

Nitroxoline for prevention and treatment of coronavirus disease

Field of use
Health

Current state of technology
Prototype

Intellectual property
LU Patent Application No.:
LU102267

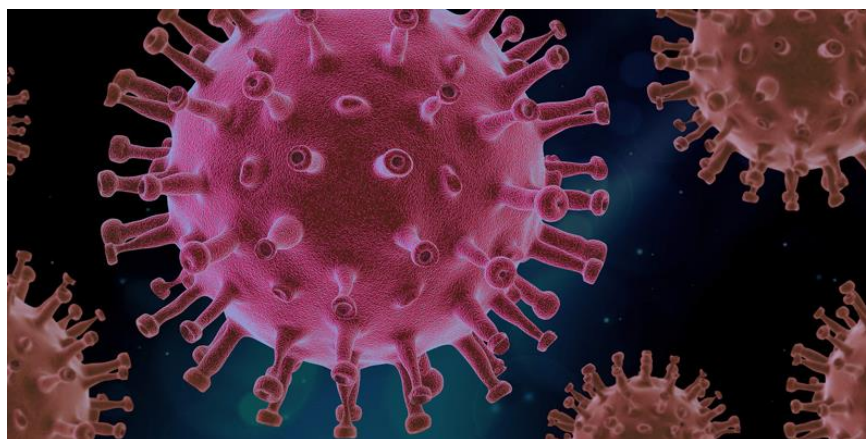
Developed by
University of Ljubljana,
Faculty of Pharmacy;
ICGEB Trieste

Reference
UL20200787025P

Contact
Knowledge Transfer
Office

Gabriela Droga Mazovec
Phone: +386 1 241 85 83
E-mail: ipr@uni-lj.si

ppz.uni-lj.si



Background

The SARS-CoV-2 (covid-19) pandemic has caused one of the worst health crises in recent history.

The spike protein of SARS-CoV-2 has been suggested to be processed by serine peptidase, resulting in membrane fusion and direct release of viral genetic material to the host cell. Our invention is intended for the prevention and treatment of diseases caused by coronaviruses, in particular SARS-CoV-2.

Description of the Invention

Cathepsin B inhibitors, in particular 8-hydroxyquinoline derivatives inactivate with superior efficacy host and/or viral proteases, involved in SARS-CoV-2 cell entry and viral replication. Nitroxoline, used in clinical practice in the treatment of urinary tract infections, expresses its antibiotics activity as a metal ion chelator. Synergistic activity of cathepsin B inhibition and metal ion chelation result in the strong potential of Nitroxoline and other 8-hydroxyquinoline cysteine protease inhibitors against SARS-CoV-2.

Main Advantages

A significant advantage of nitroxoline over other candidate drugs for the treatment of covid-19 (repurposing drugs - amantadine, teicoplanin) is that the mechanism of action on the target has been extensively investigated. Our process can additionally generate a variety of compounds with improved antiviral activity.

