenavir level in blood.
- Cimetidine
  May increase amprenavir level in blood.
- Cisapride
  Should not be used together*. Increases risk of side effects.
- Clarithromycin
  Increases amprenavir level by 18% in blood. No dose adjustment recommended.
- Clorazepate
  May increase clorazepate level in blood.
- Clozapine
  May increase clozapine level in blood.

Amprenavir plus ... (continued)

- **Dapsone**
  May increase dapsone level in blood.
- **ddI or ddI EC**
  Should be taken 1 hour before or after taking ddI tablets. ddI EC may be taken at the same time as amprenavir, but only on an empty stomach.
- **Delavirdine**
  May increase amprenavir level in blood. No dose adjustment recommended.
- **Diazepam**
  May increase diazepam level in blood.
- **Dihydroergotamine**
  Should not be used together*. Increases risk of side effects.
- **Diltiazem**
  May increase diltiazem level in blood.
- **Disulfiram**
  Should not be used together with amprenavir oral solution*. Increases risk of side effects.
- **Efavirenz**
  Decreases amprenavir level by 36% and increases efavirenz level by 15% in blood. Amprenavir dose may need to be increased.
- **Ergotamine**
  Should not be used together*. Increases risk of side effects.
- **Erythromycin**
  May increase erythromycin and amprenavir levels in blood.
- **Ethinyl estradiol**
  Should not be used together. Amprenavir may decrease ethinyl estradiol and norethindrone levels in blood. Use another form of contraception.
- **Felodipine**
  May increase felodipine level in blood.
- **Flurazepam**
  May increase flurazepam level in blood.
- **Food (high fat)**
  Decreases amprenavir level in blood and should be avoided.
- **Indinavir**
  Increases amprenavir level by 33% and decreases indinavir level by 38% in blood. No dose adjustment recommended.
- **Itraconazole**
  May increase itraconazole and amprenavir level in blood. Check for toxicity.
- **Kaletra**
  Decreases lopinavir level by 15% and increases amprenavir trough level about 2-fold in blood. Amprenavir dose should be reduced to 750mg twice a day or less. However, optimal dose is unclear.
- **Ketoconazole**
  Increases amprenavir level by 31% and increases ketoconazole level by 44% in blood. Impact of interaction is uncertain.
- **Lidocaine (systemic)**
  Should be used together with caution. Requires monitoring concentration of lidocaine.
- **Loratidine**
  May increase loratidine level in blood.

Amprenavir plus ... (continued)

- **Lovastatin**
  Should be used together with great caution. May increase lovastatin level in blood.
- **Metronidazole**
  Should not be used together with amprenavir oral solution*. Increases risk of side effects.
- **Midazolam**
  Should not be used together*. Increases risk of side effects.
- **Nelfinavir**
  Increases nelfinavir level by 15% in blood. No dose adjustment recommended.
- **Nevirapine**
  May decrease amprenavir level in blood. Dose of amprenavir may need to be increased.
- **Norethindrone**
  Should not be used together. Amprenavir may decrease ethinyl estradiol and norethindrone levels in blood. Use another form of contraception.
- **Nicardipine**
  May increase nicardipine level in blood.
- **Nifedipine**
  May increase nifedipine level in blood.
- **Nimodipine**
  May increase nimodipine level in blood.
- **Phenobarbital**
  Should be used together with caution. May decrease amprenavir level in blood.
- **Phenytoin**
  Should be used together with caution. May decrease amprenavir level in blood.
- **Pimozide**
  May increase pimozide level in blood.
- **Pravastatin**
  Should be used together with great caution. May increase pravastatin level in blood.
- **Quinidine**
  Should be used together with caution. Requires monitoring concentration of quinidine.
- **Rifabutin**
  Decreases amprenavir level by 15% and increases rifabutin level by 193% in blood. A lower dose of rifabutin required.
- **Rifampin**
  Should not be used together*. Significantly decreases amprenavir level in blood.
- **Ritonavir**
  Increases amprenavir level by 70% in blood. Alternate dosing is amprenavir 600mg + ritonavir 100mg twice a day, or amprenavir 1,200mg + ritonavir 200mg once daily.
- **Saquinavir (Fortovase)**
  Decreases amprenavir level by 32% and saquinavir level by 19% in blood. No dose adjustment likely required.
- **Sildenafil**
  Should be used together with caution. May increase sildenafil level in blood.
- **Simvastatin**
  Should be used together with great caution. May increase simvastatin level in blood.

Amprenavir plus ... (continued)

- **St. John's Wort**
  Should be used together with great caution. May significantly decrease amprenavir level in blood.
- **Tedalafil**
  Should be used together with caution. May increase tedalafil level in blood.
- **Triazolam**
  Should not be used together*. Increases risk of side effects.
- **Tricyclic antidepressants**
  Should be used together with caution. Requires monitoring concentration of tricyclic antidepressants.
- **Vardenafil**
  Should be used together with caution. May increase vardenafil level in blood.
- **Vitamin E**
  Amprenavir capsules contain more than the recommended daily allowance for vitamin E. Additional supplementation, especially when used together with drugs like warfarin could result in hemorrhage.
- **Warfarin**
  Should be used together with caution. Requires monitoring concentration of warfarin.

Atazanavir (Reyataz) plus...

- **Amiodarone**
  Increases risk of side effects. Check amiodarone level and use with caution.
- **Amprenavir**
  Atazanavir may increase amprenavir levels in blood.
- **Antacids**
  May decrease atazanavir level in blood. Take atazanavir 2 hours before or 1 hour after taking antacids.
- **Atorvastatin**
  Should be used together with great caution. May increase risk of side effects.
- **Bepridil**
  Should not be used together*. Increases risk of side effects.
- **Calcium channel blockers**
  Should be used together with great caution. Decrease dose of calcium channel blockers and check ECG.
- **Cisapride**
  Should not be used together*. Increases risk of side effects.
- **Clarithromycin**
  Increases risk of side effects and may decrease effectiveness of clarithromycin. Consider alternatives or reduce clarithromycin dose by at least 50%.
- **Cyclosporin**
  Should be used together with caution. Check cyclosporine level.

Atazanavair plus ... (continued)

- **ddI or ddI EC**
  ddI buffered tablets can significantly decrease atazanavir level in blood. Take atazanavir (with food) either 2 hours before or 1 hour after buffered ddI tablets. Although ddI EC should not affect atazanavir level, they should be taken at least 1 hour apart. Atazanavir should be taken with food, and ddI EC should be taken on an empty stomach.
- **Diltiazem**
  Should be used together with great caution. Decrease diltiazem dose by at least 50% and check ECG.
- **Ergot derivatives**
  Should not be used together*. Increases risk of side effects.
- **Efavirenz**
  Decreases atazanavir level in blood. Atazanavir should be boosted with ritonavir if used with efavirenz.
- **Ethinyl estradiol**
  Should be used together with caution. Atazanavir increases ethinyl estradiol level in blood. Use lowest effective ethinyl estradiol dose.
- **Food**
  High fat meal increases atazanavir by 35% and low fat meal increases atazanavir level by 70% in blood. Atazanavir should be taken with food.
- **Indinavir**
  Should not be used together*. Increases risk of side effects.
- **Irinotecan**
  Atazanavir may interfere with irinotecan metabolism. May increase irinotecan side effects.
- **Lidocaine (systemic)**
  Increases risk of side effects. Check lidocaine level and use with caution.
- **Lovastatin**
  Should not be used together*. Increases risk of side effects.
- **Midazolam**
  Should not be used together*. Increases risk of side effects.
- **Norethindrone**
  Should be used together with caution and decrease norethindrone dose to lowest effective dose. May increase norethindrone side effects, particularly in diabetic women.
- **Pimozide**
  Should not be used together*. Increases risk of side effects.
- **Proton-pump inhibitors**
  Should not be used together. May significantly decrease atazanavir level in blood.
- **Quinidine**
  Increases risk of side effects. Check quinidine level and use with caution.
- **Rifabutin**
  Increases rifabutin level. Decrease dose of rifabutin to 150mg every other day or 3 times a week.
- **Rifampin**
  Should not be used together. Decreases level of most protease inhibitors in blood.

Atazanavair plus ... (continued)

- **Ritonavir**
  Substantially increases atazanavir blood level. If combined, use atazanavir 300mg (with food) + ritonavir 100mg once daily.
- **Saquinavir (Fortovase)**
  Increases saquinavir level by 5–6 fold in blood. Dose adjustments currently under study.
- **Sildenafil**
  Increases sildenafil blood level. Decrease sildenafil dose to 25mg every 48 hrs and check for side effects.
- **Simvastatin**
  Should not be used together*. Increases risk of side effects.
- **Sirolimus**
  Should be used together with caution. Check sirolimus level.
- **St. John's Wort**
  Should not be used together. May reduce atazanavir level in blood.
- **Tacrolimus**
  Should be used together with caution. Check tacrolimus level.
- **Tedalafil**
  Should be used together with caution. May increase tedalafil level in blood.
- **Tenofovir**
  Increases tenofovir level by 24% and decreases atazanavir level by up to 40% in blood. Atazanavir should be boosted with ritonavir if used with tenofovir.
- **Triazolam**
  Should not be used together*. Increases risk of side effects.
- **Tricyclic antidepressants**
  Increases risk of side effects. Check antidepressant level and use with caution.
- **Vardenafil**
  Should be used together with caution. May increase vardenafil level in blood.
- **Warfarin**
  Should be used together with great caution. Has not been studied but may lead to serious side effects.

Atovaquone (Mepron) plus ...

- **AZT**
  Increases AZT level by 35% in blood. No dose adjustment recommended.
- **Fatty foods**
  Increases atovaquone level in blood. Atovaquone should be taken with food.
- **Kaletra**
  Decreases atovaquone level in blood. Atovaquone dose may have to be increased.
- **Rifabutin**
  Should be used together with caution. May decrease atovaquone level in blood.
- **Rifampin**
  Should be used together with caution. Decreases atovaquone level by 50% in blood.
- **Ritonavir**
  May decrease atovaquone level in blood.

Atovaquone plus ... (continued)

- **TMP/SMX**
  Increases TMP/SMX blood level by 17% and 8%, respectively. No dose adjustment recommended.

Azithromycin (Zithromax) plus ...

- **AZT**
  May increase AZT level in blood. No dose adjustment recommended.
- **Cyclosporine**
  May increase cyclosporine level in blood.
- **ddI or ddI EC**
  May increase ddI level in blood. No dose adjustment recommended.
- **Digoxin**
  May increase digoxin level in blood.
- **Ergot derivatives**
  May increase ergot drug level in blood.
- **Food**
  Azithromycin may be taken with or without food.
- **Hexobarbital**
  May increase hexobarbital level in blood.
- **Midazolam**
  May increase midazolam level in blood. No dose adjustment recommended.
- **Nelfinavir**
  Should be used together with caution. Increases azithromycin level in blood. No dose adjustment recommended, but check for hearing and liver side effects.
- **Phenytoin**
  May increase phenytoin level in blood.
- **Rifabutin**
  May increase rifabutin level in blood. No dose adjustment recommended.
- **Theophylline**
  May increase theophylline level in blood. No dose adjustment recommended.
- **Terfenadine**
  May increase terfenadine level in blood.
- **Warfarin**
  May increase warfarin level in blood.

Birth control pills

See section on Ethinyl estradiol.

Cidofovir (Vistide) plus ...

- **Adefovir**
  Should not be used together*. Increases risk of kidney toxicity.
- **Amikacin**
  Should not be used together*. Increases risk of kidney toxicity.
- **Amphotericin B**
  Should not be used together*. Increases risk of kidney toxicity.
- **Foscarnet**
  Should not be used together*. Increases risk of kidney toxicity.

Cidofovir plus ... (continued)

- **Gentamicin**
  Should not be used together*. Increases risk of kidney toxicity.
- **Kanamycin**
  Should not be used together*. Increases risk of kidney toxicity.
- **Pentamidine (IV)**
  Should not be used together*. Increases risk of kidney toxicity.
- **Probenecid**
  Needs to be taken together to decrease the risk of kidney toxicity.
- **Streptomycin**
  Should be used together with great caution. Increases risk of kidney toxicity.
- **Tenofovir**
  Should not be used together*. May increase risk of side effects.
- **Tobramycin**
  Should not be used together*. Increases risk of kidney toxicity.

Ciprofloxacin (Cipro) plus ...

- **Antacids**
  Needs to be taken 2 hours before or 6 hours after taking ciprofloxacin, otherwise decreases ciprofloxacin level in blood.
- **Caffeine**
  May increase caffeine level in blood.
- **Cyclosporine**
  May increase risk of elevated serum creatinine.
- **ddI or ddI EC**
  Ciprofloxacin needs to be taken 2 hours before or 6 hours after ddI buffered tablets, otherwise ddI may decrease ciprofloxacin level in blood. Ciprofloxacin may be taken at the same time as ddI EC capsules.
- **Food**
  May be taken with or without food, but preferred time of dosing is 2 hours after a meal.
- **Iron supplements**
  Needs to be taken 2 hours before or 6 hours after taking ciprofloxacin, otherwise decreases ciprofloxacin level in blood.
- **Methotrexate**
  May increase blood level of methotrexate. If used together, check for methotrexate side effects.
- **Probenecid**
  Increases ciprofloxacin level in blood.
- **Sucralfate**
  Needs to be taken 2 hours before or 6 hours after taking ciprofloxacin, otherwise decreases ciprofloxacin level in blood.
- **Theophylline**
  Should not be used together.* Increases risk of serious side effects. If concurrent use cannot be avoided, check theophylline level and adjust dose.
- **Warfarin**
  May increase warfarin level in blood. Check for warfarin toxicity.

Ciprofloxacin plus ... (continued)

- **Zinc-containing multivitamins**
  Needs to be taken 2 hours before or 6 hours after taking ciprofloxacin otherwise decreases ciprofloxacin level in blood.

Clarithromycin (Biaxin) plus ...

- **Alprazolam**
  May increase midazolam blood level. Check for alprazolam side effects.
- **Amprenavir**
  Increases amprenavir level by 18% in blood. No dose adjustment recommended.
- **Anticoagulants**
  May increase anticoagulants effect. Check prothrombin (coagulation) time.
- **Astemizole**
  Should not be used together*. May increase risk of heart problems.
- **Atazanavir**
  Increases risk of side effects and may decrease clarithromycin effectiveness. Consider alternatives or reduce clarithromycin dose by at least 50%.
- **Atorvastatin**
  May increase risk of atorvastatin side effects.
- **AZT**
  Decreases AZT level by 25% in blood. Consider taking at least 2 hours apart.
- **Carbamazepine**
  Increases carbamazepine level in blood. Check carbamazepine level.
- **Cisapride**
  Should not be used together*. Increases risk of side effects.
- **Cyclosporine**
  May increase cyclosporine level in blood.
- **Delavirdine**
  Interaction is complex. Clarithromycin dose should be adjusted for people with kidney problems.
- **Digoxin**
  May increase digoxin level in blood. Check digoxin level.
- **Disopyramide**
  May increase risk of side effects. Check disopyramide level and QTc prolongation.
- **Efavirenz**
  Slightly increases efavirenz level but decreases clarithromycin level by 39% (increases 14-OH clarithromycin level by 34%) in blood. No dose adjustment currently recommended.
- **Ergot derivatives**
  Should be used together with caution. May increase risk for serious side effects.
- **Fluvastatin**
  May increase risk of fluvastatin side effects.
- **Indinavir**
  Increases clarithromycin level by 53% and indinavir level by 29% in blood. No dose adjustment recommended.
- **Kaletra**
  Increases clarithromycin level in blood. Clarithromycin dose should be decreased for people with kidney dysfunction.

Clarithromycin plus ... (continued)

- **Loratadine**
  May affect loratidine and clarithromycin levels in blood. No dose adjustment currently recommended.
- **Lovastatin**
  May increase risk of lovastatin side effects.
- **Midazolam**
  May increase midazolam blood level. Check for midazolam side effects.
- **Nevirapine**
  Consider using alternatives to clarithromycin. Decreases clarithromycin level by 30% and increases nevirapine level by 26% in blood.
- **Pimozide**
  Should not be used together.* Increases risk of serious side effects.
- **Phenytoin**
  May increase phenytoin level in blood.
- **Pravastatin**
  May increase risk of pravastatin side effects.
- **Quinidine**
  May increase risk of side effects. Check quinidine level and QTc prolongation.
- **Rifabutin**
  Should be used together with caution. May increase rifabutin level and decrease clarithromycin level in blood.
- **Rifampin**
  Should be used together with caution. May decrease clarithromycin level in blood.
- **Ritonavir**
  Increases clarithromycin level by 77% and increases ritonavir level by 12% in blood. Requires lower dose of clarithromycin and monitoring for kidney toxicity in people with a history of kidney problems.
- **Saquinavir (Fortovase)**
  Increases saquinavir level by 177% and increases clarithromycin level by 45% (but decreases 14-OH clarithromycin level by 24%) in blood. No dose adjustments currently recommended.
- **Sildenafil**
  May increase sildenafil level in blood. Consider dose reduction.
- **Simvastatin**
  May increase risk of simvastatin side effects.
- **St. John's Wort**
  Should be used together with great caution. May decrease clarithromycin level in blood.
- **Tedalafil**
  Should be used together with caution. May increase tedalafil level in blood.
- **Theophylline**
  Increases theophylline level in blood. Check theophylline level.
- **Triazolam**
  May increase triazolam level in blood. Check for triazolam side effects.
- **Trimetrexate**
  May affect trimetrexate and/or clarithromycin level in blood.

