Lentivirus Vector System

Suresh K. Arya (NCI)

U.S. Provisional Application No. 60/115,247 Filed 07 Jan 1999 (DHHS Reference No. E–231–1998/0–US–01)

PCT Application No. PCT/US/00/00390 Filed 06 Jan 2000, which published as WO 00/40741 on 13 Jul 2000 (DHHS Reference No. E–231–1998/0–PCT–02)

U.S. Patent Application No. 09/869,588 Filed 28 Jun 2001 (DHHS Reference No. E–231–1998/0–US–03)

U.S. Patent Application No. 10/731,988 Filed 09 Dec 2003 (DHHS Reference No. E–231–1998/0–US–04)

Licensing Contact: Jesse Kindra; (301) 435–5559; *kindraj@mail.nih.gov*.

This application relates to the field of gene therapy. More particularly the application describes a vector system useful in gene therapy. The vectors employed in this system are lentiviral vectors, particularly retroviral vectors based on HIV2. Retroviral vectors based on HIV2, unlike most other retroviral vectors such as MuLV, are capable of infecting non-proliferating cells thereby making them useful in situations where other retroviral vectors are not. The vector system uses a two vector approach to minimize the possibility of HIV infection and comprises a transfer vector, for carrying the foreign gene of interest, and a packaging vector. The transfer vector carries a specific modification that demonstrates an improved ability to package and express the gene of interest when compared to a control. In the experimental system this increase was 25 fold. This improved packaging and expression ability is one means to address current low viral titers which are problematic in the gene therapy field.

This research has been published, in part, in Human Gene Therapy 1998 June 10; 9(9): 1371–86.

Food Quality Indicator Device

Dwight W. Miller, Jon G. Wilkes, Eric D. Conte (FDA)

U.S. Provisional Application No. 60/052,674 Filed 17 Jul 1997 (DHHS Reference No. E–093–1997/0–US–01)

PCT Application No. PCT/US98/14780 Filed 16 Jul 1998, which published as WO 99/04256 on 28 Jan 1999 (DHHS Reference No. E–093–1997/0–PCT–04)

U.S. Patent Application No. 09/116,152 Filed 16 Jul 1998 (DHHS Reference No. E–093–1997/0–US–02)

U.S. Patent Application No. 10/005,004 Filed 04 Dec 2001 (DHHS Reference No. E–093–1997/0–US–03)

Licensing Contact: George Pipia; (301) 435–5560; *pipiag@mail.nih.gov*.

Scientists at the U.S. Food and Drug Administration have invented an effective way to monitor food quality and freshness in real time. The major factor for food spoilage is the release of volatile gases due to the action of enzymes contained within the food or produced by microorganisms, such as bacteria, yeasts and molds growing in the food. The rate of release of such gases depends on food's storage history. In this technology, a reactive dye locked in a water-repellent material reacts with the gases released during food decomposition, and changes color. Thus a rapid and informed decision can be made about quality of food and its shelf life under the storage conditions used. Since the detection is based on biological processes that are the root cause for food spoilage, these indicators are much more reliable.

This technology provides an excellent alternative to the current methods for assessing food quality that cannot accurately estimate shelf life of food products due to unreliable storage history. This technology is also much less expensive than the current methods. These indicators have been successfully tested on seafood and meats and can be easily adapted to dairy products. This product is fully developed, market-tested and ready for full commercial rollout.

Dated: September 22, 2004.

Steven M. Ferguson,

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

[FR Doc. 04–22149 Filed 9–30–04; 8:45 am]

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, Public Health Service, DHHS.

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, 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.

DNA-Based Vaccination of Retroviral Infected Individuals Undergoing Treatment

Barbara K. Felber *et al.* (NCI)

U.S. Provisional Application filed 09 Jul 2004 (DHHS Reference No. E–249–2004/0–US–01); PCT Application No. PCT/US01/45624 filed 01 Nov 2001, which published as WO02/36806 on 10 May 2002 (DHHS Reference No. E–308–2000/0–PCT–02); National Stage filed in EP, CA, AU, JP, and U.S. (DHHS Reference No. E–308–2000/0–US–07)

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

This technology describes DNA-based vaccine vectors that produce either secreted or intracellularly degraded antigens that can be administered to individuals receiving antiretroviral therapy (ART) against HIV. Because some of the virus is sequestered in reservoirs, thus evading ART, drug regimen does not result in complete clearance of the virus, and prolonged ART is associated with toxicity and development of virus resistance. These vectors have recently been shown to work unusually well in controlling viremia when administered as DNA vaccines to SIV-infected monkeys that

are undergoing treatment with antiretroviral agents. The current technology would decrease the drug dependence and assist in clearing or reducing virus burden. The nucleic acids utilized used as a DNA immunization plasmids in the current technologies encode a fusion protein containing a destabilizing amino acid sequence or encode a secreted fusion protein.

Inhibition of HIV–1 Expression by PSP2

Barbara K. Felber *et al.* (NCI)
U.S. Provisional Application No. 60/573,135 filed 21 May 2004 (DHHS Reference No. E–136–2004/0–US–01)
Licensing Contact: Susan Ano; 301/435–5515; *anos@mail.nih.gov*.

