PURDUE INNOVATES | Office of Technology Commercialization

MODIFIED Discovery of Potent anti-Mpro Inhibitors for Covid-19 Treatment using Alpha-ketoamide Derivatives

A new class of noncovalent functionalized bis-amide inhibitors demonstrates potent antiviral properties against SARS-CoV-2, offering an improved therapeutic option for Covid-19 treatment and pandemic control.

Researchers at Purdue University have developed a new class of compounds that target the main protease (Mpro) in SARS-COV-2/Covid-19 infection.

With the world facing the coronavirus (Covid-19) pandemic, there is an immediate need for intensive protection from the severe acute respiratory illness associated with the disease. Currently, there is no effective pharmaceutical treatment available for SARS-COV-2 infection. These compounds developed by Purdue University researchers are newer modified versions of previous alpha-ketoamide derivatives that have shown potency as anti-viral agents against Covid-19. One of the compounds identified showed potent activity (IC50= 4.2micromolar) in SARS-COV-2 infected Vero-E6 cells.

Advantages:

-Excellent Antiviral Activity Against SARS-CoV-2 in Mammalian Cells

-Improved Drug-Like Properties

Potential Applications:

-Treatment of Covid-19

-Treatment of Coronavirus

-Pharmaceutical Research & Development

Technology Validation: The compounds have been validated in Vero-E6 cells.

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Recent Publication:

"A small molecule compound with an indole moiety inhibits the main protease of SARS-CoV-2 and blocks virus replication"

Nature Communication

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Intellectual Property:

Provisional-Gov. Funding, 2020-12-01, United States | NATL-Patent, 2021-11-30, Canada | PCT-Gov. Funding, 2021-11-30, WO | NATL-Patent, 2021-11-30, Europe | NATL-Patent, 2023-05-31, United States | NATL-Patent, N/A, Canada

Keywords: SARS-COV-2 main protease inhibitors, Covid-19 antiviral compounds, alpha-ketoamide derivatives, Mpro inhibitor, coronavirus treatment, Vero-E6 cell validation, indole moiety, virus replication blocker, improved drug-like properties, pharmaceutical R&D