Study shows that hepatitis C drug EPCLUSA has the potential to inhibit coronaviruses

February 3 2020

Credit: CC0 Public Domain

Columbia Engineering researchers have been developing strategies to cope with the new strain of coronavirus, 2019-nCoV, that has caused a global public health emergency.

In their latest study, "Nucleotide analogues as inhibitors of viral polymerases," posted now in bioRxiv, the researchers recognized that the hepatitis C virus and coronaviruses use a similar viral genome replication mechanism, and thus reasoned that EPCLUSA (Sofosbuvir/Velpatasvir), the FDA-approved drug for hepatitis C, should also inhibit 2019-nCoV.

To develop broad spectrum anti-viral agents to attack these viruses, the Columbia team conceived a novel strategy to design and synthesize viral polymerase inhibitors: to combine the approach used to develop Sofosbuvir with the 3'-blocking groups that the team previously built into nucleotide analogues that function as polymerase terminators.

The research team, led by Jingyue Ju, Samuel Ruben-Peter G. Viele Professor of Engineering, has been in touch with the US Centers for Disease Control and the National Institutes of Health.

"We are very hopeful our method will work and eager to get word out to our colleagues around the world to help tackle this global emergency," says Ju, who is also professor of chemical engineering, professor of pharmacology at Columbia University Irving Medical Center, and director of the Center for Genome Technology & Biomolecular Engineering.

More information: Jingyue Ju et al. Nucleotide Analogues as Inhibitors of Viral Polymerases, *bioRxiv* (2020). DOI: 10.1101/2020.01.30.927574

Provided by Columbia University