

Interactions with HCC Therapies

Charts revised September 2021. Full information available at www.hep-druginteractions.org

Please note that if a drug is not listed it cannot automatically be assumed it is safe to coadminister.

LEN, lenvatinib; PEM, pembrolizumab; REG, regorafenib; SOR, sorafenib.

	LEN	PEM	REG	SOR
Anaesthetics and Muscle Relaxants				
Bupivacaine	◆	◆	▲	▲
Cisatracurium	◆	◆	◆	◆
Isoflurane	◆	◆	◆	◆
Ketamine	◆	◆	◆	◆
Nitrous oxide	◆	◆	◆	◆
Propofol	◆	◆	■	■
Thiopental	◆	◆	◆	◆
Tizanidine	◆	◆	◆	◆
Analgesics				
Aceclofenac	◆	◆	◆	◆
Alfentanil	◆	◆	◆	◆
Aspirin	◆	◆	◆	◆
Buprenorphine	◆	◆	◆	◆
Celecoxib	◆	◆	◆	◆
Codeine	◆	◆	◆	◆
Dexketoprofen	◆	◆	◆	◆
Dextropropoxyphene	◆	◆	◆	◆
Diamorphine	◆	◆	◆	◆
Diclofenac	◆	◆	◆	◆
Diffunisal	◆	◆	●	◆
Dihydrocodeine	◆	◆	▲	▲
Etoricoxib	◆	◆	◆	◆
Fentanyl	◆	◆	◆	◆
Flurbiprofen	◆	◆	◆	◆
Hydrocodone	◆	◆	◆	◆
Hydromorphone	◆	◆	◆	◆
Ibuprofen	◆	◆	◆	◆
Indometacin	◆	◆	◆	◆
Ketoprofen	◆	◆	◆	◆
Mefenamic acid	◆	◆	●	◆
Meloxicam	◆	◆	◆	◆
Metamizole (Dipyrone)	◆	●	■	■
Methadone	◆	◆	◆	◆
Morphine	◆	◆	◆	◆
Naproxen	◆	◆	◆	◆
Oxycodone	◆	◆	◆	◆
Paracetamol (Acetaminophen)	◆	◆	▲	■
Pethidine (Meperidine)	◆	◆	◆	◆
Piroxicam	◆	◆	◆	◆
Tapentadol	◆	◆	◆	◆
Tramadol	◆	◆	◆	▲
Anthelmintics				
Albendazole	◆	◆	◆	◆
Ivermectin	◆	◆	◆	◆
Oxamniquine	◆	◆	◆	◆
Praziquantel	◆	◆	◆	◆
Pyrantel	◆	◆	◆	◆
Antiarrhythmics				
Amiodarone	■	◆	▲	■
Bepidil	■	◆	◆	■
Digoxin	◆	◆	◆	◆
Disopyramide	■	◆	◆	■
Dofetilide	◆	◆	◆	◆
Dronedaron	■	◆	●	■
Flecainide	■	◆	◆	■
Lidocaine (Lignocaine)	◆	◆	◆	◆
Mexiletine	◆	◆	◆	◆
Propafenone	●	◆	◆	●
Quinidine	■	◆	▲	■
Vernakalant	◆	◆	◆	◆
Antibacterials				
Amikacin	◆	◆	◆	◆
Amoxicillin	◆	◆	◆	◆
Ampicillin	◆	◆	◆	◆
Azithromycin	■	◆	◆	■
Aztreonam	◆	◆	◆	◆
Bedaquiline	■	◆	◆	■
Benzylpenicillin	◆	◆	◆	◆
Capreomycin	◆	◆	◆	◆
Cefaclor	◆	◆	◆	◆
Cefadroxil	◆	◆	◆	◆
Cefalexin	◆	◆	◆	◆
Cefazolin	◆	◆	◆	◆
Cefixime	◆	◆	◆	◆
Cefotaxime	◆	◆	◆	◆
Cefradine	◆	◆	◆	◆
Ceftaroline	◆	◆	◆	◆
Ceftazidime	◆	◆	◆	◆
Ceftriaxone	◆	◆	◆	◆
Cefuroxime	◆	◆	◆	◆
Chloramphenicol	◆	◆	■	▲
Ciprofloxacin	■	◆	●	■
Clarithromycin	■	◆	●	■
Clavulanic acid	◆	◆	◆	◆
Clindamycin	◆	◆	▲	◆
Clofazimine	■	◆	●	■

Key to symbols

●	These drugs should not be coadministered
■	Potential clinically significant interaction that is likely to require additional monitoring, alteration of drug dosage or timing of administration
▲	Potential interaction likely to be of weak intensity. Additional action/monitoring or dosage adjustment is unlikely to be required
◆	No clinically significant interaction expected

For personal use only. Not for distribution.