Clarithromycin plus ... (continued)

- Vardenafil
  Should be used together with caution. May increase vardenafil level in blood.
- Warfarin
  Check prothrombin (coagulation) time.

Clindamycin (Cleocin) plus ...

- Erythromycin
  Should not be used together*. Causes erythromycin and clindamycin to be less effective.
- Neuromuscular blocking agents
  May increase neuromuscular blocking effect.

Clofazimine (Lamprene) plus ...

- Dapsone
  May decrease effectiveness of clofazimine.

Combivir plus ...

Combivir is a single pill containing 2 anti-HIV drugs—AZT and 3TC. If you take Combivir as part of your regimen, refer separately to drug interactions for AZT and 3TC.

Cycloserine (Seromycin) plus ...

- Alcohol
  May increase risk of seizures.
- Ethionamide
  May increase risk of central nervous system related toxicity.
- Isoniazid
  May increase risk of central nervous system related toxicity.

Dapsone plus ...

- Amprenavir
  May increase dapsone level in blood.
- AZT
  May increase risk of bone marrow toxicity.
- Clofazimine
  May decrease effectiveness of clofazimine.
- ddC
  May increase risk of peripheral neuropathy.
- ddI
  ddI buffered tablets and dapsone need to be taken 2 hours apart, otherwise dapsone has no activity.
- Ganciclovir
  May increase risk of bone marrow toxicity.
- Probenecid
  Should be used together with caution. May increase dapsone level in blood and increase risk of side effects.
- Pyrimethamine
  May increase risk of bone marrow toxicity.
- Rifabutin
  Should be used together with caution. May decrease dapsone level in blood.

Dapsone plus ... (continued)

- Rifampin
  Should be used together with caution. Decreases dapsone level 7–10 times in blood.
- Saquinavir (Invirase)
  May increase dapsone level in blood. Check for dapsone toxicity.
- TMP/SMX
  Increases trimethoprim level by 1.5 times; increases dapsone level by 1.5 times in blood.

Delavirdine (Rescriptor) plus ...

- Alprazolam
  Should not be used together*. Increases risk of side effects.
- Amlodipine
  Should be used together with caution. May increase amlodipine level in blood. Check for toxicity.
- Amphetamines
  Should be used together with caution. May increase amphetamine level in blood.
- Amprenavir
  May increase amprenavir level in blood. No dose adjustment recommended.
- Antacids
  Needs to be taken 1 hour apart, otherwise decreases delavirdine level by 44% in blood.
- Astemizole
  Should not be used together*. Increases risk of side effects.
- Atorvastatin
  Should be used together with great caution. Use lowest possible dose of atorvastatin. May increase risk of side effects.
- Barbiturates
  May decrease delavirdine level in blood.
- Bepridil
  Should be used together with caution. May increase bepridil level in blood and side effects.
- Carbamazepine
  Should not be used together. May significantly decrease delavirdine level in blood.
- Cimetidine
  Should be used together with caution. May decrease delavirdine level in blood.
- Cisapride
  Should not be used together*. Increases risk of side effects.
- Clarithromycin
  Increases delavirdine level by 31% and increases clarithromycin level by 100% (but decreases 14-OH clarithromycin level by 75%) in blood. Clarithromycin dose should be adjusted for people with kidney problems.
- Cyclosporine
  Should be used together with caution. May increase cyclosporine level in blood. Check cyclosporine level.
- ddI or ddI EC
  Needs to be taken 1 hour apart, otherwise decreases delavirdine level in blood.

Delavirdine plus ... (continued)

- Dexamethazone
  Should be used together with caution. May decrease delavirdine level in blood.
- Dihydroergotamine
  Should not be used together*. Increases risk of side effects.
- Diltiazem
  Should be used together with caution. May increase diltiazem level in blood. Check for toxicity.
- Ergonovine
  Should not be used together*. Increases risk of side effects.
- Ergotamine
  Should not be used together*. Increases risk of side effects.
- Erythromycin
  May increase delavirdine level in blood.
- Ethinyl estradiol
  May increase ethinyl estradiol level in blood. Impact of interaction is uncertain.
- Famotidine
  Should be used together with caution. May decrease delavirdine level in blood.
- Felodipine
  Should be used together with caution. May increase felodipine level in blood. Check for toxicity.
- Flecainide
  Should be used together with caution. Check flecainide level.
- Fluoxetine
  Increases delavirdine level by 50% in blood.
- Fluvastatin
  Should be used together with great caution. Use lowest possible dose of fluvastatin. May increase risk of side effects.
- Fosamprenavir
  Should not be used together. May significantly decrease fosamprenavir level in blood.
- Indinavir
  Increases indinavir level 50–100% in blood. Indinavir may be reduced to 600mg 3 times a day.
- Isradipine
  Should be used together with caution. May increase isradipine level in blood. Check for toxicity.
- Itraconazole
  May increase delavirdine level in blood.
- Kaletra
  May increase lopinavir level in blood. Needs further study.
- Ketoconazole
  Increases delavirdine level by 50% in blood.
- Lansoprazole
  Should be used together with caution. May decrease delavirdine level in blood.
- Lidocaine (systemic)
  Should be used together with caution. Check lidocaine level.
- Loratadine
  Should be used together with caution. May increase loratadine level in blood.

Delavirdine plus ... (continued)

- Lovastatin
  Should not be used together*. Increases risk of side effects.
- Methadone
  Increases methadone level in blood. May require lower dose of methadone.
- Methylergonovine
  Should not be used together*. Increases risk of side effects.
- Midazolam
  Should not be used together*. Increases risk of side effects.
- Nelfinavir
  Increases nelfinavir level about 100% but decreases nelfinavir active metabolite by about 45%. Decreases delavirdine level by about 40% in blood. No data exist to guide dose adjustments.
- Nicardipine
  Should be used together with caution. May increase nicardipine level in blood. Check for toxicity.
- Nifedipine
  Should be used together with caution. May increase nifedipine level in blood. Check for toxicity.
- Nisoldipine
  Should be used together with caution. May increase nisoldipine level in blood. Check for toxicity.
- Nizatidine
  Should be used together with caution. May decrease delavirdine level in blood.
- Omeprazole
  Should be used together with caution. May decrease delavirdine level in blood.
- Phenobarbital
  Should not be used together. May significantly decrease delavirdine level in blood.
- Phenytoin
  Should not be used together. May significantly decrease delavirdine level in blood.
- Pimozide
  Should not be used together*. Increases risk of side effects.
- Propafenone
  Should be used together with caution. Check propafenone level.
- Quinidine
  Should be used together with caution. Check quinidine level.
- Ranitidine
  Should be used together with caution. May decrease delavirdine level in blood.
- Rapamycin
  Should be used together with caution. May increase rapamycin level in blood. Check rapamycin level.
- Rifabutin
  Should not be used together*. Significantly decreases delavirdine level and increases rifabutin level in blood.
- Rifampin
  Should not be used together*, otherwise significantly decreases delavirdine level in blood.

Delavirdine plus ... (continued)

- Ritonavir
  Increases ritonavir level by about 70% in blood. No dose adjustment currently recommended.
- Saquinavir (Fortovase)
  Increases saquinavir level by 5 times in blood. Decrease saquinavir dose to 800mg 3 times a day.
- Saquinavir (Invirase)
  Increases saquinavir level by 5 times in blood. May increase risk of gastrointestinal side effects and liver function tests. Decrease saquinavir dose to 800mg 3 times a day.
- Sildenafil
  Should be used together with caution. Increases sildenafil level in blood. Decrease sildenafil dose to no more than 25mg in a 48 hour period.
- Simvastatin
  Should not be used together*. Increases risk of side effects.
- St. John's Wort
  Should not be used together. May significantly decrease delavirdine level in blood.
- Tacrolimus
  Should be used together with caution. May increase tacrolimus level in blood. Check tacrolimus level.
- Tedalafil
  Should be used together with caution. May increase tedalafil level in blood.
- Triazolam
  Should not be used together*. Increases risk of side effects.
- Vardenafil
  Should be used together with caution. May increase vardenafil level in blood.
- Verapamil
  Should be used together with caution. May increase verapamil level in blood. Check for toxicity.
- Voriconazole
  Should be used together with caution. May increase delavirdine side effects and decrease effectiveness of voriconazole.
- Warfarin
  Should be used together with caution. Check INR.

Didanosine (ddI, Videx) or (ddI EC, Videx EC) plus ...

EC stands for Enteric Coated.

- Alcohol
  Heavy alcohol intake may increase risk of pancreatitis.
- Allopurinol
  Should not be used together. Increases ddI level 113–312% in blood.
- Amprenavir
  Should be taken 2 hours before or 1 hour after taking ddI tablets. ddI EC may be taken at the same time as amprenavir, but only on an empty stomach.

Didanosine plus ... (continued)

- Atazanavir
  ddI buffered tablets can significantly decrease atazanavir level in blood. Take atazanavir (with food) either 2 hours before or 1 hour after buffered ddI tablets. Although ddI EC should not affect atazanavir level, they should be taken at least 1 hour apart. Atazanavir should be taken with food and ddI EC should be taken on an empty stomach.
- Anticancer drugs
  May increase risk of peripheral neuropathy.
- Azithromycin
  May increase AZT level in blood. No dose adjustment recommended.
- Cimetidine
  Needs to be taken at least 2 hours apart.
- Ciprofloxacin
  Ciprofloxacin needs to be taken 2 hours before or 6 hours after ddI buffered tablets, otherwise ddI may decrease ciprofloxacin level in blood. Ciprofloxacin may be taken at the same time as ddI EC capsules.
- Dapsone
  Needs to be taken 2 hours apart, otherwise dapsone has no activity.
- ddC
  Should not be used together. Significantly increases risk of peripheral neuropathy.
- Delavirdine
  Needs to be taken 1 hour apart, otherwise decreases delavirdine level in blood.
- d4T
  Should be used together with great caution. Increases risk of pancreatitis, especially in pregnant women.
- Food
  Decreases ddI level in blood. ddI and ddI EC should be taken on an empty stomach, at least 2 hours after eating.
- Ganciclovir
  Should be used with caution. Significantly increases ddI level in blood. May increase risk of pancreatitis.
- Hydroxyurea
  Increases anti-HIV activity in test tubes. May increase risk of pancreatitis.
- Indinavir
  May decrease ddI and indinavir levels in blood. Indinavir should be taken 1 hour before or 2 hours after taking ddI.
- Itraconazole
  Needs to be taken 2 hours apart, otherwise ddI buffering agents may significantly decrease itraconazole level in blood.
- Kaletra
  ddI or ddI EC should be taken 1 hour before or 2 hours after taking Kaletra. ddI and ddI EC should be taken on an empty stomach, and Kaletra should be taken with a meal.
- Ketoconazole
  Needs to be taken 2 hours apart, otherwise ddI buffering agents may significantly decrease ketoconazole level in blood.
- Methadone
  Decreases ddI level by 60% in blood.

Didanosine plus ... (continued)

- Nelfinavir
  Nelfinavir should be taken 2 hours before or after taking ddI or ddI EC. Nelfinavir should be taken with food, and ddI and ddI EC should only be taken on an empty stomach.
- Pentamidine (IV)
  May increase risk of pancreatitis.
- Quinolones
  Quinolones need to be taken 2 hours before or 6 hours after ddI buffered tablets, otherwise ddI may decrease quinolone level in blood. Quinolones may be taken at the same time as ddI EC capsules.
- Ribavirin
  Should not be used together*. Increases risk of pancreatitis and mitochondrial toxicity.
- Ritonavir
  Decreases ddI level by 13% in blood. No dose adjustment recommended, but take 2½ hours apart.
- Saquinavir
  Saquinavir should be taken 2 hours before or after taking ddI or ddI EC. Saquinavir is best taken with food, and ddI and ddI EC should only be taken on an empty stomach.
- Tenofovir
  Should be used together with great caution. Increases ddI level by 44% in blood. May increase risk of ddI side effects.
- Tetracyclines
  Should not be used together*. May increase risk of pancreatitis.

Efavirenz (Sustiva) plus ...

- Amprenavir
  Decreases amprenavir level by 36% and increases efavirenz level by 15% in blood. Amprenavir dose may need to be increased.
- Atazanavir
  Decreases atazanavir level in blood. Atazanavir should be boosted with ritonavir if used with efavirenz.
- Atorvastatin
  Decreases atorvastatin level in blood. Atorvastatin dose may need to be increased.
- Clarithromycin
  Slightly increases efavirenz level but decreases clarithromycin level by 39% (increases 14-OH clarithromycin level by 34%) in blood. No dose adjustment currently recommended.
- Fluconazole
  Increases efavirenz level by 16% in blood. No dose adjustment currently recommended.
- Food
  Should be taken on an empty stomach. Increases efavirenz level 10–50% in blood.
- Fosamprenavir
  May significantly decrease fosamprenavir level in blood. Use only boosted fosamprenavir at 1,400mg + 300mg ritonavir once a day.
- Indinavir
  Decreases indinavir level by 31% in blood. Indinavir dose should be increased to 1,000mg 3 times a day or 800mg twice daily if boosted with ritonavir.

Efavirenz plus ... (continued)

- Kaletra
  Decreases lopinavir level by about 25% (trough by about 33%). Kaletra dose should be increased to 4 capsules twice a day.
- Methadone
  Decreases methadone level by 52% in blood. Check for methadone withdrawal symptoms and adjust methadone dose accordingly.
- Nelfinavir
  Increases nelfinavir level by 20% and decreases efavirenz level by 22% in blood. No dose adjustments currently recommended.
- Nevirapine
  Decreases efavirenz level by 22% in blood. Efavirenz dose may need to be increased to 800mg once a day.
- Rifabutin
  Decreases rifabutin level in blood. Increase rifabutin dose by 50% if taken daily or double the dose if taken 3 times a week.
- Rifampin
  Decreases efavirenz level by 26% in blood. Impact of interaction is uncertain.
- Ritonavir
  Should be used together with caution. Increases efavirenz level by 21% and ritonavir level by 18% in blood. Check for side effects.
- Saquinavir (Fortovase)
  Decreases efavirenz level by 12% and decreases saquinavir level by 62% in blood. Requires ritonavir boosting.
- St. John's Wort
  Should be used together with great caution. May decrease efavirenz level in blood.
- Simvastatin
  Decreases simvastatin level in blood. Simvastatin dose may need to be increased.
- Voriconazole
  Should not be used together. Increases risk of side effects.

Emtricitabine (FTC, Emtriva) plus ...

There are currently no known or suspected interactions between FTC and any other drugs.

Enfuvirtide (T20, Fuzeon) plus ...

There are currently no known or suspected interactions between enfuvirtide and any other drugs, although ritonavir can increase enfuvirtide level in blood somewhat.

Ethinyl estradiol (Ortho-Novum) plus ...

- Amprenavir
  Should not be used together. May decrease ethinyl estradiol and norethindrone levels in blood. Use another form of contraception.
- Atazanavir
  Should be used together with caution. Increases ethinyl estradiol level in blood. Use lowest effective dose of ethinyl estradiol.
- Delavirdine
  May increase ethinyl estradiol level in blood. Impact of interaction is uncertain.

Ethinyl estradiol plus ... (continued)

- Fluconazole
  Increases ethinyl estradiol level by up to 38% in blood. No dose adjustments currently recommended.
- Indinavir
  Should be used together with caution. Increases ethinyl estradiol level by 24% in blood.
- Kaletra
  Should not be used together. Decreases ethinyl estradiol level by 42% in blood. Use another form of contraception.
- Nelfinavir
  Should not be used together. Decreases ethinyl estradiol level by 47% in blood. Use another form of contraception.
- Nevirapine
  Should not be used together. Decreases ethinyl estradiol level in blood. Use another form of contraception.
- Rifabutin
  Should not be used together. May decrease ethinyl estradiol level in blood. Use another form of contraception.
- Rifampin
  Should not be used together. May decrease ethinyl estradiol level in blood. Use another form of contraception.
- Ritonavir
  Should not be used together. Decreases ethinyl estradiol level by 40% in blood. Use an another form of contraception.

Ethionamide (Trecator) plus ...

- Alcohol
  Excessive alcohol consumption while on ethionamide may cause psychosis.
- Cycloserine
  May increase risk of central nervous system related toxicity.
- ddC
  May increase risk of peripheral neuropathy.
- Ethambutol
  May increase risk of side effects from other anti-TB drugs like ethambutol.
- Isoniazid
  May increase risk of encephalopathy (dysfunction of brain). May increase isoniazid level in blood.
- Pyrazinamide
  May increase risk of side effects from other anti-TB drugs like pyrazinamide.
- Rifabutin
  May increase risk of side effects from other anti-TB drugs like rifabutin.
- Rifampin
  May increase risk of side effects from other anti-TB drugs like rifampin.
- Rifapentine
  May increase risk of side effects from other anti-TB drugs like rifapentine.

Fluconazole (Diflucan) plus ...

- Amphotericin B
  May interfere with the activity of amphotericin B.

