Dated: June 8, 2012.

Daniel R. Levinson,

Inspector General.

[FR Doc. 2012–14585 Filed 6–15–12; 8:45 am]

BILLING CODE 4152–01–P

DEPARTMENT OF HEALTH AND HUMAN SERVICES

National Institutes of Health

Government-Owned Inventions; Availability for Licensing

AGENCY: National Institutes of Health, Public Health Service, 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. 207 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 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.

Endothelial Cell Line To Study Prevention of Atherosclerosis

Description of Technology: Atherosclerosis underlies most cases of cardiovascular disease (CVD), which is now the major cause of morbidity and mortality in developed countries. An inflammatory reaction is an essential component in the appearance and development of an atherosclerotic lesion. The inflammatory process is associated with the expression of adhesion molecules such as vascular cell adhesion molecule (VCAM) at the surface of endothelial cells. Antiatherogenic lipoprotein, high density lipoprotein (HDL), is known to down regulate the expression of VCAM. Increasing levels of HDL is a promising way to reduce the risk of CVD.

This technology is directed to the generation of a stable endothelial cell line expressing a luciferase reporter construct driven by the VCAM promoter. This reporter system enables an easier measurement of VCAM expression and determination of the effect of HDL on endothelial cell inflammation. This technology can be used to screen for the effect of drugs that modulate HDL metabolism and it is more convenient than doing Western blots.

Potential Commercial Applications:

- Study of prevention of atherosclerosis
- Screen serum for the effect of HDL on endothelial cell inflammation
- Screen for the effect of drugs that modulate HDL metabolism

Competitive Advantages:

- Easy monitoring of down regulation of VCAM with luciferase
- More convenient than doing Western blots

Development Stage: In vitro data available.

Inventor: Alan T. Remaley (NHLBI).

Publication: D'Souza W, *et al.* Structure/function relationships of apolipoprotein a-I mimetic peptides: Implications for antiatherogenic activities of high-density lipoprotein. Circ Res. 2010 Jul 23;107(2):217–27. [PMID 20508181].

Intellectual Property: HHS Reference No. E–149–2012/0—Research Tool. Patent protection is not being pursued for this technology.

Licensing Contact: Fatima Sayyid, M.H.P.M.; 301–435–4521; *Fatima.Sayyid@nih.hhs.gov.*

Collaborative Research Opportunity: The Cardiovascular & Pulmonary Branch, NHLBI/NIH, is seeking statements of capability or interest from parties interested in collaborative research to further develop, evaluate or commercialize endothelial cells to study prevention of atherosclerosis. For collaboration opportunities, please contact Dr. Alan Remaley at *aremaley1@cc.nih.gov.*

Software for Modeling Tumor Delivery and Penetration of Antibody-Toxin Anti-Cancer Conjugates

Description of Technology: Available for licensing is software for modeling permeability and concentration of intravenously administered antibody anti-cancer agent conjugates in solid tumor. The models can be used to determine optimal dosing regimen of a therapeutic in a particular cancer type. Thirty factors that affect delivery rates and efficiencies are analyzed as variables in generating the models.

Potential Commercial Applications:

- Drug Design
- Combination Therapy
- Personalized Medicine

Competitive Advantages:

- Accurate permeability modeling of anti-cancer therapeutics
- Personalized Medicine

Development Stage:

- Early-stage
- Pre-clinical

Inventors: Byungkook Lee (NCI), Youngshang Pak (EM), Ira Pastan (NCI).

Publications:

1. Fujimori K, *et al.* A modeling analysis of monoclonal antibody percolation through tumors: a binding-site barrier. J Nucl Med. 1990 Jul;31(7):1191–1198. [PMID 2362198]
2. Jain RK. Delivery of molecular and cellular medicine to solid tumors. Adv Drug Deliv Rev. 2001 Mar 1;46(1–3):149–168. [PMID 11259838]
3. Thurber GM, *et al.* Antibody tumor penetration: transport opposed by systemic and antigen-mediated clearance. Adv Drug Deliv Rev. 2008 Sep;60(12):1421–1434. [PMID 18541331]
4. Li Y, *et al.* Delivery of nanomedicines to extracellular and intracellular compartments of a solid tumor. Adv Drug Deliv Rev. 2012 Jan;64(1):29–39. [PMID 21569804]
5. *http://www.accelereyes.com/examples/drug_delivery_model*
6. Pak Y, *et al.* Antigen shedding may improve efficiencies for delivery of antibody-based anticancer agents in solid tumors. Can Res. 2012 May 4; Epub ahead of print, doi: 10.1158/0008–5472.CAN–11–3925. [PMID 22562466]

Intellectual Property: HHS Reference No. E–060–2012/0—Software. Patent protection is not being pursued for this technology.