	LEN	PEM	REG	SOR
Antibacterials continued				
Cloxacillin	◆	◆	◆	◆
Dapsone	◆	◆	◆	◆
Delamanid	■	◆	◆	■
Ertapenem	◆	◆	◆	◆
Erythromycin	■	◆	●	■
Ethambutol	◆	◆	◆	◆
Flucloxacillin	◆	◆	◆	◆
Gentamicin	◆	◆	◆	◆
Imipenem	◆	◆	◆	◆
Isoniazid	◆	◆	◆	◆
Levofloxacin	■	◆	◆	■
Linezolid	◆	◆	▲	◆
Lymecycline	◆	◆	◆	◆
Meropenem	◆	◆	◆	◆
Methenamine	◆	◆	◆	◆
Metronidazole	◆	◆	▲	◆
Moxifloxacin	●	◆	■	●
Nitrofurantoin	◆	◆	◆	◆
Norfloxacin	◆	◆	◆	◆
Ofloxacin	■	◆	◆	■
Penicillin V	◆	◆	◆	◆
Piperacillin	◆	◆	◆	◆
Pivmecillinam	◆	◆	◆	◆
Pyrazinamide	◆	◆	◆	◆
Rifabutin	◆	◆	●	●
Rifampicin	◆	◆	●	●
Rifapentine	◆	◆	●	●
Rifaximin	◆	◆	▲	▲
Spectinomycin	◆	◆	◆	◆
Streptomycin	◆	◆	◆	◆
Sulfadiazine	◆	◆	◆	◆
Tazobactam	◆	◆	◆	◆
Telithromycin	■	◆	●	■
Temocillin	◆	◆	◆	◆
Tetracyclines	◆	◆	◆	◆
Ticarillin	◆	◆	◆	◆
Trimethoprim/Sulfamethoxazole	◆	◆	◆	◆
Troleandomycin	◆	◆	●	◆
Vancomycin	◆	◆	■	◆
Anticoagulant, Anti-platelet and Fibrinolytic				
Acenocoumarol	◆	◆	■	■
Anagrelide	◆	◆	■	◆
Apixaban	◆	◆	■	▲
Clopidogrel	◆	◆	■	◆
Dabigatran	◆	◆	■	▲
Dalteparin	◆	◆	■	◆
Danaparoid	◆	◆	■	◆
Dipyridamole	◆	◆	■	▲
Edoxaban	◆	◆	■	▲
Eltrombopag	◆	◆	■	▲
Enoxaparin	◆	◆	■	◆
Fluindione	◆	◆	■	■
Fondaparinux	◆	◆	■	◆
Heparin	◆	◆	■	◆
Phenprocoumon	◆	◆	■	■
Prasugrel	◆	◆	■	◆
Rivaroxaban	◆	◆	■	▲
Streptokinase	◆	◆	■	◆
Ticagrelor	◆	◆	■	▲
Ticlopidine	◆	◆	■	◆
Tinzaparin	◆	◆	■	◆
Warfarin	■	◆	■	■
Anticonvulsants				
Carbamazepine	◆	◆	●	●
Clonazepam	◆	◆	◆	◆
Eslicarbazepine	◆	◆	●	●
Ethosuximide	◆	◆	◆	◆
Gabapentin	◆	◆	◆	◆
Lacosamide	◆	◆	◆	◆
Lamotrigine	◆	◆	◆	◆
Levetiracetam	◆	◆	◆	◆
Oxcarbazepine	◆	◆	●	●
Perampanel	◆	◆	◆	◆
Phenobarbital	◆	◆	●	●
Phenytoin	◆	◆	●	●
Pregabalin	◆	◆	◆	◆
Primidone	◆	◆	●	●
Retigabine	◆	◆	◆	◆
Rufinamide	◆	◆	◆	◆
Sultiame	◆	◆	◆	◆
Tiagabine	◆	◆	◆	◆
Topiramate	◆	◆	◆	◆
Valproate (Divalproex)	◆	◆	■	▲
Vigabatrin	◆	◆	◆	◆
Zonisamide	◆	◆	◆	◆

Notes

- Further information is available at www.hep-druginteractions.org
- Predicted interactions are based on known metabolic pathways and routes of clearance.
- Caution is required in patients with hepatic impairment as this may also increase drug levels and require dose modification.
- Where advice differs between countries, the charts reflect the more cautious option.

© Liverpool Drug Interactions Group,
 University of Liverpool, Pharmacology Research Labs,
 1st Floor Block H, 70 Pembroke Place, LIVERPOOL, L69 3GF
 We aim to ensure that information is accurate and consistent with current knowledge and practice. However, the University of Liverpool and its servants or agents shall not be responsible or in any way liable for the continued currency of information in this publication whether arising from negligence or otherwise howsoever or for any consequences arising therefrom. The University of Liverpool expressly exclude liability for errors, omissions or inaccuracies to the fullest extent permitted by law.

Interactions with HCC Therapies

Charts revised September 2021. Full information available at www.hep-druginteractions.org

Please note that if a drug is not listed it cannot automatically be assumed it is safe to coadminister.

LEN, lenvatinib; PEM, pembrolizumab; REG, regorafenib; SOR, sorafenib.

	LEN	PEM	REG	SOR
Antidepressants				
Agomelatine	◆	◆	◆	◆
Amitriptyline	■	◆	◆	■
Bupropion	◆	◆	◆	◆
Citalopram	■	◆	◆	■
Clomipramine	■	◆	◆	■
Desipramine	■	◆	◆	■
Desvenlafaxine	◆	◆	◆	◆
Dosulepin	■	◆	◆	■
Doxepin	▲	◆	◆	▲
Duloxetine	◆	◆	◆	◆
Escitalopram	■	◆	◆	■
Fluoxetine	◆	◆	◆	◆
Fluvoxamine	▲	◆	◆	▲
Imipramine	■	◆	◆	■
Lithium	■	◆	◆	■
Maprotiline	■	◆	◆	■
Mianserin	■	◆	◆	■
Milnacipran	◆	◆	◆	◆
Mirtazapine	■	◆	◆	■
Moclobemide	●	◆	◆	●
Nefazodone	◆	◆	◆	◆
Nortriptyline	■	◆	◆	■
Paroxetine	▲	◆	◆	▲
Sertraline	■	◆	◆	■
Tianeptine	◆	◆	◆	◆
Trazodone	■	◆	◆	■
Trimipramine	■	◆	◆	■
Venlafaxine	●	◆	◆	●
Vortioxetine	◆	◆	◆	◆
Antidiabetics				
Acarbose	◆	◆	◆	◆
Albiglutide	◆	◆	◆	▲
Alogliptin	◆	◆	◆	▲
Canagliflozin	◆	◆	■	■
Dapagliflozin	◆	◆	■	■
Dulaglutide	◆	◆	◆	▲
Empagliflozin	◆	◆	■	■
Exenatide	◆	◆	◆	▲
Glibenclamide (Glyburide)	◆	◆	◆	▲
Gliclazide	◆	◆	◆	▲
Glimepiride	◆	◆	◆	▲
Glipizide	◆	◆	◆	▲
Insulin	◆	◆	◆	◆
Linagliptin	◆	◆	▲	▲
Liraglutide	◆	◆	◆	▲
Lixisenatide	◆	◆	◆	▲
Metformin	◆	◆	◆	▲
Nateglinide	◆	◆	◆	▲
Pioglitazone	◆	◆	◆	▲
Repaglinide	◆	◆	◆	▲
Rosiglitazone	◆	◆	◆	▲
Saxagliptin	◆	◆	◆	▲
Sitagliptin	◆	◆	◆	▲
Tolbutamide	◆	◆	◆	▲
Vildagliptin	◆	◆	◆	▲
Antifungals				
Amphotericin B	▲	▲	▲	■
Anidulafungin	◆	◆	◆	◆
Caspofungin	◆	◆	◆	◆
Fluconazole	■	◆	●	■
Flucytosine	▲	▲	▲	▲
Griseofulvin	◆	◆	◆	◆
Isavuconazole	◆	◆	●	◆
Itraconazole	■	◆	●	■
Ketoconazole	■	◆	●	■
Miconazole	◆	◆	◆	◆
Nystatin	◆	◆	◆	◆
Posaconazole	■	◆	●	■
Terbinafine	◆	◆	◆	◆
Voriconazole	■	◆	●	■