Fluconazole plus ... (continued)

- Astemizole
  Should not be used together*. Increases risk of side effects.
- AZT
  Increases AZT level by 74% and may increase fluconazole level in blood. Check for toxicity.
- Benzodiazepines
  May increase benzodiazepine level in blood.
- Cimetidine
  Decreases fluconazole level by 13% in blood. No dose adjustment recommended.
- Cisapride
  Should not be used together*. Increases risk of side effects.
- Cyclosporine
  Should be used together with caution. Increases cyclosporine level by 92% in blood. Check cyclosporine level and serum creatinine.
- Efavirenz
  Increases efavirenz level by 16% in blood. No dose adjustment currently recommended.
- Ethinyl estradiol
  Increases ethinyl estradiol level by up to 38% in blood. No dose adjustments currently recommended.
- Glipizide
  Should be used together with caution. Increases glipizide level by 49% in blood. Closely check blood sugar for hypoglycemia.
- Glyburide
  Should be used together with caution. Increases glyburide level by 44% in blood. Closely check blood sugar for hypoglycemia.
- Hydrochlorothiazide
  Increases fluconazole level by 45% in blood.
- Indinavir
  Decreases indinavir level by 19% in blood.
- Levonorgestrel
  Increases levonorgestrel level by 25% in blood.
- Loratadine
  May affect loratadine and/or fluconazole level in blood.
- Phenytoin
  Increases phenytoin level by 88% in blood.
- Ranitidine
  May decrease fluconazole level in blood.
- Rifabutin
  Should be used together with caution. May increase rifabutin level by up to 80% in blood. Increases risk of painful eye inflammation.
- Rifampin
  Should be used together with caution. Decreases fluconazole level by 23% in blood. May require higher dose of fluconazole.
- Ritonavir
  Increases ritonavir level by 12% in blood. No dose adjustment recommended; however, check for liver toxicity.
- Saquinavir (Fortovase)
  May increase saquinavir level in blood. However, no dose adjustment recommended.
- Saquinavir (Invirase)
  May increase saquinavir level in blood. However, No dose adjustment recommended.

Fluconazole plus ... (continued)

- Tacrolimus
  Should be used together with caution. May increase tacrolimus level in blood and increases risk of kidney toxicity.
- Theophylline
  Should be used together with caution. Increases theophylline level by 21% in blood. Check theophylline level.
- Tolbutamide
  Should be used together with caution. Increases tolbutamide level by 26% in blood. Closely check blood sugar for hypoglycemia.
- Trimetrexate
  May affect trimetrexate and/or fluconazole level in blood.
- Warfarin
  Should be used together with caution. Check for increases in prothrombin (coagulation) time.

Flucytosine (Ancobon) plus ...

- Amphotericin B
  Increases antifungal activity in test tubes but increases risk of bone marrow and kidney toxicity.
- AZT
  May increase risk of bone marrow toxicity.
- Cytosine arabinoside
  Should be used with caution. May decrease antifungal activity.
- Ganciclovir
  Should be used together with great caution. May increase risk of bone marrow toxicity.
- Interferon-alfa
  May increase risk of bone marrow toxicity.

Fosamprenavir (Lexiva) plus ...

- Alprazolam
  Should be used together with caution. May require decrease in alprazolam dose.
- Amiodarone
  Should be used together with great caution. May increase serious side effects. Check amiodarone blood concentrations if possible.
- Atorvastatin
  Fosamprenavir alone and with ritonavir increases atorvastatin level in blood. Lower atorvastatin dose to no more than 20mg/day or use alternatives.
- Bepridil
  Should be used together with great caution. Increases risk of serious side effects.
- Calcium channel blockers
  Should be used together with great caution. Check for side effects.
- Carbamazepine
  Should be used together with great caution. May significantly decrease fosamprenavir level in blood.
- Clorazepate
  Should be used together with caution. May require decrease in clorazepate dose.

Fosamprenavir plus ... (continued)

- Cimetidine
  Should be used together with caution. May decrease fosamprenavir level in blood. No dose adjustment currently recommended.
- Cisapride
  Should not be used together*. Increases risk of serious side effects.
- Cyclosporine
  Should be used together with caution. May increase cyclosporine level in blood. Check cyclosporine level if used together.
- Delavirdine
  Should not be used together. May significantly decrease fosamprenavir blood level.
- Dexamethazone
  Should be used together with great caution. May significantly decrease fosamprenavir level in blood.
- Diazepam
  Should be used together with caution. May require decrease in diazepam dose.
- Dihydroergotamine
  Should not be used together*. Increases risk of side effects.
- Efavirenz
  May significantly decrease fosamprenavir level in blood. Use only boosted fosamprenavir at 1,400mg + 300mg ritonavir once a day.
- Ergonovine
  Should not be used together*. Increases risk of side effects.
- Ergotamine
  Should not be used together*. Increases risk of side effects.
- Famotidine
  Should be used together with caution. May decrease fosamprenavir level in blood. No dose adjustment currently recommended.
- Flecainide
  Should not be used together if boosting with ritonavir*. Increases risk of serious side effects.
- Flurazepam
  Should be used together with caution. May require decrease in flurazepam dose.
- Itraconazole
  Should be used together with great caution. Increases risk of serious side effects. Do not exceed 400mg of itraconazole if fosamprenavir used alone, or 200mg if boosted with ritonavir.
- Kaletra
  Significantly decreases fosamprenavir level in blood. Also increases risk of side effects. Appropriate dose adjustments not yet established.
- Ketoconazole
  Should be used together with great caution. Increases risk of serious side effects. Do not exceed 400mg of ketoconazole if fosamprenavir used alone, or 200mg if boosted with ritonavir.
- Lidocaine (systemic)
  Should be used together with great caution. May increase serious side effects. Check lidocaine blood concentrations if possible.

Fosamprenavir plus ... (continued)

- Lovastatin
  Should not be used together*. Increases risk of serious side effects.
- Methylergonovine
  Should not be used together*. Increases risk of serious side effects.
- Midazolam
  Should not be used together*. Increases risk of serious side effects.
- Nizatidine
  Should be used together with caution. May decrease fosamprenavir level in blood. No dose adjustment currently recommended.
- Phenobarbital
  Should be used together with great caution.
- Phenytoin
  Should be used together with great caution.
- Pimozide
  Should not be used together*. Increases risk of serious side effects.
- Propafenone
  Should not be used together if boosting with ritonavir*. Increases risk of serious side effects.
- Proton pump inhibitors
  Should be used together with great caution. May significantly decrease fosamprenavir level in blood.
- Quinidine
  Should be used together with great caution. May increase serious side effects. Check quinidine blood concentrations if possible.
- Ranitidine
  Should be used together with caution. Decreases fosamprenavir level by 51% in blood. No dose adjustment currently recommended.
- Rapamycin
  Should be used together with caution. May increase rapamycin level in blood. Check rapamycin level if used together.
- Rifabutin
  Should be used together with great caution. Increases risk of neutropenia. Check for side effects and decrease rifabutin dose by at least 50% if fosamprenavir used alone or by 75% if boosted with ritonavir.
- Rifampin
  Should not be used together*. May decrease anti-HIV effect of fosamprenavir.
- Ritonavir
  Increases fosamprenavir level in blood. Adjust dose to fosamprenavir 700mg + ritonavir 100mg twice a day or fosamprenavir 1,400mg + ritonavir 200mg once a day.
- Sildenafil
  Should be used together with great caution. May increase risk of side effects. Decrease sildenafil dose to 25mg every 48 hours and check for side effects.
- Simvastatin
  Should not be used together*. Increases risk of serious side effects.
- St. John's Wort
  Should not be used together. May significantly decrease fosamprenavir level in blood.

Fosamprenavir plus ... (continued)

- Tacrolimus
  Should be used together with caution. May increase tacrolimus level in blood. Check tacrolimus level if used together.
- Tedalafil
  Should be used together with caution. May increase tedalafil level in blood.
- Triazolam
  Should not be used together*. Increases risk of serious side effects.
- Tricyclic antidepressants
  Should be used together with great caution. May increase risk of side effects. Check tricyclics level if used together.
- Vardenafil
  Should be used together with great caution. May increase risk of side effects. Decrease vardenafil dose to 2.5mg/24 hours (if fosamprenavir used alone) or 2.5mg/72 hours (if boosted with ritonavir). Check for side effects.
- Warfarin
  Should be used together with great caution. May increase risk of serious side effects.

Foscarnet (Foscavir) plus ...

- Adefovir
  Should not be used together.* Increases risk of kidney toxicity.
- Amikacin
  Should not be used together*. Increases risk of kidney toxicity.
- Amphotericin B
  Should be used together with great caution. May decrease number of red blood cells and increases risk of kidney toxicity.
- AZT
  Should be used together with caution. May increase risk of anemia.
- Cidofovir
  Should not be used together*. Increases risk of kidney toxicity.
- ddC
  May increase risk of kidney toxicity and peripheral neuropathy. Check for toxicity.
- Gentamicin
  Should not be used together*. Increases risk of kidney toxicity.
- Kanamycin
  Should not be used together*. Increases risk of kidney toxicity.
- Pentamidine (IV)
  Should be used with caution. May increase risk of kidney toxicity. Check closely.
- Ritonavir
  Should be used with caution. Abnormal kidney function has been observed.
- Streptomycin
  Should be used together with great caution. Increases risk of kidney toxicity.
- Tenofovir
  Should be used together with great caution. May increase risk of kidney toxicity.

Foscarnet plus ... (continued)

- Tobramycin
  Should not be used together*. Increases risk of kidney toxicity.

Ganciclovir (Cytovene, oral/IV) plus ...

- Acyclovir
  People allergic to acyclovir should not take ganciclovir.
- Adriamycin
  Should be used together with great caution. May increase risk of bone marrow toxicity.
- Amphotericin B
  Should be used together with great caution. May increase risk of bone marrow toxicity.
- Anticancer drugs
  May increase risk of bone marrow toxicity.
- AZT
  Increases AZT level in blood and may increase risk of neutropenia, anemia and bone marrow toxicity. Avoid combination or lower AZT dose.
- Dapsone
  May increase risk of bone marrow toxicity.
- ddI or ddI EC
  Should be used with caution. Significantly increases ddI level in blood. May increase risk of pancreatitis.
- d4T
  May increase risk of pancreatitis.
- Food
  Increases oral ganciclovir level in blood.
- Flucytosine
  Should be used together with great caution. May increase risk of bone marrow toxicity.
- Imipenem-cilastin
  May increase risk of seizures. Check closely.
- Interferon-alfa
  May increase risk of bone marrow toxicity.
- Pentamidine
  Should be used together with great caution. May increase risk of bone marrow toxicity.
- Probenecid
  Should be used together with caution. May increase ganciclovir level in blood and decrease ganciclovir clearance.
- Tenofovir
  Should be used together with great caution. May increase risk of side effects. Check for kidney toxicity.
- TMP/SMX
  Should be used together with great caution. May increase risk of bone marrow toxicity.
- Vinblastine
  Should be used together with great caution. May increase risk of bone marrow toxicity.
- Vincristine
  Should be used together with great caution. May increase risk of bone marrow toxicity.

Indinavir (Crixivan) plus ...

- **Amlodipine**
  Should be used together with great caution. May increase amlodipine level in blood.
- **Amprenavir**
  Increases amprenavir level by 33% and decreases indinavir level by 38% in blood. No dose adjustment recommended.
- **Astemizole**
  Should not be used together*. Increases risk of side effects.
- **Atorvastatin**
  Should be used together with great caution. May increase atorvastatin level in blood.
- **Atazanavir**
  Should not be used together*. Increases risk of side effects.
- **AZT**
  Increases AZT level 17–36% in blood. No dose adjustment recommended.
- **Benzodiazepines**
  May increase benzodiazepine level in blood.
- **Bepridil**
  Should be used together with great caution. May increase bepridil level in blood.
- **Cisapride**
  Should not be used together*. Increases risk of side effects.
- **Clarithromycin**
  Increases clarithromycin level by 53% and indinavir level by 29% in blood. No dose adjustment recommended.
- **ddI**
  May decrease ddI and indinavir levels in blood. Indinavir should be taken 1 hour before or 2 hours after taking ddI.
- **Delavirdine**
  Increases indinavir level 50–100% in blood. Indinavir may be reduced to 600mg 3 times a day.
- **Dihydroergotamine**
  Should not be used together*. Increases risk of side effects.
- **Diltiazem**
  Should be used together with great caution. May increase diltiazem level in blood.
- **Efavirenz**
  Decreases indinavir level by 31% in blood. Indinavir dose should be increased to 1,000mg 3 times a day or 800mg twice daily if boosted with ritonavir.
- **Ergonovine**
  Should not be used together*. Increases risk of side effects.
- **Ergotamine**
  Should not be used together*. Increases risk of side effects.
- **Ethinyl estradiol**
  Should be used together with caution. Increases ethinyl estradiol level by 24% in blood.
- **Fatty foods**
  Decreases indinavir level in blood. Indinavir should be taken 1 hour before eating or 2 hours after eating a large or fatty meal. Indinavir may be taken with a small snack such as juice and dry toast.

Indinavir plus ... (continued)

- **Felodipine**
  Should be used together with great caution. May increase felodipine level in blood.
- **Fluconazole**
  Decreases indinavir level by 19% in blood.
- **Fluvastatin**
  Should be used together with great caution. May increase fluvastatin level in blood.
- **Grapefruit juice**
  Decreases indinavir level by 26% in blood.
- **Isradipine**
  Should be used together with great caution. May increase isradipine level in blood.
- **Itraconazole**
  May affect indinavir and/or itraconazole level in blood. Decrease dose of indinavir to 600mg 3 times a day when combined with itraconazole 200mg twice daily.
- **Kaletra**
  Increases indinavir trough level by about 4-fold in blood. Currently under study; however, indinavir dose should be reduced to no more than 600mg twice a day if used together.
- **Ketoconazole**
  Increases indinavir level by 68% in blood. Decrease indinavir dose to 600mg 3 times a day.
- **Lovastatin**
  Should not be used together*. Increases risk of side effects.
- **Methylergonovine**
  Should not be used together*. Increases risk of side effects.
- **Midazolam**
  Should not be used together*. Increases risk of side effects.
- **Nelfinavir**
  Increases indinavir level by 51% and increases nelfinavir level by 83% in blood. There are limited data to support a dose of indinavir 1,200mg + nelfinavir 1,250mg twice a day.
- **Nevirapine**
  Decreases indinavir level by 27% in blood. Indinavir dose should be increased to 1,000mg 3 times a day or 800mg twice daily if boosted with ritonavir.
- **Nicardipine**
  Should be used together with great caution. May increase nicardipine level in blood.
- **Nifedipine**
  Should be used together with great caution. May increase nifedipine level in blood.
- **Nimodipine**
  Should be used together with great caution. May increase nimodipine level in blood.
- **Nisoldipine**
  Should be used together with great caution. May increase nisoldipine level in blood.
- **Nitrendipine**
  Should be used together with great caution. May increase nitrendipine level in blood.
- **Norethindrone**
  Should be used together with caution. Increases norethindrone level in blood by 14%.

Indinavir plus ... (continued)

- **Quinidine**
  Increases indinavir level by 10% in blood.
- **Rifabutin**
  Increases rifabutin level by 204% and decreases indinavir level by 32% in blood. Decrease dose of rifabutin by half the standard dose and increase indinavir dose to 1,000mg 3 times a day.
- **Rifampin**
  Should not be used together*. May increase rifampin level in blood.
- **Rifampicin**
  Should not be used together. Decreases indinavir level by 80% in blood, even when boosted with ritonavir.
- **Ritonavir**
  Significantly increases indinavir level in blood. Adjust dose to indinavir 800mg + ritonavir 200mg twice a day or indinavir 400mg + ritonavir 400mg twice a day.
- **Saquinavir (Fortovase)**
  Increases saquinavir level 3.6–6.2 times in blood.
- **Saquinavir (Invirase)**
  Increases saquinavir level 4.6–7.2 times in blood.
- **Sildenafil**
  Should be used with caution. Increases indinavir and sildenafil levels in blood.
- **Simvastatin**
  Should not be used together*. Increases risk of side effects.
- **St. John's Wort**
  Should not be used together. Decreases indinavir level by 57% in blood.
- **Tedalafil**
  Should be used together with caution. May increase tedalafil level in blood.
- **TMP/SMX**
  Should be used together with caution. Increases trimethoprim level by 31% in blood.
- **Triazolam**
  Should not be used together*. Increases risk of side effects.
- **Vardenafil**
  Should be used together with caution. Increases vardenafil level in blood. Dose of vardenafil should not exceed 2.5mg/day.
- **Verapamil**
  Should be used together with great caution. May increase verapamil level in blood.

Interferon-alfa (Intron-A, Roferon-A) plus ...

- **Anticancer drugs**
  May increase risk of bone marrow toxicity.
- **AZT**
  Increases anti-HIV activity in test tubes and may increase risk of bone marrow toxicity. Lower AZT dose by 50–75%.
- **Flucytosine**
  May increase risk of bone marrow toxicity.
- **Ganciclovir**
  May increase risk of bone marrow toxicity.

Interferon-alfa plus ... (continued)

- **Pentamidine**
  May increase risk of bone marrow toxicity.
- **Pyrimethamine**
  May increase risk of bone marrow toxicity.

Isoniazid (INH) plus ...

