[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. in accordance with 35 U.S.C. 209 and 37 CFR Part 404 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: Licensing information and copies of the U.S. patent applications listed below may be obtained by writing to the indicated licensing contact at the Office of Technology Transfer, National Institutes of Health, 6011 Executive Boulevard, Suite 325, Rockville, Maryland 20852-3804; telephone: 301-496-7057; fax: 301-402-0220. A signed Confidential Disclosure Agreement will be required to receive copies of the patent applications.

SUPPLEMENTARY INFORMATION: Technology descriptions follow.

Device and System for Enhancing Cardiopulmonary Resuscitation

Description of Technology: The invention pertains to devices and systems for externally compressing or collapsing peripheral vasculature during Cardiopulmonary Resuscitation (CPR) to redirect blood to the torso and head regions, thereby enhancing the likelihood of CPR success. The system includes a plurality of sleeves adapted for placement on a patient's limbs during CPR, each sleeve including at least one inflatable fluid chamber and at least one inflation source fluidly coupled to each of the inflatable fluid chambers of the sleeves. The sleeve chambers can be inflated to a desired compression pressure and maintained at the desired compression pressure continuously throughout CPR to prevent or restrict blood flow in the limbs. The desired compression pressure can be sufficient to redirect substantial blood volume from the patient's limbs to the patient's torso and head regions during CPR.

Potential Commercial Applications:

• Cardiopulmonary resuscitation

• Peripheral blood occlusion

Competitive Advantages: Improves CPR outcomes –

• Can be used with or independent of automated CPR devices and pharamacotherapies.

• Can be utilized in a public setting by a lay person.

• Extent and duration of vascular occlusion can be specifically prescribed.

• May be used to alter preload.

• May increase pulse wave velocity and/or wave reflection magnitude resulting in increased pulse and/or perfusion pressures.

Development Stage:

• Early-stage

• Prototype

Inventor: Matthew T. Oberdier (NIA)

Intellectual Property: HHS Reference No. E-224-2014/0 - US Provisional Application No. 62/042,588 filed 27 Aug 2014

Licensing Contact: Michael Shmilovich, Esq., CLP; 301-435-5019; shmilovm@mail.nih.gov

Collaborative Research Opportunity: The National Institute on Aging 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 Vio Conley, M.S. at conleyv@ctep.nci.nih.gov or 240-276-5531.

A Current Amplifier for Local Coil Pre-amplification of NMR/MRI Signals

Description of Technology: The magnetic resonance imaging (MRI) systems are used for a variety of imaging application. The present invention discloses an improving MRI device and method by amplifying signals received by resonant NMR coils of MRI systems. It utilizes positive feedback from low-noise Field-Effect Transistor to amplify the signal current that can be coupled out to receiving loops positioned externally without loss in sensitivity. Therefore, the NMR coil can be flexibly positioned near internal tissues and used to develop high-resolution images in highly invasive situations. The disclosed device can be developed in kit form as integrated modules that are designed to be added to tuned NMR receiver coils and tailored to deliver specific gains at NMR frequencies.

Potential Commercial Applications:

• Medical and scientific research

• Device for diagnostic

Competitive Advantages:

• Sensitivity

• Easy to be integrated into the existed device

Development Stage:

• In vitro data available

• In vivo data available (animal)

Inventors: Joseph A. Murphy-Boesch, Stephen J. Dodd, Alan P. Koretsky, Chunqi Qian (all of NINDS)

Publications:

1. Qian C, et al. Wireless amplified nuclear MR detector (WAND) for high-spatial-resolution MR imaging of internal organs: preclinical demonstration in a rodent model. Radiology. 2013 Jul;268(1):228-36. [PMID 23392428]

2. Qian C, et al. Sensitivity enhancement of remotely coupled NMR detectors using wirelessly powered parametric amplification. Magn Reson Med. 2012 Sep;68(3):989-96. [PMID 22246567]

3. Mueller OM, et al. Preamplifier circuit for magnetic resonance system. US Patent 5,545,999 (1996).

4. Ratzel D. Low-noise preamplifier, in particular, for nuclear magnetic resonance (NMR). US Patent 7,123,090 (2006).

Intellectual Property: HHS Reference No. E-122-2014/0 - US Patent Application No. 61/989,795 filed 07 May 2014

Licensing Contact: John Stansberry, Ph.D.; 301-435-5236; stansbej@mail.nih.gov

Collaborative Research Opportunity: The National Institute of Neurological Disorders and Stroke, Laboratory for Functional and Molecular Imaging, is seeking statements of capability or interest from parties interested in collaborative research to further develop, evaluate or commercialize a surgically implantable NMR detector, battery powered, for imaging of the pituitary. For collaboration opportunities, please contact Joseph Murphy-Boesch at murphyboeschj@mail.nih.gov.