	LEN	PEM	REG	SOR
Antihistamines				
Astemizole	■	◆	◆	■
Bilastine	◆	◆	◆	◆
Cetirizine	◆	◆	◆	◆
Chlorphenamine	◆	◆	◆	◆
Desloratadine	◆	◆	◆	◆
Diphenhydramine	▲	◆	◆	▲
Doxylamine	◆	◆	◆	◆
Ebastine	◆	◆	◆	◆
Fexofenadine	◆	◆	◆	▲
Hydroxyzine	●	◆	◆	●
Levocetirizine	◆	◆	◆	◆
Loratadine	◆	◆	◆	◆
Promethazine	■	◆	◆	■
Terfenadine	●	◆	◆	●
Antimigraine Agents				
Almotriptan	◆	◆	◆	◆
Dihydroergotamine	◆	◆	◆	◆
Eletriptan	◆	◆	◆	◆
Ergotamine	◆	◆	◆	◆
Frovatriptan	◆	◆	◆	◆
Methylergonovine	◆	◆	◆	◆
Naratriptan	◆	◆	◆	◆
Pizotifen	◆	◆	◆	◆
Rizatriptan	◆	◆	◆	◆
Sumatriptan	◆	◆	◆	◆
Zolmitriptan	◆	◆	◆	◆
Antiprotozoals				
Amodiaquine	◆	◆	◆	◆
Artemether	●	◆	◆	●
Artemisinin	●	◆	◆	●
Artesunate	●	◆	◆	●
Atovaquone	■	■	◆	■
Chloroquine	■	◆	◆	■
Dihydroartemisinin	●	◆	◆	●
Doxycycline	◆	◆	◆	◆
Halofantrine	■	◆	◆	■
Hydroxychloroquine	◆	◆	◆	◆
Lumefantrine	●	◆	◆	●
Mefloquine	■	◆	◆	■
Nitazoxanide	◆	◆	◆	◆
Pentamidine	◆	◆	◆	◆
Primaquine	■	◆	◆	■
Proguanil	◆	◆	◆	◆
Pyrimethamine	◆	◆	◆	◆
Quinine	■	◆	◆	■
Sodium stibogluconate	◆	◆	◆	◆
Sulfadoxine	◆	◆	◆	◆
Antipsychotics/neuroleptics				
Amisulpride	■	◆	◆	■
Aripiprazole	■	◆	◆	■
Asenapine	■	◆	◆	■
Chlorpromazine	■	◆	◆	■
Chlorprothixene	■	◆	◆	■
Clozapine	■	▲	▲	■
Flupentixol	●	◆	◆	●
Fluphenazine	●	◆	◆	●
Haloperidol	●	◆	◆	●
Iloperidone	●	◆	◆	●
Levomepromazine	■	◆	◆	■
Lurasidone	■	◆	▲	■
Olanzapine	■	◆	◆	■
Paliperidone	■	◆	◆	■
Perazine	▲	◆	◆	▲
Periciazine	■	◆	◆	■
Perphenazine	■	◆	◆	■
Pimozide	●	◆	◆	●
Pipotiazine	■	◆	◆	■
Prochlorperazine	■	◆	◆	■
Quetiapine	■	◆	◆	■
Risperidone	■	◆	◆	■
Sulpiride	■	◆	◆	■
Thioridazine	●	◆	◆	●
Tiapride	■	◆	◆	■
Trifluoperazine	▲	◆	◆	▲
Ziprasidone	●	◆	◆	●
Zuclopentixol	●	◆	◆	●

For personal use only. Not for distribution.

Key to symbols

●	These drugs should not be coadministered
■	Potential clinically significant interaction that is likely to require additional monitoring, alteration of drug dosage or timing of administration
▲	Potential interaction likely to be of weak intensity. Additional action/monitoring or dosage adjustment is unlikely to be required
◆	No clinically significant interaction expected

Notes

- Further information is available at www.hep-druginteractions.org
- Predicted interactions are based on known metabolic pathways and routes of clearance.
- Caution is required in patients with hepatic impairment as this may also increase drug levels and require dose modification.
- Where advice differs between countries, the charts reflect the more cautious option.

© Liverpool Drug Interactions Group,
 University of Liverpool, Pharmacology Research Labs,
 1st Floor Block H, 70 Pembroke Place, LIVERPOOL, L69 3GF
 We aim to ensure that information is accurate and consistent with current knowledge and practice. However, the University of Liverpool and its servants or agents shall not be responsible or in any way liable for the continued currency of information in this publication whether arising from negligence or otherwise howsoever or for any consequences arising therefrom. The University of Liverpool expressly exclude liability for errors, omissions or inaccuracies to the fullest extent permitted by law.

Interactions with HCC Therapies

Charts revised September 2021. Full information available at www.hep-druginteractions.org

Please note that if a drug is not listed it cannot automatically be assumed it is safe to coadminister.

LEN, lenvatinib; PEM, pembrolizumab; REG, regorafenib; SOR, sorafenib.

