Dated: June 5, 2013.

Mary K. Wakefield,

Administrator.

[FR Doc. 2013–13941 Filed 6–11–13; 8:45 am]

BILLING CODE 4165–15–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. 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.

Live Attenuated RSV Vaccines Based on Codon-Pair Deoptimization

Description of Technology: The technology includes patent rights and related materials for live attenuated viruses that can be used as a prophylactic vaccine against respiratory syncytial virus. The viruses are generated using codon-pair deoptimization techniques of the RSV polymerase ORF alone or together with the NS1, NS2, N, P, M, SH, G, and F ORFs, rendering the virus temperature sensitive. Experimental growth data for one such virus in mice and in African Green Monkeys demonstrates in vivo growth attenuation.

Potential Commercial Applications:

- Prophylactic vaccine
- Childhood and elder vaccine

Competitive Advantages:

- Live attenuated
- Codon deoptimized

Development Stage:

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

Inventors: Peter Collins, Cyril Le Nouen, Linda Brock, Ursula Buchholz (NIAID)

Publications:

1. Collins PL, Melero JA. Progress in understanding and controlling respiratory syncytial virus: still crazy after all these years. Virus Res. 2011 Dec;162(1–2):80–99. [PMID 21963675]

2. Buchan JR, et al. tRNA properties help shape codon pair preferences in open reading frames. Nucleic Acids Res. 2006 Feb 9;34(3):1015–27. [PMID 16473853]

Intellectual Property:

- HHS Reference No. E–080–2013/0—US Provisional Patent Application No. 61/762,768 filed 08 Apr 2013
- HHS Reference No. E–080–2013/1—US Provisional Patent Application No. 61/794,155 filed 15 Mar 2013

Licensing Contact: Michael A. Shmilovich, Esq.; 301–435–5019; *shmilovm@mail.nih.gov.*

Improved Personalized Cancer Immunotherapy: Rapid Selection of Tumor-Reactive T Cells Based on Expression of Specific Cell Surface Markers

Description of Technology: Scientists at NIH have identified a process to select highly tumor-reactive T cells from a patient tumor sample based on the expression of four specific T cell surface markers: programmed cell death protein 1 (PD–1; CD279), 4–1BB (CD137), T cell Ig- and mucin-domain-containing molecule-3 (TIM–3), and/or lymphocyte activation gene 3 (LAG–3). After this enriched population of tumor fighting T cells, primarily tumor infiltrating lymphocytes (TIL), is selected and expanded to large quantities, it gets re-infused into the patient via an adoptive cell transfer (ACT) regimen. The key finding for this process is that the most tumor-reactive TIL found in a bulk population of cells obtained from a patient tumor sample reliably exhibit high expression of one or more of these four markers. By selecting cancer attacking TIL from a patient's tumor based on these markers prior to re-infusion, in vitro culture time is reduced to grow up the desired T cells and a more effective anti-cancer T cell product can be produced in comparison to previous TIL immunotherapy approaches.

This new method for selecting tumor-reactive T cells/TIL from tumor samples should help TIL immunotherapy become more GMP compliant and allow greater standardized of the TIL production process to enable more widespread utilization of this personalized cancer treatment approach outside of NIH.

Potential Commercial Applications:

- Personalized ACT immunotherapy to treat human cancers using T cells obtained from a tumor sample
- Possible integration into a standard procedure for obtaining tumor-reactive T cells/TIL from a tumor as part of a GMP-compliant TIL manufacturing process that gains regulatory approval as a personalized cancer treatment option
- The immunotherapy component of a combination cancer therapy regimen targeting specific tumor antigens in individual patients
- More rapid tumor-reactive T cell culturing process for laboratory testing

Competitive Advantages:

- Simpler: Tumor-reactive T cells/TIL can be selected for ACT from a bulk population derived from a tumor sample using common laboratory techniques
- More rapid: Selection of T cells/TIL based on expression of specific cell surface markers will reduce the culture time for these T cells before re-infusion into the patient to fight the tumor
- Less screening: This selection method eliminates the need to screen T cells/TIL for autologous tumor recognition before re-infusion into the patient

Development Stage:

- Early-stage
- Pre-clinical
- In vitro data available

Inventors: Alena Gros and Steven A. Rosenberg (NCI)

Intellectual Property: HHS Reference No. E–059–2013/0—US Patent Application No. 61/771,247 filed 01 March 2013; PCT Patent Application No. PCT/US2013/038799 filed 30 April 2013

Related Technologies:

- HHS Reference No. E–085–2013/0—US Patent Application No. 61/771,251; PCT Patent Application No. PCT/US2013/038813
- HHS Reference No. E–273–2009/0—US Patent No. 8,383,099; US Patent Application No. 13/742,541
- HHS Reference No. E–275–2002/1—US Patent No. 8,034,334; US Patent No. 8,287,857; Foreign counterparts in Europe, Canada, and Australia

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

Collaborative Research Opportunity: The National Cancer Institute is seeking statements of capability or interest from parties interested in collaborative research to further develop, evaluate or commercialize adoptive transfer of tumor infiltrating lymphocytes (TIL) for cancers other than melanoma. For collaboration opportunities, please

contact Steven A. Rosenberg, M.D., Ph.D., at *sar@nih.gov* or 301–496–4164.

