A possible treatment for COVID-19 and an approach for developing others

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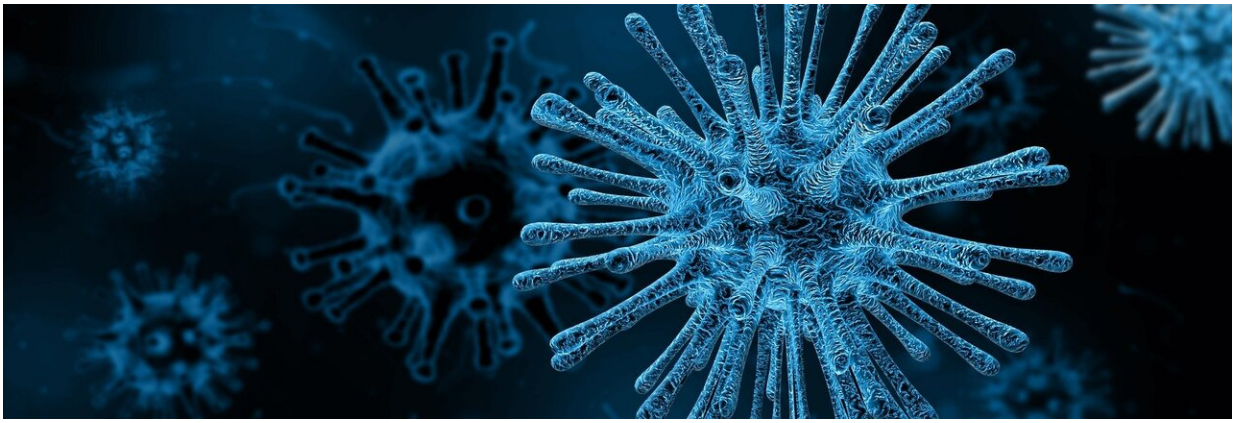

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SARS-CoV-2, the virus that causes COVID-19 disease is more transmissible, but has a lower mortality rate than its sibling, SARS-CoV, according to a review article published this week in *Antimicrobial Agents and Chemotherapy*, a journal of the American Society for Microbiology.

In humans, coronaviruses cause mainly respiratory infections. Individuals with SARS-CoV-2 may remain asymptomatic for 2 to 14 days post-infection and some individuals likely transmit the virus without developing disease symptoms.

So far, the most promising compound for treating COVID-19 is the

antiviral, remdesivir. It is currently in clinical trials for treating Ebola virus infections.

Remdesivir was recently tested in a non-human primate model of MERS-CoV infection. Prophylactic treatment 24 hours prior to inoculation prevented MERS-CoV from causing clinical disease and inhibited viral replication in lung tissues, preventing formation of lung lesions. Initiation of treatment 12 hours after virus inoculation was similarly effective.

Remdesivir has also shown effectiveness against a wide range of coronaviruses. It has already undergone safety testing in clinical trials for Ebola, thereby reducing the time that would be necessary for conducting clinical trials for SARS-CoV-2.

Nonetheless, much work needs to be done to gain a better understanding of the mechanics of SARS-CoV-2. For example, understanding how SARS-CoV-2 interacts with the host ACE2 receptor—by which SARS-CoV-2 gains entry into the host (whether human or animal)—might reveal how this virus overcame the species barrier between animals and humans. This could also lead to design of new antivirals.

Although coronaviruses are common in bats, no direct animal source of the epidemic has been identified to date, according to the report. "It is critical to identify the intermediate species to stop the current spread and to prevent future human SARS-related coronavirus epidemics," the researchers write.

More information: Miguel Angel Martinez, Compounds with therapeutic potential against novel respiratory 2019 coronavirus, *Antimicrobial Agents and Chemotherapy* (2020). DOI: 10.1128/AAC.00399-20

Provided by American Society for Microbiology

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