	LEN	PEM	REG	SOR
Antivirals				
Aciclovir	◆	◆	◆	◆
Amantadine	▲	◆	◆	▲
Brivudine	◆	◆	◆	◆
Cidofovir	◆	▲	◆	◆
Favipiravir	◆	◆	◆	◆
Foscarnet	■	◆	◆	■
Oseltamivir	◆	◆	◆	◆
Remdesivir	◆	◆	◆	◆
Rimantadine	◆	◆	◆	◆
Valaciclovir	◆	◆	◆	◆
Zanamivir	◆	◆	◆	◆
Anxiolytics/Hypnotics/Sedatives				
Alprazolam	◆	◆	◆	◆
Amobarbital	◆	◆	●	●
Bromazepam	◆	◆	◆	◆
Bromperidol	■	◆	◆	●
Buspirone	◆	◆	◆	◆
Clobazam	◆	◆	◆	◆
Clorazepate	◆	◆	◆	◆
Clotiapine	■	◆	◆	■
Diazepam	◆	◆	◆	◆
Estazolam	◆	◆	◆	◆
Flurazepam	◆	◆	◆	◆
Lorazepam	◆	◆	◆	◆
Lormetazepam	◆	◆	◆	◆
Midazolam (oral)	◆	◆	◆	◆
Midazolam (parenteral)	◆	◆	◆	◆
Oxazepam	◆	◆	◆	◆
Quazepam	◆	◆	◆	◆
Temazepam	◆	◆	◆	◆
Triazolam	◆	◆	◆	◆
Zaleplon	◆	◆	◆	◆
Zolpidem	◆	◆	◆	◆
Zopiclone	◆	◆	◆	◆
Beta Blockers				
Atenolol	▲	◆	▲	◆
Bisoprolol	▲	◆	▲	▲
Carvedilol	▲	◆	■	▲
Celiprolol	▲	◆	▲	◆
Labetalol	▲	◆	▲	▲
Metoprolol	▲	◆	▲	▲
Nebivolol	▲	◆	▲	◆
Oxprenolol	▲	◆	■	▲
Pindolol	▲	◆	▲	▲
Propranolol	▲	◆	▲	▲
Sotalol	■	◆	▲	■
Timolol	▲	◆	▲	◆
Bisphosphonates				
Alendronic acid	▲	◆	◆	▲
Clodronate	▲	◆	◆	▲
Ibandronic acid	▲	◆	◆	▲
Pamidronate	▲	◆	◆	▲
Risedronate	▲	◆	◆	▲
Bronchodilators				
Formoterol	◆	◆	◆	◆
Indacaterol	◆	◆	◆	◆
Ipratropium bromide	◆	◆	◆	◆
Montelukast	◆	◆	◆	◆
Omalizumab	◆	◆	◆	◆
Salbutamol	◆	◆	◆	◆
Salmeterol	◆	◆	◆	◆
Theophylline	◆	◆	◆	◆
Tiotropium	◆	◆	◆	◆
Calcium Channel Blockers				
Amlodipine	▲	◆	▲	◆
Diltiazem	▲	◆	▲	◆
Felodipine	▲	◆	▲	◆
Nicardipine	▲	◆	▲	◆
Nifedipine	▲	◆	▲	◆
Nisoldipine	▲	◆	▲	◆
Nitrendipine	▲	◆	▲	◆
Verapamil	▲	◆	▲	◆

	LEN	PEM	REG	SOR
Cancer Therapies				
Abiraterone	■	◆	◆	■
Acalabrutinib	◆	▲	▲	◆
Anastrozole	◆	◆	◆	◆
Avelumab	◆	◆	◆	◆
Axitinib	◆	■	◆	◆
Bevacizumab	◆	■	▲	◆
Blinatumomab	◆	■	▲	◆
Bortezomib	■	■	◆	■
Bosutinib	■	■	▲	■
Brentuximab vedotin	◆	■	▲	◆
Capecitabine	■	■	◆	■
Carboplatin	◆	■	▲	◆
Cetuximab	◆	◆	◆	◆
Chlorambucil	◆	■	▲	◆
Cisplatin	◆	■	▲	■
Cyclophosphamide	◆	▲	▲	◆
Daratumumab	◆	■	▲	◆
Dasatinib	■	■	◆	■
Doxorubicin	▲	■	▲	■
Erlotinib	◆	■	◆	◆
Estramustine	◆	■	◆	◆
Etoposide	◆	■	■	◆
Everolimus	▲	●	▲	■
Exemestane	◆	◆	◆	◆
Fludarabine	◆	■	▲	◆
Gefitinib	◆	◆	■	◆
Gemcitabine	◆	■	▲	◆
Idarubicin	◆	■	▲	◆
Imatinib	◆	■	■	◆
Ipilimumab	◆	■	▲	◆
Irinotecan	◆	■	■	■
Ixazomib	◆	■	▲	◆
Lapatinib	■	■	◆	■
Letrozole	◆	◆	◆	◆
Medroxyprogesterone (oncology)	◆	◆	◆	◆
Mercaptopurine	◆	■	▲	◆
Mesna	◆	◆	◆	◆
Methotrexate	◆	■	■	■
Mitoxantrone	◆	■	■	■
Nilotinib	■	◆	■	■
Niraparib	◆	■	▲	◆
Nivolumab	◆	■	◆	◆
Obinutuzumab	◆	◆	◆	◆
Ofatumumab	◆	■	▲	◆
Olaratumab	◆	■	▲	◆
Oxaliplatin	■	■	▲	■
Paclitaxel	◆	■	▲	◆
Panitumumab	◆	◆	◆	◆
Rituximab	◆	■	▲	◆
Ruxolitinib	▲	▲	▲	▲
Sunitinib	■	■	▲	■
Tamoxifen	▲	◆	◆	▲
Temsirolimus	◆	●	◆	◆
Vinblastine	◆	■	▲	◆
Vincristine	◆	■	▲	◆
Vinorelbine	◆	■	◆	▲
Contraceptives and Hormone Replacement				
Conjugated estrogens (HRT)	◆	◆	◆	◆
Desogestrel (POP)	■	◆	◆	◆
Desogestrel/ethinylestradiol (COC)	■	◆	◆	◆
Dienogest	■	◆	◆	◆
Drospirenone (POP)	■	◆	◆	◆
Drospirenone/estradiol (HRT)	◆	◆	◆	◆
Drospirenone/ethinylestradiol (COC)	■	◆	◆	◆
Dydrogesterone/estradiol (HRT)	◆	◆	◆	◆
Ethinylestradiol	■	◆	◆	◆
Etonogestrel (implant)	■	◆	◆	◆
Etonogestrel (vaginal ring)	■	◆	◆	◆
Gestodene/ethinylestradiol (COC)	■	◆	◆	◆
Levonorgestrel (COC)	■	◆	◆	◆
Levonorgestrel (Emergency Contraception)	■	◆	◆	◆
Levonorgestrel (HRT)	◆	◆	◆	◆
Levonorgestrel (implant)	■	◆	◆	◆
Levonorgestrel (IUD)	■	◆	◆	◆
Levonorgestrel (POP)	■	◆	◆	◆

For personal use only. Not for distribution.

Key to symbols

●	These drugs should not be coadministered
■	Potential clinically significant interaction that is likely to require additional monitoring, alteration of drug dosage or timing of administration
▲	Potential interaction likely to be of weak intensity. Additional action/monitoring or dosage adjustment is unlikely to be required
◆	No clinically significant interaction expected

Notes

- Further information is available at www.hep-druginteractions.org
- Predicted interactions are based on known metabolic pathways and routes of clearance.
- Caution is required in patients with hepatic impairment as this may also increase drug levels and require dose modification.
- Where advice differs between countries, the charts reflect the more cautious option.

