Establishment of Two Cell Lines That Stably Express Luciferase for In Vivo Tracking

Description of Technology: Available for licensing are two renal carcinoma cell lines, 786-O(luc) and 786-O/VHL(–), which both stably express luciferase. 786-O(luc) lacks von Hippel-Lindau (VHL) protein expression and has constitutively high expression of hypoxia-inducible transcription factor-2alpha (HIF–2alpha). The second stably expresses VHL, a tumor suppressor, and has minimal HIF–2alpha expression. These cell lines can be tracked in vivo and can be used to study VHL-dependent and HIF–2alpha-dependent events such as tumorigenesis. VHL mutations lead to the clinical manifestations of von Hippel-Lindau disease, a rare autosomal dominant syndrome characterized by abnormal growth of blood vessels in multiple organs, including the brain and kidneys.

Applications: Model to study VHL pathology

Advantages: Cell lines that stably express luciferase for in vivo tracking.

Benefits: Easy, ready to use positive and negative VHL and HIF–2alpha cells that stably express luciferase for in vivo tests.

Market: Incidence of VHL syndrome is 1 in 38,951; HCC is the third leading cause of cancer death worldwide; HCC is the fifth most common cancer in the world; Post-operative five year survival rate of HCC patients is 30–40%.

Inventor: Leonard M. Neckers, Marston Linehan (NCI).


Licensing Status: Available for non-exclusive licensing.

Licensing Contact: Jennifer Wong; 301/435–4633; wongje@mail.nih.gov.


HIV gp41-Membrane Proximal Region Arrayed on Hepatitis B Surface Antigen Particles for HIV Diagnostic and Vaccine Applications

Description of Invention: This technology describes vectors encoding the membrane proximal region (MPR) and select variants from HIV–1 gp41 linked to the hepatitis B surface antigen (HBsAg) and the resulting expressed particles for use in HIV diagnostic and vaccine applications. HIV–1 gp41 membrane proximal region contains two epitopes recognized by broadly neutralizing human monoclonal antibodies 2F5 and 4E10. However, immunization with gp41 MPR or the 2F5 or 4E10 epitopes have failed to raise neutralizing antibodies. In the subject technology, the particles were shown to bind antibodies from broadly neutralizing human sera and to the two known broadly neutralizing antibodies 2F5 and 4E10 with high relative affinities, demonstrating that the relevant epitopes are accessible for antibody binding and the potential utility of the particles in diagnostic applications. Additionally, these particles could be used to screen phage-display libraries for novel broadly cross-reactive neutralizing antibodies, of which only five are currently known. These particles could also be used for selection of MPR specific B cells. Lastly, these particles have been shown to be immunogenic and raise antibodies that recognize HIV–1 Env gp160 expressed on the cell surface. These immunogens can elicit neutralizing antibodies specific for HIV gp41 MPR, which is highly conserved across various HIV clades and therefore is likely to generate broadly neutralizing antibodies when administered in a proper presentation in a lipid context as is the case in HBsAg particles. Multiple copies of the MPR of HIV–1 gp41 arrayed on the particles could significantly increase the immunogenic potential compared to monomeric molecules.

Inventors: Richard T. Wyatt (NIAID), Sanjay K. Phogat (NIAID), Ira Berkower (FDA).


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

Licensing Contact: Tara Kirby, PhD; 301/435–4426; tarak@mail.nih.gov.

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.

**Micropatterning of Extracellular Matrix Proteins Using Microphotoablation of Poly Vinyl Alcohol (PVA) Monolayers**

**Description of Technology:** Available for licensure and commercial development is a microphotoablation (µPA) method used as a micropatterning technique to attach ECM proteins or other biological molecules to specified locations. Advantages of this photolytic technique are that it: (a) Is stampless, (b) allows for flexible pattern generation to the submicron level, (c) allows for live cell fluorescence imaging, retains cell viability, and (d) allows the use of multiple proteins. The technique has demonstrated experimentally that micropatterning with live cell fluorescence imaging can be used to precisely visualize studying distinct cell-ECM interactions.

