



## **Guidelines for the Use of Antiretroviral Agents in Adults and Adolescents Living with HIV**

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**Table 18. Drugs That Should Not Be Used With Selected Antiretroviral Agents Due to Proven or Predicted Pharmacokinetic Interactions (Last updated July 14, 2016; last reviewed July 14, 2016) (page 1 of 2)**

This table only lists drugs that should not be coadministered at any dose, regardless of RTV or COBI boosting (unless stated otherwise). See Tables 19 and 20 for more detailed pharmacokinetic (PK) interaction data.

ARV Agents <sup>a,b</sup>	Cardiac Agents	Lipid-Lowering Agents	Anti-infective Agents	Antiepileptic Agents	Neurologic Agents	Herbs	HCV Agents <sup>c</sup>	Other Agents
ATV +/- RTV or COBI	Dronedaron Eplerenone Ivabradine Ranolazine	Lovastatin Simvastatin	Rifampin Rifapentine	ATV/c only: Carbamazepine Phenobarbital Phenytoin	Lurasidone Midazolam <sup>e</sup> Pimozide Triazolam	St. John's wort	Elbasvir/ Grazoprevir Simeprevir	Alfuzosin Cisapride <sup>f</sup> Ergot derivatives Flibanserin Irinotecan Salmeterol Sildenafil for PAH
DRV/c or DRV/r	Dronedaron Eplerenone Ivabradine Ranolazine	Lovastatin Simvastatin	Rifampin Rifapentine	DRV/c only: Carbamazepine Phenobarbital Phenytoin	Lurasidone Midazolam <sup>e</sup> Pimozide Triazolam	St. John's wort	Dasabuvir Elbasvir/ Grazoprevir Ombitasvir Paritaprevir Simeprevir	Alfuzosin Cisapride <sup>e</sup> Ergot derivatives Flibanserin Salmeterol Sildenafil for PAH
FPV +/- RTV	Dronedaron Eplerenone Flecainide Ivabradine Propafenone Ranolazine	Lovastatin Simvastatin	Rifampin Rifapentine	None	Lurasidone Midazolam <sup>e</sup> Pimozide Triazolam	St. John's wort	Dasabuvir Ombitasvir Paritaprevir Simeprevir	Alfuzosin Cisapride <sup>e</sup> Ergot derivatives Flibanserin Salmeterol Sildenafil for PAH
LPV/r	Dronedaron Eplerenone Ivabradine Ranolazine	Lovastatin Simvastatin	Rifampin <sup>f</sup> Rifapentine	None	Lurasidone Midazolam <sup>e</sup> Pimozide Triazolam	St. John's wort	Dasabuvir Elbasvir/ Grazoprevir Ombitasvir Paritaprevir Simeprevir	Alfuzosin Cisapride <sup>e</sup> Ergot derivatives Flibanserin Salmeterol Sildenafil for PAH
SQV/r	Amiodaron Disopyramide Dofetilide Dronedaron Eplerenone Flecainide Ivabradine Lidocaine Propafenone Quinidine Ranolazine	Lovastatin Simvastatin	Clarithromycin Dapsone Erythromycin Pentamidine (parenteral) Rifampin <sup>f</sup> Rifapentine Quinine	None	Clozapine Haloperidol Lurasidone Midazolam <sup>e</sup> Phenothiazines <sup>g</sup> Pimozide Trazodone Triazolam Ziprasidone Garlic supple-	ments St. John's wort	Dasabuvir Elbasvir/ Grazoprevir Ombitasvir Paritaprevir Simeprevir	Alfuzosin Cisapride <sup>f</sup> Ergot derivatives Flibanserin Tacrolimus Salmeterol Sildenafil for PAH
TPV/r	Amiodaron Dronedaron Eplerenone Flecainide Ivabradine Propafenone Quinidine Ranolazine	Lovastatin Simvastatin	Rifampin Rifapentine	None	Lurasidone Midazolam <sup>d</sup> Pimozide Triazolam	St. John's wort	Dasabuvir Elbasvir/ Grazoprevir Ledipasvir Ombitasvir Paritaprevir Simeprevir Sofosbuvir	Alfuzosin Cisapride <sup>e</sup> Ergot derivatives Flibanserin Salmeterol Sildenafil for PAH
EFV	None	None	None	None	None	St. John's wort	Dasabuvir Elbasvir/ Grazoprevir Ombitasvir Paritaprevir Simeprevir	None

**Table 18. Drugs That Should Not Be Used With Selected Antiretroviral Agents Due to Proven or Predicted Pharmacokinetic Interactions (Last updated July 14, 2016; last reviewed July 14, 2016) (page 2 of 2)**

This table only lists drugs that should not be coadministered at any dose, regardless of RTV or COBI boosting (unless stated otherwise). See Tables 19 and 20 for more detailed pharmacokinetic (PK) interaction data.