Licensing Contact: Michael Shmilovich; 301–435–5019; *mish@codon.nih.gov.*

Collaborative Research Opportunity: The NCI, CCR, Laboratory of Molecular Biology is seeking statements of capability or interest from parties interested in collaborative research to further develop, evaluate or commercialize targeted delivery of anti-cancer agents in solid tumors. For collaboration opportunities, please contact John Hewes, Ph.D. at *hewesj@mail.nih.gov.*

Mouse Model of STAT5 for the Drug Screen and the Research of Cancer and Autoimmunity

Description of Technology: The invention is a STAT5 mutant mouse that can be used in research related to cancer, autoimmunity and infectious diseases as well as drug screening. The mouse model itself has multiple immunological defects resulting in formation of STAT5 dimers but not tetramers.

It reports that only a minority of IL–2-modulated genes is regulated by STAT5 tetramers. Therefore, selectively targeting tetramer formation might be a relatively specific therapeutic tool wherein one could modulate only part of the actions of a cytokine or growth factor, which allows a new therapeutic approach to modulating immune responses, controlling inflammation, and inhibiting tumor growth.

The STAT5 tetramer deficient mouse is an ideal tool to screen for tetramerization inhibitors that can be used for the treatment of cancer, autoimmunity and inflammation in addition to the basic research applications.

Potential Commercial Applications:

- To design and screen tetramerization inhibitors that are potential new drugs for cancer, autoimmunity and transplantation.
- To identify and study a key subset of STAT5A and/or STAT5B-dependent genes without affecting viability is extremely.
- To seek a new therapeutic approach to modulating immune responses, controlling inflammation, and inhibiting tumor growth.

Competitive Advantages:

- The tetramer-deficient mice of this invention are viable while mice completely lacking expression of Stat5a and Stat5b exhibit perinatal lethality.
- A model for basic research, to study the cancer, autoimmunity, and infectious diseases associated with STAT5 signaling.

Inventors: Warren J. Leonard and Jian-Xin Lin (NHLBI)

Publication: Lin JX, *et al.* Critical role of STAT5 transcription factor tetramerization for cytokine responses and normal immune function. Immunity. 2012 Apr 20;36(4):586–99. [PMID 22520852]

Intellectual Property: HHS Reference No. E–080–2011/0—Research Tool. Patent protection is not being pursued for this technology.

Licensing Contact: Susan Ano, Ph.D.; 301–435–5515; *anos@mail.nih.gov.*

Fast Acting Molecular Probes for Real-Time In Vivo Study of Disease and Therapeutics

Description of Technology: This technology is for fast acting molecular probes made from a fluorescent quencher molecule, a fluorophore, an enzyme cleavable oligopeptide (for example targeted by protease) and FDA-approved polyethylene glycol (PEG) as well as associated methods to identify cell activity with these probes. Proteases regulate many cell processes such as inflammation as well as pathological processes in cancer and cardiovascular disease. High protease activity is associated with metastatic cancers. Proteases are also active in apoptosis, and tissue remodeling in cardiovascular disease. Although highly useful *in vitro,* conventional probes are unstable, nonspecific or slow activating *in vivo.* This new probe is faster than standard probes (30 min vs. 24 hrs) and has enhanced target-to background ratios. It enables quick screening of animals in an array of applications related to protease-associated diseases and other diseases. It may detect specific biological targets and monitor *in vivo* therapeutic efficacy in real time. Most drug candidates identified by *in vitro* screening fail *in vivo.* Failures are costly. Identifying *in vivo* drug efficacy sooner would reduce waste and increase successful drug development.

