tumor progression in an oral-specific chemical carcinogenesis model. Cancer Prevention Res. 2009 Jan;2(1):27–36. [PubMed: 19139015]

3. Raimondi AR, Molinolo A, Gutkind JS. Rapamycin prevents early onset of tumorigenesis in an oral-specific K-ras and p53 two-hit carcinogenesis model. Cancer Res. 2009 May 15;69(10):4159–4166. [PubMed: 19435901]

Patent Status: U.S. Patent Application No. 13/059,335 filed August 20, 2009 (HHS Reference No. E–302–2008/0–US–05) and related international filings

Related Technology: International Application No. PCT/IL2010/000694 filed August 25, 2010 (HHS Reference No. E–282–2009/0–PCT–02), entitled "Prevention and Treatment of Oral and Lips Diseases Using Sirolimus and Derivatives Sustained Release Delivery Systems for Local Application to the Oral Cavity and Lips"

Licensing Status: Available for licensing.

Licensing Contact: Whitney Hastings; 301–451–7337; *hastingw@mail.nih.gov*

Collaborative Research Opportunity: The National Institute of Dental and Craniofacial Research, Oral and Pharyngeal Cancer Branch, is seeking statements of capability or interest from parties interested in collaborative research to further develop, evaluate, or commercialize this technology. Please contact David W. Bradley, PhD at *bradleyda@nidcr.nih.gov* for more information.

Three-Dimensional Co-Culture Assay System for Angiogenesis and Metastasis

Description of Technology: This technology features an assay for the detection and measurement of angiogenesis (formation of new blood vessels) and metastasis (spread of cancer). The inventors have developed a three-dimensional co-culture system that closely mimics the *in vivo* environment in which angiogenesis and metastatic tumors develop. The co-culture system consists of cancerous cells (tumor spheroid or biopsy), endothelial cells, and a combination of other mammalian cells (mast cells, adipocytes, fibroblasts, macrophages, *etc.*). The cancerous cells can be obtained from cell lines or biopsied tumors from various cancers, such as melanoma, ovarian cancer, hepatocellular cancer, or colon cancer. Cells in the three-dimensional co-culture system express a fluorescent protein having a different emission spectrum. Consequently, the co-culture systems can be used to identify, monitor, and measure changes in morphology, migration, proliferation and apoptosis of cells involved in angiogenesis and/or metastasis. The co-cultures are developed in 96-well plates to allow rapid and efficient screening for whether a drug impacts multiple cell types, modulates angiogenesis and/or has a therapeutic impact on metastasis. This technology not only represents an important tool for angiogenesis and cancer research, but also may be developed into a diagnostic test that allows the development of personalized therapies for cancer and other angiogenesis-mediated disease.

Applications:

- Personalized therapies for cancer and other angiogenesis-mediated diseases
- Screening for cytotoxic compounds, modulators of angiogenesis, and anti-metastatic compounds
- Basic research applications, such as fluorescence-activated cell sorting (FACS), time-lapse cinematography, and confocal microscopy

Advantages:

- Closely mimics tumor microenvironment
- Efficient screening method for basic research, drug discovery and for clinical use

Development Status: Experimental data available; inventors have also developed a high-throughput screening assay based on this technology

Inventors: Changge Fang, Enrique Zudaire, Frank Cuttitta (NCI)

Patent Status:

- U.S. Provisional Application No. 60/976,732 filed 01 Oct 2007 (HHS Reference No. E–281–2007/0–US–01)
- U.S. Application No. 12/802,666 filed 10 Jun 2010 (HHS Reference No. E–281–2007/1–US–01)

Licensing Status: Available for licensing.

Licensing Contact: Tara L. Kirby, PhD; 301.435.4426; *kirbyt@mail.nih.gov.*

Collaborative Research Opportunity: We are very interested in setting up collaborations with pharmaceutical, biomedical, or academic investigators to use our technology in the form of a CRADA or joint grant submission (*e.g.* DOD). These studies could include expanding the complexity of a 3D co-culture by increasing the partner cell number—paralleling the current model of in vivo angiogenesis. Our existing co-culture assay incorporates both immortalized tumor and endothelial cells. However, other anatomically distinct cells could be added (*e.g.* pericytes, inflammatory cells [mast cell or macrophages], or fibroblasts) to more accurately mimic the in vivo setting. In addition, a more thorough analysis of our prior xenograft biopsy studies for assessing drug sensitivity could be done using a variety of human tumor cell lines that include lung, colon, breast, prostate, and ovarian cancer. Finally, this collaboration would segue into clinical studies taking biopsy material from cancer patients (following approved IRB protocols) to evaluate anti-angiogenic drug sensitivities to determine the most appropriate FDA reviewed/certified anti-cancer drugs.

