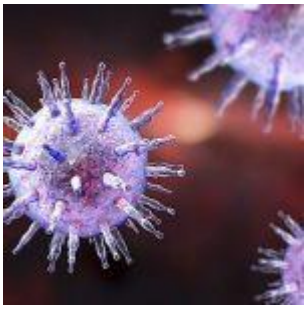
Blocking SARS-CoV-2 infection – new insights



In a recent study, scientists examined the impact of mucociliary active molecules on the *in vitro* infection of the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2).

The effectiveness of existing coronavirus disease 2019 (COVID-19) vaccines and therapeutics, such as antiviral medicines and monoclonal antibodies, have been jeopardised by the ongoing appearance of SARS-CoV-2 variations, necessitating the need for alternative treatment modalities.

Infection with SARS-CoV-2 kills ciliated respiratory cells and interferes with mucociliary transport (MCT) processes. Alterations to MCT have the potential to prolong COVID-19 and raise the likelihood of long-term secondary problems brought on by immunological dysregulation and pulmonary injury. Therefore, SARS-CoV-2 replication may be decreased, airway epithelial barrier functions could be enhanced, and COVID-19 results might be enhanced by MCT-augmenting medications.

Researchers are examining whether restoring or enhancing MCT functioning might lead to better COVID-19 results in the current investigation. The anti-SARS-CoV-2 activity of MCT-improving medications was examined *in vitro*. To impede SARS-CoV-2 clearance and promote SARS-CoV-2 attachment to the host, the scientists theorised that SARS-CoV-2 infection elevated reactive oxygen species (ROS) to levels that were harmful to ciliary motions. As a result, the antioxidant abilities of

ARINA-1 probably decreased the ROS levels necessary to counteract the impact of SARS-CoV-2 on ciliary motions, which ultimately enhanced MCT.

The results of the study supported further research into MCT-enhancing medicines by demonstrating that MCT augmentation might prevent SARS-CoV-2 infection and enhance COVID-19 outcomes.

Journal article: Campos-Gomez, J., et al., 2023. Mucociliary Clearance Augmenting Drugs Block SARS-Cov-2 Replication in Human Airway Epithelial Cells. *bioRxiv.*

Summary by Stefan Botha