- **Acetaminophen**
  Should not be used together*. Increases risk of side effects.
- **Alcohol**
  Daily or heavy alcohol use may increase risk of isoniazid-associated hepatitis.
- **Carbamazepine**
  Should be used together with great caution. Increases carbamazepine level in blood. Check for toxicity and adjust carbamazepine dose accordingly.
- **Corticosteroids**
  Increases isoniazid metabolism and decreases isoniazid level in blood. Isoniazid dose may require adjustment.
- **Cycloserine**
  May increase risk of central nervous system toxicity.
- **ddC**
  May increase risk of peripheral neuropathy.
- **Ethionamide**
  May increase risk of encephalopathy (dysfunction of the brain) and may increase isoniazid level in blood.
- **Food**
  Should not be used together. Decreases isoniazid level in blood.
- **Itraconazole**
  Should be used together with great caution. May decrease itraconazole level in blood.
- **Ketoconazole**
  Should not be used together*. Decreases ketoconazole level in blood.
- **Phenytoin**
  Should be used together with caution. Increases phenytoin level in blood. Check for toxicity and adjust dose of phenytoin accordingly.
- **Rifampin**
  Should be used together with caution. May increase risk of liver toxicity.
- **Sulfonylureas**
  May increase risk of high blood sugar level.
- **Theophylline**
  Should be used together with great caution. Increases level of theophylline in blood. Check theophylline level closely.

Itraconazole (Sporanox) plus ...

- **Alprazolam**
  Should be used together with caution. May increase level of alprazolam in blood. Check for side effects.
- **Amphotericin B**
  May interfere with activity of amphotericin B.

Itraconazole plus ... (continued)

- **Amprenavir**
  May increase itraconazole and amprenavir levels in blood. Check for side effects.
- **Antacids**
  Decreases itraconazole level in blood. Should be taken 2 hours apart.
- **Astemizole**
  Should not be used together*. Increases risk of side effects.
- **Atorvastatin**
  Should not be used together*. Increases risk of side effects.
- **Busulfan**
  Should be used together with caution. Increases busulfan level in blood. Check for toxicity.
- **Carbamazepine**
  Should be used together with caution. Increases carbamazepine level and decreases itraconazole level in blood. Check for side effects.
- **Cimetidine**
  Decreases itraconazole level in blood. May need to be taken at least 2 hours apart.
- **Cisapride**
  Should not be used together*. Increases risk of side effects.
- **Cola beverage**
  Should be used together with caution. Increases itraconazole level 75% in blood.
- **Cyclosporine**
  Should be used together with caution. Increases cyclosporine level in blood and may increase risk of side effects.
- **ddI**
  Needs to be taken 2 hours apart, otherwise ddI buffering agents may significantly decrease itraconazole level in blood.
- **Delavirdine**
  May increase delavirdine level in blood.
- **Diazepam**
  Should be used together with caution. May increase level of diazepam in blood. Check for side effects.
- **Digoxin**
  Should be used together with caution. Increases digoxin level in blood. Check for side effects.
- **Dofetilide**
  Should not be used together*. Increases dofetilide level in blood.
- **Felodipine**
  Should be used together with great caution. Increases risk of felodipine side effects. Check closely.
- **Fluvastatin**
  Should not be used together*. Increases risk of side effects.
- **Food**
  May increase itraconazole level in blood.
- **Fosamprenavir**
  Should be used together with great caution. Increases risk of serious side effects. Do not exceed 400mg of itraconazole if fosamprenavir used alone, or 200mg if boosted with ritonavir.

Itraconazole plus ... (continued)

- **Glipizide**
  May increase risk of low blood sugar level.
- **Glyburide**
  May increase risk of low blood sugar level.
- **Indinavir**
  May affect itraconazole and/or indinavir level in blood. Reduce dose of indinavir to 600mg 3 times a day when combined with itraconazole 200mg twice daily.
- **Isoniazid**
  Should be used together with great caution. May decrease itraconazole level in blood.
- **Kaletra**
  Increases itraconazole level in blood. Dose of itraconazole should not exceed 200mg/day.
- **Lovastatin**
  Should not be used together*. Increases risk of side effects.
- **Midazolam (oral)**
  Should not be used together*. Increases risk of side effects.
- **Nevirapine**
  Should be used together with caution. May decrease itraconazole level in blood. Itraconazole dose may need to be increased.
- **Nicardipine**
  Should be used together with great caution. Increases risk of nicardipine side effects. Check closely.
- **Nifedipine**
  Should be used together with great caution. Increases risk of nifedipine side effects. Check closely.
- **Nimodipine**
  Should be used together with great caution. Increases risk of nimodipine side effects. Check closely.
- **Nisoldipine**
  Should be used together with great caution. Increases risk of nisoldipine side effects. Check closely.
- **Nitrendipine**
  Should be used together with great caution. Increases risk of nitrendipine side effects. Check closely.
- **Omeprazole**
  Decreases itraconazole level in blood.
- **Phenobarbital**
  Should be used together with caution. Decreases itraconazole level and may increase phenobarbital level in blood.
- **Phenytoin**
  Should be used together with caution. Decreases itraconazole level and may increase phenytoin level in blood.
- **Pimozide**
  Should not be used together*. Increases risk of side effects.
- **Quinidine**
  Should not be used together*. Increases risk of side effects.
- **Ranitidine**
  Decreases itraconazole level in blood.

Itraconazole plus ... (continued)

- **Rifabutin**
  Should not be used together. May increase rifabutin level and may decrease itraconazole level in blood.
- **Rifampin**
  Should not be used together. Decreases rifampin level and may decrease itraconazole level in blood.
- **Ritonavir**
  Should be used together with caution. May significantly increase itraconazole level in blood.
- **Saquinavir (Fortovase)**
  Increases saquinavir level in blood. However, no dose adjustment recommended.
- **Saquinavir (Invirase)**
  Increases saquinavir level in blood. However, no dose adjustment recommended.
- **Simvastatin**
  Should not be used together*. Increases risk of side effects.
- **Sirolimus**
  Should be used together with caution. Increases sirolimus level in blood.
- **Tacrolimus**
  Should be used together with caution. Increases tacrolimus level in blood.
- **Tedalafil**
  Should be used together with caution. Increases tedalafil level in blood. Tedalafil dose should not exceed 10mg in a 72 hour period.
- **Testosterone**
  May decrease testosterone level in blood.
- **Tolbutamide**
  May increase risk of low blood sugar level.
- **Trazodone**
  Increases trazodone level in blood. Trazodone doe may need to be reduced.
- **Triazolam**
  Should not be used together*. Increases risk of side effects.
- **Trimetrexate**
  May affect trimetrexate and/or itraconazole level in blood.
- **Vardenafil**
  Should be used together with caution. Increases vardenafil level in blood. If taking 400mg itraconazole per day, dose of vardenafil should not exceed 2.5mg/day. If taking 200mg itraconazole per day, dose of vardenafil should not exceed 5mg/day.
- **Verapamil**
  Should be used together with great caution. Increases risk of verapamil side effects. Check closely.
- **Vinblastine**
  Should be used together with caution. Increases vinblastine level in blood. Check for side effects.
- **Vincristine**
  Should be used together with caution. Increases vincristine level in blood. Check for side effects.

Itraconazole plus ... (continued)

- **Warfarin**
  Should be used together with caution. May increase prothrombin (coagulation) time and increase anticoagulant effects. Check warfarin dose closely.

Kaletra (lopinavir/ritonavir) plus ...

Kaletra is a single pill containing 2 anti-HIV drugs, lopinavir and ritonavir. References below indicate which drug contained in Kaletra is specifically altered in combinations.

- **Amiodarone**
  May increase amiodarone level in blood. Checking amiodarone level in blood is recommended.
- **Amprenavir**
  Decreases lopinavir level by 15% and increases amprenavir trough level about 2-fold in blood. Amprenavir dose may be reduced to 750mg twice a day or less. However, optimal dose is unclear.
- **Astemizole**
  Should not be used together. Increases risk of side effects.
- **Atorvastatin**
  Should be used together with great caution. Increases active atorvastatin level about 6-fold and atorvastatin metabolite by 2.5 times in blood and May increase risk of side effects.
- **Atovaquone**
  Decreases atovaquone level in blood. Atovaquone dose may have to be increased.
- **Bepridil**
  May increase bepridil level in blood. Checking bepridil level in blood is recommended.
- **Carbamazepine**
  Should be used together with great caution. May decrease lopinavir level in blood.
- **Cisapride**
  Should not be used together. Increases risk of side effects.
- **Clarithromycin**
  Increases clarithromycin level in blood. Clarithromycin dose should be decreased for people with kidney dysfunction.
- **Cyclosporine**
  May increase cyclosporine level in blood. Checking cyclosporine level in blood is recommended.
- **ddI or ddI EC**
  ddI or ddI EC should be taken 1 hour before or 2 hours after taking Kaletra. ddI and ddI EC should be taken on an empty stomach, and Kaletra should be taken with a meal.
- **Delavirdine**
  May increase lopinavir level in blood. Needs further study.
- **Dexamethasone**
  Should be used together with great caution. May decrease lopinavir level in blood.
- **Dihydroergotamine**
  Should not be used together. Increases risk of side effects.
- **Disulfiram/metronidazole**
  Should be used together with Kaletra oral solution with caution. Alcohol in Kaletra oral solution may increase risk of side effects.

Kaletra plus ... (continued)

- **Efavirenz**
  Decreases lopinavir level by about 25% (trough by about 33%). Kaletra dose should be increased to 4 capsules twice a day.
- **Ergonovine**
  Should not be used together. Increases risk of side effects.
- **Ergotamine**
  Should not be used together. Increases risk of side effects.
- **Ethinyl estradiol**
  Should not be used together. Decreases ethinyl estradiol level by 42% in blood. Use another form of contraception.
- **Felodipine**
  Should be used together with caution. May increase felodipine level in blood. Check for side effects.
- **Food**
  Increases lopinavir level in blood. Kaletra should be taken with food.
- **Fosamprenavir**
  Significantly decreases fosamprenavir level in blood. Also increases risk of side effects. Appropriate dose adjustments not yet established.
- **Indinavir**
  Increases indinavir trough level by about 4 times in blood. Currently under study; however, indinavir dose should be reduced to no more than 600mg twice a day if used together.
- **Itraconazole**
  Increases itraconazole level in blood. Itraconazole dose should not exceed 200mg/day.
- **Ketoconazole**
  Increases ketoconazole level by 3 times in blood. Ketoconazole dose should not exceed 200mg/day.
- **Lidocaine (systemic)**
  May increase lidocaine level in blood. Checking lidocaine level in blood is recommended.
- **Lovastatin**
  Should not be used together. Increases risk of side effects.
- **Methadone**
  Decreases methadone level by 53% in blood. Check for methadone withdrawal symptoms and adjust methadone dose accordingly.
- **Methylergonovine**
  Should not be used together. Increases risk of side effects.
- **Midazolam**
  Should not be used together. Increases risk of side effects.
- **Nelfinavir**
  Decreases lopinavir level in blood. Kaletra dose may need to be increased. Optimal dose is under study.
- **Nevirapine**
  Decreases lopinavir level in blood. Kaletra dose should be increased to 4 capsules twice a day.
- **Nicardipine**
  Should be used together with caution. May increase nicardipine level in blood. Check for side effects.

Kaletra plus ... (continued)

- Nifedipine
  Should be used together with caution. May increase nifedipine level in blood. Check for side effects.
- Phenobarbital
  Should be used together with great caution. May decrease lopinavir level in blood.
- Phenytoin
  Should be used together with great caution. May decrease lopinavir level in blood.
- Pimozide
  Should not be used together. Increases risk of side effects.
- Pravastatin
  Increases pravastatin level in blood. No dose adjustment recommended.
- Quinidine
  May increase quinidine level in blood. Checking for quinidine level in blood is recommended.
- Rapamycin
  May increase rapamycin level in blood. Checking for rapamycin level in blood is recommended.
- Rifabutin
  Increases rifabutin level by 5.7-fold. Rifabutin dose should be changed to 150mg every other day or 3 times a week. Check for side rifabutin effects.
- Rifampin
  Should not be used together. Decreases lopinavir level by 75% in blood.
- Saquinavir (Fortovase)
  Increases saquinavir trough level by about 3-fold. Saquinavir dose may be reduced to 800mg twice a day. Optimal dose is under study.
- Sildenafil
  Should be used together with caution. Increases sildenafil level in blood. Sildenafil dose should be reduced to no more than 25mg every 48 hours.
- Simvastatin
  Should not be used together. Increases risk of side effects.
- St. John's Wort
  Should not be used together. May decrease lopinavir level in blood.
- Tacrolimus
  May increase tacrolimus level in blood. Checking for tacrolimus level in blood is recommended.
- Tedalafil
  Should be used together with caution. May increase tedalafil level in blood.
- Tenofovir
  Increases tenofovir level by about 30% and decreases lopinavir level 15% in blood. No dose adjustment currently recommended.
- Triazolam
  Should not be used together. Increases risk of side effects.
- Vardenafil
  Should be used together with caution. May increase vardenafil level in blood.

Kaletra plus ... (continued)

- Warfarin
  May affect warfarin level in blood. Check INR.

Ketoconazole (Nizoral) plus ...

- Alcohol
  May increase risk of nausea, vomiting and low blood pressure.
- Alprazolam
  Should be used together with caution. May increase level of alprazolam in blood.
- Amphotericin B
  May interfere with the activity of amphotericin B.
- Amprenavir
  Increases amprenavir level by 31% and increases ketoconazole level by 44% in blood. Impact of interaction is uncertain.
- Antacids
  Should be taken 2 hours apart, otherwise may decrease ketoconazole level in blood.
- Astemizole
  Should not be used together*. Increases risk of side effects.
- Cimetidine
  Should be taken 2 hours apart, otherwise may decrease ketoconazole level in blood.
- Cisapride
  Should not be used together*. Increases risk of side effects.
- Clonazepam
  Should be used with caution. May increase clonazepam level in blood.
- Corticosteroids
  May decrease corticosteroid level in blood.
- Cyclosporine
  Should be used together with caution. May increase cyclosporine level in blood. Check cyclosporine level and adjust dose accordingly.
- ddI
  Should be taken 2 hours apart, otherwise ddI buffering agents may significantly decrease ketoconazole level in blood.
- Delavirdine
  Increases delavirdine level by 50% in blood.
- Diazepam
  Should be used together with caution. May increase diazepam level in blood.
- Digoxin
  May increase digoxin level in blood. Digoxin level should be carefully checked.
- Famotidine
  Should be taken 2 hours apart, otherwise may decrease ketoconazole level in blood.
- Fosamprenavir
  Should be used together with great caution. Increases risk of serious side effects. Do not exceed 400mg of ketoconazole if fosamprenavir used alone, or 200mg if boosted with ritonavir.
- Glipizide
  May increase risk of low blood sugar level.

Ketoconazole plus ... (continued)

- Glyburide
  May increase risk of low blood sugar level.
- Indinavir
  Increases indinavir level by 68% in blood. Decrease indinavir dose to 600mg 3 times/day.
- Isoniazid
  Should not be used together*. Decreases ketoconazole level in blood.
- Kaletra
  Increases ketoconazole level by 3 times in blood. Ketoconazole dose should not exceed 200mg/day.
- Loratadine
  Increases loratadine level by 300% in blood.
- Methylprednisolone
  Should be used together with caution. May increase methylprednisolone level in blood. Check blood level of cyclosporine and adjust dose accordingly.
- Miconazole
  Should be used together with great caution. May lead to severe hypoglycemia (low blood sugar).
- Midazolam
  Should not be used together*. Increases midazolam level in blood.
- Nelfinavir
  Increases nelfinavir level by 35% in blood. No dose adjustment recommended.
- Nevirapine
  Should not be used together. Significantly decreases ketoconazole level in blood.
- Omeprazole
  Should be used together with caution. Decreases ketoconazole and increases omeprazole level in blood.
- Phenytoin
  Should be used together with caution. May affect ketoconazole and phenytoin levels in blood. Check phenytoin and ketoconazole levels and adjust dose accordingly.
- Prednisolone
  May increase prednisolone level in blood.
- Ranitidine
  Should be taken 2 hours apart, otherwise may decrease ketoconazole level in blood.
- Rifabutin
  May decrease ketoconazole level in blood.
- Rifampin
  Should not be used together*. Significantly decreases ketoconazole level in blood.
- Ritonavir
  Should be used together with caution. Significantly increases ketoconazole level in blood. Ketoconazole dose should not exceed 200mg/day.
- Saquinavir (Fortovase)
  Significantly increases saquinavir level in blood. However, no dose adjustment recommended.
- Saquinavir (Invirase)
  Significantly increases saquinavir level in blood. However, no dose adjustment recommended.

Ketoconazole plus ... (continued)

- **Tacrolimus**
  Should be used together with caution. May increase tacrolimus level in blood. Check tacrolimus level.
- **Tedalafil**
  Should be used together with caution. Increases tedalafil level in blood. Tedalafil dose should not exceed 10mg in a 72 hour period.
- **Testosterone**
  May decrease testosterone level in blood, especially when ketoconazole is used at higher doses.
- **Tolbutamide**
  May increase risk of low blood sugar level.
- **Trazodone**
  Increases trazodone level in blood. Trazodone dose may need to be reduced.
- **Triazolam**
  Should not be used together*. Increases triazolam level in blood.
- **Trimetrexate**
  May affect trimetrexate and/or ketoconazole level in blood.
- **Vardenafil**
  Should be used together with caution. Increases vardenafil level in blood. If taking ketoconazole 400mg/day, vardenafil dose should not exceed 2.5mg/day. If taking ketoconazole 200mg/day, vardenafil dose should not exceed 5mg/day.
- **Warfarin**
  Should be used together with caution. May increase prothrombin (coagulation) time and increase anticoagulant effects. Check warfarin dose closely.

