



Recreational Drugs and HIV Antiretrovirals

A Guide to
Interactions for
Clinicians

2014



Recreational Drugs and HIV Antiretrovirals — A Guide to Interactions for Clinicians

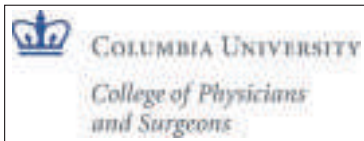
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Disclaimer: Neither the AIDS Education and Training Centers nor HRSA condone or recommend the use of illicit drugs in any context. The data in this guide are intended for use by clinicians and other health care providers to provide advice that may reduce harm to patients who use these substances in conjunction with antiretroviral agents.

The data in this guide are a compilation of information obtained from published and anecdotal studies through January 2014.

* PLEASE REFER TO PAGE 14 OF THIS GUIDE FOR IMPORTANT HARM REDUCTION THAT SHOULD BE SHARED WITH PATIENTS.



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ALCOHOL

Confusion, disorientation, incoordination, loss of balance and judgement, respiratory depression, stupor, coma

AMPHETAMINES (Crystal)

Paranoia, anxiety, depression, hallucinations, tachycardia, hypertension, stroke, myocardial infarction, hyperthermia, rhabdomyolysis, diarrhea, erectile dysfunction, teeth grinding

GENERAL**PHARMACOKINETICS**

Metabolized by alcohol dehydrogenase and aldehyde dehydrogenase; alcohol may induce CYP2E1 and CYP3A

Metabolized by hydroxylation and deamination via CYP2D6 pathway; CYP2D6 inhibitors may increase amphetamine levels (try to avoid)

KNOWN DRUG INTERACTIONS**NNRTI's**

delavirdine (Rescriptor)
efavirenz (Sustiva)
nevirapine (Viramune)
etravirine (Intelece)
rilpivirine (Edurant)

■ No known interactions specific to this combination

NRTI's

abacavir (ABC, Ziagen)
*Atripla (EFV/TDF/FTC)
*CombiVir (AZT/3TC)
*Complera (RPV/TDF/FTC)
didanosine (ddl, Videx)
emtricitabine (FTC, Emtriva)
*Epzicom (3TC/ABC)
lamivudine (3TC, Epivir)
stavudine (d4T, Zerit)
tenofovir (TDF, Viread)
*Trizivir (AZT/3TC/ABC)
*Truvada (FTC/TDF)
zidovudine (AZT, ZDV, Retrovir)

■ Increases abacavir AUC ~40% (decreased abacavir metabolism by alcohol dehydrogenase)

■ Increased risk of pancreatitis

*SEE INDIVIDUAL COMPONENTS

Protease Inhibitors

fosamprenavir (Lexiva)
atazanavir (Reyataz)
darunavir (Prezista)
indinavir (Crixivan)
lopinavir/ritonavir (Kaletra)
nelfinavir (Viracept)
ritonavir (Norvir)
saquinavir (Fortovase, Invirase)
tipranavir (Aptivus)

■ No known interactions specific to this combination.

KNOWN DRUG INTERACTIONS**NNRTI's**

delavirdine (Rescriptor)
efavirenz (Sustiva)
nevirapine (Viramune)
etravirine (Intelece)
rilpivirine (Edurant)

■ No known interactions specific to this combination

NRTI's

abacavir (ABC, Ziagen)
*Atripla (EFV/TDF/FTC)
*CombiVir (AZT/3TC)
*Complera (RPV/TDF/FTC)
didanosine (ddl, Videx)
emtricitabine (FTC, Emtriva)
*Epzicom (3TC/ABC)
lamivudine (3TC, Epivir)
stavudine (d4T, Zerit)
tenofovir (TDF, Viread)
*Trizivir (AZT/3TC/ABC)
*Truvada (FTC/TDF)
zidovudine (AZT, ZDV, Retrovir)

*SEE INDIVIDUAL COMPONENTS

Protease Inhibitors

amprenavir (Agenerase)
fosamprenavir (Lexiva)
atazanavir (Reyataz)
darunavir (Prezista)
indinavir (Crixivan)
lopinavir/ritonavir (Kaletra)
nelfinavir (Viracept)
ritonavir (Norvir)
saquinavir (Fortovase, Invirase)
tipranavir (Aptivus)

■ Use of full dose ritonavir or low dose ritonavir for boosting other protease inhibitors has the potential to increase amphetamine levels in the blood.

■ No known interactions specific to this combination. Refer to comments for this drug class in general.

