





Investigational and repurposed drugs for **COVID-19 treatment**

There are no proven effective treatments yet for COVID-19. Many clinical trials are currently studying the safety and effectiveness of some non-specific antiviral drugs. This infographic provides an overview of what is currently known about five of these drug treatments.*



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Remdesivir			
Type of drug	Adenosine nucleotide analogue prodrug		
Mechanism of action	Interferes with viral RNA-dependent RNA polymerase activity, thus preventing viral replication		
Originally used for	Ebola virus infection		
Initial observations of effect against SARS-CoV-2	Has shown potent in vitro antiviral activity at low (micromolar) concentrations against cells infected with SARS-CoV-2 Been found to shorten the time to recovery to a greater extent than a placebo in adults who were hospitalized with COVID-19 and showed evidence of lower respiratory tract infection		
Known adverse effects	Elevation of hepatic enzyme levels, gastrointestinal complications, rash, renal impairment, and hypotension		
Investigation status	Total ongoing clinical trials: 9 Phase N/A Phase 2/3 Phase 3 Phase 3		

Phase 4

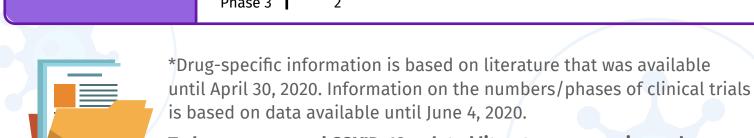
Favipiravir	
Type of drug	Purine nucleotide analog prodrug
Mechanism of action	Inhibits viral RNA-dependent RNA polymerase, thus preventing viral replication
Originally used for	Influenza
Initial observations of effect against SARS-CoV-2	In combination with interferon-α, has been shown to enhance viral clearance and lead to improved lung condition as assessed by chest imaging
Known adverse effects	QT interval prolongation, hyperuricemia, diarrhea, elevation of transaminase levels, reduction in neutrophil count
Investigation status	Total ongoing clinical trials: 24 Phase No. of trials Phase No. of trials N/A 2 Phase 2/3 3 Phase 0 5 Phase 3 8 Phase 1/2 1 Phase 4 2 Phase 2 3

🖺 Lopinavir–Ritoi	navir (in co	ombination)				
Type of drug	Protease inh	ibitors				
Mechanism of action	Inhibits 3-chymotrypsin–like protease and prevents generation of the viral replicase-transcriptase complex, therefore inhibiting viral replication					
Originally used for	HIV infection					
Initial observations of effect against SARS-CoV-2	Limited evidence showing possible decrease in viral load May lead to greater clinical and radiological improvements when administered in combination with umifenovir					
Known adverse effects	Gastrointestinal complications, pancreatitis, hepatotoxicity, cardiac conduction abnormalities					
Investigation status	Total ongoin Phase N/A Phase 0 Phase 2	g clinical trials: No. of trials 5 5 5	Phase Phase 2/3 Phase 3 Phase 4	No. of trials 2 3 4		
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Chloroquine/Hydroxycholoroquine

Type of drug	4-Aminoquinoline				
Mechanism of action	Interferes with the glycosylation of angiotensin-converting enzyme 2 (ACE2, the cellular receptor to which SARS-CoV-2 binds), thus blocking virus fusion with the host cell Also hinders viral trafficking and replication by inhibiting proteolytic processing and endosomal acidification				
Originally used for	Malaria, rheumatoid arthritis				
Initial observations of effect against SARS-CoV-2	Each shown to improve viral clearance and reduce symptom duration				
Known adverse effects	QT prolongation and, when taken together with azithromycin, increased risk of cardiotoxicity				
Investigation status	Total ongoin Phase N/A Phase 0 Phase 1 Phase 1/2 Phase 2	ng clinical trials No. of trials 19 3 8 2 47	with chloroquine, Phase Phase 2/3 Phase 3 Phase 4 Retrospective study	hydroxychloroquine, or both: 214 No. of trials 19 72 43	

Ribavirin				
Type of drug	Guanosine analog			
Mechanism of action	Interferes with viral replication as well as with RNA-protective mechanisms and reduces the fidelity of viral replication, which decreases the viability of the virus			
Originally used for	Respiratory syncytial virus infection, hepatitis C			
Initial observations of effect against SARS-CoV-2	Has demonstrated potent antiviral activity in vitro against cells infected with the virus			
Known adverse effects	Hematologic toxicity observed when used to treat MERS-CoV infection in combination with interferon α-2			
Investigation status	Total ongoing clinical trials: 8 Phase No. of trials N/A 2 Phase 1 1 Phase 2 3 Phase 3 2			



*Drug-specific information is based on literature that was available

is based on data available until June 4, 2020. To learn more, read COVID-19-related literature summaries and access

a global clinical trial database at covid19.researcher.life