

**Table 240.4.** Interaction between ritonavir-boosted and -unboosted saquinavir with other antimicrobials.

Antimicrobial	Effect	Significance	Mechanism	Reference
Adefovir	No significant effect on SQV or adefovir exposure	Not significant		Kearney <i>et al.</i> (2000)
Arsunaprevir	Not formally assessed. increased arsunaprevir exposure likely	Significant; avoid combination	Likely CYP3A4 inhibition by SQV-RTV	Roche (2014)
Atovaquone-proguanil	Increased etravirine and unboosted SQV exposure by 274% (case report)	Significant	Likely CYP3A4 inhibition by atovaquone-proguanil	Tommasi <i>et al.</i> (2011)
Bedaquiline	Not formally assessed. Increased bedaquiline possible	Unknown; monitor QTc and liver function tests	Possible CYP3A4 inhibition by SQV-RTV	US DHHS (2015b)
Boceprevir	No information	Unknown; the combination of boceprevir with other RTV-boosted protease inhibitors is not recommended		US DHHS (2015b)
Clarithromycin	Increased clarithromycin AUC by 45% and unboosted RTV hard gel capsule AUC by 500% and RTV soft gel capsule capsules by 177%	Significant; consider using azithromycin	Inhibition of CYP3A4 by clarithromycin	Buss (1998); Walubo (2007); HIV InSite (2015)
Cotrimoxazole (sulfamethoxazole-trimethoprim)	Increased unboosted RTV hard gel capsule by 12%	Not significant; no dosage adjustment required	Possible inhibition of CYP2 by co-trimoxazole	Maserati <i>et al.</i> (1998)
Daclatasvir	No information	Significant; caution, monitor for toxicity, reduce dose of daclatasvir	CYP3A4 inhibition by SQV	Roche (2014)
Dasabuvir-paritaprevir-ombitasvir-ritonavir	No information	Significant; avoid combination	Unknown	US DHHS (2015b)
Dapsone	No information	Significant; caution, monitor for dapsone toxicity (insomnia, palpitations, full blood count)	CYP3A4 inhibitor by SQV	Roche (2014)
Erythromycin	Increased unboosted SQV AUC of 99% and $C_{max}$ by 106%	Dosage adjustment not established, consider azithromycin	Inhibition of CYP3A4 by erythromycin	Walubo (2007)
Fluconazole	Increased unboosted SQV AUC by 50% and $C_{max}$ by 56%	Dose adjustments probably not necessary	Inhibition of CYP3A4 in the gut wall by fluconazole	Koks <i>et al.</i> (2001)
Itraconazole	Boosted SQV plus itraconazole 200 mg twice daily increased half-life by 414%	Significant; reduce itraconazole dose to 100 mg twice daily	CYP3A4 inhibition by itraconazole, saquinavir, and ritonavir	Mackenzie-Wood and Whitfield (1999)
	SQV soft gel capsule unboosted and itraconazole 100 mg daily; SQV levels similar with or without itraconazole	No dosage adjustment necessary	CYP3A4 inhibition by itraconazole	Cardiello <i>et al.</i> (2003b)
Ketoconazole	Significant increase in both unboosted SQV hard gel capsule and soft gel capsule AUC and $C_{max}$ when ketoconazole 200 and 400 mg daily given	No dosage adjustment required with unboosted SQV. Fluconazole is a suitable alternative	CYP3A4 inhibition by ketoconazole	Grub <i>et al.</i> (2001); Walubo (2007)
	Ketoconazole 200 and 400 mg daily increased unboosted SQV AUC by 37%, $C_{12h}$ by 94%, and half-life by 38%	No dosage adjustment required with unboosted SQV; fluconazole is a suitable alternative	CYP3A4 inhibition by ketoconazole	Khaliq <i>et al.</i> (2000a); Walubo (2007)
	Ketoconazole 400 mg daily 80% inferior to RTV 100 mg daily when added to SQV 2000 mg daily	Do not use as a pharmacoenhancer	CYP3A4 inhibition by ketoconazole	Autar <i>et al.</i> (2007)