



## Resource: ART Drug-Drug Interactions

August 2024

Table 5: Bictegravir (BIC) Interactions (also see drug package inserts)		
Class or Drug	Mechanism of Action	Clinical Comments
Antacids	BIC chelates with cations, forming insoluble compounds that inactivate both drugs.	<ul style="list-style-type: none"> <li>• <b>Aluminum/magnesium-containing antacids:</b> Administer antacids at least 6 hours before or 2 hours after BIC.</li> <li>• <b>Calcium-containing antacids:</b> <ul style="list-style-type: none"> <li>– Administer BIC and antacids together with food.</li> <li>– Do not coadminister BIC simultaneously with antacids on empty stomach.</li> </ul> </li> </ul>
Other polyvalent cations	BIC can chelate with cations, reducing absorption of both drugs.	<p><b>Calcium- or iron-containing supplements:</b></p> <ul style="list-style-type: none"> <li>• If taken with food, BIC can be taken at same time.</li> <li>• If not taken with food, these supplements should be administered as with antacids.</li> </ul>
Dofetilide [Feng and Varma 2016]	BIC inhibits renal OCT2 and MATE1, and these transporters eliminate dofetilide.	Avoid concomitant use (may cause QT prolongation or torsades de pointes).
Metformin [Custodio, et al. 2017]	BIC inhibits renal OCT2 and MATE1, which are involved in metformin elimination.	<ul style="list-style-type: none"> <li>• Drug interaction studies suggest that prospective dose adjustment of metformin is not required when using BIC.</li> <li>• Administer at lowest dose possible to achieve glycemic control; monitor for adverse effects.</li> </ul>
Atenolol	Atenolol is eliminated via OCT2 and MATE1, which are inhibited by BIC. Coadministration may increase atenolol levels.	<ul style="list-style-type: none"> <li>• Start at lower atenolol dose and titrate slowly to achieve clinical effect.</li> <li>• If patient is already using atenolol but starting BIC, monitor for atenolol-related adverse effects.</li> <li>• Reduce atenolol dose if necessary or switch to another ARV.</li> </ul>
Cyclosporine	Cyclosporine may increase BIC concentrations to modest degree via P-gP inhibition.	Monitor for BIC-related adverse effects.
Rifabutin, rifampin, rifapentine	<ul style="list-style-type: none"> <li>• <b>Rifabutin:</b> CYP3A and P-gP induction decrease BIC levels.</li> <li>• <b>Rifampin, rifapentine:</b> CYP3A induction reduces bioavailability.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Rifampin:</b> Concomitant use is contraindicated [a].</li> <li>• <b>Rifabutin, rifapentine:</b> Concomitant use is not recommended [FDA(a) 2024].</li> </ul>
COVID-19 therapeutics	<ul style="list-style-type: none"> <li>• <b>Molnupiravir and monoclonal antibodies</b> do not affect CYP450, P-gP, or other drug metabolism transporters.</li> <li>• <b>Nirmatrelvir/RTV:</b> Inhibition of CYP3A4, P-gP, and other transporters may increase plasma concentrations of other medications.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Molnupiravir, monoclonal antibodies:</b> Drug interactions are unlikely.</li> <li>• <b>Nirmatrelvir/RTV:</b> Drug interactions are unlikely; BIC levels may increase.</li> </ul>

**Table 5: Bictegravir (BIC) Interactions** (also see drug package inserts)

Class or Drug	Mechanism of Action	Clinical Comments
<p><b>Abbreviations:</b> 3TC, lamivudine; ARV, antiretroviral; AUC, area under the curve; CYP, cytochrome P450; DTG, dolutegravir; FTC, emtricitabine; INSTI, integrase strand transfer inhibitor; MATE, multidrug and toxin extrusion; OCT, organic cation transporter; P-gP, P-glycoprotein; RTV, ritonavir; TAF, tenofovir alafenamide; TB, tuberculosis; TDF, tenofovir; TDM, therapeutic drug monitoring.</p> <p><b>Note:</b></p> <p>a. The INSIGHT study evaluated BIC/TAF/FTC given twice daily with rifampin for managing TB and showed viral suppression rates similar to DTG given twice daily with TDF/3TC, with trough BIC <math>C_{min}</math> and AUC significantly reduced. Biktarvy is contraindicated for coadministration with rifampin, also known as rifampicin, by the U.S. Food and Drug Administration. The use of Biktarvy in individuals with HIV/TB coinfection is investigational, and the safety and efficacy of this use have not been established. Other twice-daily INSTI alternatives are available for managing TB [Naidoo, et al. 2024].</p> <p><b>No significant interactions/no dose adjustments necessary</b> (see guideline section <a href="#">Drug-Drug Interactions by Common Medication Class</a>): Common oral antibiotics; anticoagulants; antiplatelet medications; statins; acid-reducing agents; asthma and allergy medications; long-acting beta agonists; inhaled and injected corticosteroids; antidepressants; benzodiazepines; sleep medications; antipsychotics; nonopioid pain medications; opioid analgesics and tramadol; hormonal contraceptives; erectile and sexual dysfunction agents; alpha-adrenergic antagonists for benign prostatic hyperplasia; tobacco and smoking cessation products; alcohol, disulfiram, and acamprosate; methadone, buprenorphine, naloxone, and naltrexone; mpox treatments; gender-affirming hormones; ADHD medications and lithium.</p>		

## References

- Custodio J, West S, Yu A, et al. Lack of clinically relevant effect of bictegravir (BIC, B) on metformin (MET) pharmacokinetics (PK) and pharmacodynamics (PD). *Open Forum Infect Dis* 2017;4(Suppl 1):S429. [PMID: PMC5631370] <https://pubmed.ncbi.nlm.nih.gov/PMC5631370>
- FDA(a). Biktarvy (bictegravir, emtricitabine, and tenofovir alafenamide) tablets, for oral use. 2024 Apr. [https://www.accessdata.fda.gov/drugsatfda\\_docs/label/2024/210251s019lbl.pdf](https://www.accessdata.fda.gov/drugsatfda_docs/label/2024/210251s019lbl.pdf) [accessed 2021 May 28]
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- Naidoo A, Naidoo K, Letsoalo MP, et al. Efficacy, safety, and PK of BIC/FTC/TAF in adults with HIV and tuberculosis on rifampicin at week 24. Abstract 211. CROI; 2024 Mar 3-6; Denver, CO. <https://www.croiconference.org/abstract/efficacy-safety-and-pk-of-bic-ftc-taf-in-adults-with-hiv-and-tuberculosis-on-rifampicin-at-week-24/>