The National Cancer Institute, Radiation Oncology Branch, is seeking statements of capability or interest from parties interested in collaborative research to further develop, evaluate, or commercialize this technology as noted above. Please contact John Hewes, PhD at 301–435–3121 or *hewesj@mail.nih.gov* for more information.

Dated: March 15, 2011.

Richard U. Rodriguez,

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

[FR Doc. 2011–6570 Filed 3–18–11; 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, 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, 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.

Synthetic Peptide Inhibitors of the Wnt Pathway

Description of Technology: Available for licensing are peptide inhibitors of

the Wnt signaling pathway, a pathway that is activated in many cancer types. To date, there are few small molecules that target canonical Wnt/β-catenin signaling and those that have been discovered have low potency and do not directly target β-catenin, the pathway's key signal mediator. The investigators have developed peptide inhibitors that selectively target a conserved region in β-catenin essential for promoting cell growth but not cell adhesion and differentiation. Furthermore, these peptides have been synthetically modified to enhance cell penetration and structure stability thereby increasing their potency and efficacy. Interestingly, these peptides inhibit the canonical Wnt signaling pathway but not non-canonical Wnt signaling. As a result, these inhibitors potentially provide effective chemotherapies for tumors, such as colon and cervical, which depend upon canonical Wnt signaling. Moreover, as these inhibitors do not disrupt non-canonical Wnt signaling, which plays a role in kidney, lung, and vascular development, and they are likely to have minimal negative side effects. Additionally, these peptides can serve as an effective tool for researches to elucidate the roles of Wnt canonical and non-canonical signaling in development and many pathological conditions.

Applications:

- Cancer therapeutics
- Research tool to study Wnt signaling pathways

Advantages:

- Selective inhibitors that target cell growth but not differentiation
- Synthetic molecules with increased stability and cell penetration that can be manufactured in large quantities under GMP conditions

Development Status: The technology is currently in the pre-clinical stage of development.

Market: Peptide drug market is growing at a compound annual rate of 7.5% with an estimated value in excess of $13 billion in 2010

Inventors: Nadya Tarasova, Alan Perantoni, Shunsuke Tanigawa (NCI)

Related Publication: S Tanigawa et al. Wnt4 induces nephronic tubules in metanephric mesenchyme by a non-canonical mechanism. Dev Biol. 2011 Jan 20. E-pub ahead of print, doi:10.1016/j.physletb.2003.10.071. [PubMed: 21256838]

Patent Status: U.S. Provisional Application No. 61/422,857 filed 14 Dec 2010 (HHS Reference No. E–021–2011/0–US–01)

Licensing Status: Available for licensing.

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

Collaborative Research Opportunity: The Center for Cancer Research, Cancer and Inflammation Program and Cancer and Developmental Biology Laboratory, are seeking statements of capability or interest from parties interested in collaborative research to further develop and commercialize Wnt pathway inhibitors. Please contact John Hewes, PhD at 301–435–3121 or *hewesj@mail.nih.gov* for more information.

Therapeutic Approach for Autoimmune Diseases, Inflammatory Diseases and Cancers by Blocking CIKS–TRAF6 Interactions

Description of Technology: CIKS (also known as Act1 or TRAF3IP2) is an intracellular adaptor protein involved in the signaling pathway of IL–17 cytokines. Interaction between CIKS and tumor necrosis factor receptor-associated factor (TRAF 6) is important for IL–17 signaling and collectively, IL–17, CIKS, and TRAF6 are involved in inflammatory responses associated with autoimmune diseases, inflammatory diseases, and cancers. Inhibition of CIKS activity has been shown to prevent and alleviate pathological symptoms in an animal model of rheumatoid arthritis and multiple sclerosis, and it is hypothesized that disruption of the interaction between CIKS and TRAF6 is a therapeutic strategy for the selective prevention of certain IL–17-mediated diseases.

NIAID investigators have discovered a short sequence within CIKS that is responsible for CIKS interaction with TRAF6. The disclosed sequence can be used to develop blocking peptides for the treatment of IL–17-mediated autoimmune diseases, inflammatory diseases, and cancers.