Diagnostic Assays for the Detection of Thyroid Cancer

Description of Technology: NIH scientists have developed two novel methods for distinguishing malignant from benign thyroid biopsy samples. Midkine and pleiotrophin, both low molecular weight growth factors, are over-expressed in many cancerous tissues. NIH researchers have developed ELISA assays to quantify the amount of midkine and pleiotrophin present in thyroid tissue samples. Levels of both growth factors are substantially higher in fine needle aspirates from thyroid cancers than from benign thyroid nodules. Application of this technique for the identification of thyroid cancer represents a first-in-class diagnostic for this disease.

Thyroid cancer represents a disease particularly amenable to improved methods of diagnosis. Thyroid nodules are very common in the adult population. To determine whether nodules are malignant, current practice involves obtaining a needle biopsy which is inspected microscopically. The resulting findings are subjective and often inconclusive, leading to unnecessary surgery. Therefore, there is a need for methods such as the present invention to improve diagnostic accuracy.

Potential Commercial Applications: A diagnostic kit for the detection of thyroid cancer.

Competitive Advantages:

- High assay sensitivity permits the use of small tissue samples (e.g., fine needle aspirates of nodules)
- Assay can incorporate commercially-available midkine or pleiotrophin antibodies.
- Assay relies on proven ELISA detection technology.

Development Stage:

- In vivo data available (animal)
- Clinical

Inventors: Jeffrey Baron and Youn Hee Jee (NICHD)

Intellectual Property:

- HHS Reference No. E–016–2013/0—US Application No. 61/728,624 filed 20 Nov 2012
- HHS Reference No. E–016–2013/1—US Application No. 61/815,342 filed 24 Apr 2013

Licensing Contact: Sabarni Chatterjee, Ph.D., MBA; 301–435–5587; *chatterjeesa@mail.nih.gov*

Collaborative Research Opportunity: The National Institute of Child Health and Human Development, Section on Growth and Development, is seeking statements of capability or interest from parties interested in collaborative research to further develop, evaluate or commercialize assays of biomarkers midkine, pleiotrophin in biopsy samples for cancer detection. For collaboration opportunities, please contact Charlotte McGuinness at *mcguinnc@mail.nih.gov*.

Novel and Improved Methods for Constructing and Analyzing Synallele Libraries

Description of Technology: Methods of constructing and analyzing improved synallele libraries of nucleic acid molecules is disclosed. Each nucleic acid molecule in these libraries (i) comprises a different nucleic acid sequence and (ii) encodes a mammalian secreted protein comprising the same amino acid sequence. Synalleles are variants of a gene that have the same amino acid sequence but different DNA sequences. It has been shown that the redundancies in the genetic code can result in dramatically different protein expression levels. Currently available synallele libraries are too limited in their size, diversity, and fidelity to provide a clinical use (e.g., drug development). Also, one of the difficulties in producing therapeutic proteins is the lack of suitable methods for screening hundreds, or even thousands, of cells expressing such proteins in order to identify and isolate cells which express the desired proteins in high amounts. This invention provides the first synallele library assembled using type IIS restriction enzymes and comprises more than 100,000 individual clones. Several novel enhancements for constructing libraries with increased diversity of synalleles using segment shuffling techniques and synallele shuffling within segments using nicking and polymerization are also described. Additionally, the inventors also disclose an efficient cell sorting method using tethered beads to screen for clones producing/secreting high levels of target protein.

Potential Commercial Applications:

- Production of therapeutic proteins
- Screening of cells and clones for high expressors

Competitive Advantages: This technology provides for increased chances of finding a synallele for a biopharmaceutical protein that increases its expression, decreases the time it takes to make clinical grade material, and reduces its cost of production.

Development Stage:

- Early-stage
- Pre-clinical
- In vitro data available

Inventors: James L. Hartley and Andrew Waters (NCI)

Intellectual Property: HHS Reference Nos. E–218–2012/0, E–219–2012/0, E–220–2012/0, E–221–2012/0, and E–017–2013/0—US Application No. 61/725,807 filed 13 Nov 2012

Licensing Contact: Suryanarayana (Sury) Vepa, Ph.D., JD; 301–435–5020; *vepas@mail.nih.gov*

Super-Resolution Fluorescence Enhanced Imaging Using Bleaching/Blinking Assisted Localization Microscopy (BALM)

Description of Technology: The invention relates to systems and methods for localization microscopy for superresolution imaging of fluorescent molecules. The method utilizes intrinsic bleaching/blinking properties of fluorophores in which superresolution is achieved by capturing successive images and subtracting from each either the subsequent image. The location of a single fluorescent molecule can be identified when the molecules either photobleach, blink off, or blink between successive images using a higher magnification lens to achieve a smaller pixel size.

Potential Commercial Applications:

- Tissue imaging
- Cell structure imaging

Competitive Advantages: Higher magnification at lower pixel size

Development Stage:

- Prototype
- In vitro data available

Inventor: Bechara Kachar (NIDCD)

Publication: Burnette DT, et al. Bleaching/blinking assisted localization microscopy for superresolution imaging using standard fluorescent molecules. Proc Natl Acad Sci U S A. 2011 Dec 27;108(52):21081–6. [PMID 22167805]

Intellectual Property: HHS Reference No. E–247–2011/0—US Provisional Patent Application No. 61/784,266 filed 14 Mar 2013

Licensing Contact: Michael A. Shmilovich, Esq.; 301–435–5019; *shmilovm@mail.nih.gov*

Dated: June 6, 2013.

Richard U. Rodriguez,

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

[FR Doc. 2013–13895 Filed 6–11–13; 8:45 am]

BILLING CODE 4140–01–P