■ Increases amphetamine blood levels 2-3 times

Continued next page

ALCOHOL (Cont'd)

Confusion, disorientation, incoordination, loss of balance and judgement, respiratory depression, stupor, coma

GENERAL**PHARMACOKINETICS**

Metabolized by alcohol dehydrogenase and aldehyde dehydrogenase; alcohol may induce CYP2E1 and CYP3A

KNOWN DRUG INTERACTIONS**CCR5 Inhibitor**

Maraviroc (Selzentry)

■ No known interactions specific to this combination

Integrase Inhibitor

Elvitegravir/cobicistat/
TDF/FTC (Stribild)
Dolutegravir (Tivicay)
Raltegravir (Isentress)

■ No known interactions specific to this combination

AMPHETAMINES (Crystal) (Cont'd)

Paranoia, anxiety, depression, hallucinations, tachycardia, hypertension, stroke, myocardial infarction, hyperthermia, rhabdomyolysis, diarrhea, erectile dysfunction, teeth grinding

Metabolized by hydroxylation and deamination via CYP2D6 pathway; CYP2D6 inhibitors may increase amphetamine levels (try to avoid)

KNOWN DRUG INTERACTIONS**CCR5 Inhibitor**

Maraviroc (Selzentry)

■ No known interactions specific to this combination

Integrase Inhibitor

Elvitegravir/cobicistat/
TDF/FTC (Stribild)
Dolutegravir (Tivicay)
Raltegravir (Isentress)

■ Potential to increase amphetamine levels in the blood
■ No known interactions specific to this combination

AMYL NITRITE (amyl nitrate, poppers)

Reduces glutathione levels; inhaling the fumes acts as a vasodilator (hypotension, tachycardia, headaches), skin flushing

GENERAL**PHARMACOKINETICS****KNOWN DRUG INTERACTIONS****NNRTI's**

delavirdine (Rescriptor)
efavirenz (Sustiva)
nevirapine (Viramune)
etravirine (Intelece)
rilpivirine (Edurant)

■ No known interactions specific to this combination

BENZODIAZEPINES

CNS depression, drowsiness, memory loss, impaired coordination

Most agents extensively metabolized in the liver by the CYP3A4 system; lorazepam, oxazepam, and temazepam metabolized by conjugation via glucuronidation.

KNOWN DRUG INTERACTIONS**NNRTI's**

delavirdine (Rescriptor)
efavirenz (Sustiva)
nevirapine (Viramune)
etravirine (Intelece)
rilpivirine (Edurant)

■ Likely inhibits benzodiazepine metabolism through CYP3A4 inhibition and increases risk of adverse effects; concomitant use should be avoided
■ Diazepam drug levels may be increased by etravirine; a decrease in diazepam dosage may be needed
Continued next page

AMYL NITRITE (amyl nitrate, poppers) (Cont'd)

Reduces glutathione levels; inhaling the fumes acts as a vasodilator (hypotension, tachycardia, headaches), skin flushing

GENERAL**PHARMACOKINETICS****KNOWN DRUG INTERACTIONS****NRTI's**

abacavir (ABC, Ziagen)	■	■ No known interactions specific to this combination.
*Atripla (EFV/TDF/FTC)	■	
*Combivir (AZT/3TC)	■	
*Complera (RPV/TDF/FTC)	■	
didanosine (ddl, Videx)	■	
emtricitabine (FTC, Emtriva)	■	
*Epzicom (3TC/ABC)	■	SEE INDIVIDUAL COMPONENTS
lamivudine (3TC, Epivir)	■	
stavudine (d4T, Zerit)	■	
tenofovir (TDF, Viread)	■	
*Trizivir (AZT/3TC/ABC)	■	
*Truvada (FTC/TDF)	■	
zidovudine (AZT, ZDV, Retrovir)	■	

Protease Inhibitors

amprenavir (Agenerase)	■	■ No known interactions specific to this combination
fosamprenavir (Lexiva)	■	
atazanavir (Reyataz)	■	
darunavir (Prezista)	■	
indinavir (Crixivan)	■	
lopinavir/ritonavir (Kaletra)	■	
nelfinavir (Viracept)	■	
ritonavir (Norvir)	■	
saquinavir (Fortovase, Invirase)	■	
tipranavir (Aptivus)	■	

CCR5 Inhibitor

Maraviroc (Selzentry)	■	■ No known interactions specific to this combination
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Integrase Inhibitor

Elvitegravir/cobicistat/ TDF/FTC) (Stribild)	■	■ No known interactions specific to this combination
Dolutegravir (Tivicay)	■	
Raltegravir (Isentress)	■	

BENZODIAZEPINES (Cont'd)

CNS depression, drowsiness, memory loss, impaired coordination

Most agents extensively metabolized in the liver by the CYP3A4 system; lorazepam, oxazepam, and temazepam metabolized by conjugation via glucuronidation.

