Bronchodilators (for COPD)

Charts revised November 2024. Full information available at www.hiv-druginteractions.org

	ATV/c	ATV/r	DRV/c	DRV/r	LPV/r	DOR	EFV	ETV	NVP	RPV oral	FTR	LEN	MVC	BIC/ F/TAF	CAB oral	CAB/ RPV	DTG	EVG/c/ F/TAF	EVG/c/ F/TDF	RAL	FTC/ TAF	FTC/ TDF
Long acting muscarinic antagonists																						
Aclidinium bromide	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Glycopyrronium bromide	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Tiotropium bromide	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Umeclidinium bromide	↑	↑	↑	↑	↑	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↑	↑	↔	↔	↔
Short acting muscarinic antagonist																						
Ipratropium bromide	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Long acting β2 agonists																						
Formoterol	↔♥	↔♥	↔	↔	↔♥	↔	↔♡	↔	↔	↔♥	↔♥	↔	↔	↔	↔	↔♥	↔	↔	↔	↔	↔	↔
Indacaterol	↑a	↑a	↑a	↑a	↑a	↔	↓	↓	↓	↔	↔	↑	↔	↔	↔	↔	↔	↑a	↑a	↔	↔	↔
Olodaterol	↑	↑	↑	↑	↑	↔	↔	↔	↔	↔	↔	↑	↔	↔	↔	↔	↔	↑	↑	↔	↔	↔
Salmeterol	↑	↑	↑	↑	↑	↔	↓	↓	↓	↔	↔	↑	↔	↔	↔	↔	↔	↑	↑	↔	↔	↔
Vilanterol	↑	↑	↑	↑	↑	↔	↓	↓	↓	↔	↔	↑	↔	↔	↔	↔	↔	↑	↑	↔	↔	↔
Short acting β2 agonists																						
Salbutamol (albuterol)	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Terbutaline	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Methylxanthines																						
Aminophylline	↔	↓	↔	↓	↓	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Theophylline	↔	↓	↔	↓	↓	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Phosphodiesterase 4 inhibitors																						
Roflumilast	↑	↑	↑	↑	↑	↔	↓	↓	↓	↔	↔	↔	↔	↔	↔	↔	↔	↑	↑	↔	↔	↔
Inhaled corticosteroids																						
Beclometasone	↑b	↑b	↔c	↓11% c	↑b	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↑b	↑b	↔	↔	↔
Budesonide	↑d	↑d	↑d	↑d	↑d	↔	↓	↓	↓	↔	↔	↑d	↔	↔	↔	↔	↔	↑d	↑d	↔	↔	↔
Ciclesonide	↑e	↑e	↑e	↑e	↑e	↔	↔	↔	↔	↔	↔	↑e	↔	↔	↔	↔	↔	↑e	↑e	↔	↔	↔
Fluticasone	↑d	↑d	↑d	↑d	↑d	↔	↓	↓	↓	↔	↔	↑d	↔	↔	↔	↔	↔	↑d	↑d	↔	↔	↔
Mometasone	↑d	↑d	↑d	↑d	↑d	↔	↓	↓	↓	↔	↔	↑d	↔	↔	↔	↔	↔	↑d	↑d	↔	↔	↔

Interactions with CAB/RPV long acting injections
Pharmacokinetic interactions shown are mostly with RPV.
QT interactions shown are with RPV.

Interactions with Lenacapavir
Residual LEN may affect exposure of sensitive CYP3A4 substrates initiated within 9 months after stopping subcutaneous LEN.

Interactions with Ibalizumab
None

Interactions with Abacavir (ABC), Lamivudine (3TC), Tenofovir-DF (TDF) or Zidovudine (ZDV)
ABC: No clinically relevant interactions expected.
3TC: No clinically relevant interactions expected.
TDF: No clinically relevant interactions expected.
ZDV: No clinically relevant interactions expected.

Colour Legend

- No clinically significant interaction expected.
- These drugs should not be coadministered.
- Potential interaction which may require a dose adjustment or close monitoring.
- Potential interaction predicted to be of weak intensity. No *a priori* dosage adjustment is recommended.

Text Legend

↑ Potential increased exposure of the bronchodilator
↓ Potential decreased exposure of the bronchodilator
↔ No significant effect
♥ One or both drugs may cause QT and/or PR prolongation.
ECG monitoring is advised if coadministered with atazanavir or lopinavir.
Rilpivirine and fostemsavir were shown to prolong the QT interval at supratherapeutic doses. Caution is advised with rilpivirine. ECG monitoring is advised with fostemsavir and drugs with a known QT prolongation risk.
♡ Efavirenz has a potential risk of QT prolongation relating specifically to homozygous carriers of CYP2B6*6/*6.
Numbers refer to increase or decrease in AUC as observed in drug-drug interaction studies.

Text Legend

↑ Potential increased exposure of the bronchodilator
↓ Potential decreased exposure of the bronchodilator
↔ No significant effect

Notes

a Exposure can be increased by up to 2-fold with ritonavir (and may be similar with cobicistat), however, this increase does not raise any concerns based on indacaterol's safety data.

b Coadministration of ritonavir (100 mg twice daily) increased the AUC of the active metabolite (beclometasone-17-monopropionate) by 108% but no significant effect on adrenal function was seen. Caution is still warranted, use the lowest possible corticosteroid dose and monitor for corticosteroid side effects.

c DRV/r decreased the AUC of active metabolite (beclometasone-17-monopropionate) by 11%, but no significant effect on adrenal function was seen.

d Risk of elevated corticosteroid levels, Cushing's syndrome and adrenal suppression. This risk is present for oral and injected administration, and also for topical, inhaled or eye drop formulations.

e No dose adjustment required but monitor closely, especially for signs of Cushing's syndrome when using a high dose or prolonged administration.

Abbreviations ATV atazanavir DRV darunavir LPV lopinavir /c cobicistat /r ritonavir DOR doravirine EFV efavirenz ETV etravirine NVP nevirapine RPV rilpivirine
FTR fostemsavir LEN lenacapavir MVC maraviroc BIC bictegravir CAB cabotegravir DTG dolutegravir EVG elvitegravir RAL raltegravir F or FTC emtricitabine TAF tenofovir alafenamide TDF tenofovir-DF