Lamivudine (3TC, Epivir) plus ...

- **Abacavir**
  Decreases 3TC level by 15% in blood. No dose adjustment recommended.
- **ddC**
  Should not be used together. Decreases anti-HIV activity.
- **Nelfinavir**
  Increases 3TC level by 10% in blood. No dose adjustment recommended.
- **TMP/SMX**
  Increases 3TC level by 44% in blood. No dose adjustment recommended. Check for 3TC side effects.

Methadone plus ...

- **Abacavir**
  May decrease methadone level in blood. Check for methadone withdrawal symptoms and adjust methadone dose accordingly.
- **AZT**
  Increases AZT level by 43% in blood. Check for AZT side effects.
- **ddI or ddI EC**
  Decreases ddI level by 60% in blood.
- **Efavirenz**
  Decreases methadone level by 52% in blood. Check for methadone withdrawal symptoms and adjust methadone dose accordingly.

Methadone plus ... (continued)

- **Kaletra**
  Decreases methadone level by 53% in blood. Check for methadone withdrawal symptoms and adjust methadone dose accordingly.
- **Nelfinavir**
  Decreases methadone level in blood. Check for methadone withdrawal symptoms and adjust methadone dose accordingly.
- **Nevirapine**
  Decreases methadone level by about 60% in blood. Check for methadone withdrawal symptoms and adjust methadone dose accordingly.
- **Rifabutin**
  May decrease effectiveness of methadone. Check for methadone withdrawal symptoms and adjust methadone dose accordingly.
- **Rifampin**
  May decrease effectiveness of methadone. Check for methadone withdrawal symptoms and adjust methadone dose accordingly.
- **Ritonavir**
  Decreases methadone level by about 40% in blood. Check for methadone withdrawal symptoms and adjust methadone dose accordingly.

Nelfinavir (Viracept) plus ...

- **3TC**
  Increases 3TC level by 10% in blood. No dose adjustment recommended.
- **Amiodarone**
  Should not be used together*. Increases risk of side effects.
- **Amprenavir**
  Increases nelfinavir level by 15% in blood. No dose adjustment recommended.
- **Astemizole**
  Should not be used together*. Increases risk of side effects.
- **Atorvastatin**
  Should be used together with great caution. May increase atorvastatin level in blood.
- **Azithromycin**
  Should be used together with caution. Increases azithromycin level in blood. No dose adjustment recommended, but check for hearing and liver side effects.
- **AZT**
  Decreases AZT level by 35% in blood. No dose adjustment recommended.
- **Carbamazepine**
  Should be used together with caution. May decrease nelfinavir level in blood.
- **Cisapride**
  Should not be used together*. Increases risk of side effects.
- **ddI or ddI EC**
  Nelfinavir should be taken 2 hours before or after taking ddI or ddI EC. Nelfinavir should be taken with food, and ddI and ddI EC should only be taken on an empty stomach.

Nelfinavir plus ... (continued)

- **Dihydroergotamine**
  Should not be used together*. Increases risk of side effects.
- **Delavirdine**
  Increases nelfinavir level by about 100% but decreases nelfinavir active metabolite by about 45% in blood. Decreases delavirdine level by about 40%. No data exist to guide dose adjustments.
- **Ergonovine**
  Should not be used together*. Increases risk of side effects.
- **Ergotamine**
  Should not be used together*. Increases risk of side effects.
- **Ethinyl estradiol**
  Should not be used together. Decreases ethinyl estradiol level by 47% in blood. Use another form of contraception.
- **Fluvastatin**
  May interact somewhat with nelfinavir. No dose adjustment currently recommended.
- **Food**
  Increases nelfinavir level in blood. Nelfinavir should be taken with food.
- **Indinavir**
  Increases indinavir level by 51% and increases nelfinavir level by 83% in blood. Increase indinavir dose to 1,000mg every 8 hours or boost indinavir with ritonavir.
- **Kaletra**
  Decreases lopinavir level in blood. Kaletra dose may need to be increased. Optimal dose is under study.
- **Ketoconazole**
  Increases nelfinavir level by 35% in blood. No dose adjustment recommended.
- **Lovastatin**
  Should not be used together. Increases lovastatin level in blood.
- **Methadone**
  Decreases methadone level in blood. Check for methadone withdrawal symptoms and adjust methadone dose accordingly.
- **Methylergonovine**
  Should not be used together*. Increases risk of side effects.
- **Midazolam**
  Should not be used together*. Increases risk of side effects.
- **Nevirapine**
  Modestly decreases nelfinavir level in blood. No dose adjustment recommended.
- **Norethindrone**
  Should be used together with caution. Decreases norethindrone level by 18% in blood.
- **Phenobarbital**
  Should be used together with caution. May decrease level of nelfinavir in blood.
- **Phenytoin**
  Should be used together with caution. May increase rate of metabolism of phenytoin. Check phenytoin level and adjust dose accordingly.

Nelfinavir plus ... (continued)

- **Pimozide**
  Should not be used together*. Increases risk of side effects.
- **Quinidine**
  Should not be used together*. Increases risk of side effects.
- **Rifabutin**
  Should be used together with caution. Increases rifabutin and decreases nevirapine level in blood. Reduce rifabutin dose by one-half and use nevirapine at 1,250mg twice a day.
- **Rifampin**
  Should not be used together*. Decreases nelfinavir level by 82% in blood.
- **Ritonavir**
  Increases ritonavir level by 9% and increases nelfinavir level by 152% in blood. Alternate doses under study include nelfinavir at 500–750mg + ritonavir 400mg twice a day.
- **Saquinavir (Fortovase)**
  Increases nelfinavir level 18% and increases saquinavir level 4 times in blood. Saquinavir dose may be reduced to 800mg 3 times a day or 1,200mg twice a day.
- **Saquinavir (Invirase)**
  Increases saquinavir level by 4 times and increases nelfinavir level by 18% in blood. Saquinavir dose may be reduced to 800mg 3 times a day or 1,200mg twice a day.
- **Sildenafil**
  Should be used together with caution. Increases sildenafil level in blood. Sildenafil dose should be reduced to no more than 25mg every 48 hours.
- **Simvastatin**
  Should not be used together. Increases simvastatin level in blood.
- **St. John's Wort**
  Should not be used together. May decrease nelfinavir level in blood.
- **Tedalafil**
  Should be used together with caution. May increase tedalafil level in blood.
- **Triazolam**
  Should not be used together*. Increases risk of side effects.
- **Vardenafil**
  Should be used together with caution. May increase vardenafil level in blood.

Nevirapine (Viramune) plus ...

- **Amiodarone**
  Should be used together with caution. May decrease amiodarone level in blood.
- **Amoxicillin**
  May increase risk of rashes and Stevens Johnson Syndrome. Requires careful monitoring.
- **Amprenavir**
  May decrease amprenavir level in blood. If boosting amprenavir with ritonavir, increase ritonavir to 200mg twice a day.

Nevirapine plus ... (continued)

- **Carbamazepine**
  Should be used together with caution. May decrease carbamazepine level in blood.
- **Cimetidine**
  Should be used together with caution. May slightly increase nevirapine level in blood.
- **Cisapride**
  Should be used together with caution. May decrease cisapride level in blood.
- **Clarithromycin**
  Decreases clarithromycin level by 30% and increases nevirapine level by 26% in blood. Consider using alternatives to clarithromycin.
- **Clonazepam**
  Should be used together with caution. May decrease clonazepam level in blood.
- **Cyclophosphamide**
  Should be used together with caution. May decrease cyclophosphamide level in blood.
- **Cyclosporin**
  Should be used together with caution. May decrease cyclosporin level in blood.
- **Dihydroergotamine**
  Should be used together with caution. May decrease dihydroergotamine level in blood.
- **Dicumarol**
  Should not be used together*. May increase dicumarol level in blood.
- **Diltiazem**
  Should be used together with caution. May decrease diltiazem level in blood.
- **Disopyramide**
  Should be used together with caution. May decrease disopyramide level in blood.
- **Efavirenz**
  Decreases efavirenz level by 22% in blood. Efavirenz dose may need to be increased to 800mg once a day.
- **Ergonovine**
  Should be used together with caution. May decrease ergonovine level in blood.
- **Ergotamine**
  Should be used together with caution. May decrease ergotamine level in blood.
- **Erythromycin**
  Should be used together with great caution. May increase risk of liver toxicity.
- **Ethinyl estradiol**
  Should not be used together. Decreases ethinyl estradiol level in blood. Use another form of contraception.
- **Ethosuximide**
  Should be used together with caution. May decrease ethosuximide level in blood.
- **Fentanyl**
  Should be used together with caution. May decrease fentanyl level in blood.
- **Indinavir**
  Decreases indinavir level by 27% in blood. Indinavir dose should be increased to 1,000mg 3 times a day or 800mg twice daily if boosted with ritonavir.

Nevirapine plus ... (continued)

- **Itraconazole**
  Should be used together with caution. May decrease itraconazole level in blood. Itraconazole dose may need to be increased.
- **Kaletra**
  Decreases Kaletra level in blood. Kaletra dose should be increased to 4 capsules twice a day.
- **Ketoconazole**
  Should not be used together. Significantly decreases ketoconazole level in blood.
- **Lidocaine (systemic)**
  Should be used together with caution. May decrease lidocaine level in blood.
- **Methadone**
  Decreases methadone level by about 60% in blood. Check for methadone withdrawal symptoms and adjust methadone dose accordingly.
- **Methylergonovine**
  Should be used together with caution. May decrease methylergonovine level in blood.
- **Nelfinavir**
  Modestly decreases nelfinavir level in blood. No dose adjustment recommended.
- **Nifedipine**
  Should be used together with caution. May decrease nifedipine level in blood.
- **Norethindrone**
  Decreases norethindrone level in blood. Use another form of contraception.
- **Prednisone**
  May increase risk of rash.
- **Rifabutin**
  Should be used together with caution. May significantly affect rifabutin level in blood.
- **Rifampin**
  Should not be used together. Decreases nevirapine level in blood.
- **Ritonavir**
  Decreases ritonavir level by 11% in blood. No dose adjustment recommended.
- **Saquinavir (Fortovase)**
  Decreases saquinavir level by 24% in blood. Saquinavir may require ritonavir boosting.
- **Saquinavir (Invirase)**
  Decreases saquinavir level by 27% in blood. Saquinavir may require ritonavir boosting.
- **Sirolimus**
  Should be used together with caution. May decrease sirolimus level in blood.
- **Steroids**
  May increase rate of metabolism of steroids.
- **St. John's Wort**
  Should not be used together. May decrease nevirapine level in blood.
- **Tacrolimus**
  Should be used together with caution. May decrease tacrolimus level in blood.
- **TMP/SMX**
  Should not be initiated together for the first 4–6 weeks. May increase risk of rashes.

Nevirapine plus ... (continued)

- Voriconazole
  Should be used together with caution. May increase nevirapine side effects and decrease effectiveness of voriconazole.
- Warfarin
  Should be used together with great caution. Interaction is complex. Warfarin level in blood should be checked carefully.

Oral contraceptives

See section on Ethinyl estradiol.

Pentamidine (Pentam) plus ...

- Adefovir
  Should not be used together*. Increases risk of kidney toxicity.
- Amphotericin B
  Should be used together with great caution. May increase risk of kidney toxicity.
- Anticancer drugs
  May increase risk of anemia.
- AZT
  May increase risk of anemia.
- Cidofovir
  Should not be used together*. Increases risk of kidney toxicity.
- ddC
  Should be used with great caution. May increase risk of peripheral neuropathy and pancreatitis.
- ddI or ddI EC
  May increase risk of pancreatitis.
- d4T
  May increase risk of pancreatitis.
- Foscarnet
  Should be used with caution. May increase risk of kidney toxicity. Check closely.
- Ganciclovir
  Should be used together with great caution. May increase risk of bone marrow toxicity.
- Interferon-alfa
  May increase risk of bone marrow toxicity.
- Tenofovir
  Should not be used together*. May increase risk of side effects.

Probenecid (Benemid, ColBenemid) plus ...

- Acetaminophen
  Should be used together with caution. Increases acetaminophen level in blood.
- Acyclovir
  Increases acyclovir level in blood. Impact of interaction is uncertain.
- Aspirin
  Should be used together with caution. Decreases activity of probenecid.
- AZT
  Should be used together with caution. Increases AZT level by 106% in blood. Check for AZT side effects.
- Benzodiazepines
  Increases benzodiazepine level in blood.

Probenecid plus ... (continued)

- Bumetadine
  Should not be used together. Probenecid decreases the effectiveness of bumetadine.
- Captopril
  Should be used together with caution. May increase captopril level in blood.
- Cidofovir
  Needs to be taken together to decrease risk of kidney toxicity.
- Cilastatin
  Should be used together with caution. May increase cilastatin level in blood and increase risk of side effects.
- Ciprofloxacin
  Should be used together with caution. May increase ciprofloxacin level in blood and increase risk of side effects.
- Cisplatin
  Should be used together with caution. May increase cisplatin level in blood and increase risk of side effects.
- Clofibrate
  Should be used together with caution. May increase clofibrate level in blood and increase risk of side effects.
- Dapsone
  Should be used together with caution. May increase dapsone level in blood and increase risk of side effects.
- ddC
  Significantly increases ddC level in blood. Check for toxicity and consider lower ddC dose.
- Famotidine
  Should be used together with caution. Significantly increases famotidine level in blood.
- Furosemide
  May increase risk of inner ear poisoning (ototoxicity).
- Ganciclovir
  Should be used together with caution. May increase ganciclovir level in blood and increase risk of side effects.
- Indomethacin
  Should be used together with caution. Increases indomethacin level in blood. May allow for lower indomethacin dose.
- Imipenem
  Should be used together with caution. May increase imipenem level in blood and increases risk of side effects.
- Ketamine
  Should be used together with caution. Increases ketamine level in blood.
- Ketoprofen
  Should not be used together. Increases ketoprofen level in blood and increases risk of side effects.
- Lorazepam
  Should be used together with caution. Increases lorazepam level in blood.
- Meclofenamate
  Increases meclofenamate level in blood.

Probenecid plus ... (continued)

- Methotrexate
  Should be used together with caution. Increases methotrexate level in blood and increases risk of side effects.
- Naproxen
  Should be used together with caution. Increases naproxen level in blood.
- Penicillin
  Should be used together with caution. Increases penicillin level 2–4 times in blood and increases risk of side effects.
- Pyrazinamide
  Should be used together with caution. Decreases activity of probenecid.
- Rifabutin
  Should be used together with caution. May increase rifabutin level in blood and increase risk of side effects.
- Rifampin
  Should be used together with caution. May increase rifampin level in blood and increase the risk of side effects.
- Sulfonamide
  Increases sulfonamide level in blood.
- Sulindac
  Increases sulindac level in blood and decreases activity of probenecid.
- Theophylline
  May increase theophylline level in blood.
- Thiopental
  Should be used together with caution. Increases thiopental level in blood.

Pyrimethamine (Daraprim) plus ...

- AZT
  Should be used together with caution. May increase risk of bone marrow toxicity.
- Dapsone
  May increase risk of bone marrow toxicity.
- Ethionamide
  May increase risk of side effects from other anti-TB drugs like pyrazinamide.
- Interferon-alfa
  May increase risk of bone marrow toxicity.
- Lorazepam
  May increase risk of liver toxicity.
- Sulfonamides
  Should be used together with caution. May increase risk of bone marrow toxicity.
- TMP/SMX
  Should be used together with caution. May increase risk of bone marrow toxicity.

Rifabutin (Mycobutin) plus ...

- Amprenavir
  Decreases amprenavir level by 15% and increases rifabutin level by 193% in blood. Requires lower rifabutin dose.
- Anticoagulants
  Should be used together with caution. May decrease effectiveness of anticoagulants. Check INR.

Rifabutin plus ... (continued)

- Atovaquone
  Should be used together with caution. Decreases atovaquone level by 50% in blood.
- AZT
  May decrease AZT level in blood.
- Barbiturates
  May decrease effectiveness of barbiturates.
- Beta-blockers
  May decrease the effectiveness of beta-blockers. Check response to treatment and adjust dose accordingly.
- Buspirone
  May decrease effectiveness of buspirone. Check symptoms and adjust dose accordingly.
- Clarithromycin
  Use together with caution. May increase rifabutin level and decrease clarithromycin level in blood.
- Clofibrate
  May decrease effectiveness of clofibrate. Check response to treatment and adjust dose accordingly.
- Chloramphenicol
  May decrease the effectiveness of chloramphenicol. Check response to treatment and adjust dose accordingly.
- Corticosteroids
  May significantly decrease corticosteroid level in blood and require higher doses of corticosteroids.
- Cyclosporine
  May decrease cyclosporine level in blood. Check cyclosporine blood level and adjust dose accordingly.
- Dapsone
  Should be used together with caution. May decrease dapsone level in blood.
- Delavirdine
  Should not be used together*. Significantly decreases delavirdine level and increases rifabutin level in blood.
- Diazepam
  May decrease effectiveness of diazepam. Check response to treatment and adjust dose accordingly.
- Digoxin
  Should be used together with caution. May significantly decrease effectiveness of digoxin. Check digoxin level in blood, control of heart rhythm and other cardiac symptoms.
- Disopyramide
  May decrease effectiveness of disopyramide. Check response to treatment and adjust dose accordingly.
- Doxycycline
  May decrease effectiveness of doxycycline. Check response to treatment and adjust dose accordingly.
- Efavirenz
  Decreases rifabutin level in blood. Increase rifabutin dose by 50% if taken daily or double the dose if taken 3 times a week.
- Estrogen
  Should be used together with caution. May decrease effectiveness of estrogen.