Potential Commercial Applications:

- Diagnostics
- In vivo therapeutic monitoring

Competitive Advantages:

- Faster than standard probes
- Enhanced target-to-background ratios
- Allows in vivo therapeutic efficacy study in real time

Development Stage:

- Early-stage
- Pre-clinical
- In vivo data available (animal)

Inventors: Xiaoyuan (Shawn) Chen, Seulki Lee, Lei Zhu (all of NIBIB)

Publications:

1. Lee S, *et al.* Polymeric nanoparticle-based activatable near-infrared nanosensor for protease determination in vivo. Nano Lett. 2009;9(12):4412–6. [PMID 19842672]
2. Lee S, *et al.* Activatable molecular probes for cancer imaging. Curr Top Med Chem. 2010;10(11):1135–44. [PMID 20388112]

Intellectual Property: HHS Reference No. E–079–2011/0—U.S. Provisional Application No. 61/533,014 filed 09 Sep 2011

Licensing Contact: Tedd Fenn; 301–435–5031; *Tedd.Fenn@nih.gov.*

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 fast acting molecular probes for real-time *in vivo* study of disease and therapeutics. For collaboration opportunities, please contact Cecilia Pazman at *pazmance@nhlbi.nih.*

New Ammunition to Fight Cancer: The Rapid Isolation of Central Memory T Cells for Adoptive Immunotherapy

Description of Technology: This technology is a new technique to rapidly isolate tumor-reactive central memory T cells in a highly enriched, non-invasive manner from the peripheral blood of cancer patients for cancer adoptive cell immunotherapy. Cells are drawn from a patient's blood, divided into subsets, and contacted with the tumor antigen of interest to identify T cells whose T cell receptor (TCR) recognizes the tumor antigen. Such T cells are identified by measuring the levels of interleukin-2 (IL–2) and interferon-gamma (IFN-gamma) produced by the cells (i.e., the IL–2 index) using high-throughput quantitative PCR (HT-qPCR). NIH scientists have identified that cells with a specific IL–2 index consistently contain central memory T cells for the tumor antigen of interest.

Preclinical animal studies have suggested that central memory T cells can proliferate, persist, and survive better after adoptive transfer compared to other T cell types. They also show increased anti-cancer activity. Clinical trials using central memory T cells represent an important extension of these studies. Adoptive immunotherapy is showing promise as a cancer treatment, but one drawback to this method, prior to this invention, was the laborious and time consuming nature of the cell isolation process and the unpredictable and sometimes ineffective nature of the cells infused into patients.

Potential Commercial Applications:

- An improved adoptive immunotherapy approach to treat and/or prevent the recurrence of a variety of human cancers, infectious diseases, and autoimmune diseases by identifying central memory T cells to better fight these diseases.
- A valuable component to a combination therapy to treat diseases where improving immune response quality is critical, such as introducing central memory T cells into a vaccine regimen for longer term immune responses or to treat malignancies that thrive by circumventing the patient's immune system.

Competitive Advantages:

- Eliminate the need for invasive surgery to eliminate tumors.
- Isolate better cell cultures for adoptive immunotherapy than previously available.
- Predict and isolate central memory T cell populations consistently using the IL–2 index.

• Expands the number of patients where adoptive immunotherapy can become a cancer treatment option.

• Sensitive, efficient, and rapid approach to identify and isolate Central Memory T cells for various therapeutic applications.

Development Stage:

• Early-stage
• Pre-clinical
• Clinical
• In vitro data available
• In vivo data available (human)

Inventor: Udai S. Kammula (NCI)

Publication: Kammula US, Serrano OK. Use of high throughput qPCR screening to rapidly clone low frequency tumour specific T-cells from peripheral blood for adoptive immunotherapy. J Transl Med. 2008 Oct 20;6:60. [PMID 18937837]

Intellectual Property: HHS Reference No. E–228–2010/0—

• U.S. Provisional Patent Application No. 61/374,699 filed 18 Aug 2010
• PCT Patent Application No. PCT/US2011/047719 filed 15 Aug 2011

Related Technology: HHS Reference No. E–003–2000/0—

• U.S. Patent Application No. 12/866,919 filed 10 Aug 2010
• Foreign counterparts in Europe and Australia

Licensing Contact: Samuel E. Bish, Ph.D.; 301–435–5282; *bishse@mail.nih.gov.*

Collaborative Research Opportunity: The Center for Cancer Research, Surgery Branch, is seeking statements of capability or interest from parties interested in collaborative research to further develop, evaluate or commercialize this novel technology. For collaboration opportunities, please contact John Hewes, Ph.D. at *hewesj@mail.nih.gov.*

A_3 Adenosine Receptor Agonists To Treat Chemotherapy-Induced Peripheral Neuropathy