Applications of microlithography techniques into the study of cell biology aid in resolving cellular function as regulated by the interaction of cells with the extracellular matrix. Currently, many techniques have used micro-contact patterning (µCP) to apply ECM proteins in distinct localized patterns. These techniques require the fabrication of silicone-based stamps to either “ink” proteins directly or indirectly onto a gold coated surface, limiting the user to a specified stamp shape and size. To bypass the necessity of a physical stamp the current technique provides submicron-sized spots using a tunable multi photon laser coupled to a confocal microscope to photoablate hydrophilic poly vinyl alcohol (PVA) macro-molecular thin films. Through controlled photoablation, PVA layers are locally removed allowing deposition of ECM proteins into distinct patterns. The use of ROI’s produces a “virtual mask” that can be created in any shape or pattern and is easily modified. Unlike µCP techniques, microphotoablation (µPA) allows live cell imaging of multiple fluorophores and is possible even with total internal reflection fluorescence (TIRF) microscopy. Therefore, microphotoablation (µPA) allows kinetic quantification of ECM-cell interactions. This technique that uses a macro-molecular thin film together with localized photoablation allows the versatility to create protein spots of any size or shape easily on the same cover slip. Furthermore, this process can be repeated multiple times to directly conjugate different proteins to the same local region allowing the investigation of how single cells probe their surroundings to discern different ECM proteins.

**Applications:** Cellular interactions; Protein visualization; Diagnostics

**Inventors:** Andrew Doyle (NIDCR), Kenneth Yamada (NIDCR), et al.

**Relevant Publications**


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

**Collaborative Research Opportunity:** The National Institute of Dental and Craniofacial Research is seeking statements of capability or interest from parties interested in collaborative research to further develop, evaluate, or commercialize Microphotoablation of Poly Vinyl Alcohol (PVA) Monolayers. Please contact David W. Bradley, Ph.D. at bradleyd@niddcr.nih.gov for more information.

**Chimeric SHIV Gag Proteins Optimize T-Cell Response Against HIV Gag**

**Description of Technology:** HIV Gag has been included in nearly all HIV vaccines entering clinical trials because of its importance in SIV models and its correlation with protection in HIV-infected long-term non-progressors. However, HIV Gag has proven less immunogenic than Env in phase I clinical trial studies. Through sequence comparison, two regions in HIV Gag have been identified as contributing to the decreased immunogenicity observed for HIV Gag. Replacement of these regions with corresponding SIV sequences significantly increased the resulting T-cell response to HIV Gag in mice. Utilization of these chimeras in an HIV vaccine could significantly enhance the overall immunogenicity of the vaccine.

**Applications:** HIV vaccine.

**Inventors:** Gary J. Nabel et al. (NIAID).

**Patent Status**


**Development Status:** Animal (mouse) data available.

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

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


**Steven M. Ferguson,**

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**DEPARTMENT OF HEALTH AND HUMAN SERVICES**

**Substance Abuse and Mental Health Services Administration**

**Agency Information Collection Activities: Proposed Collection; Comment Request**

In compliance with Section 3506(c)(2)(A) of the Paperwork Reduction Act of 1995 concerning opportunity for public comment on proposed collections of information, the Substance Abuse and Mental Health Services Administration (SAMHSA) will publish periodic summaries of proposed projects. To request more information on the proposed projects or to obtain a copy of the information collection plans, call the SAMHSA Reports Clearance Officer on (240) 276–1243.

Comments are invited on: (a) Whether the proposed collections of information are necessary for the proper performance of the functions of the agency, including whether the information shall have practical utility; (b) the accuracy of the agency’s estimate of the burden of the proposed collection of information; (c) ways to enhance the quality, utility, and clarity of the information to be collected; and (d) ways to minimize the burden of the collection of information on...