KNOWN DRUG INTERACTIONS**NRTI's**

abacavir (ABC, Ziagen)	■	■ No known interactions specific to this combination
*Atripla (EFV/TDF/FTC)	■	
*Combivir (AZT/3TC)	■	
*Complera (RPV/TDF/FTC)	■	*SEE INDIVIDUAL COMPONENTS
didanosine (ddl, Videx)	■	
emtricitabine (FTC, Emtriva)	■	
*Epzicom (3TC/ABC)	■	■ Use of PIs with benzodiazepines should be avoided due to increased risk of sedation and respiratory depression; midazolam and triazolam specifically contraindicated with all PIs. IV midazolam can be used with caution as a single dose if monitored.
lamivudine (3TC, Epivir)	■	
stavudine (d4T, Zerit)	■	
tenofovir (TDF, Viread)	■	
*Trizivir (AZT/3TC/ABC)	■	
*Truvada (FTC/TDF)	■	
zidovudine (AZT, ZDV, Retrovir)	■	

Protease Inhibitors

amprenavir (Agenerase)	■	■ No known interactions specific to this combination. Refer to comments for this drug class in general.
fosamprenavir (Lexiva)	■	
atazanavir (Reyataz)	■	■ Decreases therapeutic effect of lorazepam, oxazepam, and temazepam (monitor for withdrawal)
darunavir (Prezista)	■	
indinavir (Crixivan)	■	
lopinavir/ritonavir (Kaletra)	■	
nelfinavir (Viracept)	■	
ritonavir (Norvir)	■	■ No known interactions specific to this combination
saquinavir (Fortovase, Invirase)	■	
tipranavir (Aptivus)	■	■ May increase AUC of intravenous benzodiazepines; especially midazolam and diazepam.

CCR5 Inhibitor

Maraviroc (Selzentry)	■	■ Avoid with oral midazolam and triazolam. IV midazolam can be used with caution as a single dose if monitored.
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Integrase Inhibitor

Elvitegravir/cobicistat/ TDF/FTC) (Stribild)	■	■ No known interactions specific to this combination
Dolutegravir (Tivicay)	■	
Raltegravir (Isentress)	■	

COCAINE (coke, blow)

Increases rate of HIV viral replication in vitro, hypertension, cardiac dysrhythmias, myocardial infarction, seizures, depression, anxiety

GENERAL**PHARMACOKINETICS**

Mainly metabolized by nonspecific tissue and plasma esterases; some cocaine metabolism (~10%) via CYP3A4

KNOWN DRUG INTERACTIONS**NNRTI's**

delavirdine (Rescriptor)
efavirenz (Sustiva)
nevirapine (Viramune)
etravirine (Intelece)
rilpivirine (Edurant)

■ No known interactions specific to this combination

NRTI's

abacavir (ABC, Ziagen)
*Atripla (EFV/TDF/FTC)
*CombiVir (AZT/3TC)
*Complera (RPV/TDF/FTC)
didanosine (ddl, Videx)
emtricitabine (FTC, Emtriva)
*Epzicom (3TC/ABC)
lamivudine (3TC, Epivir)
stavudine (d4T, Zerit)
tenofovir (TDF, Viread)
*Trizivir (AZT/3TC/ABC)
*Truvada (FTC/TDF)
zidovudine (AZT, ZDV, Retrovir)

*SEE INDIVIDUAL COMPONENTS

Protease Inhibitors

amprenavir (Agenerase)
fosamprenavir (Lexiva)
atazanavir (Reyataz)
darunavir (Prezista)
indinavir (Crixivan)
lopinavir/ritonavir (Kaletra)
nelfinavir (Viracept)
ritonavir (Norvir)
saquinavir (Fortovase, Invirase)
tipranavir (Aptivus)

■ No known interactions specific to this combination

ECSTASY (X, MDMA)

Tachycardia, hypertension, hyperthermia, dehydration, dry mouth, tense jaw, teeth grinding, depression

CYP2D6 demethylation important in metabolism; 2D6 inhibitors are likely to increase ecstasy levels

KNOWN DRUG INTERACTIONS**NNRTI's**

delavirdine (Rescriptor)
efavirenz (Sustiva)
nevirapine (Viramune)
etravirine (Intelece)
rilpivirine (Edurant)

■ No known interactions specific to this combination

NRTI's

abacavir (ABC, Ziagen)
*Atripla (EFV/TDF/FTC)
*CombiVir (AZT/3TC)
*Complera (RPV/TDF/FTC)
didanosine (ddl, Videx)
emtricitabine (FTC, Emtriva)
*Epzicom (3TC/ABC)
lamivudine (3TC, Epivir)
stavudine (d4T, Zerit)
tenofovir (TDF, Viread)
*Trizivir (AZT/3TC/ABC)
*Truvada (FTC/TDF)
zidovudine (AZT, ZDV, Retrovir)

*SEE INDIVIDUAL COMPONENTS

Protease Inhibitors

amprenavir (Agenerase)
fosamprenavir (Lexiva)
atazanavir (Reyataz)
darunavir (Prezista)
indinavir (Crixivan)
lopinavir/ritonavir (Kaletra)
nelfinavir (Viracept)
ritonavir (Norvir)
saquinavir (Fortovase, Invirase)
tipranavir (Aptivus)

