

## APPENDIX XII

### DRUG INTERACTIONS WITH ARV AGENTS AND RECREATIONAL DRUGS

TABLE 1 DRUG INTERACTIONS WITH ARV AGENTS AND RECREATIONAL DRUGS		
Substance	Route of Elimination	Effect when Combined with ARV Therapy Agents
<b>Alcohol</b>	Metabolized by alcohol dehydrogenase	↑ ABC AUC 41% – Clinical significance likely minimal
<b>Amphetamines</b>	Metabolized by CYP2D6	Toxicity may be potentiated by ritonavir (low- or full-dose)
<b>Barbiturates</b>	Several are metabolized by CYP3A4 and induce CYP3A4	May ↓ PIs, NNRTIs, MVC, and RAL. Avoid co-administration or use with close monitoring.
<b>Benzodiazepines</b>	Several are metabolized by CYP3A4 (midazolam, triazolam)	Oral midazolam and triazolam are contraindicated with PIs, EFV, and DLV. IV midazolam may be co-administered with very close monitoring. Consider alternative benzodiazepines (lorazepam, oxazepam, or temazepam) with ARV therapy co-administration.
<b>Cocaine</b>	Minor metabolism by CYP3A4 to hepatotoxic metabolite	None known
<b>Gamma hydroxybutyrate (GHB)</b>	Metabolized by CYP2D6 Eliminated via first pass metabolism	RTV and other boosted PIs may precipitate life-threatening toxicity when GHB used concurrently
<b>Heroin</b>	Metabolized to morphine, then to morphine-6-glucuronide via glucuronidation	None known
<b>Ketamine</b>	Metabolized via CYP2B6, 3A4, and 2C9	PIs, DLV, and ETR may significantly ↑ ketamine serum concentrations
<b>Marijuana</b>	Metabolized via hydroxylation, some involvement of CYP3A4, 2C9, and 2C6	Effect of smoked marijuana and oral tablets on IDV or NFV concentrations not clinically significant

<b>Meperidine</b>	Metabolized via hydroxylation and CYP450, CYP2D6, and CYP1A2	Ritonavir associated with ↓ meperidine AUC by 67% and ↑ normeperidine AUC by 47%. Avoid co-administration with any boosted PI.
<b>Methylenedioxy-methamphetamine (MDMA)</b>	Metabolized via CYP2D6	RTV and other boosted PIs may precipitate life-threatening toxicity when MDMA used concurrently
<b>Morphine</b>	Metabolism via glucuronidation	None known
<b>Oxycodone</b>	Metabolized via CYP2D6 to oxymorphone CYP3A4 to noroxycodone ketoreductase	None known
<b>PCP</b>	Metabolized via CYP3A, 2C11; inhibits CYP2B1	PIs and DLV may significantly ↑ PCP serum concentrations

ABC, abacavir; DLV, delavirdine; EFV, efavirenz; ETR, etravirine; IDV, indinavir; MVC, maraviroc; NFV, nelfinavir; NNRTI, Non-nucleoside Reverse Transcriptase Inhibitor; PI, Protease Inhibitor; RAL, raltegravir; RTV, ritonavir.