Rifabutin plus ... (continued)

- Ethinyl estradiol
  Should not be used together. May decrease ethinyl estradiol level in blood. Use another form of contraception.
- Ethionamide
  Ethionamide May increase risk of side effects from other anti-TB drugs like rifabutin.
- Fluconazole
  Should be used together with caution. May increase rifabutin level by up to 80% in blood. Increases risk of painful eye inflammation.
- Fosamprenavir
  Should be used together with great caution. Increases risk of neutropenia. Check for side effects and lower rifabutin dose by at least 50% if fosamprenavir used alone or by 75% if boosted with ritonavir.
- Glipizide
  Should be used together with caution. May decrease glipizide level in blood. Check blood sugar level and adjust dose accordingly.
- Glyburide
  Should be used together with caution. May decrease glyburide level in blood. Check blood sugar level and adjust dose accordingly.
- Indinavir
  Increases rifabutin level by 204% and decreases indinavir level by 32% in blood. Reduce rifabutin dose by half the standard dose and increase indinavir dose to 1,000mg 3 times a day.
- Itraconazole
  Should not be used together. May increase rifabutin level and may decrease itraconazole level in blood.
- Kaletra
  Increases rifabutin level by 5.7-fold in blood. Rifabutin dose should be changed to 150mg every other day or 3 times a week. Check for rifabutin side effects.
- Ketoconazole
  Should be used together with caution. May decrease ketoconazole level in blood.
- Methadone
  May decrease effectiveness of methadone. Check for methadone withdrawal symptoms and adjust methadone dose accordingly.
- Mexiletine
  May decrease effectiveness of mexiletine. May require lower rifabutin dose.
- Midazolam
  Should not be used together. Significantly decreases midazolam level in blood. Use alternative to midazolam.
- Nelfinavir
  Should be used together with caution. Increases rifabutin and decreases nelfinavir levels in blood. Reduce rifabutin dose by one-half and use nelfinavir at 1,250mg twice a day.
- Nevirapine
  Should be used together with caution. May significantly affect rifabutin level in blood.
- Norethindrone
  Should not be used together. May decrease norethindrone level in blood. Use another form of contraception.

Rifabutin plus ... (continued)

- Opiates
  May decrease effectiveness of opiate drugs. Check pain control and response to treatment and adjust dose accordingly.
- Phenytoin
  Should be used together with caution. May decrease phenytoin level in blood. Check phenytoin level in blood and seizure activity. Adjust dose accordingly.
- Probenecid
  Should be used together with caution. May increase rifabutin level in blood and increase risk of side effects.
- Progesterone
  Should be used together with caution. May decrease effectiveness of progesterone.
- Quinidine
  May decrease quinidine level in blood. Check response to treatment and adjust dose accordingly.
- Ritonavir
  Should be used together with caution. Increases rifabutin level by 4-fold in blood. Increases risk of side effects. Rifabutin dose should be reduced to no more than 300mg once a week or 150mg every 3 days. Further dose reduction may be necessary.
- Saquinavir (Fortovase)
  Should be used together with great caution. Decreases saquinavir level by 43% in blood. Consider alternative to rifabutin.
- Saquinavir (Invirase)
  Should be used together with great caution. Decreases saquinavir level by 40% in blood. Consider alternative to rifabutin.
- Tolbutamide
  Should be used together with caution. May decrease tolbutamide level in blood. Check blood sugar level and adjust dose accordingly.
- Theophylline
  May decrease theophylline level in blood. Check theophylline level in blood and adjust dose accordingly.
- Triazolam
  Should not be used together. Significantly decreases triazolam level in blood. Use alternative to triazolam.
- Trimetrexate
  Should be used with caution. May affect trimetrexate and/or rifabutin level.
- Verapamil
  Should not be used together. May significantly decrease effectiveness of verapamil.
- Zolpidem
  May decrease effectiveness of zolpidem. Check for response to treatment and adjust dose accordingly.

Rifampin (Rifadin) plus ...

- Amprenavir
  Should not be used together*. Significantly decreases amprenavir level in blood.
- Anticoagulants
  Should be used together with caution. May decrease effectiveness of anticoagulants. Check INR.

Rifampin plus ... (continued)

- **Atovaquone**
  Should be used together with caution. Decreases atovaquone level by 50% in blood.
- **Atazanavir**
  Should not be used together. Rifampin decreases level of most protease inhibitors in blood.
- **AZT**
  Decreases AZT level by 47% in blood. May require higher AZT dose.
- **Barbiturates**
  May decrease effectiveness of barbiturates.
- **Clarithromycin**
  Use together with caution. May decrease clarithromycin blood level.
- **Clofibrate**
  May decrease effectiveness of clofibrate. Check response to treatment and adjust dose accordingly.
- **Chloramphenicol**
  May decrease the effectiveness of chloramphenicol. Check response to treatment and adjust dose accordingly.
- **Corticosteroids**
  May significantly decrease corticosteroid level in blood and require higher doses of corticosteroids.
- **Cyclosporine**
  May decrease cyclosporine level in blood. Check cyclosporine blood level and adjust dose accordingly.
- **Dapsone**
  Should be used together with caution. Decreases dapsone level 7–10 times in blood.
- **Delavirdine**
  Should not be used together*, otherwise significantly decreases delavirdine level in blood.
- **Diazepam**
  May decrease effectiveness of diazepam. Check response to treatment and adjust dose accordingly.
- **Digoxin**
  Should be used together with caution. May significantly decrease effectiveness of digoxin. Check digoxin level in blood, control of heart rhythm and other cardiac symptoms.
- **Disopyramide**
  May decrease effectiveness of disopyramide. Check response to treatment and adjust dose accordingly.
- **Doxycycline**
  May decrease effectiveness of doxycycline. Check response to treatment and adjust dose accordingly.
- **Efavirenz**
  Decreases efavirenz level by 26% in blood. Impact of interaction is uncertain.
- **Estrogen**
  Should be used together with caution. May decrease effectiveness of estrogen.
- **Ethinyl estradiol**
  Should not be used together. May decrease ethinyl estradiol level in blood. Use another form of contraception.

Rifampin plus ... (continued)

- **Ethionamide**
  May increase risk of side effects from other anti-TB drugs like rifampin.
- **Fluconazole**
  Should be used together with caution. Decreases fluconazole level by 23% in blood. May require higher fluconazole dose.
- **Food**
  May decrease rifampin level in blood.
- **Fosamprenavir**
  Should not be used together*. May decrease anti-HIV activity of fosamprenavir.
- **Glipizide**
  Should be used together with caution. May decrease glipizide level in blood. Check blood sugar level and adjust dose accordingly.
- **Glyburide**
  Should be used together with caution. May decrease glyburide level in blood. Check blood sugar level and adjust dose accordingly.
- **Halothane**
  Should not be used together*. May increase risk of liver toxicity.
- **Indinavir**
  Should not be used together*. May increase rifampin level in blood.
- **Isoniazid**
  Should be used together with caution. May increase risk of liver toxicity.
- **Itraconazole**
  Should not be used together. Decreases rifampin level and may decrease itraconazole level in blood.
- **Ketoconazole**
  Should not be used together*. Significantly decreases ketoconazole level in blood.
- **Kaletra**
  Should not be used together. Decreases lopinavir level by 75% in blood.
- **Methadone**
  May decrease effectiveness of methadone. Check for methadone withdrawal symptoms and adjust methadone dose accordingly.
- **Mexiletine**
  May decrease effectiveness of mexiletine. May require lower rifabutin dose.
- **Midazolam**
  Should not be used together. Significantly decreases midazolam level in blood. Use alternative to midazolam.
- **Nelfinavir**
  Should not be used together*. Decreases nelfinavir level by 82% in blood.
- **Nevirapine**
  Should not be used together. Decreases nevirapine level in blood.
- **Norethindrone**
  Should not be used together. May decrease norethindrone level in blood. Use another form of contraception.
- **Opiates**
  May decrease effectiveness of opiate drugs. Check pain control and response to treatment and adjust dose accordingly.

Rifampin plus ... (continued)

- **Phenytoin**
  Should be used together with caution. May decrease phenytoin level in blood. Check phenytoin level in blood and seizure activity. Adjust dose accordingly.
- **Probenecid**
  Should be used together with caution. May increase rifampin level in blood and increase risk of side effects.
- **Progesterone**
  Should be used together with caution. May decrease effectiveness of progesterone.
- **Quinidine**
  May decrease quinidine level in blood. Check response to treatment and adjust dose accordingly.
- **Ritonavir**
  Should not be used together. Decreases ritonavir level by 35% in blood. Consider using rifabutin instead.
- **Saquinavir (Fortovase)**
  Should not be used together. Decreases saquinavir level by 84% in blood.
- **Saquinavir (Invirase)**
  Should not be used together. Decreases saquinavir level by 80% in blood.
- **Theophylline**
  May decrease theophylline level in blood. Check theophylline level in blood and adjust dose accordingly.
- **Triazolam**
  Should not be used together. Significantly decreases triazolam level in blood. Use alternative to triazolam.
- **Trimetrexate**
  Should be used together with caution. May affect trimetrexate and/or rifampin level in blood.
- **Verapamil**
  Should not be used together. May significantly decrease effectiveness of verapamil.
- **Zolpidem**
  May decrease effectiveness of zolpidem. Check for response to treatment and adjust dose accordingly.

Ritonavir (Norvir) plus ...

- **Alfentanil**
  Should be used with caution. May significantly increase alfentanil level in blood. May require lower alfentanil dose.
- **Alprazolam**
  Should be used together with caution. Although ritonavir decreases alprazolam level in blood, it may also prolong sedation.
- **Amiodarone**
  Should not be used together*. Increases risk of side effects.
- **Amitriptyline**
  Should be used together with great caution. May increase amitriptyline level in blood. May require lower amitriptyline dose.

Ritonavir plus ... (continued)

- Amlodipine
  Should be used together with caution. May significantly increase amlodipine level in blood. May require lower amlodipine dose.
- Amoxapine
  Should be used together with great caution. May increase amoxapine level in blood. May require lower amoxapine dose.
- Amprenavir
  Increases amprenavir level by 70% in blood. Alternate dosing is amprenavir 600mg + ritonavir 100mg twice a day, or amprenavir 1,200mg + ritonavir 200mg once daily.
- Astemizole
  Should not be used together*. Increases risk of side effects.
- Atazanavir
  Substantially increases atazanavir level in blood. If combined, use atazanavir 300mg once a day (with food) + ritonavir 100mg once a day.
- Atorvastatin
  Should be used together with great caution. Ritonavir + saquinavir increases atorvastatin level by 343% in blood. Use lowest dose of atorvastatin or consider using pravastatin.
- Atovaquone
  May decrease atovaquone level in blood.
- AZT
  Decreases AZT level by 25% in blood. No dose adjustment recommended.
- Bepridil
  Should not be used together*. Increases risk of side effects.
- Bromocriptine
  Should be used together with caution. May significantly increase bromocriptine level in blood. May require lower bromocriptine dose.
- Buproprion
  Should be used together with caution. Increases risk of side effects.
- Buprenorphine
  Should be used with caution. May significantly increase buprenorphine level in blood. May require lower buprenorphine dose.
- Butorphanol
  Should be used with caution. May significantly increase butorphanol level in blood. May require lower butorphanol dose.
- Carbamazepine
  Should be used together with caution. May significantly increase carbamazepine level in blood. May require lower carbamazepine dose.
- Chlorpromazine
  Should be used together with caution. May increase chlorpromazine level in blood. Check for side effects.
- Cisapride
  Should not be used together*. Increases risk of side effects.
- Citalopram
  Should be used together with caution. May increase citalopram level in blood. May require lower citalopram dose.

Ritonavir plus ... (continued)

- Clarithromycin
  Increases clarithromycin level by 77% and increases ritonavir level by 12% in blood. Requires lower dose of clarithromycin and checking for kidney toxicity in people with a history of kidney problems.
- Clofibrate
  May decrease clofibrate level in blood.
- Clomipramine
  Should be used together with caution. May increase clomipramine level in blood. May require dose reduction of clomipramine.
- Clonazepam
  Should be used together with caution. May increase clonazepam level in blood. May require dose reduction of clonazepam.
- Clorazepate
  Should be used together with caution. Increases risk of side effects.
- Clotrimazole
  May increase risk of side effects.
- Clozapine
  Should not be used together*. Increases risk of side effects.
- Codeine
  Should be used with caution. May decrease codeine level in blood. May require lower codeine dose.
- Cyclosporine
  May significantly increase cyclosporine level in blood.
- ddI or ddI EC
  Decreases ddI level by 13% in blood. No dose adjustment recommended, but take 2½ hours apart.
- Delavirdine
  Increases ritonavir level by about 51% in blood. May require lower ritonavir dose.
- Desipramine
  Should be used together with caution. Increases desipramine level by 145% in blood. Check desipramine level in blood and adjust dose accordingly.
- Dexamethasone
  Should be used together with caution. May significantly increase dexamethasone level in blood. May require lower dexamethasone dose.
- Diazepam
  Should be used together with caution. Increases risk of side effects.
- Dihydroergotamine
  Should not be used together*. Increases risk of side effects.
- Diltiazem
  Should be used together with caution. May significantly increase diltiazem level in blood. May require lower diltiazem dose.
- Diphenoxylate
  May decrease diphenoxylate level in blood.
- Disopyramide
  Should be used together with caution. May increase disopyramide level in blood and increase heart (cardiac) and brain/nerve (neurological) side effects. May require lower disopyramide dose.

Ritonavir plus ... (continued)

- Divalproex
  Should be used together with caution. May decrease divalproex level in blood. A higher divalproex dose may be necessary.
- Doxepin
  Should be used together with caution. May increase doxepin level in blood. May require lower doxepin dose.
- Dronabinol
  Should be used together with caution. May increase dronabinol level in blood. May require lower dronabinol dose.
- Efavirenz
  Should be used together with caution. Increases efavirenz level by 21% and ritonavir level by 18% in blood. Check for side effects.
- Encainide
  Should not be used together*. Increases risk of side effects.
- Enfuvirtide
  Ritonavir used at the full dose increases enfuvirtide level by 22% in blood. Ritonavir at a boosting dose of 100mg twice a day increases enfuvirtide level by 14% in blood No dose adjustment recommended.
- Ergonovine
  Should not be used together*. Increases risk of side effects.
- Ergotamine
  Should not be used together*. Increases risk of side effects.
- Erythromycin
  Should be used together with caution. May increase erythromycin level in blood. May require lower erythromycin dose.
- Escitalopram
  Should be used together with caution. May increase escitalopram level in blood. May require lower escitalopram dose.
- Estazolam
  Should be used together with caution. Increases risk of side effects.
- Ethinyl estradiol
  Should not be used together. Decreases ethinyl estradiol level by 40% in blood. Use another form of contraception.
- Ethosuximide
  Should be used together with caution. May increase ethosuximide level in blood. May require lower ethosuximide dose.
- Etoposide
  Should be used with great caution. May increase etoposide level in blood and increase risk of side effects.
- Felodipine
  Should be used together with caution. May significantly increase felodipine level in blood. May require lower felodipine dose.
- Fentanyl
  Should be used together with caution. May significantly increase fentanyl level in blood. May require lower fentanyl dose.
- Flecainide
  Should not be used together*. Increases risk of side effects.

Ritonavir plus ... (continued)

- **Flucitasone propionate**
  Should not be used together. Increases risk of side effects.
- **Fluconazole**
  Increases ritonavir level by 12% in blood. No dose adjustment recommended; however, check for liver toxicity.
- **Fluoxetine**
  Should be used together with great caution. May increase risk of serious side effects. May require lower fluoxetine dose.
- **Flurazepam**
  Should be used together with caution. Increases risk of side effects.
- **Fluvastatin**
  Should be used together with caution. May increase fluvastatin level in blood. Check for toxicity.
- **Fluvoxamine**
  Should be used together with caution. May increase fluvoxamine level in blood. May require lower fluvoxamine dose.
- **Food**
  Increases ritonavir level in blood.
- **Fosamprenavir**
  Increases fosamprenavir level in blood. Adjust dose to fosamprenavir 700mg + ritonavir 100mg twice a day or fosamprenavir 1,400mg + ritonavir 200mg once a day.
- **Foscarnet**
  Should be used with caution. Abnormal kidney function has been observed.
- **Haloperidol**
  Should be used together with caution. May increase haloperidol level in blood. Check for side effects.
- **Hydrocodone**
  Should be used with caution. May significantly increase hydrocodone level in blood. May require lower hydrocodone dose.
- **Hydromorphone**
  Should be used with caution. May significantly increase hydromorphone level in blood. May require lower hydromorphone dose.
- **Imipramine**
  Should be used together with caution. May increase imipramine level in blood. May require lower imipramine dose.
- **Indinavir**
  Ritonavir significantly increases indinavir level in blood. Adjust dose to indinavir 800mg + ritonavir 200mg twice a day or indinavir 400mg + ritonavir 400mg twice a day.
- **Isradipine**
  Should be used together with caution. May significantly increase isradipine level in blood. May require lower isradipine dose.
- **Itraconazole**
  Should be used together with caution. May significantly increase itraconazole level in blood.
- **Ketoconazole**
  Should be used together with caution. Significantly increases ketoconazole level in blood. Ketoconazole dose should not exceed 200mg/day.