Applications: Therapeutics for IL–17-mediated diseases, such as inflammatory diseases, autoimmune diseases, and cancer.

Advantages: Selective inhibition of CIKS–TRAF6 interactions.

Development Status: Basic research.

Inventors: Ulrich Siebenlist, Soeren U. Soender, Sun Saret (NIAID).

Publications:

1. Pisitkun P, *et al.* (2010) [PubMed: 20662069]
2. Claudio E, *et al.* (2009) [PubMed: 19155511]

Patent Status: U.S. Provisional Application No. 61/418,782 filed 01 Dec 2010 (HHS Reference No. E–268–2010/0–US–01)

Licensing Status: Available for licensing.

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

Tiopronin Specifically Kills and Re-sensitizes Multi-Drug Resistant Cells to Chemotherapy

Description of Technology: One of the major hindrances to successful cancer chemotherapy is the development of multi-drug resistance (MDR) in cancer cells. MDR is frequently caused by the increased expression or activity of ABC transporter proteins in response to the toxic agents used in chemotherapy. The increased expression or activity of the ABC transporter proteins causes the toxic agents to be removed from cells before they can kill the cell. As a result, research has generally been directed to overcoming MDR by inhibiting the activity of ABC transporters, thus causing the chemotherapeutic agents to remain in the cell long enough to exert their effects. However, compounds that inhibit ABC transporter activity often elicit strong and undesirable side-effects due to the inhibition of ABC transporter function in normal cells, thereby restricting their usefulness as therapeutics.

Investigators at the NIH have now discovered that the amino acid analog Tiopronin has the ability to kill multi-drug resistant cancer cells while leaving normal cells relatively unharmed. This suggests that Tiopronin can be developed as a therapeutic for multi-drug resistant cancers. Furthermore, Tiopronin re-sensitizes multi-drug resistant cells to chemotherapeutic agents over time. This may allow cyclical administration of chemotherapeutics without the development of permanent resistance to the agents, increasing the effectiveness of chemotherapy as a cancer treatment.

Importantly, Tiopronin is not an inhibitor of ABC transporter function because it kills multi-drug resistant cells without affecting the activity of ABC transporters. As a result, the undesirable side-effects that have prevented the use of inhibitors of ABC transporters as therapeutics should not affect the therapeutic application of Tiopronin.

Applications:

- Treatment of cancers associated with MDR, either alone or in combination with other therapeutics
- Resensitization of multi-drug resistant cells to chemotherapeutic agents, allowing cyclical administration of chemotherapy

Advantages:

- Tiopronin capitalizes on one of the most common drawbacks to cancer therapies (MDR) by using it as an advantage for treating cancer

• Tiopronin does not inhibit the activity of ABC transporters, thereby reducing the chance of undesired side-effects during treatment
• The effects of Tiopronin correlates with the level of ABC transporter expression, allowing healthy cells to better survive treatments
• Tiopronin can also improve the effectiveness of chemotherapy by re-sensitizing resistant cells that were previously considered impervious to treatment
• Tiopronin has already been approved for use in humans for the treatment of cytinuria, facilitating the pathway for use in humans as a treatment for cancer

Development Status: Preclinical stage of development, *in vitro* data

Inventors: Andrew S. Goldsborough et al. (NCI)

US Patent Status: US Provisional Application 61/407,948 (E–227–2010/0–US–01)

Licensing Status: The technology is available for exclusive licensing.

Licensing Contact: David Lambertson, PhD; 301–435–4632; *lambertsond@mail.nih.gov.*

Collaborative Research Opportunity: The National Cancer Institute, Multidrug Resistance Section, is seeking statements of capability or interest from parties interested in collaborative research to further develop, evaluate, or commercialize this technology. Please contact John Hewes, PhD at 301–435–3121 or *hewesj@mail.nih.gov* for more information.

Identification of EGFR as a Receptor for AAV6 Transduction

Description of Technology: AAV vectors offer unique advantages in gene therapy applications. Studies have shown that these replication deficient parvovirus vectors can deliver DNA to specific tissues and confer long-term transgene expression in a variety of systems. Although many studies have looked at the tissue-specific expression elicited by each of the AAV serotypes, a true understanding of how AAV transduces these tissues is still unclear. Of the large AAV family, only a few receptors or co-receptors have been identified. The ability to better target transduction to specific tissues on the basis of the receptors that each serotype uses for entry is essential for selecting a serotype given the receptor expression in specific tissue, or to exploit altered receptor expression under disease conditions.

