



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 National Institute of Allergy and Infectious Diseases (NIAID), an institute of the National Institutes of Health (NIH), Department of Health and Human Services (HHS), is giving notice of the invention listed below, which 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: : Inquiries related to this licensing opportunity should be directed to: Chris Kornak at 240-565-2632, or chris.kornak@nih.gov. Licensing information may be obtained by communicating with 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 A signed Confidential Disclosure Agreement will be required to receive copies of unpublished information related to the invention.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:

Novel malaria vaccine candidates comprising engineered nanoparticles.

Description of Technology:

Using proteins derived from the malaria *Plasmodium falciparum* parasite, NIAID has developed three different nanoparticle platforms to serve as scaffolds for displaying multiple copies of malaria antigens in an organized, repetitive manner to enhance vaccine effectiveness. The first platform uses the pyridoxal 5'-phosphate (PLP) synthase protein to form a nanoparticle displaying 48 copies of up to 4 different proteins. The second platform uses the chaperone 60

(Cpn60), which can display 28 copies of up to 2 different proteins. The third platform uses a caseinolytic protease (Clp) which can display 28 copies of up to two different proteins.

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:

- Malaria vaccinology.

Competitive Advantages:

- Pre-clinical data indicates that nanoparticles displaying the malaria circumsporozoite protein (CSP) confer 100% sterilizing immunity in mice.

Developmental Stage:

- Pre-Clinical

Inventors: Dr. Niraj H. Tolia, Dr. Dashuang Shi, Mr. Vu Nguyen, and Dr. Thayne H. Dickey, all of NIAID.

Publications: Shi D, et al. A Plasmodium-derived nanoparticle vaccine elicits sterile protection against malaria in mice. *Nat Microbiol.* 2026;11(1):67-80. doi:10.1038/s41564-025-02209-y.

Intellectual Property: HHS Reference No. E-182-2024-0. U.S. Provisional Patent Application No. 63/695,288, filed on September 16, 2024, and PCT Patent Application No. PCT/US2025/046419, filed on September 15, 2025.

Licensing Contact: To license this technology, please contact Chris Kornak at 240-565-2632, or chris.kornak@nih.gov, and reference E-182-2024-0.

Collaborative Research Opportunity: The National Institute of Allergy and Infectious Diseases is seeking statements of capability or interest from parties interested in collaborative research to further develop, evaluate, or commercialize this technology. For collaboration opportunities, please contact Chris Kornak at 240-565-2632, or chris.kornak@nih.gov.

Dated: March 3, 2026.

Surekha Vathyam,

Director,

Technology Transfer and Intellectual Property Office,

National Institute of Allergy and Infectious Diseases.

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