Ritonavir plus ... (continued)

- **Ketoprofen**
  May increase ketoprofen level in blood.
- **Ketorolac**
  May increase ketorolac level in blood.
- **Lamotrigine**
  Should be used together with caution. May decrease lamotrigine level in blood. A higher lamotrigine dose may be necessary.
- **Lidocaine**
  Should be used together with caution. May significantly increase lidocaine level in blood. May require lower lidocaine dose.
- **Loperamide**
  Should not be used together. Decreases the effectiveness of loperamide.
- **Loratadine**
  Should be used together with caution. May increase loratadine level in blood. Check for side effects.
- **Lorazepam**
  May increase lorazepam level in blood.
- **Lovastatin**
  Should not be used together. May significantly increase lovastatin level in blood.
- **Maprotiline**
  Should be used together with caution. May increase maprotiline level in blood. Check for side effects.
- **Mefloquine**
  Should be used with great caution. May significantly decrease ritonavir level in blood.
- **Meperidine**
  Decreases meperidine level in blood, but leads to increased concentrations of the active metabolite normeperidine over time. Long-term use in combination at higher meperidine doses is not recommended.
- **Methadone**
  Decreases methadone level by about 40% in blood. Check for methadone withdrawal symptoms and adjust methadone dose accordingly.
- **Methamphetamine**
  Caution is warranted. May increase methamphetamine level in blood.
- **Methylergonovine**
  Should not be used together*. Increases risk of side effects.
- **Metoclopramide**
  May decrease metoclopramide level in blood.
- **Metoprolol**
  Should be used together with caution. May increase metoprolol level in blood. May require lower metoprolol dose.
- **Metronidazole**
  Should be used together with caution. May increase risk of side effects (ritonavir liquid only).
- **Mexiletine**
  Should be used together with caution. May increase mexiletine level in blood and increase heart (cardiac) and brain/nerve (neurological) side effects. May require lower mexiletine dose.

Ritonavir plus ... (continued)

- **Miconazole**
  Should be used together with caution. May increase miconazole level in blood. Check for side effects.
- **Midazolam**
  Should not be used together*. Increases risk of side effects.
- **Morphine**
  Should be used together with caution. May decrease morphine level in blood. Check for pain management and possible withdrawal symptoms and adjust dose accordingly.
- **Naproxen**
  May increase naproxen level in blood.
- **Nefazadone**
  Should be used together with caution. May significantly increase nefazadone level in blood and increase cardiac and neurological side effects. May require dose reduction of nefazadone.
- **Nelfinavir**
  Increases ritonavir level by 9% and increases nelfinavir level by 152% in blood. Other dose under study includes nelfinavir 500–750mg + ritonavir 400mg twice a day.
- **Nevirapine**
  Decreases ritonavir level by 11% in blood. No dose adjustment recommended.
- **Nicardipine**
  Should be used together with caution. May significantly increase nicardipine level in blood. May require lower nicardipine dose.
- **Nifedipine**
  Should be used together with caution. May significantly increase nifedipine level in blood. May require lower nifedipine dose.
- **Nimodipine**
  Should be used together with caution. May significantly increase nimodipine level in blood. May require lower nimodipine dose.
- **Nisoldipine**
  Should be used together with caution. May significantly increase nisoldipine level in blood. May require lower nisoldipine dose.
- **Nitrendipine**
  Should be used together with caution. May significantly increase nitrendipine level in blood. May require lower nitrendipine dose.
- **Nortriptyline**
  Should be used together with caution. May increase nortriptyline level in blood. May require lower nortriptyline dose.
- **Ondansetron**
  Should be used together with caution. May increase ondansetron level in blood. Check for side effects.
- **Oxazepam**
  May increase oxazepam level in blood.
- **Oxycodone**
  Should be used with caution. May significantly increase oxycodone level in blood. May require lower oxycodone dose.
- **Paclitaxel**
  Should be used together with caution. May increase paclitaxel level in blood. Check for side effects.

Ritonavir plus ... (continued)

- **Paroxetine**
  Should be used together with caution. May increase paroxetine level in blood. May require lower paroxetine dose.
- **Penbutolol**
  Should be used together with caution. May increase penbutolol level in blood. May require lower penbutolol dose.
- **Pentazocine**
  Should be used with caution. May significantly increase pentazocine level in blood. May require lower pentazocine dose.
- **Perphenazine**
  Should be used together with caution. May increase perphenazine level in blood. May require lower perphenazine dose.
- **Phenytoin**
  Should be used together with caution. May decrease phenytoin level in blood. An increased dose of phenytoin may be necessary.
- **Pimozide**
  Should not be used together*. Increases risk of side effects.
- **Pindolol**
  Should be used together with caution. May increase pindolol level in blood. Check for side effects.
- **Piroxicam**
  Should not be used together*. Increases risk of side effects.
- **Pravastatin**
  No clinically significant interactions with ritonavir as sole protease inhibitor. However, ritonavir + saquinavir decreases pravastatin level by 47% in blood.
- **Prednisone**
  Should be used together with caution. May increase prednisone level in blood. May require lower dexamethasone dose.
- **Propafenone**
  Should not be used together*. Increases risk of side effects.
- **Propoxyphene**
  Should be used together with caution. Increases risk of side effects.
- **Protriptyline**
  Should be used together with caution. May increase protriptyline level in blood. May require lower protriptyline dose.
- **Quinine**
  Should be used together with caution. May significantly increase quinine level in blood. May require lower quinine dose.
- **Quinidine**
  Should not be used together*. Increases risk of side effects.
- **Rapamycin**
  Should be used together with caution. May significantly increase rapamycin level in blood. May require lower rapamycin dose.
- **Rifabutin**
  Should be used together with caution. Increases rifabutin level by 4-fold in blood. Increases risk of side effects. Rifabutin dose should be reduced to no more than 300mg once a week or 150mg every 3 days. Further dose reduction may be necessary.

Ritonavir plus ... (continued)

- **Rifampin**
  Should not be used together. Decreases ritonavir level by 35% in blood. Consider using rifabutin instead.
- **Risperidone**
  Should be used together with caution. May increase risperidone level in blood. May require lower risperidone dose.
- **Saquinavir (Fortovase)**
  Increases saquinavir level by 1,587% in blood. Adjust doses to saquinavir 1,000mg + ritonavir 100mg twice a day.
- **Saquinavir (Invirase)**
  Increases saquinavir level by about 20 times in blood. Adjust doses to saquinavir 1,000mg + ritonavir 100mg twice a day.
- **Sertraline**
  Should be used together with caution. May significantly increase sertraline level in blood. May require lower sertraline dose.
- **Sildenafil**
  Should be used with caution. Increases sildenafil level by 11 times in blood. Sildenafil dose should not exceed 25mg within a 48 hour period.
- **Simvastatin**
  Should not be used together. Ritonavir + saquinavir increases simvastatin level by 3,059% in blood.
- **St. John's Wort**
  Should not be used together. May significantly decrease ritonavir level in blood.
- **Tacrolimus**
  Should be used together with caution. May significantly increase tacrolimus level in blood. May require lower tacrolimus dose.
- **Tamoxifen**
  Should be used together with caution. May significantly increase tamoxifen level in blood. Check for side effects.
- **Tedalafil**
  Should be used together with caution. Increases tedalafil level in blood. Tedalafil dose should not exceed 10mg in a 72 hour period.
- **Temazepam**
  May increase temazepam level in blood.
- **Theophylline**
  Decreases theophylline level by 43% in blood. Check theophylline level in blood and adjust dose accordingly.
- **Thioridazine**
  Should be used together with caution. May increase thioridazine level in blood. May require lower thioridazine dose.
- **Timolol**
  Should be used together with caution. May increase timolol level in blood. May require lower timolol dose.
- **Tipranavir**
  Increases tipranavir level 12 times and decreases ritonavir level by 75–80% in blood. Other doses now under study.
- **Tramadol**
  Should be used together with caution. May increase tramadol level in blood. May require lower tramadol dose.

Ritonavir plus ... (continued)

- **Trazodone**
  Increases trazodone level in blood. Trazodone dose may need to be reduced.
- **Triazolam**
  Should not be used together*. Increases risk of side effects.
- **Trimipramine**
  Should be used together with caution. May increase trimipramine level in blood. May require lower trimipramine dose.
- **Vardenafil**
  Should be used together with caution. Increases vardenafil level in blood. Vardenafil dose should not exceed 2.5mg in a 72 hour period.
- **Venlafaxine**
  Should be used together with caution. May increase venlafaxine level in blood. May require lower venlafaxine dose.
- **Verapamil**
  Should be used together with caution. May significantly increase verapamil level in blood. May require lower verapamil dose.
- **Vinblastine**
  Should be used together with caution. May increase vinblastine level in blood. Check for side effects.
- **Vincristine**
  Should be used together with caution. May increase vincristine level in blood. Check for side effects.
- **Voriconazole**
  Should not be used together. Increases risk of side effects.
- **Warfarin**
  Should be used together with caution. May decrease warfarin level in blood. A higher warfarin dose may be necessary; however, closely check INR.
- **Zolpidem**
  Should be used together with caution. Increases risk of side effects.

Saquinavir (Fortovase, sgc) plus ...

SGC stands for soft gel capsule.

- **Amprenavir**
  Decreases amprenavir level by 32% and saquinavir level by 19% in blood. No dose adjustment likely required.
- **Astemizole**
  Should not be used together*. Increases risk of side effects.
- **Atazanavir**
  Increases saquinavir level by 5–6 fold in blood. Dose changes now under study.
- **Atorvastatin**
  Should be used together with great caution. Ritonavir + saquinavir increases atorvastatin level by 343% in blood.
- **Carbamazepine**
  Should be used together with great caution. May decrease saquinavir level in blood.
- **Cisapride**
  Should not be used together*. Increases risk of side effects.

Saquinavir sgc plus ... (continued)

- **Clarithromycin**
  Increases saquinavir level by 177% and increases clarithromycin level by 45% (but decreases 14-OH clarithromycin level by 24%) in blood. No dose adjustments currently recommended.
- **Dihydroergotamine**
  Should not be used together*. Increases risk of side effects.
- **Delavirdine**
  Increases saquinavir level by 5 times in blood. Reduce saquinavir dose to 800mg 3 times/day.
- **Dexamethasone**
  Should be used together with caution. May decrease saquinavir level in blood.
- **ddI or ddI EC**
  Saquinavir should be taken 2 hours before or after taking ddI or ddI EC. Saquinavir is best taken with food, and ddI and ddI EC should only be taken on an empty stomach.
- **Efavirenz**
  Decreases efavirenz level by 12% and saquinavir level by 62% in blood. Requires ritonavir boosting.
- **Ergonovine**
  Should not be used together*. Increases risk of side effects.
- **Ergotamine**
  Should not be used together*. Increases risk of side effects.
- **Fluconazole**
  May increase saquinavir level in blood. However, No dose adjustment recommended.
- **Food**
  High fat meal increases saquinavir level by 93% in blood. Should be taken within 2 hours of a meal.
- **Garlic supplements**
  Should be used together with great caution. Decreases saquinavir level by 51% in blood.
- **Grapefruit juice**
  Increases saquinavir level in blood.
- **Indinavir**
  Increases saquinavir level 3.6–6.2 times in blood.
- **Itraconazole**
  Increases saquinavir level in blood. However, No dose adjustment recommended.
- **Kaletra**
  Increases saquinavir trough level by about 3-fold. Saquinavir dose may be reduced to 800mg twice a day. Optimal dosing is under study.
- **Ketoconazole**
  Significantly increases saquinavir level in blood. However, no dose adjustment recommended.
- **Lovastatin**
  Should not be used together*. Increases risk of side effects.
- **Methylergonovine**
  Should not be used together*. Increases risk of side effects.

Saquinavir sgc plus ... (continued)

- **Miconazole**
  May increase saquinavir level in blood. However, no dose adjustment recommended.
- **Midazolam**
  Should not be used together*. Increases risk of side effects.
- **Nelfinavir**
  Increases nelfinavir level 18% and increases saquinavir level 4 times in blood. Saquinavir dose may be reduced to 800mg 3 times a day or 1,200mg twice a day.
- **Nevirapine**
  Decreases saquinavir level by 24% in blood. Saquinavir may require ritonavir boosting.
- **Phenobarbital**
  Should be used together with great caution. May decrease saquinavir level in blood.
- **Phenytoin**
  Should be used together with great caution. May decrease saquinavir level in blood.
- **Pravastatin**
  Ritonavir + saquinavir decreases pravastatin level by 47% in blood.
- **Rifabutin**
  Should be used together with great caution. Decreases saquinavir level by 40% in blood. Consider alternative to rifabutin.
- **Rifampin**
  Should not be used together. Decreases saquinavir level by 84% in blood.
- **Ritonavir**
  Increases saquinavir level by 1,587% in blood. Adjust doses to saquinavir 1,000mg + ritonavir 100mg twice a day.
- **Sildenafil**
  Should be used together with caution. Increases sildenafil level by 210% in blood. Start sildenafil at no more than 25mg.
- **Simvastatin**
  Should not be used together*. May significantly increase simvastatin level in blood and increase risk of side effects. Ritonavir + saquinavir (soft gel) increases simvastatin level by 3,059% in blood.
- **St. John's Wort**
  Should not be used together. May decrease saquinavir level in blood.
- **Tedalafil**
  Should be used together with caution. May increase tedalafil level in blood.
- **Triazolam**
  Should not be used together*. Increases risk of side effects.
- **Vardenafil**
  Should be used together with caution. May increase vardenafil level in blood.

Saquinavir (Invirase, hgc) plus ...

HGC stands for hard gel capsule.

- **Astemizole**
  Should not be used together*. Increases risk of side effects.

Saquinavir hgc plus ... (continued)

- **Atorvastatin**
  Should be used together with great caution. Ritonavir + saquinavir (soft gel) increases atorvastatin level by 343%.
- **Bepridil**
  Should be used together with caution. May increase bepridil level in blood. Check for side effects.
- **Carbamazepine**
  Should not be used together. May decrease saquinavir level in blood.
- **Clindamycin**
  Should be used with caution. May increase clindamycin level in blood. Check for side effects.
- **Dapsone**
  May increase dapsone level in blood. Check for dapsone side effects.
- **ddI or ddI EC**
  Saquinavir should be taken 2 hours before or after taking ddI or ddI EC. Saquinavir is best taken with food, and ddI and ddI EC should only be taken on an empty stomach.
- **Delavirdine**
  Increases saquinavir level by 5 times in blood. May increase risk of GI side effects and LFTs. Reduce saquinavir dose to 800mg 3 times a day.
- **Dexamethasone**
  Should be used together with caution. May decrease saquinavir level in blood.
- **Diltiazem**
  Should be used together with caution. May increase diltiazem level in blood. Check for side effects.
- **Felodipine**
  Should be used together with caution. May increase felodipine level in blood. Check for side effects.
- **Fluconazole**
  May increase saquinavir level in blood. However, No dose adjustment recommended.
- **Food**
  Increases saquinavir level in blood. Should be taken within 2 hours of a meal.
- **Grapefruit juice**
  Increases saquinavir level in blood.
- **Indinavir**
  Increases saquinavir level 4.6–7.2 times in blood.
- **Itraconazole**
  Increases saquinavir level in blood. However, No dose adjustment recommended.
- **Ketoconazole**
  Significantly increases saquinavir level in blood. However, no dose adjustment recommended.
- **Lovastatin**
  Should not be used together*. Increases risk of side effects.
- **Miconazole**
  May increase saquinavir level in blood. However, No dose adjustment recommended.

Saquinavir hgc plus ... (continued)

- **Nelfinavir**
  Increases saquinavir level by 4 times and increases nelfinavir level by 18% in blood. Saquinavir dose may be reduced to 800mg 3 times a day or 1,200mg twice a day.
- **Nevirapine**
  Decreases saquinavir level 24% in blood. Saquinavir may require ritonavir boosting.
- **Nicardipine**
  Should be used together with caution. May increase nicardipine level in blood. Check for side effects.
- **Nifedipine**
  Should be used together with caution. May increase nifedipine level in blood. Check for side effects.
- **Nimodipine**
  Should be used together with caution. May increase nimodipine level in blood. Check for side effects.
- **Nisoldipine**
  Should be used together with caution. May increase nisoldipine level in blood. Check for side effects.
- **Nitrendipine**
  Should be used together with caution. May increase nitrendipine level in blood. Check for side effects.
- **Phenobarbital**
  Should not be used together. May decrease saquinavir level in blood.
- **Phenytoin**
  Should not be used together. May decrease saquinavir level in blood.
- **Pravastatin**
  Ritonavir + saquinavir (soft gel) decreases pravastatin level by 47% in blood.
- **Quinidine**
  Should be used with caution. May increase quinidine level in blood. Check for side effects.
- **Rifabutin**
  Should be used together with great caution. Decreases saquinavir level by 40% in blood. Consider alternative to rifabutin.
- **Rifampin**
  Should not be used together. Decreases saquinavir level by 84% in blood.
- **Ritonavir**
  Increases saquinavir level by about 20 times in blood. Adjust doses to saquinavir 1,000mg + ritonavir 100mg twice a day.
- **Simvastatin**
  Should not be used together*. May significantly increase simvastatin level in blood and increase risk of side effects. Ritonavir + saquinavir (soft gel) increases simvastatin level by 3,059% in blood.
- **St. John's Wort**
  Should not be used together. May decrease saquinavir level in blood.
- **Triazolam**
  Should be used with caution. May increase triazolam level in blood. Check for side effects.