Description of Technology: This invention claims species-independent agonists of A_3AR, specifically (N)-methanocarba adenine nucleosides and related pharmaceutical compositions. The A_3 adenosine receptor (A_3AR) subtype has been linked with helping protect the heart from ischemia, controlling inflammation, and regulating cell proliferation. Agonists of the human A_3AR subtype have been developed that are also selective for the mouse A_3AR while retaining selectivity for the human receptor. This solves a problem for clinical development because animal model testing is important for pre-clinical validation of drug function. Novel agonists have been made that exhibit as much as 6000x selectivity for A_3 versus A_1 in humans while retaining at least 400x selectivity for A_3 versus A_1 in mice. In addition, the molecules of the invention exhibit very low nanomolar affinity. This innovation will not only facilitate moving A_3 agonists into the clinical phase of drug development by being more amenable to animal studies, but also provide much greater selectivity in humans, and thereby potentially fewer side effects than drugs currently undergoing clinical trials.

Potential Commercial Applications:

• Cardiac arrhythmias or ischemia
• Inflammation
• Stroke
• Diabetes
• Asthma
• Cancer
• Pain

Competitive Advantages: Oral dosing as these A_3AR agonists are selective and not associated with cardiac or hemodynamic effects that may result from stimulation of A_1 or A_2A receptors.

Development Stage:

• Early-stage
• In vivo data available (animal)

Inventors: Kenneth Jacobson and Dilip K. Tosh (NIDDK)

Publications:

1. Tosh DK, *et al.* Structure-guided design of A(3) adenosine receptor selective nucleosides: combination of 2-arylethynyl and bicyclo[3.1.0]hexane substitutions. J Med Chem. 2012 May 16; Epub ahead of print. [PMID 22559880]
2. Chen Z, *et al.* Controlling murine and rat chronic pain through A3 adenosine receptor activation. FASEB J. 2012 May;26(5):1855–65. [PMID 22345405]

Intellectual Property: HHS Reference No. E–140–2008/1—US Patent Application No. 13/371,081 filed 10 Feb 2012

Related Technologies:

• HHS Reference No. E–140–2008/0—US Patent Application No. 12/935,461 filed 01 Nov 2010
• HHS Reference No. E–285–2008/0—US Patent Application No. 13/056,997 filed 18 Mar 2011
• HHS Reference No. E–075–2012/0

Licensing Contact: Betty B. Tong, Ph.D.; 301–594–6565; *tongb@mail.nih.gov.*

Collaborative Research Opportunity: The National Institute of Diabetes and Digestive and Kidney Diseases 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 Marguerite J. Miller at 301–496–9003 or *millermarg@niddk.nih.gov.*

Use of CD97 Alpha Subunit Antibodies for Treatment of Angiogenesis, Atherosclerosis, and Inflammation

Description of Technology: CD97 is a T-cell glycoprotein that is upregulated in activated T-cells and is involved in the onset and maintenance of inflammation and angiogenesis. It is a seven-span transmembrane heterodimer consisting of one variant alpha subunit, which is soluble, and one invariant beta subunit, which is membrane-bound. Upon activation of T-cells, expression of the alpha subunit is dramatically upregulated and it is shed into the extracellular medium. The inventors have demonstrated in *in vitro* and *in vivo* studies that CD97 plays an important role in angiogenesis, inflammation, and atherosclerosis.

This technology describes isolated soluble CD97 alpha subunit proteins, selected from three alternatively spliced isoforms, as well as antibodies that bind to these subunits. The technology also describes methods of inhibiting angiogenesis, CD97-associated chronic inflammation, and atherosclerosis in mammals.

Potential Commercial Applications: This technology may be useful for the treatment of angiogenesis-related diseases, as well as inflammation and atherosclerosis. It can also be utilized in studies of inflammation and angiogenesis.

Competitive Advantages: CD97 represents a novel target for treatment of angiogenesis- and inflammation-mediated diseases.

Development Stage:

• Early-stage
• In vitro data available
• In vivo data available (animal)

Inventor: Kathleen Kelly (NCI)

Publication: Gray J, *et al.* CD97 is a processed, seven-transmembrane, heterodimeric receptor associated with inflammation. J Immunol.1996 Dec 15;157(12):5438–47. [PMID 8955192]

Intellectual Property: HHS Reference No. E–009–1996/0—

• US Patent No. 6,365,712 issued 02 Apr 2002
• US Patent No. 6,846,911 issued 25 Jan 2005

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

Dated: June 12, 2012.

Richard U. Rodriguez,

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

[FR Doc. 2012–14703 Filed 6–15–12; 8:45 am]

BILLING CODE 4140–01–P