

# Interactions with Experimental COVID-19 Therapies

- Antidepressants
- Antipsychotics/Neuroleptics
- Anxiolytics/Hypnotics/Sedatives
- Anticonvulsants

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## Antipsychotics/Neuroleptics

	ATV	LPV/r	RDV	FAVI	CLQ	HCLQ	NITAZ	RBV	TCZ
Amisulpride	↔	↔	↔	↔	↔	↔	↔	↔	↔
Aripiprazole	↑	↑	↔	↔	↔	↔	↔	↔	↔
Asenapine	↑	↓	↔	↔	↔	↔	↔	↔	↔
Chlorpromazine	↔♥	↑♥	↔	↔	↑♥	↑♥	↔	↔	↔
Clozapine	↑♥	↑♥	↔	↔	↔♥	↔♥	↔	↔	↔
Fluphenazine	↔♥	↑♥	↔	↔	↑♥	↑♥	↔	↔	↔
Haloperidol	↑♥	↑♥	↔	↔	↔♥	↔♥	↔	↔	↔
Iloperidone	↑♥	↑♥	↔	↔	↔♥	↔♥	↔	↔	↔
Levomepromazine	↔♥	↑♥	↔	↔	↑♥	↑♥	↔	↔	↔
Olanzapine	↔	↓	↔	↔	↔	↔	↔	↔	↔
Paliperidone	↑	↑	↔	↔	↔	↔	↔	↔	↔
Perazine	↑	↑	↔	↔	↔	↔	↔	↔	↔
Periciazine	↑	↑	↔	↔	↔	↔	↔	↔	↔
Perphenazine	↑♥	↑♥	↔	↔	↑♥	↑♥	↔	↔	↔
Pimozide	↑♥	↑♥	↔	↔	↔♥	↔♥	↔	↔	↔
Pipotiazine	↔♥	↑♥	↔	↔	↔♥	↔♥	↔	↔	↔
Quetiapine	↑♥	↑♥	↔	↔	↔♥	↔♥	↔	↔	↔
Risperidone	↑♥	↑♥	↔	↔	↑♥	↑♥	↔	↔	↔
Sulpiride	↔♥	↔♥	↔	↔	↔♥	↔♥	↔	↔	↔
Thioridazine	↑♥	↑♥	↔	↔	↑♥	↑♥	↔	↔	↔
Tiapride	↔♥	↔♥	↔	↔	↔♥	↔♥	↔	↔	↔
Ziprasidone	↑♥	↑♥	↔	↔	↔♥	↔♥	↔	↔	↔
Zotepine	↑♥	↑♥	↔	↔	↔♥	↔♥	↔	↔	↔
Zuclopenthixol	↑♥	↑♥	↔	↔	↑♥	↑♥	↔	↔	↔

### Text Legend

- ↑ Potential increased exposure of the comedication
- ↓ Potential decreased exposure of the comedication
- ↑↑ Potential increased exposure of COVID drug
- ↓↓ Potential decreased exposure of COVID drug
- ↔ No significant effect

- ♥ One or both drugs may cause QT and/or PR prolongation. ECG monitoring is advised if coadministered.

Numbers refer to increase or decrease in AUC as observed in drug-drug interaction studies.

### Notes:

#### *Clozapine + RBV, CLQ or HCLQ*

The risk of haematological toxicity may be potentially increased as clozapine, ribavirin, chloroquine and hydroxychloroquine can cause myelosuppression. Closely monitor haematological parameters.

#### *Clozapine + TCZ*

Caution is required due to potential additive haematological toxicity.

#### *Quetiapine + ATV or LPV/r*

Coadministration contraindicated in the European product label for quetiapine, however, US product label recommends quetiapine should be reduced to one sixth of the original dose if coadministered with a potent CYP3A4 inhibitor.



