New 2,3-diamino-4-(1*H*-indol-3-yl)butanenitrile compounds for use in the treatment and prevention of viral infections by virus of the family *Coronaviridae*

CSIC has identified new 2,3-diamino-4-(1*H*-indol-3-yl) butanenitrile derivative compounds for use in the treatment and/or prevention of viral infections by virus of the family Coronaviridae, especially by respiratory syndrome-related coronavirus such as SARS-CoV-2 and hCoV-229E.

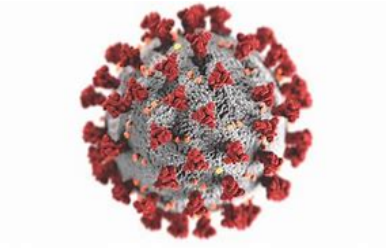
Industrial partners from the pharmaceutical industry are being sought to collaborate through a patent licence agreement and/or a co-development agreement.

An offer for Patent Licensing and/or co-development agreement

New antivirals against SARS-CoV-2 and other coronavirus infections are urgent need

The on-going pandemic of COVID-19, is caused by the infection of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). The virus was first identified in Wuhan (China) in Dec 2019, and it spread out the world rapidly. As of 15 June 2022, more than 536 million cases and 6,3 million deaths have been confirmed, making it one of the deadliest pandemics in history.

Few antivirals against SARS-CoV-2 (and other coronavirus) infection have been approved until now. Remdesivir, is unspecific, injectable, and with limited antiviral effect against COVID-19. The combination of nirmatrelvir and ritonavir (commercialized with the name paxlovid) prevents the reproduction of the virus. Other small molecules with anti-infective properties against coronavirus infection include ivermectin, molnupiravir and nitazoxadin. There is still an urgent need for the identification of novel effective antivirals against SARS-CoV-2.



SARS-CoV-2 virus particle

Main innovations and advantages

- New compounds with potent antiviral activity against infections by SARS-CoV-2 and other coronaviruses (such as hCoV-229E), but not no coronaviruses (such as WNV and VSV).
- Lead compounds are non-toxic (CC_{50} >50 μM) and potent inhibitors of SARS-CoV-2 infection (EC_{50} 1 μM; EC_{90} 2 μM in A549-ACE2/Calu-3).
- Intracellular viral load reduction assessed by RNA quantification in cells inoculated with the virus in the presence of non-toxic compound concentrations revealed antiviral activities similar to remdesivir.
- Determination of efficacy activity in *in vivo* mouse model are ongoing.

Patent Status

Priority patent application filed suitable for international extension

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