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# (SD2022-260) Selective Imaging and Inhibition of SARS-CoV-2 Infected Cells, Using A Tunable Protease-Responsive Modular-Peptide-Conjugated AIEgen

Tech ID: 33522 / UC Case 2021-Z08-1

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## OTHER INFORMATION

### **KEYWORDS**

SARS-CoV-2, EISA, AIE, Selective
Imaging and Inhibition, main protease,
mitochondrial targeting, peptideconjugated AlEgen, virus theranostics

# **CATEGORIZED AS**

- Medical
  - Diagnostics
  - Imaging
  - ▶ Therapeutics

# **RELATED CASES**

2021-Z08-1

**BACKGROUND** 

Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is a serious threat to human

health without effective treatment. There is an urgent need for both real-time tracking and

precise treatment of the SARS-CoV-2 infected cells to mitigate and ultimately prevent viral

transmission. However, selective and responsive triggering and tracking of the therapeutic

processin infected cells remains challenging.

**TECHNOLOGY DESCRIPTION** 

Researchers from UC San Diego have leveraged a series of main protease (Mpro)-

responsive and modular-peptide-conjugated probes for the selective imaging and inhibition of

SARS-CoV-2 infected cells via enzyme instructed self-assembly (EISA) and aggregation-

induced emission (AIE). In summary, this technology exploits the potential advantages of

EISA and the AIE effect for selective detection and treatment of the virus infected cells. When

combined with SARSCoV-2 replication characteristics, a Mpro-responsive modular peptide

with conjugated AlEgens named PSGMR offers selective imaging and inhibition of the Mpro

plasmid transfected HEK 293T cells and SARS-CoV-2 infected TMPRSS2-Vero cells.

**APPLICATIONS** 

This patent-pending strategy will open new avenues for the development of theranostic agents against

COVID-19 and other emerging diseases.

**ADVANTAGES** 

STATE OF DEVELOPMENT

**INTELLECTUAL PROPERTY INFO** 

**RELATED MATERIALS** 

▶ Cheng Y, Clark AE, Zhou J, He T, Li Y, Borum RM, Creyer MN, Xu M, Jin Z, Zhou J, Yim W, Wu Z, Fajtová P, O'Donoghue AJ, Carlin AF,

Jokerst JV. Protease-Responsive Peptide-Conjugated Mitochondrial-Targeting AlEgens for Selective Imaging and Inhibition of SARS-CoV-

2-Infected Cells. ACS Nano. 2022 Aug 23;16(8):12305-12317. doi: 10.1021/acsnano.2c03219. Epub 2022 Jul 25. - 07/25/2022

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