© Liverpool Drug Interactions Group,
 University of Liverpool, Pharmacology Research Labs,
 1st Floor Block H, 70 Pembroke Place, LIVERPOOL, L69 3GF
 We aim to ensure that information is accurate and consistent with current knowledge and practice. However, the University of Liverpool and its servants or agents shall not be responsible or in any way liable for the continued currency of information in this publication whether arising from negligence or otherwise howsoever or for any consequences arising therefrom. The University of Liverpool expressly exclude liability for errors, omissions or inaccuracies to the fullest extent permitted by law.

Interactions with HCC Therapies

Charts revised September 2021. Full information available at www.hep-druginteractions.org

Please note that if a drug is not listed it cannot automatically be assumed it is safe to coadminister.

LEN, lenvatinib; PEM, pembrolizumab; REG, regorafenib; SOR, sorafenib.

	LEN	PEM	REG	SOR
Contraceptives continued				
Medroxyprogesterone (depot)	■	◆	◆	◆
Medroxyprogesterone (oral)	■	◆	◆	◆
Medroxyprogesterone/ conjugated estrogens (HRT)	◆	◆	◆	◆
Medroxyprogesterone/estradiol (HRT)	◆	◆	◆	◆
Norelgestromin/ ethinylestradiol (patch)	■	◆	◆	◆
Norethisterone (Norethindrone) (POP)	■	◆	◆	◆
Norethisterone (Norethindrone)/estradiol (HRT)	◆	◆	◆	◆
Norethisterone (Norethindrone)/ethinylestradiol (COC)	■	◆	◆	◆
Norethisterone (Norethindrone)/mestranol (COC)	■	◆	◆	◆
Norgestimate/ ethinylestradiol (COC)	■	◆	◆	◆
Norgestrel/ conjugated estrogens (HRT)	◆	◆	◆	◆
Norgestrel/ethinylestradiol (COC)	■	◆	◆	◆
Erectile Dysfunction Agents				
Sildenafil	◆	◆	◆	◆
Tadalafil	◆	◆	◆	◆
Vardenafil	◆	◆	◆	◆
Gastrointestinal Agents				
Aluminium hydroxide	◆	◆	◆	◆
Alverine citrate	◆	◆	◆	◆
Antacids	◆	◆	◆	◆
Aprepitant	◆	◆	■	◆
Bisacodyl	◆	◆	◆	◆
Cimetidine	◆	◆	▲	◆
Cisapride	■	◆	◆	■
Cyclizine	◆	◆	◆	◆
Dantron	◆	◆	◆	◆
Domperidone	●	◆	◆	●
Droperidol	●	◆	◆	●
Esomeprazole	◆	◆	◆	◆
Famotidine	▲	◆	◆	▲
Granisetron	■	◆	◆	■
Hyoscine	◆	◆	◆	◆
Ispaghula husk	◆	◆	◆	◆
Lactulose	◆	◆	◆	◆
Lansoprazole	◆	◆	◆	◆
Linacotide	◆	◆	◆	◆
Loperamide	◆	◆	◆	◆
Lubiprostone	◆	◆	◆	◆
Macrogol	◆	◆	◆	◆
Mebeverine	◆	◆	◆	◆
Mesalazine	◆	◆	◆	◆
Methylcellulose	◆	◆	◆	◆
Metoclopramide	■	◆	◆	■
Naloxegol	◆	◆	◆	◆
Omeprazole	◆	◆	◆	◆
Ondansetron	■	◆	◆	■
Pantoprazole	◆	◆	◆	◆
Prucalopride	◆	◆	◆	◆
Rabeprazole	◆	◆	◆	◆
Ranitidine	◆	◆	◆	◆
Senna	◆	◆	◆	◆
Simeticone	◆	◆	◆	◆
Sulfasalazine	◆	◆	●	▲
Trimebutine	◆	◆	◆	◆

	LEN	PEM	REG	SOR
HCC Therapies				
Lenvatinib		▲	▲	▲
Pembrolizumab	▲		▲	▲
Regorafenib	▲	▲		■
Sorafenib	▲	▲	■	
Hepatitis B Drugs				
Adefovir	◆	◆	◆	◆
Entecavir	◆	◆	◆	◆
Lamivudine	◆	◆	◆	◆
Peginterferon alfa-2a	▲	▲	▲	▲
Peginterferon alfa-2b	▲	▲	▲	▲
Telbivudine	◆	◆	◆	◆
Tenofovir alafenamide (TAF)	◆	◆	◆	▲
Tenofovir-DF	◆	◆	◆	▲
Hepatitis C Drugs				
Daclatasvir	◆	◆	◆	◆
Elbasvir/Grazoprevir	◆	◆	▲	■
Glecaprevir/Pibrentasvir	◆	◆	▲	◆
Ledipasvir/Sofosbuvir	◆	◆	■	◆
OBV/PTV/r	◆	◆	●	■
OBV/PTV/r + Dasabuvir	◆	◆	●	■
Ribavirin	▲	■	▲	▲
Simeprevir	◆	◆	▲	◆
Sofosbuvir (SOF)	◆	◆	◆	◆
SOF/Velpatasvir	◆	◆	■	◆
SOF/Velpatasvir/Voxilaprevir	◆	◆	■	◆
Hepatitis D Entry Inhibitor				
Bulevirtide	◆	◆	◆	◆

For personal use only. Not for distribution.

Key to symbols

●	These drugs should not be coadministered
■	Potential clinically significant interaction that is likely to require additional monitoring, alteration of drug dosage or timing of administration
▲	Potential interaction likely to be of weak intensity. Additional action/monitoring or dosage adjustment is unlikely to be required
◆	No clinically significant interaction expected

Notes

- Further information is available at www.hep-druginteractions.org
- Predicted interactions are based on known metabolic pathways and routes of clearance.
- Caution is required in patients with hepatic impairment as this may also increase drug levels and require dose modification.
- Where advice differs between countries, the charts reflect the more cautious option.

© Liverpool Drug Interactions Group,
 University of Liverpool, Pharmacology Research Labs,
 1st Floor Block H, 70 Pembroke Place, LIVERPOOL, L69 3GF
 We aim to ensure that information is accurate and consistent with current knowledge and practice. However, the University of Liverpool and its servants or agents shall not be responsible or in any way liable for the continued currency of information in this publication whether arising from negligence or otherwise howsoever or for any consequences arising therefrom. The University of Liverpool expressly exclude liability for errors, omissions or inaccuracies to the fullest extent permitted by law.

Interactions with HCC Therapies

Charts revised September 2021. Full information available at www.hep-druginteractions.org

Please note that if a drug is not listed it cannot automatically be assumed it is safe to coadminister.

LEN, lenvatinib; PEM, pembrolizumab; REG, regorafenib; SOR, sorafenib.

