DEPARTMENT OF HEALTH AND HUMAN SERVICES

Government-Owned Inventions; Availability for Licensing

AGENCY: National Institutes of Health, HHS.

ACTION: Notice.

SUMMARY: The inventions listed below are owned by an agency of the U.S. Government and are available for licensing in the U.S. to achieve expeditious commercialization of results of federally-funded research and development.

FOR FURTHER INFORMATION CONTACT: Licensing information may be obtained by emailing Michael Shmilovich, shmilovm@nih.gov the indicated licensing contact at the National Heart, Lung, and Blood, Office of Technology Transfer and Development Office of Technology Transfer, 31 Center Drive Room 4A29, MSC2479, Bethesda, MD 20892-2479; telephone: 301-402-5579. A signed Confidential Disclosure Agreement may be required to receive any unpublished information.

SUPPLEMENTARY INFORMATION: Technology description follows.

LIPOSOME NANODECOYS THAT PROTECT AGAINST SARS-COV-2

Available for licensing and commercial development are patent rights covering a liposomal vesicle (a “nanodecoy”) with a lipid bilayer with one or more proteins recognized by a pathogen (e.g., SARS-CoV-2) and one or more cytokine receptors (such as IL-6; receptors: CD126, CD130; IL-1; receptors: CD121a, CD121b, IL-8; receptors: IL-8RB; IL-12; receptors: CD212; TNF-α; receptors: CD120a, CD120b; IFN-γ; receptors: CD119, IFN-α/β; receptors: CD118) and wherein the liposomal vesicle is non-
replicating. Nanodecoys that display angiotensin-converting enzyme 2 (ACE2) and multiple cytokine receptors, are able to sequester SARS-CoV-2 and inhibit viral replication and infection, as well as to mitigate COVID-19-induced cytokine release syndrome (CRS) in susceptible cells.

Potential Commercial Applications:

- COVID-19
- SARS-CoV-2
- Cytokine release syndrome
  - immunosuppression
- Viral inhibition
  - Receptor binding competition

Development Stage:

- Preclinical

Inventors: Xiaoyuan (Shawn) Chen (NIBIB) and Lang Rao (NIBIB)


Licensing Contact: Michael Shmilovich, Esq, CLP; 301-435-5019; shmilovm@mail.nih.gov

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Michael A. Shmilovich,

Senior Licensing and Patenting Manager,

National Heart, Lung, and Blood Institute,
Office of Technology Transfer and Development.

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