ARV Agents <sup>a,b</sup>	Cardiac Agents	Lipid-Lowering Agents	Anti-infective Agents	Antiepileptic Agents	Neurologic Agents	Herbs	HCV Agents <sup>c</sup>	Other Agents
ETR	None	None	Rifampin Rifapentine	Carbamazepine Phenobarbital Phenytoin	None	St John's wort	Dasabuvir Elbasvir/ Grazoprevir Ombitasvir Paritaprevir Simeprevir	Clopidogrel
NVP	None	None	Rifapentine	None	None	St. John's wort	Dasabuvir Elbasvir/ Grazoprevir Ombitasvir Paritaprevir Simeprevir	Ketoconazole
RPV	None	None	Rifampin Rifapentine	Carbamazepine Oxcarbazepine Phenobarbital Phenytoin	None	St. John's wort	Dasabuvir Ombitasvir Paritaprevir	Proton pump inhibitors
MVC	None	None	Rifapentine	None	None	St. John's wort	Dasabuvir Ombitasvir Paritaprevir	None
DTG	Dofetilide	None	Rifapentine	None	None	St. John's wort	None	None
EVG/c  For EVG + PI/r, refer to agents listed for the selected PI	Eplerenone Ivabradine Ranolazine	Lovastatin Simvastatin	Rifampin Rifapentine	Carbamazepine Phenobarbital Phenytoin	Lurasidone Pimozide Midazolam <sup>d</sup> Triazolam	St. John's wort	Dasabuvir Elbasvir/ Grazoprevir Ledipasvir Ombitasvir Paritaprevir Simeprevir	Alfuzosin Cisapride <sup>e</sup> Ergot derivatives Flibanserin Salmeterol Sildenafil for PAH
RAL	None	None	None	None	None	None	None	None
TAF	None	None	Rifabutin Rifampin Rifapentine	None	None	St. John's wort	None	None

<sup>a</sup> DLV, IDV, NFV, RTV (as sole PI), T-20, and NRTIs other than TAF are not included in this table. Refer to the appropriate FDA package insert for information regarding DLV-, IDV-, NFV-, and RTV (as sole PI)-related drug interactions.

<sup>b</sup> Certain listed drugs are contraindicated on the basis of theoretical considerations. Thus, drugs with narrow therapeutic indices and suspected metabolic involvement with CYP 3A, 2D6, or unknown pathways are included in this table. Actual interactions may or may not occur in patients.

<sup>c</sup> HCV agents listed include only those that are commercially available at the publication of these guidelines.

<sup>d</sup> Use of oral midazolam is contraindicated. Single-dose parenteral midazolam can be used with caution and can be given in a monitored situation for procedural sedation.

<sup>e</sup> The manufacturer of cisapride has a limited-access protocol for patients who meet specific clinical eligibility criteria.

<sup>f</sup> In healthy volunteer studies, a high rate of Grade 4 serum transaminase elevation was seen when a higher dose of RTV was added to LPV/r or SQV or when double-dose LPV/r was used with rifampin to compensate for rifampin's induction effect; therefore, these dosing strategies should not be used when alternatives exist.

<sup>g</sup> Phenothiazines include chlorpromazine, fluphenazine, mesoridazine, perphenazine, prochlorperazine, promethazine, and thioridazine.

**Suggested alternatives to:**

- **Lovastatin, simvastatin:** Fluvastatin, pitavastatin, and pravastatin (except for pravastatin with DRV/r) have the least potential for drug-drug interactions (see Table 19a). Use atorvastatin and rosuvastatin with caution; start with the lowest possible dose and titrate based on tolerance and lipid-lowering efficacy.
- **Rifampin:** Rifabutin (with dosage adjustment, see Tables 19a and 19b)

• **Midazolam, triazolam:** Temazepam, lorazepam, oxazepam

• **Sildenafil for PAH:** Selexipag

**Key to Acronyms:** ARV = antiretroviral; ATV = atazanavir; COBI = cobicistat; CYP = cytochrome P; DLV = delavirdine; DRV/c = darunavir/cobicistat; DRV/r = darunavir/ritonavir; DTG = dolutegravir; EFV = efavirenz; ETR = etravirine; EVG = elvitegravir; EVG/c = elvitegravir/cobicistat; FDA = Food and Drug Administration; FPV = fosamprenavir; FTC = emtricitabine; HCV = hepatitis C virus; IDV = indinavir; LPV/r = lopinavir/ritonavir; MVC = maraviroc; NFV = nelfinavir; **NRTI = nucleos(t)ide reverse transcriptase inhibitor;** NVP = nevirapine; PAH = pulmonary arterial hypertension; PI = protease inhibitor; PI/r = ritonavir-boosted protease inhibitor; PK = pharmacokinetic; RPV = rilpivirine; RTV = ritonavir; SQV = saquinavir; SQV/r = saquinavir/ritonavir; TB = tuberculosis; **T-20 = enfuvirtide;** **TAF = tenofovir alafenamide;** TPV/r = tipranavir/ritonavir