

## ***HIV DRUG INTERACTIONS***

### **A) Natural products and Vitamins**

In response to the various complementary and herbal therapies available on the market today, Health Canada has adopted a law to govern natural products. As of 2009, manufacturers had to disclose the exact contents of their natural products. Previous to this law, it was impossible to know the exact contents of such products and thus their potential interactions with prescribed medications. In other words, we were not certain that the various ingredients identified on the label were actually found in the product's formula or if additional products were found in a product sample, but not listed in the ingredients! What's more, dosage was not always exact...

Despite this recent law, few studies have been done to evaluate the efficiency and safety of natural products. That's why we sometimes have very little information on such products and why some health-care professionals may be hesitant to use natural products. Some natural products can increase or decrease the effect of antiretroviral medication. Here are a few examples:

#### **Interactions between antiretroviral medications and natural products or vitamins**

<b>Natural product/ vitamin</b>	<b>Antiretroviral medication</b>	<b>Consequence</b>	<b>Solution</b>
<b>Vitamin E</b>	Amprenavir (oral solution) (Agenerase <sup>TM</sup> )	Headaches, diarrhea and intestinal cramps caused by an over- ingestion of vitamin E, since amprenavir's oral solution contains some	Avoid this combination at all times
<b>Vitamin C</b>	Indinavir (Crixivan <sup>TM</sup> )	Possible decrease in the efficiency of Indinavir	Avoid this combination at all times

<b>Grapefruit juice</b> <b>* A product contained in grapefruit peel is allegedly responsible for interactions</b>	Protease inhibitors Delavirdine (Rescriptor™) Efavirenz (Sustiva™) Nevirapine (Viramune™)	Possible increase of antiretroviral toxicity	Avoid consuming grapefruit juice at all times Eating a grapefruit is allegedly associated with a lower risk
<b>St-John's wort</b>	Protease inhibitors: Delavirdine (Rescriptor™) Efavirenz (Sustiva™) Nevirapine (Viramune™)	Possible decrease in the efficiency of antiretrovirals and increase in resistance risk	Avoid St-John's wort at all times
<b>Garlic</b>	Protease inhibitors	Contradictory results Possible increase of gastro-intestinal toxicity (stomach ache)	Speak to your treating pharmacist in case of upset stomach
	Saquinavir (Invirase™)	Potential decrease of the blood concentration of Saquinavir Possible increase of resistance risk	Avoid this combination at all times

It's also advised to avoid any product that can interfere with your immune system (for example: **Echinacea, ginseng, cat's claw, velvet antler, whey isolate, colostrums, milk-vetch, melatonin, and several others**). Indeed, your immune system has been weakened by HIV and we are attempting to re-establish it with the help of antiretrovirals. It would not be appropriate to use a product that could interfere with your treatment.

Natural products are not harmless: Ask your pharmacist!

## B) Alcohol and Recreational drugs

Alcohol can increase the risk of undesired effects or the risk of treatment toxicity. It's thus suggested to drink with moderation—a maximum of one or two drinks per day. Here are a few tips to decrease your alcohol intake:

- Mix alcoholic drinks with juice
- Drink slowly
- If you need to quench a thirst, opt for water
- Alternate between glasses of alcohol and glasses of juice or water

It's difficult to predict the effect of an interaction between antiretroviral medications and recreational drugs, in part because the drug dosage is often unpredictable. The safest solution would be to avoid using drugs. However, if you do use drugs or think you may, discuss it with your doctor or pharmacist. Remember that you should avoid skipping a treatment dose because of the risk of resistance!

Remember that intravenous drug use is one way to transmit HIV as well as other infections, like hepatitis B and C.

### Interactions between antiretrovirals and recreational/street drugs

Drug	Antiretroviral medication	Consequence	Solution
<b>Cannabis/THC (Marijuana)</b> <b>* The effects of cannabis vary depending on the medication</b>	Amprenavir (Agenerase™) Atazanavir (Reyataz™) Delavirdine (Rescriptor™) Indinavir (Crixivan™) Lopinavir/ritonavir (Kaletra™) Nelfinavir (Viracept™) Ritonavir (Norvir™)	Potential increase of cannabis effects	Reduce cannabis dosage
	Efavirenz (Sustiva™)	Potential increase or decrease of	

		cannabis effects Uncertain interaction	
	Nevirapine (Viramune <sup>TM</sup> )	Potential decrease of cannabis concentration	Reduce cannabis dosage
<b>Amphetamines (Speed)</b>	Lopinavir/ritonavir (Kaletra <sup>TM</sup> ) Ritonavir (Norvir <sup>TM</sup> )	Increase of the amphetamine concentration in the blood by 2 or 3X, causing a risk of death or dire consequences	Avoid use of both substances together, or at least start with ¼ to ½ of the amphetamine dose
	Delavirdine (Rescriptor <sup>TM</sup> ) Nelfinavir (Viracept <sup>TM</sup> )	Possible increase of the amphetamine concentration in the blood	Start with ¼ to ½ of the amphetamine dose
<b>Ecstasy</b>	Delavirdine (Rescriptor <sup>TM</sup> ) Lopinavir/ritonavir (Kaletra <sup>TM</sup> ) Ritonavir (Norvir <sup>TM</sup> )	Increase of the ecstasy concentration in the blood by 3 to 10X	Use ¼ to ½ ecstasy tablet
	Indinavir (Crixivan <sup>TM</sup> )	Increased risk of crystals forming in urine	Beware: drink lots of water
	Nelfinavir (Viracept <sup>TM</sup> )	Beware: potential increase of ecstasy's concentration in the blood and of its effects	Reduce the dose of ecstasy
	Efavirenz (Sustiva <sup>TM</sup> )	Beware: risk of depression following the use of ecstasy	

<b>GHB (sodium gamma-hydroxybutyrate)</b>	Protease inhibitors	Potential increase of GHB's concentration in the blood, and hence increased risk of overdose	Reduce the dose of GHB Check for signs and symptoms of GHB overdose: vomiting, respiratory troubles, convulsions, stupor, and coma
<b>Methamphetamines (crystal, crystal meth)</b>	Lopinavir/ritonavir (Kaletra™) Ritonavir (Norvir™)	Potential increase of methamphetamines' effect	Reduce the dose of metamphetamines

Whatever the situation, never skip a dose of medication!

### C) Over-the-counter medication

#### Interactions between antiretrovirals and over-the-counter medication

Over-the-counter medication	Antiretroviral medication	Consequence	Solution
<b>Antacids (Maalox™, Pepcid™, Zantac™, Diovol™, etc.)</b>	Amprenavir (Agenerase™) Atazanavir (Reyataz™) Delavirdine (Rescriptor™) Fosamprenavir (Telzir™) Indinavir (Crixivan™) Tipranavir (Aptivus™)	Potential decrease of the absorption of antiretrovirals, hence a potential to decrease their efficacy  Viral-load increase and increased risk of resistance due to a loss of efficacy	Space the taking of antacids and antiretrovirals by several hours depending on the agent used.  Speak to your treating pharmacist in case of stomach ache. If that's not possible, make sure you mention ALL the medications you take to another pharmacist

**Always speak with your pharmacist before using a product that has not been  
prescribed to you!**

*Produced by:  
Pharmacie Danielle Desroches  
905, René-Lévesque Boulevard  
Montreal (Quebec) H2L 5B1  
514-288-8555*