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*“Our Harrington team has stimulated deep, rigorous and invaluable thinking about the development of our drug.”*



Photo credit: Robert Lisak

## REPURPOSING A DRUG TO **PREVENT COVID DEATHS**

**FOCUS:** Antiviral clinical effects of camostat mesylate in early COVID-19 outpatients.

ACE2 is a transmembrane protein, found on cells of the upper and lower respiratory tract, heart and vasculature, kidneys, and gastrointestinal tract. As the receptor for the SARS-CoV-2 virus, the pandemic has put ACE2 at the center of research being conducted by many Harrington Scholars and in laboratories around the world.

SARS-CoV-2 exploits the ACE2 to access and infect human cells. First, a protein on the viral surface, called the spike, attaches to the ACE2. Then another human protein, TMPRSS2, cleaves the spike protein, allowing the virus to fuse with the cell and begin to replicate inside it.

TMPRSS2 is a serine protease—an enzyme that cleaves peptide bonds in proteins. It so happens that camostat mesylate, a drug which for decades has been licensed to treat pancreatitis in Japan and South Korea, is a potent serine protease inhibitor. Dr. Vinetz believes camostat mesylate may be effective in lowering the amount of SARS-CoV-2 carried by virus patients, thus lessening the seriousness of their disease and helping to prevent its spread.

Dr. Vinetz has completed a phase II clinical trial of camostat mesylate, and with support from Harrington Discovery Institute, his work

is progressing toward a Phase III trial, where safety and efficacy of the treatment will be studied.

“Our research has shown exciting potential for the use of camostat mesylate for the treatment of COVID-19,” Dr. Vinetz says. “Our work has also revealed potential pathways for re-purposing antivirals or developing new antivirals for other respiratory viral diseases.”

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