Inhibition of HIV Infection through Chemoprophylaxis Using Emtricitabine and Tenofovir

Description of Technology: The invention is directed to prophylactic administration of emtricitabine (FTC) in combination with tenofovir or its prodrug, tenofovir disoproxil fumarate

(TDF), to protect against transmission of human immunodeficiency virus (HIV) infection. Also disclosed are other nucleoside reverse transcriptase inhibitors (NRTIs) and nucleotide reverse transcriptase inhibitors (NtRTIs) that, when administered in combination, protect against HIV infection. CDC researchers demonstrated that daily pre-exposure prophylaxis (PrEP) with a combination of antiretroviral NRTI and NtTRI drugs, including FTC and TDF, significantly increases the level of protection against HIV transmission.

Potential Commercial Applications: Oral, prophylactic delivery of combination drugs to inhibit HIV infection.

Development Stage:

• In vivo data available (animal)

• In vivo data available (human)

Inventors: Walid Heneine, Thomas Folks, Robert Janssen, Ronald Otten, J. Gerardo Garcia-Lerma (all of CDC)

Publications:

1. Garcia-Lerma J, et al. Prevention of rectal SHIV transmission in macaques by daily or intermittent prophylaxis with emtricitabine and tenofovir. PLoS Med. 2008 Feb;5(2):e28. [PMID 18254653]

2. Garcia-Lerma J, et al. Intermittent prophylaxis with oral truvada protects macaques from rectal SHIV infection. Sci Transl Med. 2010 Jan 13;2(14):14ra4. [PMID 20371467]

Intellectual Property: HHS Reference No. E-195-2013/0 –

• US Provisional Application No. 60/764,811 filed 3 Feb 2006

• US Patent Application No. 11/669,547 filed 31 Jan 2007

• PCT Application No. PCT/US2007/002926 filed 01 Feb 2007

• European Patent No. 2015753 issued 01 May 2013

• German Patent No. 2015753 issued 01 May 2013

• French Patent No. 2015753 issued 01 May 2013

• U.K. Patent No. 2015753 issued 01 May 2013

• Australian Patent No. 2007212583 issued 25 Mar 2013

• Canadian Patent Application No. 2641388 filed 01 Aug 2008

• Indian Patent Application No. 7408/DELNP/2008 filed 01 Jul 2008

Licensing Contact: Tara L. Kirby, Ph.D.; 301-435-4426; tarak@mail.nih.gov

Synthetic Peptides with Antimicrobial Activity

Description of Technology: This technology relates to a class of synthetic peptides with antimicrobial activity. The lead candidate identified among this class is EC5. The EC5 peptide has shown efficient binding and selective bactericidal activity against *E. coli* and *P. aeruginosa*, while having little activity against *S. aureus*, *S. epidermidis*, *B. cereus*, and *K. pneumonia*. EC5 shows inhibitory activity at low concentrations (MIC 8 µg/ml for *E. coli* and 8-32 µg/ml for *P. aeruginosa*) and appears to bind to, disrupt, and permeabilize the bacterial cell membranes in a manner similar to Polymyxin B. EC5 also appears to retain its bactericidal activity in the presence of platelets and plasma, while exhibiting little cytotoxic activity or hemolytic activity against red blood cells, in vitro. EC5's profile of activity and low toxicity suggest it may be a favorable candidate for drug development, as an independent or combination therapy and for specific bacterial detection/diagnostics. With the increasing prevalence of drug resistant bacterial infections, there is a need to develop novel antimicrobial agents that are specific, safe, and effective.

Potential Commercial Applications: Antimicrobial therapy

Competitive Advantages:

• Significant and specific bactericidal activity

• Promising in vitro safety profile

Development Stage:

• Early-state

• In vitro data available

Inventors: Chintamani Atreya (FDA), Ketha Mohan (FDA), Shilpakala Sainath Rao (ORISE Contract Fellow)

Publication: Sainath Rao S, et al. A peptide derived from phage display library exhibits antibacterial activity against E. coli and Pseudomonas aeruginosa. PLoS ONE 8(2): e56081. [PMID 23409125]

Intellectual Property: HHS Reference No. E-226-2012/0 - PCT Application PCT/US2012/050969 filed 15 Aug 2012

Licensing Contact: Edward (Tedd) Fenn; 424-297-0336; Tedd.fenn@nih.gov

Collaborative Research Opportunity: The Food and Drug Administration, Center for Biologics Evaluation and Research, is seeking statements of capability or interest from parties interested in collaborative research to further develop, evaluate or commercialize drug development, as an independent or combination therapy and for bacterial diagnostics. For collaboration opportunities, please contact Nisha Narayan at 240-402-9770.

Dated: September 26, 2014

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Richard U. Rodriguez, M.B.A.
Director
Division of Technology Development and Transfer
Office of Technology Transfer
National Institutes of Health

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