[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.

A Novel Fusion Protein for Inhibiting HIV Budding

Description of Technology: Ubiquitin plays a critical role in HIV-1 budding. Vectors containing deubiquitin enzymes (DUbs) were constructed to deliver DUbs to HIV-1 production sites in living cells. The DUbs vectors comprise DUb cDNAs and cDNA expressing either HIV-1 gag, or the ESCRT protein TSG101.

Experimental data show that the fusion proteins expressed by the DUbs vectors retained their known protein-protein interactions and caused a significant and specific interruption of HIV-1 budding. The data suggest that the DUbs vectors could be used to inhibit HIV-1 infection or propagation in an individual. Thus, the DUbs vectors could potentially be used in high-risk individuals to prevent HIV-1 infection or as an adjunct therapy with known Anti-Retroviral Therapy (ART/HAART) in infected individuals.

Potential Commercial Applications:

• Prevention for HIV

• Treatment for patients infected with HIV

• Clinical research

Competitive Advantages:

• Use for both treatment and prevention

• No development of resistance to HIV

Development Stage: In vitro data available.

Inventors: Fadila Bouamr and Paola Sette (NIAID)

Publication: Sette P, et al. Ubiquitin conjugation to Gag is essential for ESCRT-mediated HIV-1 budding. Retrovirology. 2013 Jul 29;10:79 [PMID 23895345]

Intellectual Property: HHS Reference No. E-223-2014/0 - US Provisional Application No. 62/030,193 filed 29 July 2014

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

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 DUbs vectors and/or the fusion proteins expressed by the vectors. For collaboration opportunities, please contact Fadilla Bouamr, Ph.D. at bouamrf@niaid.nih.gov.

Surgical Tool for Subretinal Tissue Implantation

Description of Technology: The invention pertains to a surgical tool for implanting a sheet of tissue into the eye in such a way that damage to the tissue and the eye during insertion and manipulation of the tissue is minimized. The device enables tissue to be released and delivered in a precise and controlled fashion. The device includes a hollow handle portion (e.g. a syringe) with a bore fashioned to convey fluid. An injector is fluidically coupled to the handle of the device and includes a flat triangular shaped tip that defines an aperture connected to the internal channel of the injector portion and configured to enshroud a tissue for transplantation. Vacuum or pressure of a hydrostatic pump impels the fluid and enshrouded tissue into the tool and then into the

eye. The tip of the surgical injector tool curved in a direction extending distally away from a handle of the surgical injector tool to better accommodate eye curvature.

Potential Commercial Applications:

• Ocular tissue transplantation

• Subretinal tissue transplantation

• Delivery of extended release drug pellets into subretinal space

• Ocular surgery

• Endothelial keratoplasty

Competitive Advantages:

• Precision of operation for surgeon (no extra moving parts)

• Instrument consist of separate disposable parts

• Controlled delivery

• Minimization of damage to the eye and transplanted tissue

• Ease of operation

• There is no available instrument capable to deliver tissue into subretinal space

Development Stage:

• Early-stage

• In vivo data available (animal)

• Prototype

Inventor: Arvydas Maminishkis (NEI)

Intellectual Property: HHS Reference No. E-192-2014/0 - US Provisional Application No. 62/023,289 filed 11 July 2014

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

Collaborative Research Opportunity: The National Eye Institute is seeking statements of capability or interest from parties interested in collaborative research to further develop, evaluate or commercialize ocular tissue transplantation device. For collaboration opportunities, please contact Matthew McMahon at 301-451-1610 or neitechtransfer@nei.nih.gov.

A Novel Demodulation System in X-ray Imaging

Description of Technology: In various x-ray imaging methods, including scattering correction and phase contrast imaging, intensity modulation in space is introduced into the projection images by the use of masks, gratings, or apertures. The present invention relates to a process to demodulate the modulation. The current demodulation processes are either to remove the modulation pattern through digital processing or to move the modulation pattern on the detector in a series of images that requires mechanical movements of a component and tends to lose some information of the imaged object. The demodulation of the present invention can be realized with a relative movement between the projected image of the sample and the modulation pattern without having to move the modulation pattern. The demodulated images are free of the modulation pattern and have better clarity.

Potential Commercial Applications:

- Clinical diagnostic
- Research tools

• Security inspections

Competitive Advantages:

• Better clarity for images

• Simplify the demodulation method

Development Stage:

• In vitro data available

• In vivo data available (animal)

Inventors: Han Wen and Houxun Miao (NHLBI)

Publications:

1. David C, et al. Interferometer for quantitative phase contrast imaging and tomography with an incoherent polychromatic x-ray source. US Patent No. 7,889,838 issued 15 Feb 2011. [http://patft1.uspto.gov/netacgi/nph-Parser?patentnumber=7889838]

2. Schusser S, Vogtmeier G. Non-parallel grating arrangement with on-the-fly phase stepping, x-ray system and use. PCT Application No. PCT/IB2010/055562 filed 02 Dec 2010. [http://patentscope.wipo.int/search/en/WO2011070489]

Intellectual Property: HHS Reference No. E-113-2013/0 – US Provisional Application No. 61/877,219 filed 12 Sep 2013

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

Collaborative Research Opportunity: The National Heart, Lung, and Blood Institute is seeking statements of capability or interest from parties interested in collaborative research to further develop, evaluate or commercialize the technology. For collaboration opportunities, please contact Dr. Denise Crooks at crooksd@mail.nih.gov.

A Novel X-ray Grating to Enhance Phase Contrast Imaging

Description of Technology: The present invention relates to improving x-ray phase contrast imaging. The invention discloses a novel grating interferometer for phase contrast imaging with hard x-rays that overcomes limitations in the level of sensitivity by utilizing the advantages of far-field interferometers. The novel design and fabrication process can easily acquire absolute and differential phase images of lightly absorbing samples.

Potential Commercial Applications:

• Clinical diagnostics

• Research tools

Competitive Advantages:

• More sensitivity

• Easier to fabricate images

Development Stage:

• In vitro data available

• In vivo data available (animal)

Inventor: Han Wen (NHLBI)

Publications:

1. Wen H. Boosting phase contrast with two-arm interferometers using sub-micron period gratings. Presentation, The Royal Society, London scientific discussion meeting: Taking x-ray phase contrast imaging into mainstream applications, February 11, 2013, London, UK.

2. Momose A, Fukuda J. Phase-contrast radiographs of nonstained rat cerebellar specimen. Med Phys. 1995 Apr;22(4):375-9. [PMID 7609717]

3. Clauser JF. Ultrahigh resolution interferometric x-ray imaging. US Patent No. 5,812,629 issued 22 Sep 1998. [http://patft1.uspto.gov/netacgi/nph-Parser?patentnumber=5812629]

Intellectual Property: HHS Reference No. E-114-2013/0 - US Provisional Application No. 61/877,228 filed 12 Sep 2013

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

Collaborative Research Opportunity: The National Heart, Lung, and Blood Institute is seeking statements of capability or interest from parties interested in collaborative research to further develop, evaluate or commercialize the technology. For collaboration opportunities, please contact Dr. Denise Crooks at crooksd@mail.nih.gov.

Dated: September 9, 2014.

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

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