AAV6 has been reported to effectively transduce muscle, lung, brain, and multiple types of tumors, including gliomas and lung adenocarcinomas. By using a bioinformatics based screen approach, the NIH investigators discovered that the epidermal growth factor receptor (EGFR) is a co-receptor for AAV6 infection in mammalian cells, and is necessary for efficient vector internalization.

Applications and Market: Improved gene therapy applications.

Development Status: Pre-clinical stage of development.

Inventors: John A. Chiorini, Melodie L. Weller, Michael Schmidt (NIDCR)

Publication: Weller ML, Amornphimoltham P, Schmidt M, Wilson PA, Gutkind JS, Chiorini JA. Epidermal growth factor receptor is a co-receptor for adeno-associated virus serotype 6. Nat Med. 2010 Jun;16(6):662–664. [PubMed: 20473307]

Patent Status: U.S. Utility Patent Application No. 12/879,142 filed 10 Sep 2010 (HHS Reference No. E–194–2010/0–US–01)

Licensing Status: Available for licensing.

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

Therapeutic Approach to Neurodegenerative Disorders Using a TFP5-Peptide

Description of Technology: This invention discloses methods for treating neurodegenerative diseases by administering cyclin dependent kinase 5 (Cdk5) inhibitory peptides derived from P35, the activator of Cdk5. Abnormally hyperactive Cdk5 has been shown to be associated with a variety of neurodegenerative disorders. Disclosed in this invention are isolated peptide fragments, pharmaceutical compositions and methods for use of such for treating subjects with a neurodegenerative disease, such as Alzheimer's disease (AD), Amyotrophic Lateral Sclerosis (ALS) and Parkinson's disease (PD). An inhibitory fragment, TFP5, disclosed in this invention, has been shown to ameliorate symptoms of AD in disease animal models without any evidence of toxicity. In particular, TFP5 treatment of rat cortical neurons reduced hyperactivation of Cdk5 upon neuronal stress and insults. Following intraperitoneal (ip) injection, TFP5 was capable of crossing the BBB and localizing within the brain where it was found to rescue memory deficits and pathology in a double transgenic mouse (APP/PS1) AD model.

Applications: Therapeutic developments (AD, PD, ALS)

Advantages: The products are small peptides that pass the blood brain barrier.

Market: Development for AD, PD, and ALS.

Development Status: Pre-clinical; some animal data

Inventors: Harish C. Pant (NINDS)

Patent Status: U.S. Provisional Application No. 61/387,839 filed 29 Sep 2010 (HHS Reference No. E–144–2010/0–US–01)

Licensing Status: Available for licensing.

Licensing Contact: Steven H. Standley, PhD; 301–435–4074; *sstand@mail.nih.gov.*

Collaborative Research Opportunity: The National Institute of Neurological Disorders and Stroke, Neuronal Cytoskeletal Protein Regulation Section, is seeking statements of capability or interest from parties interested in collaborative research to further develop, evaluate, or commercialize topic of invention or related laboratory interests. Please contact Heather Gunas, J.D., M.P.H., at 301–451–3944 or *gunash@mail.nih.gov* for more information.

Dated: March 15, 2011.

Richard U. Rodriguez,

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

[FR Doc. 2011–6569 Filed 3–18–11; 8:45 am]

BILLING CODE 4140–01–P

DEPARTMENT OF HEALTH AND HUMAN SERVICES

National Institutes of Health

National Institute on Drug Abuse; Notice of Closed Meetings

Pursuant to section 10(d) of the Federal Advisory Committee Act, as amended (5 U.S.C. App), notice is hereby given of the following meetings.

The meetings will be closed to the public in accordance with the provisions set forth in sections 552b(c)(4) and 552b(c)(6), Title 5 U.S.C., as amended. The contract proposals and the discussions could disclose confidential trade secrets or commercial property such as patentable materials, and personal information concerning individuals associated with the contract proposals, the disclosure of which would constitute a clearly unwarranted invasion of personal privacy.

Name of Committee: National Institute on Drug Abuse Special Emphasis Panel; GISTE, the Geospatial Information Systems Tool (5558).

Date: April 18, 2011.

Time: 1:30 p.m. to 3 p.m.

Agenda: To review and evaluate contract proposals.