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Pancreas drug nafamostat an option for COVID-19 treatment?

German federal government is funding the collaborative project RENACO with 1.6 million euros

In the face of the pandemic spread of SARS-CoV-2 and the worldwide increase in deaths due to this virus, there is an urgent need for effective drugs and vaccines. To speed up the process, existing drugs that have already been approved for treatment of other conditions are tested for their efficacy against the new coronavirus. Scientists of the [German Primate Center \(DPZ\) – Leibniz Institute for Primate Research in Göttingen](#) (Germany) and the [Fraunhofer Institute for Toxicology and Experimental Medicine ITEM in Hannover](#) (Germany) are now receiving 1.6 million euros from the German Federal Ministry of Education and Research (BMBF) for a collaborative project investigating the efficacy of nafamostat. Recent results have shown that this drug, approved for treatment of pancreatitis in Japan, has a 50-fold higher antiviral activity than camostat, a drug which scientists of Stefan Pöhlmann's team at the DPZ confirmed already in early March to be a promising drug candidate for COVID-19 treatment.

The aim of the 18-month project RENACO (*repurposing nafamostat mesylate for COVID-19 prevention*) is to develop nafamostat as a drug for treating COVID-19 patients. Like camostat, nafamostat inhibits the SARS-CoV-2 infection by inhibiting the enzyme TMPRSS2 that plays a crucial role for viral entry into the host's lung cells. In this project, the scientists will investigate in a non-human primate model whether intravenous administration (directly into the bloodstream) of nafamostat provides protection against SARS-CoV-2 infection. In addition, a rat model and lung tissue will be used to elucidate whether the drug can be nebulized and whether it is safely delivered to the airways when administered by inhalation. In addition, pharmacokinetic and safety studies will be performed. In a last step, the scientists will evaluate whether direct administration of nafamostat into the upper airways as a spray is able to inhibit SARS-CoV-2 infection and to prevent COVID-19.

The division of labor in this project is as follows: At the DPZ in Göttingen, the Infection Biology Unit under Stefan Pöhlmann, who is also coordinator of the study, will test the antiviral efficacy of nafamostat in a non-human primate model and in lung tissue. At Fraunhofer ITEM in Hannover, a team headed by Armin Braun, Division Director of Preclinical Pharmacology and Toxicology, will prepare the lung tissue, develop a protocol for nafamostat nebulization, and perform the required pharmacokinetic and safety studies. "Delivering antiviral drugs directly into the airways could provide effective pro-

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tection against SARS-CoV-2 infection and might substantially contribute to containing the COVID-19 pandemic," said Stefan Pöhlmann.

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