## Antidepressants

	ATV	LPV/r	RDV	FAVI	CLQ	HCLQ	NITAZ	RBV	TCZ
Agomelatine	↔	↓	↔	↔	↔	↔	↔	↔	↔
Amitriptyline	↔♥	↑♥	↔	↔	↑♥	↑♥	↔	↔	↔
Bupropion	↔	↓ 57%	↔	↔	↔	↔	↔	↔	↔
Citalopram	↑♥	↑♥	↔	↔	↔♥	↔♥	↔	↔	↔
Clomipramine	↑♥	↑♥	↔	↔	↔♥	↔♥	↔	↔	↔
Desipramine	↔♥	↑ 5%♥	↔	↔	↑♥	↑♥	↔	↔	↔
Doxepin	↔	↑	↔	↔	↔	↔	↔	↔	↔
Duloxetine	↔	↑↓	↔	↔	↑	↑	↔	↔	↔
Escitalopram	↑♥	↑♥	↔	↔	↔♥	↔♥	↔	↔	↔
Fluoxetine	↔	↑	↔	↔	↑	↑	↔	↔	↔
Fluvoxamine	↔	↑	↔	↔	↑	↑	↔	↔	↔
Imipramine	↑♥	↑♥	↔	↔	↔♥	↔♥	↔	↔	↔
Lithium	↔♥	↔♥	↔	↔	↔♥	↔♥	↔	↔	↔
Maprotiline	↔♥	↑♥	↔	↔	↑♥	↑♥	↔	↔	↔
Mianserin	↑	↑	↔	↔	↑	↑	↔	↔	↔
Milnacipran	↔	↔	↔	↔	↔	↔	↔	↔	↔
Mirtazapine	↑	↑	↔	↔	↑	↑	↔	↔	↔
Nefazodone	↑↑	↑	↔	↔	↔	↔	↔	↔	↔
Nortriptyline	↔♥	↑♥	↔	↔	↑♥	↑♥	↔	↔	↔
Paroxetine	↑↓?	↑↓?	↔	↔	↑	↑	↔	↔	↔
Phenelzine	↔	↔	↔	↔	↔	↔	↔	↔	↔
Reboxetine	↑	↑	↔	↔	↔	↔	↔	↔	↔
Sertraline	↑	↓	↔	↔	↔	↔	↔	↔	↔
St John's wort	↓↓	↓↓	↓↓	↔	↓↓	↓↓	↔	↔	↔
Tranlycypromine	↑	↑	↔	↔	↔	↔	↔	↔	↔
Trazodone	↑♥	↑♥	↔	↔	↔♥	↔♥	↔	↔	↔
Trimipramine	↔	↑	↔	↔	↑	↑	↔	↔	↔
Venlafaxine	↑	↑	↔	↔	↑	↑	↔	↔	↔
Vortioxetine	↔	↑	↔	↔	↑	↑	↔	↔	↔

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- ↓↓ Potential decreased exposure of COVID drug
- ↔ No significant effect

- ♥ One or both drugs may cause QT and/or PR prolongation. ECG monitoring is advised if coadministered.

Numbers refer to increase or decrease in AUC as observed in drug-drug interaction studies.

