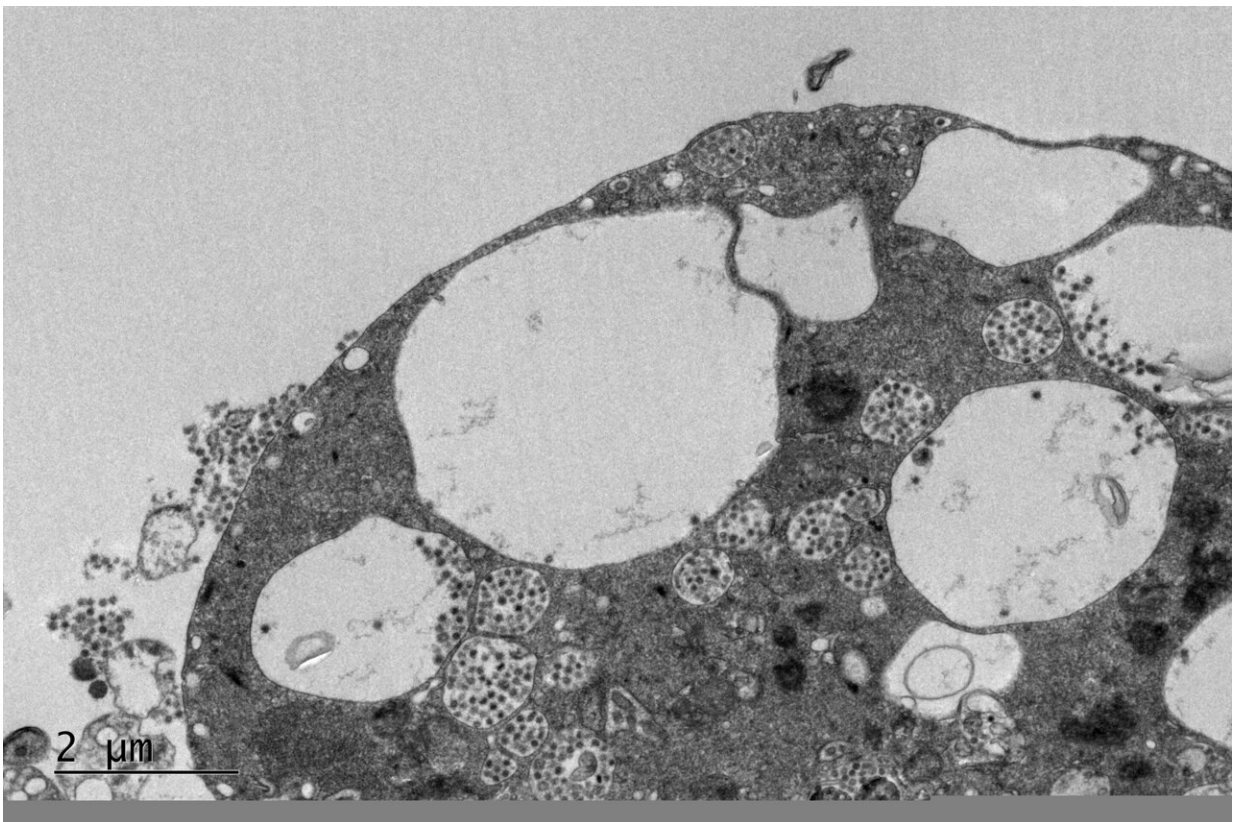


Some FDA-approved drugs could be repurposed to treat people infected with COVID-19

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Electron microscopy showing Vero cells infected with an NLuc tagged SARS-CoV-2 virus. The virus particles are contained within intracellular compartments. Credit: Yinhui Lu, Pickard A et al., 2021, PLOS Pathogens, CC-BY 4.0 (creativecommons.org/licenses/by/4.0/)

Despite the development of SARS-CoV-2 vaccines, effective therapeutics are needed until worldwide immunity has been achieved. A study published in *PLOS Pathogens* by Adam Pickard and Karl Kadler at University of Manchester, United Kingdom, and colleagues suggests that some FDA-approved drugs could be safely repurposed to treat COVID-19 infections.

The majority of the world's population is still unvaccinated, yet there are few medications that have been proven safe, easily distributed, and capable of reducing the spread of SARS-CoV-2. To identify drugs that could effectively treat SARS-CoV-2 infections, researchers performed a screen of 1971 FDA-approved therapeutics using a luminescent enzyme tagged version of SARS-CoV-2 [virus](#) in order to quantify viral load. They then analyzed the efficacy of the drugs in a range of infected human cell types, observing how well the virus replicated in infected cells after exposure to each medication.

The authors identified nine drugs effective in suppressing virus replication in SARS-CoV-2 infected cells already infected with SARS-CoV-2. However, the study was limited in that it was only conducted in [human cells](#) and the drugs have yet to be tested for efficacy in treating SARS-CoV-2 in patients. Clinical trials are needed to determine whether the drugs are suitable therapeutics for COVID-19 patients.

According to the authors, "Our study has identified compounds that are safe in humans and show effectiveness in reducing SARS-CoV-2 infection and replication in human cells. As these drugs are FDA-approved and with safe dosimetry already established for use in patients, [clinical trials](#) could be initiated for these drugs within a relatively short time frame."

Kadler adds, "We identify drugs that stop replication of the SARS-CoV-2 virus (which is the cause of COVID-19) in human [cells](#) in

culture. The drugs include ebastine, which is approved by the FDA for the treatment of *Pneumocystis jirovecii* (*Pneumocystis carinii*) pneumonia, and vitamin D3, which is available over the counter, and could prove powerful additions to the treatment of COVID-19. These drugs have not been evaluated in patients with COVID-19 and are not alternatives to existing treatments or vaccination programs."

More information: Pickard A, Calverley BC, Chang J, Garva R, Gago S, Lu Y, et al. (2021) Discovery of re-purposed drugs that slow SARS-CoV-2 replication in human cells. *PLoS Pathog* 17(9): e1009840. doi.org/10.1371/journal.ppat.1009840

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