



Appendix A: Potential NOAC Drug Interactions

Dabigatran ⁽¹⁻³⁾	Apixaban ⁽⁴⁻⁶⁾ and Rivaroxaban ⁽⁷⁻⁹⁾
Contraindicated Note: Effect may last for several weeks after discontinuation of inducers of P-glycoprotein and/or CYP3A4	
Anticoagulants <ul style="list-style-type: none"> • anti-thrombin agents (e.g., bivalirudin) • Factor-Xa inhibitors (e.g., apixaban and rivaroxaban) • heparin (unless used to maintain a patent central venous or arterial catheter) • heparin derivatives (e.g., fondaparinux) • low molecular weight heparins (e.g., dalteparin and enoxaparin) • warfarin (unless switching to or from a NOAC) 	
Strong inhibitors of P-glycoprotein <ul style="list-style-type: none"> • azole-antimycotics (e.g., itraconazole, ketoconazole, posaconazole, and voriconazole) • HIV protease inhibitors (e.g., darunavir fosamprenavir, indinavir, lopinavir nelfinavir, ritonavir, and saquinavir) 	Strong inhibitors of both P-glycoprotein and CYP3A4 <ul style="list-style-type: none"> • azole-antimycotics (e.g., itraconazole, ketoconazole, posaconazole, and voriconazole) • boceprevir • cobicistat • HIV protease inhibitors (e.g., darunavir fosamprenavir, indinavir, lopinavir nelfinavir, ritonavir, and saquinavir) • imatnib
Avoid use Note: Effect may last for several weeks after discontinuation of inducers of P-glycoprotein and/or CYP3A4	
Platelet inhibitors <ul style="list-style-type: none"> • ASA, clopidogrel, dipyridamole, prasugrel, sulfapyrazone, ticagrelor, ticliopidine 	
Moderate inhibitors of P-glycoprotein <ul style="list-style-type: none"> • cyclosporine • dronedarone • itraconazole posaconazole • tacrolimus • ticagrelor 	
Strong inducers of P-glycoprotein <ul style="list-style-type: none"> • carbamazepine • dexamethasone • doxorubicin • nefazodone • phenobarbital • phenytoin • prazocin • rifampin • St. John's Wort • tenofovir • tipranavir • trazodone • vinblastine 	Strong inducers of CYP3A4 <ul style="list-style-type: none"> • bosentan • efavirenz • etravirine • fosphenytoin • nafcillin • nevirapine • oxcarbazepine • phenobarbital • primidone • rifabutin
	Inducers of P-glycoprotein <ul style="list-style-type: none"> • doxorubicin • prazocin • tipranavir • trazodone • vinblastine

Dabigatran ⁽¹⁻³⁾	Apixaban ⁽⁴⁻⁶⁾ and Rivaroxaban ⁽⁷⁻⁹⁾
Use With Caution	
Nonsteroidal anti-inflammatory drugs (NSAIDs)	
<ul style="list-style-type: none"> Diclofenac, ibuprofen, indomethacin, ketoprofen, naproxen, piroxicam, sulindac 	
Other inhibitors of P-glycoprotein Notes: <ol style="list-style-type: none"> Use with caution in patients with normal renal function. Avoid use in patient with CrCl < 50 mL/min or age ≥ 80 years. Where concomitant use cannot be avoided, administer dabigatran at least 2 hours before P-glycoprotein inhibitor. <ul style="list-style-type: none"> abiraterone alfentanil amiodarone atorvastatin azithromycin beceprevir carvedilol clarithromycin cobicistat diltiazem dipyridamole duloxetine erythromycin fenofibrate grapefruit (fruit or juice) ivacaftor lovastatin mefloquine nicardipine nifedipine progesterone propafenone propranolol quinidine quinine sunitinib tamoxifen ticagrelor tolvaptan ulipristal verapamil 	Inhibitors of P-glycoprotein and/or CYP3A4 Notes: <ol style="list-style-type: none"> Use with caution in patients with normal renal function. Avoid use in patient with CrCl < 30 mL/min or age > 80 years or weight < 60 kg. <ul style="list-style-type: none"> amiodarone azithromycin cimetidine clarithromycin cyclosporine diltiazem donedarone erythromycin felodipine fluconazole grapefruit (fruit or juice) lapatinib nicardipine quinidine tamoxifen ticagrelor verapamil
Gastric pH-elevating agents	
Note: Where concomitant use cannot be avoided, administer dabigatran at least 2 hours before. <ul style="list-style-type: none"> proton pump inhibitors (e.g., esomeprazole, omeprazole, pantoprazole, and rabeprazole) H₂-antagonists (e.g., cimetidine, famotidine, and ranitidine) antacids (aluminium compounds, sodium bicarbonate, calcium and/or magnesium compounds, or combinations of these) 	

Abbreviations: ASA = acetyl-salicylic acid; CrCl = creatinine clearance; CYP3A4 = cytochrome P450 3A4 isoenzymes; HIV = human immunodeficiency virus; kg = kilogram; mL/min = milliliter per minute; NOAC = non-vitamin K antagonist oral anticoagulants.

References:

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