■ Increase levels of ecstasy
■ No known interactions specific to this combination. Refer to comments for this drug class in general
■ Increases risk of kidney stones due to dehydration
■ Potential to increase ecstasy levels
■ Increases ecstasy levels 5-10 times (AVOID)

Continued next page

COCAINE (coke, blow) (*Cont'd*)

Increases rate of HIV viral replication in vitro, hypertension, cardiac dysrhythmias, myocardial infarction, seizures, depression, anxiety

GENERAL**PHARMACOKINETICS**

Mainly metabolized by nonspecific tissue and plasma esterases; some cocaine metabolism (-10%) via CYP3A4

KNOWN DRUG INTERACTIONS**CCR5 Inhibitor**

Maraviroc (Selzentry)

- No known interactions specific to this combination

Integrase Inhibitor

Elvitegravir/cobicistat/
TDF/FTC (Stribild)
Dolutegravir (Tivicay)
Raltegravir (Isentress)

- No known interactions specific to this combination

ECSTASY (X, MDMA) (*Cont'd*)

Tachycardia, hypertension, hyperthermia, dehydration, dry mouth, tense jaw, teeth grinding, depression

CYP2D6 demethylation important in metabolism; 2D6 inhibitors are likely to increase ecstasy levels

KNOWN DRUG INTERACTIONS**CCR5 Inhibitor**

Maraviroc (Selzentry)

- No known interactions specific to this combination

Integrase Inhibitor

Elvitegravir/cobicistat/
TDF/FTC (Stribild)
Dolutegravir (Tivicay)
Raltegravir (Isentress)

- Potential to increase ecstasy levels
- No known interactions specific to this combination

Erectile Dysfunction Agents

(avanafil (Stendra), sildenafil (Viagra), tadalafil (Cialis), vardenafil (Levitra))
Hypotension, tachycardia, arrhythmias (cardiac arrest and death), headache, flushing, rhinitis, dyspepsia, nausea, and visual effects (e.g. light sensitivity, changes in color vision), priapism

GENERAL**PHARMACOKINETICS**

Metabolized in the liver via CYP3A4

KNOWN DRUG INTERACTIONS**NNRTI's**

delavirdine (Rescriptor)
efavirenz (Sustiva)
nevirapine (Viramune)
etravirine (Intelence)
rilpivirine (Edurant)

- Potential to significantly increase avanafil, sildenafil, tadalafil, vardenafil concentrations. Use sildenafil at reduced doses of 25 mg every 48 hours, tadalafil at reduced doses of 10 mg every 72 hours, vardenafil at reduced doses of no more than 2.5 mg every 72 hours and monitor closely for adverse effects. Do not use with avanafil.
- No known interactions specific to this combination.
- Etravirine has been shown to decrease sildenafil concentrations, though may be used together without sildenafil dosage adjustment. Sildenafil dosage may need to be adjusted based upon clinical effect. Similar interactions are also predicted with tadalafil and vardenafil.

Continued next page

Erectile Dysfunction Agents (Cont'd)

(avanafil (Stendra), sildenafil (Viagra), tadalafil (Cialis), vardenafil (Levitra))
 Hypotension, tachycardia, arrhythmias (cardiac arrest and death),
 headache, flushing, rhinitis, dyspepsia, nausea, and visual effects (e.g.
 light sensitivity, changes in color vision), priapism

GENERAL

PHARMACOKINETICS

Metabolized in the liver via CYP3A4

KNOWN DRUG INTERACTIONS

NRTI's

abacavir (ABC, Ziagen)	■	
*Atripla (EFV/TDF/FTC)		
*Combivir (AZT/3TC)		
*Complera (RPV/TDF/FTC)		
didanosine (ddl, Videx)	■	
emtricitabine (FTC, Emtriva)	■	
*Epzicom (3TC/ABC)		
lamivudine (3TC, Epivir)	■	■ No known interactions specific to this combination
stavudine (d4T, Zerit)	■	*SEE INDIVIDUAL COMPONENTS
tenofovir (TDF, Viread)	■	
*Trizivir (AZT/3TC/ABC)		
*Truvada (FTC/TDF)		
zidovudine (AZT, ZDV, Retrovir)	■	

