Technology offer IP-025

# Kukoamina A to prevent or treat SARS-CoV-2 infection by inhibiting furin

The invention proposes the use of Kukoamine A as an innovative therapeutic alternative against COVID-19. This FDA-approved drug blocks furin—a key enzyme in viral activation—offering an effective option for both prevention and treatment, particularly suited for high-risk individuals or those unable to receive vaccination.

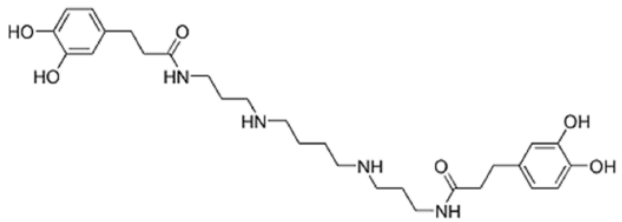


Figure. Kukoamina A structural formula

**State of development**

TRL-5 Validation in a relevant environment

**Objective of the collaboration**

License and/or co-development

**Industrial Property**

Granted spanish patent

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**Contact**

Innovation Unit at IMIB

innovacion@imib.es

## Market needs

COVID-19 has represented a global pandemic, with rapid spread and no effective preventive options, affecting high-risk groups such as the elderly or those with comorbidities. The SARS-CoV-2 spike protein binds to the ACE2 receptor, and its activation by furin is crucial for infection. Dysregulation of this activation increases the virus's virulence, making disease control more difficult. Current therapeutic options, such as antivirals and vaccines, have limitations and adverse effects for some patients. There is an urgent need for alternative treatments to prevent or treat infection in these vulnerable groups.

## Technical solution from IMIB

The technical solution is based on the use of Kukoamine A to inhibit furin, an endogenous protease that plays a key role in the activation of the SARS-CoV-2 spike protein. *In vitro* studies have shown that this compound inhibits furin in a dose-dependent manner, reducing viral activation. *In vivo* assays demonstrated that Kukoamine A exhibits an adjuvant effect when combined with other inhibitors, enhancing efficacy by blocking infection and reducing the risk of viral transmission.

## Benefits

- Therapeutic alternative with a mechanism distinct from existing treatments.
- High specificity in furin inhibition with lower risk of side effects compared to broader-spectrum antiviral therapies.
- FDA-approved drug, streamlining regulatory processes and reducing production costs.
- Preventive option for population groups with contraindications to vaccination or at high risk of adverse effects, thereby broadening pandemic control strategies.

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f SéNeCa(+) Agencia de Ciencia y Tecnología Región de Murcia
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