le 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 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: Peter Tung at 240-669-5483 or *peter.tung@nih.gov*. Licensing information and copies of the patent applications listed below 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 A signed Confidential Disclosure Agreement will be required to receive copies of unpublished patent applications related to the invention.

SUPPLEMENTARY INFORMATION: Technology description follows.

Beta Globin Mimetic Peptides and Their Use

Description of Technology:

Feedback vasodilation by endothelium-derived nitric oxide (NO) is under the regulation of globins. Inventors discovered that not only the alpha globin but also the beta globin subunits of hemoglobin are expressed in the human artery wall, with beta globin interacting directly with endothelium-derived nitric oxide synthase (eNOS). This discovery of tetrameric hemoglobin binding to eNOS has led inventors to develop novel mimetic peptides that disrupt the binding of beta globin to eNOS, diminishing the ability of hemoglobin to restrict NO release and thereby enhancing NO-mediated feedback vasodilation. These agents can be used to increase NO

signaling from endothelial cells and thus inhibit, prevent, or reverse vasoconstriction.

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:

- Novel peptides to treat vascular diseases characterized by vasoconstriction, excess alpha adrenergic signaling, or insufficient nitric oxide signaling. Applications could range from cerebral vasospasm to pulmonary hypertension, to chronic kidney disease, to transfusion medicine, to erectile dysfunction, and to exercise physiology.

Competitive Advantages:

- New pathway for regulation of vasoconstriction/vasodilation that is separate from the pathways that current products available for treating nitric oxide deficiency target. Combination therapy with current vasoconstriction/vasodilation medications of different mechanisms may be possible.
- Enhancement of NO release at the junction between the endothelial cell and smooth muscle cell may provide greater potency and fewer off-target effects than other forms of NO delivery.

Development Stage:

- Peptides have been tested in human and canine arteries ex vivo.

Inventors: Drs. Hans Ackerman (NIAID), Steven Brooks (NIAID), Phillip Cruz (NIAID), Rolf Swenson (NHLBI).

Publications: Brooks, SD et al. "Hemoglobin Interacts with Endothelial Nitric Oxide Synthase to Regulate Vasodilation in Human Resistance Arteries"

https://doi.org/10.1101/2021.04.06.21255004

(This article is a preprint and has not been certified by peer review)

Intellectual Property: HHS Reference No. E-060-2022-0-US-01; U.S. Provisional Application No. 63/328,615, filed on April 7, 2022; HHS Reference No. E-060-2022-0-PCT-02; PCT Application No. PCT/US2023/065432, filed on April 6, 2023.

Licensing Contact: To license this technology, please contact Peter Tung at 240-669-5483 or *peter.tung@nih.gov*, and reference E-060-2022.

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 the invention. For collaboration opportunities, please contact Peter Tung at 240-669-5483, or *peter.tung@nih.gov*.

Dated: November 1, 2023.

Surekha Vathyam,

Deputy Director,

Technology Transfer and Intellectual Property Office,

National Institute of Allergy and Infectious Diseases.

[FR Doc. 2023-24550 Filed: 11/6/2023 8:45 am; Publication Date: 11/7/2023]