	LEN	PEM	REG	SOR
Herbals/Supplements/Vitamins				
Aloe vera	◆	◆	◆	◆
Ascorbic acid (Vitamin C)	◆	◆	◆	◆
Black cohosh (<i>A. racemosa</i>)	◆	◆	◆	◆
Cat's claw (<i>U. tomentosa</i>)	◆	◆	●	◆
Colecalciferol (Vitamin D3)	◆	◆	◆	◆
Cyanocobalamin (B12)	◆	◆	◆	◆
Diosmin	◆	◆	▲	◆
Echinacea	◆	◆	▲	◆
Eucalyptus globulus	◆	◆	■	◆
Folic acid	◆	◆	◆	◆
Garlic	◆	◆	▲	▲
Ginger (<i>Z. officinale</i>)	◆	◆	■	◆
Ginkgo biloba	◆	◆	◆	◆
Ginseng	◆	◆	◆	◆
Goldenseal (<i>H. canadensis</i>)	◆	◆	■	◆
Grape seed extract	◆	◆	◆	◆
Grapefruit juice	◆	◆	●	◆
Green tea (<i>C. sinensis</i>)	◆	◆	▲	◆
Homeopathic remedies	◆	◆	◆	◆
Inula racemosa	◆	◆	■	◆
Iodine	◆	◆	◆	◆
Ferrous sulphate	◆	◆	◆	◆
Kava kava (<i>P. methysticum</i>)	◆	◆	■	◆
Milk thistle	◆	◆	◆	◆
Retinol (Vitamin A)	◆	◆	◆	◆
Riboflavin (Vitamin B2)	◆	◆	◆	◆
Serenoa repens	◆	◆	●	◆
St John's wort	◆	◆	●	●
Thiamine (Vitamin B1)	◆	◆	◆	◆
Turmeric (curcumin)	◆	◆	▲	◆
Valerian	◆	◆	◆	◆
Vitamin E	◆	◆	◆	◆
HIV Drugs				
Entry/Integrase Inhibitors				
Bictegravir/FTC/TAF	◆	◆	◆	▲
Dolutegravir	◆	◆	◆	▲
Dolutegravir/rilpivirine	▲	◆	▲	▲
Elvitegravir/cobi /FTC/TAF	◆	◆	●	▲
Elvitegravir/cobi/FTC/TDF	◆	◆	●	▲
Ibalizumab-uiyk	◆	◆	◆	◆
Maraviroc	◆	◆	◆	◆
Raltegravir	◆	◆	▲	◆
NNRTIs				
Doravirine	◆	◆	◆	◆
Doravirine/3TC/TDF	◆	◆	◆	▲
Efavirenz	■	◆	●	●
Etravirine	◆	◆	●	●
Nevirapine	◆	◆	●	●
Rilpivirine	▲	◆	◆	▲
Rilpivirine/FTC/TAF	▲	◆	◆	▲
NRTIs				
Abacavir	◆	◆	◆	◆
Didanosine	◆	◆	◆	◆
Emtricitabine (FTC)	◆	◆	◆	◆
Emtricitabine + TAF	◆	◆	◆	▲
Emtricitabine + TDF	◆	◆	◆	▲
Lamivudine	◆	◆	◆	◆
Stavudine	◆	◆	◆	◆
Tenofovir-DF	◆	◆	◆	▲
Zidovudine	▲	◆	▲	▲
Protease Inhibitors				
Atazanavir alone	■	◆	●	■
Atazanavir/cobicistat	■	◆	●	■
Atazanavir + ritonavir	■	◆	●	■
Darunavir/cobicistat	◆	◆	●	◆
Darunavir/cobi/FTC/TAF	◆	◆	●	◆
Darunavir + ritonavir	◆	◆	●	■
Fosamprenavir	◆	◆	●	■
Indinavir	◆	◆	●	◆
Lopinavir	■	◆	●	■
Ritonavir	◆	◆	●	■
Tipranavir	■	◆	●	■

	LEN	PEM	REG	SOR
Hypertension/Heart Failure Agents				
Acebutolol	▲	◆	▲	◆
Aliskiren	▲	◆	▲	▲
Ambrisentan	▲	◆	■	■
Amiloride	▲	◆	▲	◆
Azilsartan	▲	◆	▲	◆
Benazepril	▲	◆	▲	▲
Bendroflumethiazide	▲	◆	■	■
Bosentan	▲	◆	■	■
Bumetanide	▲	◆	▲	◆
Candesartan	▲	◆	▲	◆
Captopril	▲	◆	▲	◆
Chlorthalidone	▲	◆	▲	◆
Chlortalidone	▲	◆	▲	◆
Cilazapril	▲	◆	▲	◆
Clevidipine	▲	◆	▲	◆
Clonidine	▲	◆	▲	◆
Doxazosin	▲	◆	▲	◆
Enalapril	▲	◆	▲	◆
Eplerenone	▲	◆	▲	◆
Epoprostenol	▲	◆	▲	◆
Eprosartan	▲	◆	▲	◆
Fosinopril	▲	◆	▲	◆
Furosemide	▲	◆	■	▲
Hydralazine	▲	◆	▲	◆
Hydrochlorothiazide	▲	◆	▲	◆
Iloprost	▲	◆	▲	◆
Indapamide	▲	◆	▲	■
Irbesartan	▲	◆	▲	▲
Isradipine	▲	◆	▲	◆
Ivabradine	■	◆	▲	■
Lacidipine	■	◆	▲	■
Lercanidipine	▲	◆	▲	◆
Lisinopril	▲	◆	▲	◆
Losartan	▲	◆	▲	◆
Macitentan	▲	◆	▲	◆
Methyldopa	▲	◆	▲	◆
Metolazone	▲	◆	▲	◆
Moxonidine	▲	◆	▲	◆
Olmesartan	▲	◆	▲	◆
Perindopril	▲	◆	▲	◆
Prazosin	▲	◆	■	◆
Quinapril	▲	◆	▲	◆
Ramipril	▲	◆	▲	◆
Ranolazine	■	◆	▲	■
Rilmenidine	▲	◆	▲	◆
Riociguat	▲	◆	▲	◆
Selexipaq	▲	◆	▲	◆
Sildenafil	▲	◆	▲	◆
Spiroonolactone	▲	◆	▲	◆
Tadalafil	▲	◆	▲	◆
Telmisartan	▲	◆	▲	◆
Torsemide	▲	◆	▲	◆
Trandolapril	▲	◆	▲	◆
Treprostinil	▲	◆	▲	◆
Valsartan	▲	◆	▲	◆
Xipamide	▲	◆	▲	◆
Zofenopril	▲	◆	▲	◆

For personal use only. Not for distribution.