Protease Inhibitors

amprenavir (Agenerase)	■	■ Potential to significantly increase avanafil, sildenafil, tadalafil, vardenafil concentrations. Use sildenafil at reduced doses of 25 mg every 48 hours, tadalafil at reduced doses of 10 mg every 72 hours, vardenafil at reduced doses of no more than 2.5 mg every 72 hours and monitor closely for adverse effects. Do not use with avanafil.
fosamprenavir (Lexiva)	■	
atazanavir (Reyataz)	■	■ No known interactions specific to this combination. Refer to comments for this drug class in general
darunavir (Prezista)	■	■ Increases sildenafil AUC ~340% and vardenafil AUC 16-fold. May increase tadalafil concentrations. Refer to comments for this drug class in general. Monitor closely for adverse effects.
indinavir (Crixivan)	■	
lopinavir/ritonavir (Kaletra)	■	■ Increases sildenafil AUC 1000%, tadalafil AUC 124%, and vardenafil AUC 49-fold and half-life 5-6 fold. Refer to comments for this drug class in general. Monitor closely for adverse effects.
nelfinavir (Viracept)	■	
ritonavir (Norvir)	■	■ Increases sildenafil AUC ~210%. May increase tadalafil and vardenafil concentrations. Refer to comments for this drug class in general. Monitor closely for adverse effects.
saquinavir (Fortovase, Invirase)	■	
tipranavir (Aptivus)	■	

CCR5 Inhibitor

Maraviroc (Selzentry)	■	■ No known interactions specific to this combination
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Integrase Inhibitor

Elvitegravir/cobicistat/ TDF/FTC (Stribild)	■	■ Potential to significantly increase avanafil, sildenafil, tadalafil, vardenafil concentrations. Use sildenafil at reduced doses of 25 mg every 48 hours, tadalafil at reduced doses of 10 mg every 72 hours, vardenafil at reduced doses of no more than 2.5 mg every 72 hours and monitor closely for adverse effects. Do not use with avanafil.
Dolutegravir (Tivicay)	■	
Raltegravir (Isentress)	■	■ No known interactions specific to this combination

GHB

(gamma-hydroxy-butyrate, grievous bodily harm, liquid X)
Seizures, bradycardia, severe respiratory depression, hypotension, vomiting coma, death

GENERAL**PHARMACOKINETICS**

Utilizes CYP2D6 pathway for metabolism

KNOWN DRUG INTERACTIONS**NNRTI's**

delavirdine (Rescriptor)
efavirenz (Sustiva)
nevirapine (Viramune)
etravirine (Intelece)
rilpivirine (Edurant)

■ No known interactions specific to this combination

NRTI's

abacavir (ABC, Ziagen)
*Atripla (EFV/TDF/FTC)
*CombiVir (AZT/3TC)
*Complera (RPV/TDF/FTC)
didanosine (ddl, Videx)
emtricitabine (FTC, Emtriva)
*Epzicom (3TC/ABC)
lamivudine (3TC, Epivir)
stavudine (d4T, Zerit)
tenofovir (TDF, Viread)
*Trizivir (AZT/3TC/ABC)
*Truvada (FTC/TDF)
zidovudine (AZT, ZDV, Retrovir)

*SEE INDIVIDUAL COMPONENTS

Protease Inhibitors

amprenavir (Agenerase)
fosamprenavir (Lexiva)
atazanavir (Reyataz)
darunavir (Prezista)
indinavir (Crixivan)
lopinavir/ritonavir (Kaletra)
nelfinavir (Viracept)
ritonavir (Norvir)
saquinavir (Fortovase, Invirase)
tipranavir (Aptivus)

■ Pls potentially increase drug levels of GHB

■ No known interactions specific to this combination. Refer to comments for this drug class in general

HEROIN (smack, brown junk, China White)

Dreamlike state of warmth and well-being with small doses; CNS depression, drowsiness, respiratory depression, constricted pupils, nausea/vomiting with excessive doses

Utilizes CYP3A4 pathway for metabolism

KNOWN DRUG INTERACTIONS**NNRTI's**

delavirdine (Rescriptor)
efavirenz (Sustiva)
nevirapine (Viramune)
etravirine (Intelece)
rilpivirine (Edurant)

■ No known interactions specific to this combination

NRTI's

abacavir (ABC, Ziagen)
*Atripla (EFV/TDF/FTC)
*CombiVir (AZT/3TC)
*Complera (RPV/TDF/FTC)
didanosine (ddl, Videx)
emtricitabine (FTC, Emtriva)
*Epzicom (3TC/ABC)
lamivudine (3TC, Epivir)
stavudine (d4T, Zerit)
tenofovir (TDF, Viread)
*Trizivir (AZT/3TC/ABC)
*Truvada (FTC/TDF)
zidovudine (AZT, ZDV, Retrovir)

*SEE INDIVIDUAL COMPONENTS

Protease Inhibitors

amprenavir (Agenerase)
fosamprenavir (Lexiva)
atazanavir (Reyataz)
darunavir (Prezista)
indinavir (Crixivan)
lopinavir/ritonavir (Kaletra)
nelfinavir (Viracept)
ritonavir (Norvir)
saquinavir (Fortovase, Invirase)
tipranavir (Aptivus)

■ Possible decrease in heroin levels

■ No known interactions specific to this combination. Refer to comments for this drug class in general.