## Anxiolytics/Hypnotics/Sedatives

	ATV	LPV/r	RDV	FAVI	CLQ	HCLQ	NITAZ	RBV	TCZ
Alprazolam	↑	↑	↔	↔	↔	↔	↔	↔	↔
Bromazepam	↑	↑	↔	↔	↔	↔	↔	↔	↔
Buspirone	↑	↑	↔	↔	↔	↔	↔	↔	↔
Chlordiazepoxide	↑	↑	↔	↔	↔	↔	↔	↔	↔
Clobazam	↑	↑	↔	↔	↔	↔	↔	↔	↔
Clorazepate	↑	↑	↔	↔	↔	↔	↔	↔	↔
Diazepam	↑	↑	↔	↔	↔	↔	↔	↔	↔
Estazolam	↑	↑	↔	↔	↔	↔	↔	↔	↔
Flunitrazepam	↑	↑	↔	↔	↔	↔	↔	↔	↔
Flurazepam	↑	↑	↔	↔	↔	↔	↔	↔	↔
Hydroxyzine	↑♥	↑♥	↔	↔	↔♥	↔♥	↔	↔	↔
Lorazepam	↔	↔	↔	↔	↔	↔	↔	↔	↔
Lormetazepam	↔	↔	↔	↔	↔	↔	↔	↔	↔
Midazolam (oral)	↑	↑	↔	↔	↔	↔	↔	↔	↔
Midazolam (parenteral)	↑	↑	↔	↔	↔	↔	↔	↔	↔
Oxazepam	↔	↔	↔	↔	↔	↔	↔	↔	↔
Temazepam	↔	↔	↔	↔	↔	↔	↔	↔	↔
Triazolam	↑	↑	↔	↔	↔	↔	↔	↔	↔
Zaleplon	↑	↑	↔	↔	↔	↔	↔	↔	↔
Zolpidem	↑	↑	↔	↔	↔	↔	↔	↔	↔
Zopiclone	↑	↑	↔	↔	↔	↔	↔	↔	↔

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- ↑↑ Potential increased exposure of COVID drug
- ↓↓ Potential decreased exposure of COVID drug
- ↔ No significant effect

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Numbers refer to increase or decrease in AUC as observed in drug-drug interaction studies.



## Anticonvulsants

	ATV	LPV/r	RDV	FAVI	CLQ	HCLQ	NITAZ	RBV	TCZ
Carbamazepine	↑↓	↑↓	↓	↔	↓	↓	↔	↔	↓
Clonazepam	↑	↑	↔	↔	↔	↔	↔	↔	↔
Eslicarbazepine	↓♥	↓♥	↓	↔	↓	↓	↔	↔	↔
Ethosuximide	↑	↑	↔	↔	↔	↔	↔	↔	↔
Gabapentin	↔	↔	↔	↔	↔	↔	↔	↔	↔
Lacosamide	↔♥	↔♥	↔	↔	↔	↔	↔	↔	↔
Lamotrigine	↔	↓ 50%	↔	↔	↔	↔	↔	↔	↔
Levetiracetam	↔	↔	↔	↔	↔	↔	↔	↔	↔
Oxcarbazepine	↓	↓	↓	↔	↓	↓	↔	↔	↔
Perampanel	↑	↑	↔	↔	↔	↔	↔	↔	↔
Phenobarbital (Phenobarbitone)	↓	↓	↓	↔	↓	↓	↔	↔	↓
Phenytoin	↓	↓	↓	↔	↓	↓	↑	↔	↓
Pregabalin	↔	↔	↔	↔	↔	↔	↔	↔	↔
Primidone	↓	↓↓	↓	↔	↓	↓	↔	↔	↓
Retigabine	↔	↔	↔	↔	↔	↔	↔	↔	↔
Rufinamide	↓	↓	↓	↔	↓	↓	↔	↔	↔
Sultiame	↑	↑	↔	↔	↔	↔	↔	↔	↔
Tiagabine	↑	↑	↔	↔	↔	↔	↔	↔	↔
Topiramate	↔	↔	↔	↔	↔	↔	↔	↔	↔
Valproate (Divalproex)	↔	↑ 38%	↔	↔	↔	↔	↔	↔	↔
Vigabatrin	↔	↔	↔	↔	↔	↔	↔	↔	↔
Zonisamide	↔	↔	↔	↔	↔	↔	↔	↔	↔

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Numbers refer to increase or decrease in AUC as observed in drug-drug interaction studies.

### Notes:

*Valproate + LPV/r*

Case report of a 48% decrease in valproate concentration in previously stable patient who developed exacerbated mania on starting lopinavir/ritonavir; dose increase of valproate was required.

