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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 inventions listed below are owned by an agency of the U.S. Government and are 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: Chris Kornak, 240-627-3705, chris.kornak@nih.gov. Licensing information and copies of the U.S. patent applications listed below may be obtained by communicating with the indicated licensing contact at the Technology Transfer and Intellectual Property Office (TTIPO), 5601 Fishers Lane, Suite 6D, MSC 9804, Rockville, MD 20892, tel: 301-496-2644, fax: 240-627-3117. A signed Confidential Disclosure Agreement will be required to receive copies of unpublished patent applications.

SUPPLEMENTARY INFORMATION: Technology description follows.

Recombinant HIV-1 Envelope Proteins and Their Use

Description of Technology:

Millions of people are infected with HIV-1 worldwide. In the U.S., there are about 30,000 new cases of HIV infection reported annually. Currently, there are effective, anti-retroviral therapeutics available to treat or prevent HIV infection. However, available anti-retroviral therapeutics require life-long administration.

During infection, proteases of the host cell cleave gp160 into gp120 and gp41. Gp41 is an integral membrane protein, while gp120 protrudes from the mature virus. Together gp120 and gp41 aggregate as trimers that make up the HIV-1 envelope ("Env") spike, which is a target for neutralizing antibodies.

NIAID researchers have constructed a recombinant HIV-1 trimer immunogen. In particular, the recombinant gp120 protein in the trimer is stabilized in a closed conformation, preventing it from binding to CD4. The advantage of the closed conformation is that it can stabilize the epitopes that bind to broadly neutralizing antibodies, minimize the binding of gp120 with weakly or non-neutralizing antibodies, and prevent conformational changes induced by CD4 as well as immunogen sequestration by CD4 *in vivo*. Research has also indicated that recombinant Env ectodomain trimers can induce higher neutralizing antibody titers than wild type Env trimers in animal models.

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 for further development and evaluation under a research collaboration.

Potential Commercial Applications:

- HIV-1 immunogen
- New methods for isolating broadly neutralizing antibodies

Competitive Advantages:

- A new strategy in inducing immune response against HIV-1

Development Stage:

- Pre-Clinical; Proof-of-concept studies in nonhuman primate models

Inventors:

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Publications: Pending

Intellectual Property: HHS Reference No. E-102-2016/0 - PCT Application No. PCT/US2017/021573 filed on 03/09/2017

Licensing Contact: Chris Kornak, 240-627-3705, chris.kornak@nih.gov

Collaborative Research Opportunity: The Technology Transfer and Intellectual Property Office (TTIPO) is seeking parties interested in collaborative research to further develop the technology. In particular, NIAID is interested in partnerships utilizing vector vaccine platforms for expressing these immunogens.

However, NIAID is willing to discuss other applications of this technology. For collaboration opportunities, please contact Chris Kornak, 240-627-3705, chris.kornak@nih.gov.

Dated: September 7, 2017.

Suzanne Frisbie,

Deputy Director

Technology Transfer and Intellectual Property Office

National Institute of Allergy and Infectious Diseases

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