



**Billing Code 4140-01-P**

**DEPARTMENT OF HEALTH AND HUMAN SERVICES**

**National Institutes of Health**

**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](mailto: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 A signed Confidential Disclosure Agreement may be required to receive any unpublished information.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- $\alpha$ ; receptors: CD120a, CD120b; IFN- $\gamma$ ; receptors: CD119, IFN- $\alpha/\beta$ ; 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)

**Intellectual Property:** HHS Reference No. E-144-2020-0-US-01 “Engineered Cell Membrane Nanodecoys To Protect Against COVID-19;” U.S Provisional Patent Application 63/038,380 filed June 12, 2020.

**Licensing Contact:** Michael Shmilovich, Esq, CLP; 301-435-5019;

[shmilovm@mail.nih.gov](mailto:shmilovm@mail.nih.gov).

Dated: June 17, 2020.

**Michael A. Shmilovich,**

*Senior Licensing and Patenting Manager,*

*National Heart, Lung, and Blood Institute,*

*Office of Technology Transfer and Development.*

[FR Doc. 2020-13656 Filed: 6/24/2020 8:45 am; Publication Date: 6/25/2020]