# Affinity Peptides for Diagnosis and Treatment of Severe Acute Respiratory Syndrome Coronavirus 2 and Zika Virus Infections

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## ABSTRACT

Researchers at the University of California, Davis have developed a technology to expedite COVID-19 diagnosis and treatment using viral spike protein (S-protein) targeted peptides Zika virus envelop protein.

## FULL DESCRIPTION

Researchers at UC Davis have discovered affinity peptide ligands with nanomolar affinity to the signature spike protein (S-protein) of SARS-CoV-2 and Zika envelop protein peptide. These affinity peptides have the potential to not only provide a highly sensitive method for diagnosis, but also to block viral entry and initiation of infection, offering a new avenue for treatment of COVID-19 and Zika virus infection..

Taking advantage of the high surface area of porous nanofibers, immobilization of these ligands on nanofibrous membranes allows the development of personal use sensors that can achieve low nanomolar sensitivity in the detection of the S-protein in saliva. This simple biosensor employing naked-eye reading exhibits detection sensitivity comparable to some of the current FDA-approved home detection kits.

Further, these peptides can be optimized to promote site-specific irreversible covalent ligation, potentially making them potent covalent inhibitors of the S-protein-ACE2 receptor pathway

## APPLICATIONS

- Application in point-of-care or household COVID-19 tests for rapid and accurate diagnosis.
- Therapeutic applications in treating COVID-19 patients by blocking the viral entry and initiation of infection.
- Potential use for inhalation-based therapies to limit infection or treat pulmonary infections of COVID-19 patients.

## FEATURES/BENEFITS

- Peptides offer excellent chemical stability, processability, and scalability, making them suitable for highly-sensitive COVID-19 biosensors.
- Low immunogenicity and excellent biocompatibility of peptides allows safe and efficient administration through inhalation or nasal spray.
- Peptides can serve as potent covalent inhibitors against COVID-19 and Zika infections, providing a new approach for treatment.
- Offers a more accurate and reliable method for COVID-19 diagnosis, addressing the limitations of existing rapid tests.
- Provides a new line of defense for treating COVID-19 by blocking viral entry and initiation of infection

## PATENT STATUS

Patent Pending

## RELATED MATERIALS

- Discovery of Peptidic Ligands against the SARS-CoV-2 Spike Protein and Their Use in the Development of a Highly Sensitive Personal Use Colorimetric COVID-19 Biosensor

**CONTACT**

Raj Gururajan
rgururajan@ucdavis.edu
tel: 530-754-7637.

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**INVENTORS**

- Lam, Kit S.
- Liu, Ruiwu
- Yu, Xingjian

**OTHER INFORMATION**

**CATEGORIZED AS**

- **Biotechnology**
  - Health
- **Medical**
  - Delivery Systems
  - Diagnostics
  - Disease: Central Nervous System
  - Disease: Infectious Diseases
  - Therapeutics
- **Nanotechnology**
  - NanoBio

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**University of California, Davis**
**Technology Transfer Office**
1 Shields Avenue, Mrak Hall 4th Floor,
Davis,CA 95616

Tel: 530.754.8649
techtransfer@ucdavis.edu
https://research.ucdavis.edu/technology-transfer/
Fax: 530.754.7620

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