■ Reduces heroin levels by 50%

Continued next page

GHB (*Cont'd*)
(gamma-hydroxy-butyrate, grievous bodily harm, liquid X)
Seizures, bradycardia, severe respiratory depression, hypotension, vomiting coma, death

GENERAL**PHARMACOKINETICS**

Utilizes CYP2D6 pathway for metabolism

KNOWN DRUG INTERACTIONS**CCR5 Inhibitor**

Maraviroc (Selzentry)

- No known interactions specific to this combination

Integrase Inhibitor

Elvitegravir/cobicistat/
TDF/FTC) (Stribild)
Dolutegravir (Tivicay)
Raltegravir (Isentress)

- Potential increase in GHB levels with cobicistat
- No known interactions specific to this combination

HEROIN (smack, brown junk, China White) (*Cont'd*)

Dreamlike state of warmth and well-being with small doses; CNS depression, drowsiness, respiratory depression, constricted pupils, nausea/vomiting with excessive doses

Utilizes CYP3A4 pathway for metabolism

KNOWN DRUG INTERACTIONS**CCR5 Inhibitor**

Maraviroc (Selzentry)

- No known interactions specific to this combination

Integrase Inhibitor

Elvitegravir/cobicistat/
TDF/FTC) (Stribild)
Dolutegravir (Tivicay)
Raltegravir (Isentress)

- No known interactions specific to this combination

KETAMINE (K, Special K)

Paranoia, anxiety, mania, hallucinations, "K-hole" (semi-catatonic stupor).
Elevated levels may cause tachycardia, hypertension, respiratory depression

GENERAL**PHARMACOKINETICS**

Undergoes N-demethylation and hydroxylation (possibly mediated by CYP3A4); possible weak inhibitor of CPY2D1 and CYP3A4

KNOWN DRUG INTERACTIONS**NNRTI's**

delavirdine (Rescriptor)
efavirenz (Sustiva)
nevirapine (Viramune)
etravirine (Intencele)
rilpivirine (Edurant)

- No known interactions specific to this combination

LSD (acid)

Paranoia, visual and auditory hallucinations

KNOWN DRUG INTERACTIONS**NNRTI's**

delavirdine (Rescriptor)
efavirenz (Sustiva)
nevirapine (Viramune)
etravirine (Intencele)
rilpivirine (Edurant)

- No known interactions specific to this combination

Continued next page

KETAMINE (K, Special K) (Cont'd)

Paranoia, anxiety, mania, hallucinations, "K-hole" (semi-catatonic stupor).
Elevated levels may cause tachycardia, hypertension, respiratory depression

GENERAL**PHARMACOKINETICS**

Undergoes N-demethylation and hydroxylation (possibly mediated by CYP3A4); possible weak inhibitor of CYP2D1 and CYP3A4

KNOWN DRUG INTERACTIONS**NRTI's**

abacavir (ABC, Ziagen)	■	■	No known interactions specific to this combination
*Atripla (EFV/TDF/FTC)	■		
*Combivir (AZT/3TC)	■		
*Complera (RPV/TDF/FTC)	■	■	SEE INDIVIDUAL COMPONENTS
didanosine (ddI, Videx)	■		
emtricitabine (FTC, Emtriva)	■		
*Epzicom (3TC/ABC)	■		
lamivudine (3TC, Epivir)	■		
stavudine (d4T, Zerit)	■		
tenofovir (TDF, Viread)	■		
*Trizivir (AZT/3TC/ABC)	■		
*Truvada (FTC/TDF)	■		
zidovudine (AZT, ZDV, Retrovir)	■		

Protease Inhibitors

amprenavir (Agenerase)	■	■	Likely increase the effect of ketamine (more sedation, increased heart rate and blood pressure). Effects last longer
fosamprenavir (Lexiva)	■		
atazanavir (Reyataz)	■	■	No known interactions specific to this combination. Refer to comments for this drug class in general
darunavir (Prezista)	■		
indinavir (Crixivan)	■		
lopinavir/ritonavir (Kaletra)	■		
nelfinavir (Viracept)	■		
ritonavir (Norvir)	■	■	Combination may increase risk of drug induced hepatitis
saquinavir (Fortovase, Invirase)	■		
tipranavir (Aptivus)	■		

CCR5 Inhibitor

Maraviroc (Selzentry)	■	■	No known interactions specific to this combination
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Integrase Inhibitor

Elvitegravir/cobicistat/TDF/FTC) (Stribild)	■	■	Potential increase in ketamine levels; effects may last longer with cobicistat
Dolutegravir (Tivicay)	■	■	No known interactions specific to this combination
Raltegravir (Isentress)	■		

LSD (acid) (Cont'd)