Key to symbols

●	These drugs should not be coadministered
■	Potential clinically significant interaction that is likely to require additional monitoring, alteration of drug dosage or timing of administration
▲	Potential interaction likely to be of weak intensity. Additional action/monitoring or dosage adjustment is unlikely to be required
◆	No clinically significant interaction expected

Notes

- Further information is available at www.hep-druginteractions.org
- Predicted interactions are based on known metabolic pathways and routes of clearance.
- Caution is required in patients with hepatic impairment as this may also increase drug levels and require dose modification.
- Where advice differs between countries, the charts reflect the more cautious option.

© Liverpool Drug Interactions Group,
 University of Liverpool, Pharmacology Research Labs,
 1st Floor Block H, 70 Pembroke Place, LIVERPOOL, L69 3GF
 We aim to ensure that information is accurate and consistent with current knowledge and practice. However, the University of Liverpool and its servants or agents shall not be responsible or in any way liable for the continued currency of information in this publication whether arising from negligence or otherwise howsoever or for any consequences arising therefrom. The University of Liverpool expressly exclude liability for errors, omissions or inaccuracies to the fullest extent permitted by law.

Interactions with HCC Therapies

Charts revised September 2021. Full information available at www.hep-druginteractions.org

Please note that if a drug is not listed it cannot automatically be assumed it is safe to coadminister.

LEN, lenvatinib; PEM, pembrolizumab; REG, regorafenib; SOR, sorafenib.

	LEN	PEM	REG	SOR
Illicit/Recreational				
Alcohol	◆	◆	◆	◆
Amphetamine	◆	◆	◆	◆
Cannabis	◆	◆	◆	◆
Carfentanil	◆	◆	◆	◆
Cocaine	●	◆	◆	●
Ecstasy (MDMA)	●	◆	◆	●
GHB (Gamma-hydroxybutyrate)	◆	◆	◆	◆
Heroin	◆	◆	◆	◆
LSD (Lysergic acid diethylamide)	◆	◆	◆	◆
Mephedrone	◆	◆	◆	◆
Methamphetamine	◆	◆	◆	◆
Phencyclidine (PCP)	◆	◆	◆	◆
Immunosuppressants				
Adalimumab	◆	▲	▲	◆
Alemtuzumab	◆	●	◆	◆
Anakinra	▲	▲	▲	▲
Azathioprine	▲	●	▲	▲
Baricitinib	▲	▲	▲	▲
Basiliximab	◆	●	◆	◆
Brodalumab	◆	●	◆	◆
Canakinumab	▲	▲	▲	▲
Ciclosporin	◆	●	●	▲
Eculizumab	◆	●	◆	◆
Etanercept	◆	●	◆	◆
Fingolimod	◆	●	◆	◆
Lenalidomide	◆	●	◆	◆
Mycophenolate	▲	●	■	▲
Pirfenidone	◆	●	◆	◆
Sarilumab	▲	▲	▲	▲
Sirolimus	▲	●	▲	■
Tacrolimus	■	●	●	■
Tocilizumab	▲	▲	▲	▲
Upadacitinib	▲	▲	▲	▲
Lipid Lowering Agents				
Alirocumab	◆	◆	◆	◆
Atorvastatin	◆	◆	■	■
Bezafibrate	◆	◆	◆	◆
Evolocumab	◆	◆	◆	◆
Ezetimibe	◆	◆	▲	▲
Fenofibrate	◆	◆	◆	◆
Fish oils	◆	◆	◆	◆
Fluvastatin	◆	◆	■	◆
Gemfibrozil	◆	◆	◆	◆
Lovastatin	◆	◆	◆	◆
Pitavastatin	◆	◆	◆	▲
Pravastatin	◆	◆	◆	▲
Rosuvastatin	◆	◆	■	▲
Simvastatin	◆	◆	■	▲

	LEN	PEM	REG	SOR
Other Drugs				
Acamprosate	◆	◆	◆	◆
Acetazolamide	◆	◆	◆	◆
Acitretin	◆	◆	◆	◆
Activated charcoal	◆	◆	◆	◆
Allopurinol	◆	■	◆	◆
Atomoxetine	■	◆	◆	■
Atropine	◆	◆	◆	◆
Baclofen	◆	◆	◆	◆
Bamlanivimab	◆	◆	◆	◆
Benralizumab	◆	◆	◆	◆
Bethahistine	◆	◆	◆	◆
Bimatoprost	◆	◆	◆	◆
Biperiden	◆	◆	◆	◆
Brinzolamide	◆	◆	◆	◆
Bromocriptine	◆	◆	◆	◆
Calcitonin	◆	◆	◆	◆
Calcium carbimide	◆	◆	◆	◆
Calcium resonium	◆	◆	◆	◆
Cannabidiol (CBD)	◆	◆	◆	◆
Carbimazole	◆	◆	◆	◆
Carisoprodol	◆	◆	◆	◆
Casirivimab/imdevimab	◆	◆	◆	◆
Cilostazol	■	◆	◆	■
Clomifene	◆	◆	◆	◆
Colchicine	◆	◆	◆	◆
Colestyramine	▲	◆	■	▲
Conivaptan	◆	◆	●	◆
Convalescent plasma (COVID-19)	◆	◆	◆	◆
COVID-19 vaccines	◆	◆	◆	◆
Cyclobenzaprine	◆	◆	◆	◆
Cytisine	◆	◆	◆	◆
Darbepoetin	◆	◆	◆	◆
Deferiprone	◆	◆	◆	◆
Denosumab	◆	◆	◆	◆
Dexamfetamine	◆	◆	◆	◆
Dextromethorphan	◆	◆	◆	◆
Disulfiram	◆	◆	◆	◆
Donepezil	■	◆	◆	■
Dorzolamide	◆	◆	◆	◆
Dupilumab	◆	◆	◆	◆
Eliuglstat	▲	◆	◆	▲
Emicizumab	◆	◆	◆	◆
Epoetin alfa	◆	◆	◆	◆
Etelcalcetide	◆	◆	◆	◆
Febuxostat	◆	◆	◆	◆
Filgrastim	◆	◆	◆	◆
Flibanserin	◆	◆	◆	◆
Gadopentetate (gadolinium)	◆	◆	◆	◆
Glycerol phenylbutyrate	◆	◆	◆	◆
Goserelin	◆	◆	◆	◆
Influenza vaccine	◆	◆	◆	◆
Interferon beta	▲	▲	▲	▲

For personal use only. Not for distribution.

