[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 in the U.S.

FOR FURTHER INFORMATION CONTACT: Licensing information and copies of the patent applications listed below may be obtained by emailing the indicated licensing contact at the National Heart, Lung, and Blood, Office of Technology Transfer and Development Office of Technology Transfer, 31 Center Drive Room 4A29, MSC2479, Bethesda, MD 20892-2479; telephone: 301-402-5579. A signed Confidential Disclosure Agreement may be required to receive copies of the patent applications.

SUPPLEMENTARY INFORMATION: This notice is in accordance with 35 U.S.C. 209 and 37 CFR Part 404 to achieve 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. A description of the technology follows.

Octopod (8-Pointed Star) Iron Oxide Nanoparticles Enhance MRI T2 Contrast

Description of Technology:

The octopod-shaped iron oxide nanoparticles of this technology significantly enhance contrast in MRI imaging compared to spherical superparamagnetic iron oxide

nanoparticle T2 contrast agents. These octopod iron oxide nanoparticles show a transverse relaxivity that is over five times greater than comparable spherical agents. Because the unique octopod shape creates a greater effective radius than spherical agents, but maintains similar magnetization properties, the relaxation rate is improved. The improved relaxation rate greatly enhances the contrast of images. These octopod agents appear to be bio-compatible and may be suitable for intravenous delivery. The synthesis of these agents is also easily reproducible and scaled. The superior contrast greatly improves diagnostic sensitivities, compared to current FDA approved spherical contrast agents. These octopod-shaped iron oxide nanoparticle T2 contrast agents may have a number of medical imaging uses, such as tumor detection, atherosclerosis imaging and delivery of therapeutic treatments.

Potential Commercial Applications:

Medical imaging, such as tumor detection, atherosclerosis imaging and delivery of therapeutic treatments

Competitive Advantages:

- Enhanced T2 contrast
- Reproducible and scalable synthesis
- Improved imaging and diagnostic capability

Development Stage:

In vivo data available (animal)

Inventors:

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Publication:

Zhao Z, et al. Octapod iron oxide nanoparticles as high-performance T2 contrast agents for magnetic resonance imaging. Nat Commun. 2013;4:2266. [PMID 23903002]

Intellectual Property:

HHS Reference No. E-314-2013/0 - PCT Application No. PCT/CN2013/076645 filed June 3, 2013. Chinese Patent Application 201380077163.3 filed December 3, 2015. European Patent 3003394 issued May 23, 2018 (validated in Switzerland, Germany, France, the United Kingdom, and Ireland), U.S. Patent 9,974,868 issued May 22, 2018.

Licensing Contact:

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Collaborative Research Opportunity:

The National Institute of Biomedical Imaging and Bioengineering 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 Cecilia Pazman, Ph.D. at pazmance@mail.nih.gov.

Dated: May 21, 2018.

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Office of Technology Transfer and Development.

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