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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 invention listed below is owned by an agency of the U.S. Government and is available for licensing to achieve expeditious commercialization of results of federally-funded research and development. Foreign patent applications are filed on selected inventions to extend market coverage for companies and may also be available for licensing.

FOR FURTHER INFORMATION CONTACT: Amy F. Petrik, Ph.D. at 240-627-3721 or *amy.petrik@nih.gov*. Licensing information may be obtained by communicating with the indicated licensing contact at the Technology Transfer and Intellectual Property Office, National Institute of Allergy and Infectious Diseases, 5601 Fishers Lane, Rockville, MD, 20852; tel. 301-496-2644. A signed Confidential Disclosure Agreement will be required to receive copies of unpublished information related to the invention.

SUPPLEMENTARY INFORMATION: Technology description follows:

Base-Covered HIV-1 Envelope Ectodomains and Their Use.

Description of Technology:

Researchers at the Vaccine Research Center ("VRC") of the National Institute of Allergy and Infectious Diseases ("NAID") continue to pursue a safe and effective HIV-1 vaccine to combat the HIV-1/AIDS pandemic.

To this end, researchers have engineered the soluble HIV-1 ectodomain trimer so that it is stabilized in its prefusion conformation by artificial disulfides, helix-disrupting

prolines, and other structure-based alterations. However, mice and non-human primates immunized with these engineered soluble HIV-1 trimers produced a significant (>90% in some cases) immune response to the exposed trimer base.

VRC researchers further modified the engineered prefusion soluble HIV-1 trimers by adding N-linked glycans to specific sites on the protein's base to block this immunodominant surface. They found that these N-linked glycans did reduce production of non-neutralizing antibodies directed to the trimer base. These soluble, glycan-masked prefusion HIV-1 trimers are envisioned as being a part of a heterologous prime-boost vaccine regimen.

This technology is available for licensing for commercial development in accordance with 35 U.S.C. 209 and 37 CFR part 404, as well as further development and evaluation under a research collaboration.

Potential Commercial Applications:

- Vaccine for prevention of HIV-1 infection
- Therapeutic vaccine for treatment of HIV-1 infection

Competitive Advantages:

- Currently, no licensed HIV vaccine exists

Development Stage:

- Animal studies

Inventors: Peter Kwong, John Mascola, Tongqing Zhou, Adam Olia, Reda Rawi, Yongping Yang, Cheng Cheng (all of NIAID).

Publications: Olia, et al. (2023) Soluble prefusion-closed HIV-envelope trimers with glycan-covered bases. iScience *26*, 107403, August 18, 2023. DOI: *https://doi.org/10.1016/j.sci.2023.107403*

Intellectual Property: HHS Reference Number E-079-2022 includes PCT Patent Application No. PCT/US2023/065009 filed on March 27, 2023.

Licensing Contact: To license this technology, please contact Amy F. Petrik, Ph.D., 240-627-3721; *amy.petrik@nih.gov*, and reference E-079-2022.

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[FR Doc. 2023-24551 Filed: 11/6/2023 8:45 am; Publication Date: 11/7/2023]