KINaCoV-2

Druggable kinase activities seem to be involved in the infection cycle of SARS-CoV-2. We aim to validate & chemically target interdependencies of human kinases with 29 viral proteins directly in human pulmonary cell lines with the project KINaCoV-2: Kinase Interaction Nodes against SARS-CoV-2.

BACKGROUND

So far, no antiviral drugs or vaccines for combating SARS-CoV-2 have been identified. In addition, critical knowledge about the molecular details of human cell infection is missing. Thus, leading scientist for systematic protein interaction analyses have recently teamed up to change this. In this recent paper a complex interaction network of proteins of SARS-CoV-2 with diverse human enzymes have been made public: https://www.biorxiv.org/content/10.1101/2020.03.22.002386v1.
Overall, the authors identified 66 druggable human proteins; amongst others several crucial kinases (we currently work on) which have the potential to be targeted by a collection of FDA-approved drugs.

TECHNOLOGY

To ensure their optimal propagation in humans, viruses have to efficiently hijack the crucial cellular control mechanism. Kinases are the central signalling nodes in human cells and therefore represent the target of choice for viruses to reprogram the host cell for their needs.
We aim to change that by applying our expertise in cell-based kinase activation/inhibition profiling (https://kincon-biolabs.eu/) and time-resolved phospho-proteomics to define kinase:virus-protein inter-dependencies (= 5 human kinases: 29 viral proteins). We intend to systematically specify kinase-drug efficacies and combinations thereof for combating SARS-Cov-2 infections by counteracting its kinase reprogramming strategies. Thus, we implement our kinase conformation reporter toolbox directly into ACE2-expressing human pulmonary cell lines. Besides providing unique kinase-drug profiling data for repurposing strategies we consider to implement our biotechnological expertise for identifying modulatory structural scaffolds interfering with crucial virus-kinase interactions via novel high-speed bacterial *in vivo* selection systems.

OFFER

We offer to integrate our unique KinCon reporter toolbox into ACE2-expressing human pulmonary cell lines to validate the efficacies of kinase drugs and their combinations thereof on human kinase:SARS-CoV-2 protein interdependencies to rapidly find novel means to combat COVID-19.

EXPERTS

Prof. Dr. Rainer Schneider
Prof. Dr. Eduard Stefan

AVAILABLE FOR

- Joint Research Project
- Contract Research
- COMET Funding call

DEVELOPMENT STATUS

TRL 3-4

IPR (OPTIONAL):

WO2018060415

KEYWORDS

- SARS-CoV-2
- COVID-19
- Drug Repurposing
- Virus:human-kinase-interaction
- Kinase inhibitor
- Kinase activator
- Receptor linked kinases

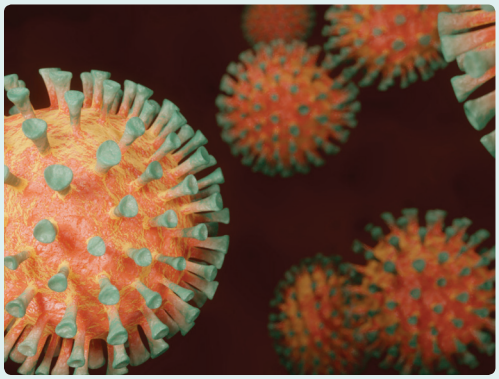

Foto: Pixabay

CONTACT

acib GmbH, Krenngasse 37, 8010 Graz
☎ +43 316 873 9316
✉ bd@acib.at
🌐 www.acib.at