Paranoia, visual and auditory hallucinations

KNOWN DRUG INTERACTIONS**NRTI's**

abacavir (ABC, Ziagen)	■	■	No known interactions specific to this combination
*Atripla (EFV/TDF/FTC)	■		
*Combivir (AZT/3TC)	■		
*Complera (RPV/TDF/FTC)	■	■	SEE INDIVIDUAL COMPONENTS
didanosine (ddI, Videx)	■		
emtricitabine (FTC, Emtriva)	■		
*Epzicom (3TC/ABC)	■		
lamivudine (3TC, Epivir)	■		
stavudine (d4T, Zerit)	■		
tenofovir (TDF, Viread)	■		
*Trizivir (AZT/3TC/ABC)	■		
*Truvada (FTC/TDF)	■		
zidovudine (AZT, ZDV, Retrovir)	■		

Protease Inhibitors

amprenavir (Agenerase)	■	■	No known interactions specific to this combination
fosamprenavir (Lexiva)	■		
atazanavir (Reyataz)	■		
darunavir (Prezista)	■		
indinavir (Crixivan)	■		
lopinavir/ritonavir (Kaletra)	■		
nelfinavir (Viracept)	■		
ritonavir (Norvir)	■		
saquinavir (Fortovase, Invirase)	■		
tipranavir (Aptivus)	■		

CCR5 Inhibitor

Maraviroc (Selzentry)	■	■	No known interactions specific to this combination
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Integrase Inhibitor

Elvitegravir/cobicistat/TDF/FTC) (Stribild)	■	■	No known interactions specific to this combination
Dolutegravir (Tivicay)	■		
Raltegravir (Isentress)	■		

MARIJUANA (Tetrahydrocannabinol; THC)Tachycardia, loss of inhibitions, dry mouth,
visual hallucinations**GENERAL****PHARMACOKINETICS**Metabolized in the liver to active metabolite
(11-hydroxy THC) via CYP3A4, 2C9, and 2C6;
inhibitors/inducers of CYP3A4 may interfere with
THC metabolism**KNOWN DRUG INTERACTIONS****NNRTI's**delavirdine (Rescriptor)
efavirenz (Sustiva)
nevirapine (Viramune)
etravirine (Intelelce)
rilpivirine (Edurant)**NRTI's**abacavir (ABC, Ziagen)
*Atripla (EFV/TDF/FTC)
*Combivir (AZT/3TC)
Complera (RPV/TDF/FTC)
didanosine (ddl, Videx)
emtricitabine (FTC, Emtriva)
*Epzicom (3TC/ABC)
lamivudine (3TC, Epivir)
stavudine (d4T, Zerit)
tenofovir (TDF, Viread)
*Trizivir (AZT/3TC/ABC)
*Truvada (FTC/TDF)
zidovudine (AZT, ZDV, Retrovir)**Protease Inhibitors**amprenavir (Agenerase)
fosamprenavir (Lexiva)
atazanavir (Reyataz)
darunavir (Prezista)
indinavir (Crixivan)
lopinavir/ritonavir (Kaletra)
nelfinavir (Viracept)
ritonavir (Norvir)
saquinavir (Fortovase, Invirase)
tipranavir (Aptivus)No known interactions specific to
this combination

*SEE INDIVIDUAL COMPONENTS

- Potential to increase THC levels
- No known interactions specific to
this combination. Refer to comments for this
drug class in general
- In one study, concentrations of atazanavir
were reduced up to 60% in patients using
marijuana. Study did not differentiate
whether atazanavir was boosted with
ritonavir or not.

METHADONE

Generalized CNS depression

Primarily utilizes CYP3A4 pathway for metabolism; inhibitor of CYP2D6
and CYP3A4**KNOWN DRUG INTERACTIONS****NNRTI's**delavirdine (Rescriptor)
efavirenz (Sustiva)
nevirapine (Viramune)
etravirine (Intelelce)
rilpivirine (Edurant)**NRTI's**abacavir (ABC, Ziagen)
*Atripla (EFV/TDF/FTC)
*Combivir (AZT/3TC)
Complera (RPV/TDF/FTC)
didanosine (ddl, Videx)
emtricitabine (FTC, Emtriva)
*Epzicom (3TC/ABC)
lamivudine (3TC, Epivir)
stavudine (d4T, Zerit)
tenofovir (TDF, Viread)
*Trizivir (AZT/3TC/ABC)
*Truvada (FTC/TDF)
zidovudine (AZT, ZDV, Retrovir)**Protease Inhibitors**amprenavir (Agenerase)
fosamprenavir (Lexiva)
atazanavir (Reyataz)
darunavir (Prezista)
indinavir (Crixivan)
lopinavir/ritonavir (Kaletra)
nelfinavir (Viracept)
ritonavir (Norvir)
saquinavir (Fortovase, Invirase)
tipranavir (Aptivus)