## ***Key to abbreviations***

ATV	Atazanavir	CLQ	Chloroquine
LPV/r	Lopinavir/ritonavir	HCLQ	Hydroxychloroquine
RDV	Remdesivir	NITAZ	Nitazoxanide
FAVI	Favipiravir	RBV	Ribavirin
		TCZ	Tocilizumab

## ***Key to symbols***

●	These drugs should not be coadministered
■	Potential interaction - may require close 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



	ATV	LPV/r	RDV	FAVI	CLQ	HCLQ	NITAZ	RBV	TCZ
<b>Antifungals</b>									
Amphotericin B	◆	◆	◆	◆	◆	◆	◆	■	◆
Anidulafungin	◆	◆	◆	◆	◆	◆	◆	◆	◆
Caspofungin	▲	◆	◆	◆	◆	◆	◆	◆	◆
Fluconazole	◆	◆	◆	◆	▲	▲	◆	◆	◆
Flucytosine	◆	◆	◆	◆	◆	◆	◆	◆	◆
Griseofulvin	■	■	◆	◆	■	■	◆	◆	◆
Isavuconazole	■	■	◆	◆	▲	▲	◆	◆	◆
Itraconazole	■	■	◆	◆	▲	▲	◆	◆	◆
Ketoconazole	■	■	◆	◆	▲	▲	◆	◆	◆
Micafungin	◆	◆	◆	◆	◆	◆	◆	◆	◆
Miconazole	◆	◆	◆	◆	◆	◆	◆	◆	◆
Nystatin	◆	◆	◆	◆	◆	◆	◆	◆	◆
Posaconazole	■	■	◆	◆	▲	▲	◆	◆	◆
Terbinafine	▲	▲	◆	◆	◆	◆	◆	◆	◆
Voriconazole	■	■	◆	◆	▲	▲	◆	◆	◆
<b>Antipsychotics/Neuroleptics</b>									
Amisulpride	◆	◆	◆	◆	◆	◆	◆	◆	◆
Aripiprazole	■	■	◆	◆	◆	◆	◆	◆	◆
Asenapine	▲	■	◆	◆	◆	◆	◆	◆	◆
Chlorpromazine	■	■	◆	◆	■	■	◆	◆	◆
Clozapine	■	■	◆	◆	■	■	◆	■	■
Fluphenazine	■	■	◆	◆	■	■	◆	◆	◆
Haloperidol	■	■	◆	◆	■	■	◆	◆	◆
Iloperidone	■	■	◆	◆	■	■	◆	◆	◆
Levomepromazine	■	■	◆	◆	■	■	◆	◆	◆
Olanzapine	◆	■	◆	◆	◆	◆	◆	◆	◆
Paliperidone	▲	▲	◆	◆	◆	◆	◆	◆	◆
Perazine	■	■	◆	◆	◆	◆	◆	◆	◆
Periciazine	■	■	◆	◆	◆	◆	◆	◆	◆
Perphenazine	■	■	◆	◆	■	■	◆	◆	◆
Pimozide	●	●	◆	◆	■	■	◆	◆	◆
Pipotiazine	■	■	◆	◆	■	■	◆	◆	◆
Quetiapine	●	●	◆	◆	■	■	◆	◆	◆
Risperidone	■	■	◆	◆	■	■	◆	◆	◆
Sulpiride	■	■	◆	◆	■	■	◆	◆	◆
Thioridazine	■	■	◆	◆	■	■	◆	◆	◆
Tiapride	■	■	◆	◆	■	■	◆	◆	◆
Ziprasidone	●	●	◆	◆	●	●	◆	◆	◆
Zotepine	■	■	◆	◆	■	■	◆	◆	◆
Zuclopenthixol	■	■	◆	◆	■	■	◆	◆	◆

