

# Studies find existing and experimental drugs active against MERS-coronavirus

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A series of research articles published ahead of print in the journal *Antimicrobial Agents and Chemotherapy* have identified a number of existing pharmaceutical drugs and compounds under development that may offer effective therapies against Middle East Respiratory Syndrome (MERS).

In the first study, researchers screened a library of 290 [pharmaceutical drugs](#), either FDA-approved or in advanced [clinical development](#) for antiviral activity against the MERS coronavirus (MERS-CoV) and severe acute respiratory syndrome coronavirus (SARS-CoV) in cell culture. They found 27 compounds that were active against both viruses including some cancer drugs and antipsychotics.

"Repurposing of approved pharmaceutical drugs for new indications presents an attractive alternative to the normal paradigm of huge library screening against a specific viral enzyme," says author Matthew Frieman of the University of Maryland Medical School. "Given development times and manufacturing requirements for new products, repurposing of existing drugs is likely the best solution to rapidly identify therapeutics for outbreaks due to emerging viruses."

Researchers from the National Institutes of Health, the United States Army Medical Research Institute of Infectious Diseases and Zalicus Inc., Cambridge MA, were also involved in the study. A copy of the manuscript can be found online at <http://bit.ly/asmtip0514e>.

In the second study, researchers collaborating in the European antiviral research program [SILVER](#) used a similar methodology to screen a library of 348 FDA-approved drugs for anti-MERS-CoV activity in cell culture. They identified four compounds that inhibited MERS-CoV, SARS-CoV and Human Coronavirus 229E at relatively low concentrations. Two of the compounds were also identified by the U.S. study: the antimalarial drug chloroquine and the antipsychotic chlorpromazine.

"Although their therapeutic potential (alone or in combination) remains to be assessed in animal models, our findings may offer a starting point for treatment of patients infected with zoonotic coronaviruses like MERS-CoV," says corresponding author Eric Snijder of Leiden University Medical Center, the Netherlands. Researchers from the Rega Institute for Medical Research in Leuven, Belgium and the Erasmus Medical Center in Rotterdam, the Netherlands were also involved in the study.

A copy of the manuscript can be found online at <http://bit.ly/asmtip0514f>.

The third and final study finds that an experimental compound, previously shown to block SARS-CoV replication, can inhibit replication of two other coronaviruses, MERS-CoV and mouse hepatitis virus.

"This study shows that it is possible to target multiple coronaviruses through broad-spectrum inhibitors," says corresponding author Stefan Sarafianos of the Bond Life Sciences Center at the University of Missouri, an author on the study. "This compound could serve as a lead for the development of effective broad-spectrum anti-coronavirus drugs."

**More information:** Researchers from the University of Maryland

Medical School and the University of Pennsylvania School of Medicine also contributed to the research. The manuscript can be found online at [bit.ly/asmtip0514g](http://bit.ly/asmtip0514g)

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