



[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 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: Licensing information and copies of the patent applications listed below 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 A signed Confidential Disclosure Agreement will be required to receive copies of unpublished patent applications.

SUPPLEMENTARY INFORMATION: Technology descriptions follow.

Inhibition of host heme oxygenase-1 as an adjunctive treatment to improve the outcome of conventional antibiotic chemotherapy of *Mycobacterium tuberculosis* (Mtb) infection.

Description of Technology:

This invention describes the adjunctive use of heme oxygenase-1 (HO-1) inhibitors to improve the outcome of conventional antibiotic treatment for tuberculosis. The existent standard of care requires prolonged administration of drug. Due to the long duration of treatment, methods that can more rapidly control tuberculosis in patients are clearly needed.

NIAID researchers have discovered that inhibition of host HO-1 reduces *Mycobacterium tuberculosis* (Mtb) growth *in vivo* and, more importantly, when used as an adjunct to conventional chemotherapy, results in a marked improvement in pulmonary bacterial control. In particular, it was found using a mouse model that HO-1 inhibitors enhance bacterial clearance when used in conjunction with conventional antibiotic therapy. Further, no obvious toxic side effects were found. Since this host-directed strategy does not directly target the pathogen itself, it may have an added advantage as a treatment for infections with antibiotic-resistant Mtb strains.

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:

- Therapeutic for Mtb

Competitive Advantages:

- Innovative, more rapidly effective therapeutics for tuberculosis are sorely needed due to the continued importance of TB as a global infectious disease and the increasing emergence of multi-drug resistant strains.
- This invention is a host-directed therapy

Development Stage: Pre-Clinical

Inventors:

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Publications: Costa, Diego L., et al. "Pharmacological Inhibition of Host Heme Oxygenase-1 Suppresses Mycobacterium tuberculosis Infection In Vivo by a Mechanism Dependent on T Lymphocytes." *mBio* 7.5 (2016): e01675-16.

Intellectual Property: HHS Reference No. E-174-2016/0 - US Patent Application No. 62/357,558, filed 07/01/2016

Licensing Contact: James M. Robinson; James.Robinson4@nih.gov; 301-761-7542.

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 evaluate HO-1 inhibitors in treating human tuberculosis. For collaboration opportunities, please contact James M. Robinson; James.Robinson4@nih.gov; 301-761-7542.

Dated: February 16, 2017

Suzanne Frisbie,

Deputy Director

Technology Transfer and Intellectual Property Office

National Institute of Allergy and Infectious Diseases

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