Table 27-5: Results of Drug Interaction Studies in the Presence of Ritonavir, the Most Potent CYP450-Modifying Protease Inhibitor

Co-administered Drug	Results
Terfenadine (Seldane)	Increased risk of cardiotoxicity.
Bupropion (Wellbutrin)	Increased risk of bupropion toxicity including seizures. Avoid concomitant use.
Clozapine (Clozaril)	Increased risk of clozapine toxicity including agranulocytosis.
	ECG changes and seizures.
Desipramine (Norpramin)	145% increase in desipramine AUC, no dosage adjustment needed, monitor more closely.
Benzodiazepines	Increased risk of prolonged sedation and respiratory depression.
Zolpidem (Ambien)	Increased risk of prolonged sedation and respiratory depression.
Ethinyl estradiol (oral contraceptives)	40% decrease in ethinyl estradiol AUC, no change adjustment is needed, alternative and additional contraception advised.
Meperidine (Demerol)	Increased risk of meperidine toxicity, including CNS side effects, seizures and cardiac arrhythmias.
Nevirapine (Viramune)	Efficacy of ritonavir may be decreased.
Cisapride (Propulsid)	Increased risk of *torsades des pointes* cardiotoxicity. Drug has recently been removed from the market because of this.
Rifabutin (Mycobutin)	Ritonavir increases the risk of rifabutin-induced hematological toxicity by decreasing its metabolism. Rifabutin, a potent inducer of CYP enzymes, hastens metabolism of ritonavir and by so doing decreases its efficacy.
Didanosine (Videx)	Ritonavir causes a 13% decrease in the AUC of didanosine, however no dosage adjustments are needed.
Piroxicam (Feldene)	Increased risk of piroxicam toxicity.
Saquinavir (Fortovase, Invirase)	Twenty- to thirty-fold increase in saquinavir AUC. Used to boost levels of saquinavir, reduce dosing frequency and reduce pill burden.
Sulfamethoxazole (Bactrim)	20% decrease in sulfamethoxazole (Bactrim) AUC may lead to a decrease in allergic reactions especially rash and hematological side effects. Patient must maintain good fluid intake and be monitored more closely.
Clarithromycin (Biaxin)	77% increase in clarithromycin AUC. No dosage reduction is needed for patients with normal renal function. For patients with clearance 30-60ml/min, decrease dose by 50%; for patients with clearance <30ml/min, decrease dose by 75%.
Astemizole	Increased risk of astemizole toxicity.