Stavudine (d4T, Zerit) plus ...

- **AZT**
  Should not be used together. Decreases anti-HIV activity.
- **ddI or ddI EC**
  Should be used together with great caution. Increases risk of pancreatitis, especially in pregnant women.
- **ddC**
  May increase risk of peripheral neuropathy and pancreatitis.
- **Ganciclovir**
  May increase risk of pancreatitis.
- **Hydroxyurea**
  Increases anti-HIV activity in test tubes. May increase risk of pancreatitis.
- **Pentamidine (IV)**
  May increase risk of pancreatitis.
- **Ribavirin**
  Should not be used together. Decreases anti-HIV activity in test tubes.

Sulfadiazine plus ...

- **Glipizide**
  Should be used together with caution. May decrease glipizide level in blood. Check blood sugar level and adjust dose accordingly.
- **Glyburide**
  Should be used together with caution. May decrease glyburide level in blood. Check blood sugar level and adjust dose accordingly.
- **Tolbutamide**
  Should be used together with caution. May decrease tolbutamide level in blood. Check blood sugar level and adjust dose accordingly.

Tenofovir (Viread) plus...

- **Abacavir**
  Should be used together with great caution. Although blood level not affected, tenofovir + abacavir speeds the development of resistance to both.
- **Adefovir**
  Should not be used together*. Increases risk of kidney toxicity.
- **Acyclovir**
  Should be used together with caution. May increase risk of kidney toxicity.
- **Amikacin**
  Should not be used together*. May increase risk of side effects.
- **Amphotericin B**
  Should not be used together*. May increase risk of side effects.
- **Atazanavir**
  Increases tenofovir level by 24% and decreases atazanavir level by up to 40% in blood. Atazanavir should be boosted with ritonavir if used with tenofovir.
- **Cidofovir**
  Should not be used together*. May increase risk of side effects.

Tenofovir plus ... (continued)

- **ddI or ddI EC**
  Should be used together with great caution. Increases ddI level by 44% in blood. May increase risk of ddI side effects.
- **Food (high fat meal)**
  Increases tenofovir level by 40% in blood. Tenofovir should be taken with food.
- **Foscarnet**
  Should be used together with great caution. May increase risk of kidney toxicity.
- **Ganciclovir**
  Should be used together with great caution. May increase risk of side effects. Check for kidney toxicity.
- **Gentamycin**
  Should not be used together*. May increase risk of side effects.
- **Kaletra**
  Increases tenofovir level by about 30% and decreases lopinavir level 15% in blood. No dose adjustment currently recommended.
- **Pentamidine (IV)**
  Should not be used together*. May increase risk of side effects.
- **Tobramycin**
  Should not be used together*. May increase risk of side effects.
- **Valacyclovir**
  Should be used together with caution. May increase risk of kidney toxicity.
- **Valganciclovir**
  Should not be used together*. May increase risk of side effects.

TMP/SMX (Bactrim, Septra) plus ...

- **3TC**
  Increases 3TC level by 44% in blood. No dose adjustment recommended. Check for 3TC side effects.
- **Anticancer drugs**
  May decrease number of red blood cells (anemia) and neutrophils (neutropenia).
- **AZT**
  Should be used together with caution. May decrease number of red blood cells (anemia) and neutrophils (neutropenia).
- **Dapsone**
  Increases trimethoprim level by 1.5 times and increases dapsone level by 1.5 times in blood.
- **ddI or ddI EC**
  Slightly decreases trimethoprim level and increases ddI level in blood. No dose adjustment recommended.
- **Diuretics**
  May decrease number of platelets in elderly people.
- **Ganciclovir**
  Should be used together with great caution. May increase risk of bone marrow toxicity.
- **Indinavir**
  Should be used together with caution. Increases trimethoprim level by 31% in blood.

TMP/SMX plus ... (continued)

- Methotrexate
  Should be used with caution. May increase methotrexate level in blood.
- Nevirapine
  Should not be started together for the first 4–6 weeks. May increase risk of rash.
- Phenytoin
  Should be used with caution. May increase phenytoin level in blood. Check for side effects.
- Pyrimethamine
  Should be used together with caution. May increase risk of bone marrow toxicity.
- Warfarin
  Should be used with caution. May increase prothrombin (coagulation) time. Check INR.

Trimetrexate (Neutrexin) plus ...

- Acetaminophen
  May affect trimetrexate and/or acetaminophen level in blood.
- Cimetidine
  May affect trimetrexate and/or cimetidine level in blood.
- Clarithromycin
  May affect trimetrexate and/or clarithromycin level in blood.
- Erythromycin
  May affect trimetrexate and/or erythromycin level in blood.
- Fluconazole
  May affect trimetrexate and/or fluconazole level in blood.
- Itraconazole
  May affect trimetrexate and/or itraconazole level in blood.
- Ketoconazole
  May affect trimetrexate and/or ketoconazole level in blood.
- Ranitidine
  May affect trimetrexate and/or ranitidine level in blood.
- Rifabutin
  Should be used together with caution. May affect trimetrexate and/or rifabutin level in blood.
- Rifampin
  Should be used together with caution. May affect trimetrexate and/or rifampin level in blood.

Trizivir plus ...

Trizivir is a single pill containing 3 anti-HIV drugs, AZT, 3TC and abacavir. If you take Trizivir as part of your regimen, refer separately to drug interactions for AZT, 3TC and abacavir.

Zalcitabine (ddC, Hivid) plus ...

- 3TC
  Should not be used together. Decreases anti-HIV activity of both drugs.

Zalcitabine plus ... (continued)

- Aminoglycosides
  May increase ddC level in blood and increase risk of peripheral neuropathy. Check for toxicity.
- Amphotericin B
  May increase ddC level in blood and increase risk of peripheral neuropathy. Check for toxicity.
- Antacids
  Decreases ddC level by 25% in blood. Take at least 2 hours apart.
- Anticancer drugs
  May increase risk of peripheral neuropathy.
- Chloramphenicol
  May increase risk of peripheral neuropathy.
- Cimetidine
  Significantly increases ddC level in blood. Check for toxicity; consider lower ddC dose.
- Cisplatin
  May increase risk of peripheral neuropathy.
- Dapsone
  May increase risk of peripheral neuropathy.
- ddI or ddI EC
  Should not be used together. Significantly increases risk of peripheral neuropathy.
- Disulfiram
  May increase risk of peripheral neuropathy.
- Doxorubicin
  May decrease anti-HIV activity of ddC.
- d4T
  May increase risk of peripheral neuropathy and pancreatitis.
- Ethionamide
  May increase risk of peripheral neuropathy.
- Food
  May decrease ddC level in blood.
- Foscarnet
  May increase risk of kidney toxicity and peripheral neuropathy. Check for toxicity.
- Glutethimide
  May increase risk of peripheral neuropathy.
- Hydralazine
  May increase risk of peripheral neuropathy.
- Iodoquinol
  May increase risk of peripheral neuropathy.
- Isoniazid
  May increase risk of peripheral neuropathy.
- Metoclopramide
  Decreases ddC level by 10% in blood.
- Metronidazole
  May increase risk of peripheral neuropathy.
- Nitrofurantoin
  May increase risk of peripheral neuropathy.
- Pentamidine (IV)
  Should be used with great caution. May increase risk of peripheral neuropathy and pancreatitis.
- Phenytoin
  May increase risk of peripheral neuropathy.
- Probenecid
  Significantly increases ddC level in blood. Check for toxicity; consider lower ddC dose.

Zalcitabine plus ... (continued)

- Ribavirin
  May increase risk of peripheral neuropathy.
- Vincristine
  May increase risk of peripheral neuropathy.

Zidovudine (AZT, Retrovir) plus ...

- Abacavir
  Increases AZT level by 10% in blood. No dose adjustment recommended.
- Amphotericin B
  May increase risk of bone marrow toxicity.
- Amprenavir
  Increases AZT level by 31% and increases amprenavir level by 13% in blood. No dose adjustment recommended.
- Anticancer drugs
  May increase risk of bone marrow toxicity.
- Atovaquone
  Increases AZT level by 35% in blood. No dose adjustment recommended.
- Azithromycin
  May increase AZT level in blood. No dose adjustment recommended.
- Clarithromycin
  Decreases AZT level by 25% in blood. Consider taking at least 2 hours apart.
- Dapsone
  May increase risk of bone marrow toxicity.
- Doxorubicin
  Should not be used together. Decreases effectiveness and increases toxicity.
- d4T
  Should not be used together. Decreases anti-HIV activity.
- Fluconazole
  Increases AZT level by 74% and may increase fluconazole level in blood. Check for toxicity.
- Flucytosine
  May increase risk of bone marrow toxicity.
- Food
  Fatty foods may decrease AZT level by 57% in blood.
- Foscarnet
  Should be used together with caution. May increase risk of anemia.
- Ganciclovir
  Increases AZT level in blood and may increase risk of neutropenia, anemia and bone marrow toxicity. Avoid combination or use lower AZT dose.
- Indinavir
  Increases anti-HIV activity in test tubes. Increases AZT level by 17–36% in blood. No dose adjustment recommended.
- Interferon-alfa
  Increases anti-HIV activity in test tubes and may increase risk of bone marrow toxicity. Lower AZT dose by 50–75%.
- Methadone
  Increases AZT level by 43% in blood. Check for AZT toxicity.
- Nelfinavir
  Decreases AZT level by 35% in blood. No dose adjustment recommended.

Zidovudine plus ... (continued)

- **Pentamidine**
  May increase risk of anemia.
- **Phenytoin**
  May decrease phenytoin and AZT levels in blood. No dose adjustment recommended.
- **Probenecid**
  Increases AZT level by 106% in blood. Adjusting AZT dose may be necessary.
- **Pyrimethamine**
  Should be used together with caution. May increase risk of bone marrow toxicity.

Zidovudine plus ... (continued)

- **Ribavirin**
  Should not be used together. Decreases anti-HIV activity in test tubes.
- **Rifabutin**
  May decrease AZT level in blood.
- **Rifampin**
  Decreases AZT level by 47% in blood. May require increase in AZT dose.
- **Ritonavir**
  Decreases AZT level by 25% in blood. No dose adjustment recommended.

Zidovudine plus ... (continued)

- **TMP/SMX**
  Should be used together with caution. May decrease number of red blood cells and neutrophils thus increasing risk of anemia.
- **Valproic Acid**
  Increases AZT level by 80% in blood. Check for AZT toxicity.
- **Vinblastine**
  May increase risk of bone marrow toxicity.
- **Vincristine**
  May increase risk of anemia.

Glossary of terms:

Anemia
A decrease in red blood cells. Can lead to fatigue, weakness, dizziness, and shortness of breath.

Anti-coagulant
A drug that thins blood and is used to treat a number of heart conditions.

ECG
Electrocardiogram.

INR (International Normalization Ratio)
A standardized way to measure various clotting factors in the blood.

NSAIDS
Non-steroidal anti-inflammatory drugs.

Neutropenia
A decrease in blood cells called neutrophils that are helpful in fighting off bacterial infections.

Pancreatitis
An inflammation of the pancreas. Can be life-threatening.

Peripheral neuropathy
A disorder affecting the nerves of primarily the feet and hands. Symptoms may include numbness, tingling or burning sensations, pain, abnormal reflexes, weakness and partial paralysis.

Prothrombin time
A type of test to measure various clotting factors in blood.

QTc prolongation
QTc is a measurement of the pace of electrical activity of the lower chambers of the heart, which causes them to contract and relax. When the pace is slowed down (prolonged), people can experience abnormal heart rhythms, and in extreme cases spasms or a stopping of the heart.

Stevens Johnson Syndrome
Dilation of blood capillaries that results in redness and lesions all over the skin. Eyes and mouth may become swollen leading to inability to eat. Sometimes fatal.

Systemic
Throughout the body. As opposed to medicine that stays in one part of the body.

Toxicity
Side effects; the degree to which a drug can cause side effects.

Interpreting directions:

Should be used together with caution
The risk of side effects from a combination is possible, but not highly common.

Should be used together with great caution
The risk of side effects from a combination is possible, and though not common may be serious if they occur.

Should not be used together
The risk of side effects from a combination is too high for the two medications to be used together. An asterisk (*) following this phrase means the side effects may be life-threatening.

Anti-HIV Medications + Street Drugs: Some Cocktails Don't Mix

Reprinted from Notes from the Underground, Winter 1998–99, #38.

For most drugs to be effective and not kill you, they need to be metabolized [broken down] by the liver or kidneys. These organs have limited resources and a set number of chemicals which accomplish this task. Because of this, certain drugs, whether they're HIV medications or recreational drugs, can affect how other drugs act. This is called a *drug interaction*– and some of them can be deadly.

There hasn't been much research on how street drugs and HIV medications interact—because there is little financial incentive for the pharmaceutical companies to do the work, and because the government believes "just say no," is the only way to deal with drugs. Certainly, your best bet is not to take street drugs at all if you are taking HIV medications. Bus some interactions are deadlier than others.

Ecstasy (X, MDMA)

There has already been one death in England which resulted from a regular dose of ecstasy (MDMA, X) taken with ritonavir. Ritonavir acts to slow down the liver enzyme that breaks down X—so it makes the dose 5–10 times stronger. In addition, between 3–10% of the white population (the figure for other populations is not known) have a deficiency in this enzyme, which may be why some people overdose on what may be a safe dose for others. If you are taking any protease inhibitor [ritonavir, nelfinavir, indinavir, saquinavir (Fortovase)] or NNRTI [nevirapine delavirdine or efavirenz], X can be extremely dangerous. Of these, ritonavir and delavirdine seem to be the most dangerous, while nevirapine and efavirenz may be less so—although because effects in the test tube have sometimes been opposite to those seen in the body, this is hard to predict.

If you do take X with a protease inhibitor, wait as long as possible after taking the protease inhibitor to take the X, and be sure to have someone with you who knows what you've done in case you have difficulties. These overdoses are often not reversible, so it's really better not to mix these drugs!

Recent research has found that X damages serotonin neurons, so avoid it if you have a family or personal history of depression or anxiety disorders.

Alcohol

ddI can increase the risk of pancreatitis (intense stomach pain that feels like it's going all the way through to your back. So, if you're using alcohol regularly, don't use ddI. There are other nucleosides to choose from.

Occasional and light use of alcohol is not known to interact with other HIV medications; however, chronic, heavy use can be destructive to the liver. This can be dangerous because the way drugs are broken down can be hurt. More drugs will stay in your system for the most part, which is likely to cause overdoses and worse side effects. Alcohol can cause dehydration; so be sure to drink lots of water to help your body deal with any alcohol you drink.

Marijuana

Protease inhibitors may increase THC levels (the active ingredient in marijuana)—so smaller doses may make you more stoned. This is also true of the synthetic version (Marinol) used in the treatment of weight loss. Since THC overdose is impossible, this interaction is not dangerous.

Sedatives

The sedatives Halcion (triazolam), Valium (diazepam), Ambien (zolpidem) and Versed (midazolam) can also be deadly if mixed with protease inhibitors. Norvir has the largest negative effect. At high doses these drugs can stop your breathing. Ativan (lorazepam), Serax (oxazepam) and Restoril (temazepam) are safer with Norvir, and may actually be weakened by it.

Barbiturates

Crixivan may increase blood levels of phenobarbital (Luminal), making overdose more likely. Other protease inhibitor interactions are also possible.

Cocaine (coke, blow)

There are no known interactions between cocaine and HIV medications, but in the test tube, cocaine doubles the speed at which the virus reproduces, meaning it may speed up how sick you get.

Heroin (smack, brown, junk, China White)

Ritonavir seems to reduce heroin levels by 50% making overdose less likely. However, this drug and the other protease inhibitors have sometimes been known to have opposite effects (they cut methadone levels in real life, while test tube experiments predicted they would increase them), so caution is in order. Some synthetics sold as heroin (fentanyl, alpha-methyl-fentanyl) are potent in tiny doses and could be deadly if mixed with another drug.

GHB (gamma-hydroxy-butyrate, grievous bodily harm, liquid X

GHB is potentially dangerous with Norvir and other protease inhibitors.

Amyl nitrite (amyl nitrate/poppers)

Glutathione is used by the liver to process amyl nitrite, and high glutathione is linked with survival. If using amyl nitrite cuts glutathione, it could lead to disease progression.

LSD (acid)

No known interactions.

Ketamine (Special K)

When combined with ritonavir, special K can lead to "chemical hepatitis," an unpleasant inflammation of the liver resulting in jaundice. A New York HIV doctor has seen two cases of it. Both went away in several weeks. But anything which damages the liver can be a serious problem for people living with HIV.

Amphetamines (dexedrine, amphetamine, methamphetamine, crystal meth)

Ritonavir is predicted to increase amphetamine levels in the blood by a factor of 2–3. The other protease inhibitors should have less of an impact, but strange opposite results are always possible.

Ritalin

Norvir and other similar drugs can either strengthen Ritalin's effects or make it weaker.

Beware!

Interactions not listed could be deadly. Street drugs are often not what they are sold as, they are frequently cut with substances that may interact with drugs themselves and their potency can vary wildly, even in the same batch. With the lack of research in this area, it's better to avoid potential interactions if at all possible.