	ATV	LPV/r	RDV	FAVI	CLQ	HCLQ	NITAZ	RBV	TCZ
<b>Antidepressants</b>									
Agomelatine	◆	■	◆	◆	◆	◆	◆	◆	◆
Amitriptyline	■	■	◆	◆	■	■	◆	◆	◆
Bupropion	◆	■	◆	◆	◆	◆	◆	◆	◆
Citalopram	■	■	◆	◆	■	■	◆	◆	◆
Clomipramine	■	■	◆	◆	■	■	◆	◆	◆
Desipramine	■	■	◆	◆	■	■	◆	◆	◆
Doxepin	◆	▲	◆	◆	◆	◆	◆	◆	◆
Duloxetine	◆	▲	◆	◆	◆	◆	◆	◆	◆
Escitalopram	■	■	◆	◆	■	■	◆	◆	◆
Fluoxetine	◆	▲	◆	◆	◆	◆	◆	◆	◆
Fluvoxamine	◆	▲	◆	◆	◆	◆	◆	◆	◆
Imipramine	■	■	◆	◆	■	■	◆	◆	◆
Lithium	■	■	◆	◆	■	■	◆	◆	◆
Maprotiline	■	■	◆	◆	■	■	◆	◆	◆
Mianserin	▲	▲	◆	◆	◆	◆	◆	◆	◆
Milnacipran	◆	◆	◆	◆	◆	◆	◆	◆	◆
Mirtazapine	■	■	◆	◆	◆	◆	◆	◆	◆
Nefazodone	■	■	◆	◆	◆	◆	◆	◆	◆
Nortriptyline	■	■	◆	◆	■	■	◆	◆	◆
Paroxetine	■	■	◆	◆	◆	◆	◆	◆	◆
Phenelzine	◆	◆	◆	◆	◆	◆	◆	◆	◆
Reboxetine	■	■	◆	◆	◆	◆	◆	◆	◆
Sertraline	▲	■	◆	◆	◆	◆	◆	◆	◆
St John's wort	●	●	●	◆	●	●	◆	◆	◆
Tranylcypromine	■	■	◆	◆	◆	◆	◆	◆	◆
Trazodone	■	■	◆	◆	■	■	◆	◆	◆
Trimipramine	◆	▲	◆	◆	◆	◆	◆	◆	◆
Venlafaxine	▲	▲	◆	◆	◆	◆	◆	◆	◆
Vortioxetine	◆	▲	◆	◆	◆	◆	◆	◆	◆



	ATV	LPV/r	RDV	FAVI	CLQ	HCLQ	NITAZ	RBV	TCZ
<b>Anxiolytics/Hypnotics/Sedatives</b>									
Alprazolam	■	■	◆	◆	◆	◆	◆	◆	◆
Bromazepam	▲	▲	◆	◆	◆	◆	◆	◆	◆
Buspirone	■	■	◆	◆	◆	◆	◆	◆	◆
Chlordiazepoxide	■	■	◆	◆	◆	◆	◆	◆	◆
Clobazam	■	■	◆	◆	◆	◆	◆	◆	◆
Clorazepate	■	■	◆	◆	◆	◆	◆	◆	◆
Diazepam	■	■	◆	◆	◆	◆	◆	◆	◆
Estazolam	■	■	◆	◆	◆	◆	◆	◆	◆
Flunitrazepam	■	■	◆	◆	◆	◆	◆	◆	◆
Flurazepam	■	■	◆	◆	◆	◆	◆	◆	◆
Hydroxyzine	■	■	◆	◆	■	■	◆	◆	◆
Lorazepam	◆	◆	◆	◆	◆	◆	◆	◆	◆
Lormetazepam	◆	◆	◆	◆	◆	◆	◆	◆	◆
Midazolam (oral)	●	●	◆	◆	◆	◆	◆	◆	◆
Midazolam (parenteral)	■	■	◆	◆	◆	◆	◆	◆	◆
Oxazepam	◆	◆	◆	◆	◆	◆	◆	◆	◆
Temazepam	◆	◆	◆	◆	◆	◆	◆	◆	◆
Triazolam	●	●	◆	◆	◆	◆	◆	◆	◆
Zaleplon	▲	▲	◆	◆	◆	◆	◆	◆	◆
Zolpidem	■	■	◆	◆	◆	◆	◆	◆	◆
Zopiclone	■	■	◆	◆	◆	◆	◆	◆	◆

[illegible]