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**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.

**ADDRESSES:** 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, MD 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.

**Conditional Expression of the Transcription Factor ARNT in a Mouse Model**

*Description of Technology:* The aryl hydrocarbon receptor nuclear translocator (Arnt) protein is a transcription factor that plays an important role in mammalian development and physiological homeostasis. A member of the PAS domain/bHLH family of transcription factors, it is an obligate dimerization partner with other members of this family, such as the aryl hydrocarbon receptor (AHR) and hypoxia-inducible factor 1alpha (HIF1alpha). It was shown to be a critical factor in control of gene expression in a number of tissues including ovary, vascular endothelium, keratinocytes, and T-cells.

Available for licensing is a mouse line homozygous for floxed alleles of the *Arnt* gene. This mouse line can be used to disrupt the *Arnt* gene in different tissues by breeding the *Arnt*-floxed mice with transgenic mice in which the Cre recombinase is under the control of tissue-specific promoters. These mice can be used as a research tool for drug development where PAS/bHLH transcription factors are targeted.

*Applications:* Tool for drug studies targeting PAS/bHLH transcription factors; Tool to probe the role of the Arnt protein in a tissue-specific manner.

*Inventors:* Frank J. Gonzalez (NCL).

*Related Publications:*

1. S. Tomita, C.J. Sinal, S.H. Yim, and F.J. Gonzalez. Conditional disruption of the aryl hydrocarbon receptor nuclear translocator (*Arnt*) gene leads to loss of target gene induction by the aryl hydrocarbon receptor and hypoxia-inducible factor 1alpha. *Mol Endocrinol.* 2000 Oct;14(10):1674-1681.

2. S.H. Yim, Y. Shah, S. Tomita, H.D. Morris, O. Gavrilova, G. Lambert, J.M. Ward, and F.J. Gonzalez. Disruption of the *Arnt* gene in endothelial cells causes hepatic vascular defects and partial embryonic lethality in mice. *Hepatology.* 2006 Sep;44(3):550-560.

*Licensing Status:* This technology is available as a research tool under a Biological Materials License.

*Patent Status:* HHS Reference No. E-047-2007/0—Research Tool.

*Licensing Contact:* Tara L. Kirby, Ph.D.; 301/435-4426; [tarak@mail.nih.gov](mailto:tarak@mail.nih.gov).

**Nanopore Structured Biosensors**

*Description of Technology:* Available for licensing and commercial development is a new glucose monitor system developed for direct glucose measurement without the use of mediators and glucose enzymes. Nanopore structured glucose sensors with special membrane bearing receptors mimic the function of the glucose oxidase and show the ability to directly measure glucose with high precision and accuracy; especially for measuring hypoglycemia and hyperglycemia ranges. These inventions provide improvements for type I and type II diabetes patients over commercial meters which lack the accuracy at the lower glucose range.

*Application:* Diagnostics.

*Market:* Diabetes.

*Development Status:* Early-stage.

*Inventors:* Ellen T. Chen (FDA) et al.

*Related Publications:*

1. E.T. Chen and J. Thornton. Novel nanopore structured glucose biosensors promote reagentless glucose concentration measurements in the

hypoglycemic range. Abstract presented at FDA Science Forum, April 2005, Washington, DC.

2. E.T. Chen. Amperometric biomimetic enzyme sensors based on modified cyclodextrin as electrocatalysts. U.S. Patent No. 6,582,583 issued 24 Jun 2003.

*Patent Status:* U.S. Provisional Application No. 60/792,902 filed 19 Apr 2006 (HHS Reference No. E-185-2006/0-US-01).

*Licensing Status:* Available for exclusive and non-exclusive licensing.

*Licensing Contact:* Michael A. Shmilovich, Esq.; 301/435-5019; [shmilovm@mail.nih.gov](mailto:shmilovm@mail.nih.gov).

**Human Neutralizing Monoclonal Antibodies to Respiratory Syncytial Virus and Human Neutralizing Antibodies to Respiratory Syncytial Virus**

*Description of Technology:* This invention is a human monoclonal antibody fragment (Fab) discovered utilizing phage display technology. It is described in Crowe et al., *Proc Natl Acad Sci USA.* 1994 Feb 15;91(4):1386-1390 and Barbas et al., *Proc Natl Acad Sci USA.* 1992 Nov 1;89(21):10164-10168. This MAb binds an epitope on the RSV F glycoprotein at amino acid 266 with an affinity of approximately  $10^9 M^{-1}$ . This MAb neutralized each of 10 subgroup A and 9 subgroup B RSV strains with high efficiency. It was effective in reducing the amount of RSV in lungs of RSV-infected cotton rats 24 hours after treatment, and successive treatments caused an even greater reduction in the amount of RSV detected.

*Applications:* Research and drug development for treatment of respiratory syncytial virus.

*Inventors:* Robert M. Chanock (NIAID), Brian R. Murphy (NIAID), James E. Crowe, Jr. (NIAID), et al.

*Patent Status:* U.S. Patent 5,762,905 issued 09 Jun 1998 (HHS Reference No. E-032-1993/1-US-01); U.S. Patent 6,685,942 issued 03 Feb 2004 (HHS Reference No. E-032-1993/1-US-02); U.S. Patent Application No. 10/768,952 filed 29 Jan 2004 (HHS Reference No. E-032-1993/1-US-03).

*Licensing Status:* Available for non-exclusive licensing.

*Licensing Contact:* Peter A. Soukas, J.D.; 301/435-4646; [soukasp@mail.nih.gov](mailto:soukasp@mail.nih.gov).

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