#### **CYP3A4 substrates**

imipramine cyclobenzaprine SSRI antidepressants citalopram norfluoxetine sertraline other antidepressants mirtazapine nefazodone reboxetine venlafaxine trazodone vilazodone buspirone antipsychotics haloperidol aripiprazole risperidone ziprasidone pimozide

quetiapine

tricyclic antidepressants

amitriptyline

clomipramine

- lurasidone
- immunosuppressants
  - cyclosporin
  - tacrolimus
  - sirolimus
  - upadacitinib
- chemotherapeutics
  - docetaxel
  - tamoxifen
  - paclitaxel
  - cyclophosphamide
  - doxorubicin
  - erlotinib
  - etoposide
  - ifosfamide
  - teniposide
  - vinblastine
  - vincristine
  - vindesine
  - imatinib
  - irinotecan
  - sorafenib
  - sunitinib
  - vemurafenib
  - temsirolimus

- anastrozole
- gefitinib
- azole antifungals
  - ketoconazole
  - itraconazole
- macrolides (except azithromycin)
  - clarithromycin
  - erythromycin
  - telithromycin
- dapsone
- opioids
  - alfentanil
  - buprenorphine
  - codeine
  - fentanyl
  - hydrocodone
  - methadone
  - levacetylmethadol
  - tramadol
- benzodiazepines
  - alprazolam
  - midazolam
  - triazolam
  - diazepam
  - · clonazepam

- hypnotics
  - zopiclone
  - zaleplon
  - zolpidem
- donepezil
- statins (except pravastatin)
  - atorvastatin
  - lovastatin
  - simvastatin
  - cerivastatin
- calcium channel blockers
  - diltiazem
  - felodipine
  - nifedipine
  - verapamil
  - amlodipine
  - lercanidipin
  - nitrendipin
  - nisoldipin
- amiodarone
- dronedarone
- quinidine
- PDE5 inhibitors
  - sildenafil
  - tadalafil

- kinins
- steroids
  - sex hormones
  - finasteride
  - estradiol
  - progesterone
  - ethinylestradiol
  - testosterone
  - toremifene
  - bicalutamide
  - glucocorticoids
  - budesonide
  - hydrocortisone
  - dexamethasone
  - fluticasone
- H1-receptor antagonists
  - terfenadine
  - astemizole
  - chlorphenamine
- protease inhibitors
  - indinavir
  - ritonavir
  - saquinavir
  - nelfinavir
- antiretroviral drugs

- nevirapinedelavirdine
- efavirenz
- etravirine
- rilpivirine
- certain angiotensin II receptor blockers
  - losartan
  - irbesartan
- albendazole
- cisapride
- aprepitant
- caffeine
- cocaine
- cilostazol
- dextromethorphan
- domperidone
- eplerenone
- lidocaine
- ondansetron
- propranolol
- salmeterol
- warfarin
- clopidogrel
- 2-oxo-clopidogrel
- omeprazole

- nateglinide
- methoxetamine
- montelukast
- vilaprisan

#### **CYP3A4 Inducers**

**Strong**: decrease the AUC by  $\geq 80\%$ 

**Moderate**: decrease the AUC by  $\geq$ 50 to <80%

## Strong inducers

- carbamazepine
- antiandrogens
  - enzalutamide
  - apalutamide
- phenytoin
- rifampin

#### Weak inducers

upadacitinib

# Inducers of unspecified potency

- anticonvulsants
  - oxcarbazepine
  - topiramate
- barbiturates
  - phenobarbital
  - butalbital
- St. John's wort
- bactericidals
  - rifampicin
  - rifabutin
- antiretroviral drugs
  - efavirenz

- nevirapine
- troglitazone
- glucocorticoids
- modafinil
- capsaicin
- brigatinib
- clobazam
- dabrafenib
- elagolix
- eslicarbazepine
- letermovir
- lorlatinib
- oritavancin
- perampanel
- telotristat

#### **CYP3A4 Inhibitors**

**Strong**: ≥5-fold increase in the plasma AUC values (>80% decrease in clearance)

**Moderate**: ≥2-fold increase in the plasma AUC values (50–80% decrease in clearance)

**Weak**: ≥1.25-fold and <2-fold increase in the plasma AUC values (20–50% decrease in clearance)

## Strong inhibitors

- protease inhibitors
  - boceprevir
  - ritonavir
  - indinavir
  - nelfinavir
  - saquinavir
- macrolide antibiotics
  - clarithromycin
  - erythromycin
  - telithromycin
- ceritinib
- mibefradil
- nefazodone
- ribociclib
- tucatinib
- chloramphenicol
- azole antifungals
  - ketoconazole
  - itraconazole
  - posaconazole

- voriconazole
- cobicistat
- green tea extract
- grape seed extract
- dillapiole
- apigenin

## Moderate inhibitors

- amiodarone
- aprepitant
- ciprofloxacin
- conivaptan
- crizotinib
- rutin
- tofisopam
- calcium channel blockers
  - verapamil
  - diltiazem
- azole antifungals
  - fluconazole
  - miconazole
- bergamottin
- cyclosporine
- donedarone
- fluvoxamine
- imatinib

• valerian

#### Weak inhibitors

- berberine
- buprenorphine
- cafestol (in unfiltered coffee)
- cilostazol
- cimetidine
- fosaprepitant
- lomitapide
- orphenadrine
- omeprazole
- quercetin
- ranitidine
- ranolazine
- tacrolimus
- ticagrelor
- valproic acid
- amlodipine
- azithromycin

# Inhibitors of unspecified potency

- cannabidiol
- dithiocarbamate
- mifepristone
- norfloxacin
- antiretroviral drugs

- delavirdine
- gestodene
- star fruit
- milk thistle
- niacin
- ginkgo biloba
- sesamin
- piperine
- isoniazid
- serenoa