This technology describes methods of identifying inhibitors of HIV–1 gene expression, where such inhibitors are small molecules or nucleic acids. The compounds thus identified could be used as potential anti-retroviral therapeutics. The candidate agents are those that affect the interaction of human paraspeckle protein 2 (PSP2) (also known as SYT-interacting protein or SIP, RNA binding motif protein 14 or RBM 14, and coactivator activator or CoAA) with inhibitory sequences (INS) present in the HIV–1 genome. PSP2 has been shown to act via INS present in the HIV genome, thus decreasing the levels of retrovirus gene expression like gag and env. Therefore, compounds that modulate or enhance effects of PSP2 on INS are potential inhibitors of retrovirus expression. The methods involve analyzing the effects of PSP2 on INS and evaluating the level of retrovirus gene expression in the presence of a candidate agent. The technology provides for PSP2 to be introduced into the cell using an expression vector that encodes PSP2.

Anti-Plasmodium Compositions and Methods of Use

David Narum (NIAID), Kim Le Sim (EM)
U.S. Patent Application Nos. 09/924,154 filed 07 Aug 2001 (DHHS Reference No. E–049–2004/0–US–02) and 10/630,629 filed 29 Jul 2003 (DHHS Reference No. E–049–2004/0–US–04), with priority to 07 Aug 2000
Licensing Contact: Robert Joynes; 301/594–6565; *joynesr@mail.nih.gov*.

This invention describes methods and compositions of peptides that inhibit the binding of *Plasmodium falciparum (P. falciparum)* to erythrocytes. Malarial parasites enter the red blood cell through several erythrocyte receptors, each being specific for a given species of *Plasmodia*. For *P. falciparum*, the erythrocyte binding antigen (EBA–175) is the ligand of the plasmodia merozoites that interacts with the receptor glycophorin A on the surface of red blood cells. Inhibiting this ligand/receptor interaction is one method of preventing further malarial attacks and is an active area of vaccine research.

This invention describes another specific peptide and antibodies that inhibit this ligand/receptor binding, thus is a potential source for vaccine development. The peptide described herein is a paralogue of EBA–175, identified as EBP2. Further, the invention includes antibodies and peptides that are specific for the claimed paralogue. Claims include the development of vaccines to the EBA–175 and EBP2. In addition, these antibodies and peptides can be developed as diagnostic and analytical reagents as well. Methods include the use of the peptides and the antibodies for the diagnosis, prevention and potential treatment of malaria. Further claims include their use in detection of *P. falciparum* in biological samples and culture methods.

A Novel Interferon-Gamma-Inducible *Secretoglobin*

Anil B. Mukherjee *et al.* (NICHD)
U.S. Provisional Application No. 60/534,381 filed 06 Jan 2004 (DHHS Reference No. E–028–2004/0–US–01); U.S. Provisional Application No. 60/570,088 filed 12 May 2004 (DHHS Reference No. E–028–2004/1–US–01)
Licensing Contact: Robert Joynes; 301/594–6565; *joynesr@mail.nih.gov.*

Interferons (IFNs) are a family of cytokines that are paramount in protecting the host from viral infections. The effects of the IFNs are mediated through interactions with specific cellular receptors, activation of second messenger systems effecting the expression of several antiviral and immunomodulatory proteins.

This invention describes a novel gene that is induced by IFN-γ treatment of lymphoblast cells. This gene, termed IIS (IFN-gamma-inducible Secretoglobin) is a member of the Secretoglobin (SCG) superfamily in which uteroglobin (UG) is the founding member. IIS shares 30% amino acid identity with UG. Data shows that IIS is expressed in virtually all tissues with highest levels found in lymph nodes, tonsils, lymphoblasts and ovary. IIS levels are also highly elevated in $CD8^+$ and $CD19^+$ cells. In further experiments, treatment of immune cells with antisense-s-oligonucleotides to IIS are shown to prevent chemotactic migration and invasion. Taken together, these data give insight into the immunological function of this novel IIS gene.

These results are described in MS Choi *et al.*, IFN-gamma stimulates the expression of a novel secretoglobin that regulates chemotactic cell migration and invasion, J. Immunol. (2004) 172:4245–5252.

Solid Supported Membranes Inside Porous Substrates and Their Use in Biosensors

Klaus Gawrisch *et al.* (NIAAA)
U.S. Provisional Application No. 60/534,380 filed 06 Jan 2004 (DHHS Reference No. E–011–2004/0–US–01) and U.S. Provisional Application No. 60/547,067 filed 09 Jun 2004 (DHHS Reference No. E–011–2004/1–US–01)
Licensing Contact: Robert Joynes; 301/594–6565; *joynesr@mail.nih.gov*.

This invention relates to reagents and methods for forming tubular single lipid bilayer membranes containing high concentrations of membrane receptors inside porous solid supports for use in biosensors. It reports compositions and methods for forming a high surface area lipid bilayer matrix in which the membrane is separated from the support by a closed and stable aqueous cushion. The membranes inside the porous substrate have a very large surface area that is freely accessible from an outside solution. The aluminum oxide-based support provides the advantage of high flow rates to exchange solutions, efficient particle retention, rigid, uniform surface, and transparency (when wet). Using this technology, G-protein coupled membrane receptors (GPCR), purified from natural sources, as well as recombinant receptors expressed in E-coli were incorporated into the bilayer in functional form. Membrane loaded supports can be stored at low temperature. The setup is ideal for ligand binding studies, including drug testing. The technology may be applied to a broad variety of membrane receptors but appears to be particularly useful for GPCR. The use of single lipid bilayers greatly reduces nonspecific interactions of ligands with the substrate therefore enhancing sensitivity and reproducibility of binding studies. The water layer between the membrane and the solid support prevents perturbation of receptor function. The substrates are compatible with signal detection by fluorescence, radiotracers, NMR, and other methods.

Dated: September 22, 2004.

Steven M. Ferguson,

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

[FR Doc. 04–22150 Filed 9–30–04; 8:45 am]
BILLING CODE 4140–01–P