Key to symbols

●	These drugs should not be coadministered
■	Potential clinically significant interaction that is likely to require additional monitoring, alteration of drug dosage or timing of administration
▲	Potential interaction likely to be of weak intensity. Additional action/monitoring or dosage adjustment is unlikely to be required
◆	No clinically significant interaction expected

Notes

- Further information is available at www.hep-druginteractions.org
- Predicted interactions are based on known metabolic pathways and routes of clearance.
- Caution is required in patients with hepatic impairment as this may also increase drug levels and require dose modification.
- Where advice differs between countries, the charts reflect the more cautious option.

© Liverpool Drug Interactions Group,
 University of Liverpool, Pharmacology Research Labs,
 1st Floor Block H, 70 Pembroke Place, LIVERPOOL, L69 3GF
 We aim to ensure that information is accurate and consistent with current knowledge and practice. However, the University of Liverpool and its servants or agents shall not be responsible or in any way liable for the continued currency of information in this publication whether arising from negligence or otherwise howsoever or for any consequences arising therefrom. The University of Liverpool expressly exclude liability for errors, omissions or inaccuracies to the fullest extent permitted by law.

Interactions with HCC Therapies

Charts revised September 2021. Full information available at www.hep-druginteractions.org

Please note that if a drug is not listed it cannot automatically be assumed it is safe to coadminister.

LEN, lenvatinib; PEM, pembrolizumab; REG, regorafenib; SOR, sorafenib.

	LEN	PEM	REG	SOR
Other Drugs Continued				
Isosorbide mononitrate	▲	◆	▲	◆
Isotretinoin	◆	◆	◆	◆
Lanreotide	◆	◆	◆	◆
Levothyroxine	■	◆	◆	◆
Lofexidine	■	◆	◆	■
Lumacaftor/Ivacaftor	◆	◆	●	●
Magnesium	◆	◆	◆	◆
Melatonin	◆	◆	◆	◆
Memantine	▲	◆	◆	■
Methylphenidate	◆	◆	◆	◆
Minoxidil	◆	◆	▲	▲
Modafinil	◆	◆	■	■
Nafidrofuryl	◆	◆	◆	◆
Nalmefene	◆	◆	◆	◆
Naloxone	◆	◆	◆	◆
Naltrexone	◆	◆	▲	▲
Neostigmine	◆	◆	◆	◆
Nicorandil	◆	◆	◆	◆
Nusinersen	■	◆	◆	■
Ocrelizumab	◆	◆	◆	◆
Orlistat	▲	◆	▲	▲
Penicillamine	◆	◆	◆	◆
Pentoxifylline	◆	◆	◆	◆
Phenylephrine	◆	◆	◆	◆
Pilocarpine	◆	◆	◆	◆
Piracetam	◆	◆	◆	◆
Potassium	◆	◆	◆	◆
Protamine sulphate	◆	◆	◆	◆
Pseudoephedrine	◆	◆	◆	◆
Pyridostigmine	◆	◆	◆	◆
Raloxifene	◆	◆	▲	▲
Sevelamer	▲	◆	▲	▲
Strontium ranelate	◆	◆	◆	◆
Thalidomide	◆	■	▲	◆
Tranexamic acid	◆	◆	◆	◆
Varenicline	◆	◆	◆	◆

	LEN	PEM	REG	SOR
Oxytocics				
Ergometrine (ergonovine)	◆	◆	◆	◆
Mifepristone	◆	◆	◆	◆
Misoprostol	◆	◆	◆	◆
Parkinsonism Agents				
Benzotropine	◆	◆	◆	◆
Carbidopa	◆	◆	◆	◆
Orphenadrine	◆	◆	◆	◆
Pramipexole	◆	◆	◆	◆
Procyclidine	◆	◆	◆	◆
Rasagiline	◆	◆	◆	◆
Ropinirole	◆	◆	◆	◆
PBC Agents				
Obeticholic acid	◆	◆	◆	◆
Ursodeoxycholic acid	◆	◆	◆	◆
Steroids				
Beclometasone	◆	●	◆	◆
Betamethasone	◆	●	◆	◆
Budesonide	◆	●	◆	◆
Ciclesonide	◆	●	◆	◆
Clobetasol (topical)	◆	◆	◆	◆
Clobetasone (topical)	◆	◆	◆	◆
Dexamethasone	◆	●	▲	▲
Fludrocortisone	◆	●	◆	◆
Flunisolide	◆	●	◆	◆
Fluticasone	◆	●	◆	◆
Hydrocortisone (topical)	◆	◆	◆	◆
Methylprednisolone	◆	●	◆	◆
Mometasone	◆	●	◆	◆
Prednicarbate	◆	●	◆	◆
Prednisone	◆	●	◆	▲
Triamcinolone	◆	●	◆	◆
Urological Agents				
Alfuzosin	■	◆	◆	■
Desmopressin	◆	◆	◆	◆
Dutasteride	◆	◆	◆	◆
Finasteride	◆	◆	◆	◆
Mirabegron	▲	◆	◆	▲
Silodosin	◆	◆	◆	◆
Solifenacin	■	◆	◆	■
Tamsulosin	◆	◆	◆	◆
Tolterodine	■	◆	◆	■

For personal use only. Not for distribution.

Key to symbols

●	These drugs should not be coadministered
■	Potential clinically significant interaction that is likely to require additional monitoring, alteration of drug dosage or timing of administration
▲	Potential interaction likely to be of weak intensity. Additional action/monitoring or dosage adjustment is unlikely to be required
◆	No clinically significant interaction expected

Notes

- Further information is available at www.hep-druginteractions.org
- Predicted interactions are based on known metabolic pathways and routes of clearance.
- Caution is required in patients with hepatic impairment as this may also increase drug levels and require dose modification.
- Where advice differs between countries, the charts reflect the more cautious option.

© Liverpool Drug Interactions Group,
 University of Liverpool, Pharmacology Research Labs,
 1st Floor Block H, 70 Pembroke Place, LIVERPOOL, L69 3GF
 We aim to ensure that information is accurate and consistent with current knowledge and practice. However, the University of Liverpool and its servants or agents shall not be responsible or in any way liable for the continued currency of information in this publication whether arising from negligence or otherwise howsoever or for any consequences arising therefrom. The University of Liverpool expressly exclude liability for errors, omissions or inaccuracies to the fullest extent permitted by law.