- No known interactions specific to
this combination
- Decreases methadone AUC significantly
(-60%); titrate methadone dose to effect
- Decreases methadone AUC significantly
(-40-50%); titrate methadone dose to effect
(an increase in methadone dose may be
required in some patients)
- Decreases didanosine AUC -41-60%
(consider didanosine tablet form dose
increase or switch to enteric-coated
formulation which may not be affected to
the same degree)
- Decreases stavudine AUC -23%
- Increases zidovudine AUC -40% (increases
AUC -29% during chronic treatment)
- Interaction highly variable and patients
should be evaluated on an individual basis
- Decreases methadone levels -13-30%;
monitor for withdrawal and consider
methadone dose increase if needed
- Decreases methadone AUC -16-36%
(may require methadone dose increase)
- Decreases methadone AUC -26-53%
(may require methadone dose increase)
- Decreases methadone AUC -47%
(may require methadone dose increase)
- Decreases methadone AUC -37%
(may require methadone dose increase)
- Decrease methadone AUC by -50%
(may require methadone dosage
increase)

MARIJUANA (Tetrahydrocannabinol; THC) (Cont'd)
Tachycardia, loss of inhibitions, dry mouth,
visual hallucinations

GENERAL

PHARMACOKINETICS

Metabolized in the liver to active metabolite (11-hydroxy THC) via CYP3A4, 2C9, and 2C6; inhibitors/inducers of CYP3A4 may interfere with THC metabolism

KNOWN DRUG INTERACTIONS

CCR5 Inhibitor

Maraviroc (Selzentry)

- No known interactions specific to this combination

Integrase Inhibitor

Elvitegravir/cobicistat/
TDF/FTC) (Stribild)
Dolutegravir (Tivicay)
Raltegravir (Isentress)

- Potential to increase THC level

- No known interactions specific to this combination

METHADONE (Cont'd)
Generalized CNS depression

Primarily utilizes CYP3A4 pathway for metabolism; inhibitor of CYP2D66 and CYP3A4

KNOWN DRUG INTERACTIONS

CCR5 Inhibitor

Maraviroc (Selzentry)

- No known interactions specific to this combination

Integrase Inhibitor

Elvitegravir/cobicistat/
TDF/FTC) (Stribild)
Dolutegravir (Tivicay)
Raltegravir (Isentress)

- No known interactions specific to this combination

PATIENT INFORMATION TO REDUCE HARM

ALCOHOL

If you take ddI, do not drink alcohol. Try to avoid alcohol or use modestly.

AMYL NITRITE (amyl nitrate, poppers)

Do not use with avanafil (Stendra), sildenafil (Viagra), vardenafil (Levitra) or adalafil (Cialis). Heart problems, glaucoma, or anemia makepoppers more dangerous.

COCAINE (coke, blow)

Don't get so high you forget to stick to your antiretroviral regimen. Avoid cocaine if you have heart or liver problems, or high blood pressure

Erectile Dysfunction Agents

Do not mix with amyl or butyl nitrates (poppers). Combination can cause sudden drop in blood pressure leading to fainting or heart attack.

GHB

Start with half-teaspoon, wait half-hour before taking more. Do not mix with alcohol, tranquilizers, pain-killers, or allergy medications. Do not use if you are alone. The dose you used last week can kill you this week.

KETAMINE (K, Special K)

Start with 1/3 or 1/2 of usual dose. Wait a half-hour before doing more. Always use with a friend, never alone.

AMPHETAMINES (Crystal)

Avoid use if you have heart or liver problems, or high blood pressure. Recent reports of transmitted HIV resistance in patients using methamphetamine and practicing unsafe sex.

BENZODIAZEPINES

Avoid with midazolam and triazolam. Caution with other medications in this class. Discuss with provider to ensure potential interactions are identified.

ECSTASY (X, MDMA)

Start with 1/4 or 1/2 tablet. Drink plenty of water.

HEROIN (smack, brown junk, China, White)

Start with normal dose and increase only if you experience less of a hit and less buzz. Safe injecting. Do not mix with other recreational drugs.

METHADONE

Any changes to your methadone regimen or HIV medications should be reported to both providers to ensure potential interactions are identified.

RESOURCES

The National AETC Program also includes the following services:

National HIV/AIDS Clinicians Consultation Center: 1-800-933-3413

Offering treating clinicians current HIV clinical and drug information and individualized, expert case consultation.

Post-Exposure Prophylaxis 24 hour hotline: 1-888-HIV-4911

Providing consultation for occupational exposures.

Perinatal Hotline: 1-888-448-8765

Providing consultation for perinatal exposure and treatment.

AETC HIV/AIDS National Resource Center: <http://www.aidsetc.org/>

Providing resources (including curricula and lecture slide sets) on HIV disease treatment, education and data.

**FOR FURTHER INFORMATION,
PLEASE VISIT ONE OF THE FOLLOWING WEBSITES:**

NY/NJ AIDS Education and Training Center
www.nynjaetc.org

U.S. DHHS AIDS Info
aidsinfo.nih.gov

NYSDOH AIDS Institute Clinical Resources
www.hivguidelines.org

Substance Abuse and Mental Health Services Administration
www.samhsa.gov

Addiction Technology Transfer Center
www.nattc.org

Harm Reduction Coalition
www.harmreduction.org