

FCR 9

Office of the President
September 11, 2007

Members, Board of Trustees:

PATENT ASSIGNMENT REPORT

Recommendation: that the Board of Trustees accept the patent assignment report for the period ending August 1, 2007.

Background: At its March 4, 1997 meeting, the Board of Trustees authorized the University of Kentucky Research Foundation to conduct all future copyright and patent filings and prosecutions. Quarterly reports on patent and copyright applications are to be submitted to the Finance Committee of the Board.

Action taken: Approved Disapproved Other _____

PATENT ASSIGNMENT
QUARTERLY FOR THE PERIOD MARCH 19, 2007 THROUGH AUGUST 1, 2007

Patents

The following assignments on behalf of the Board of Trustees of the University of Kentucky Research Foundation have been executed:

- 1. U.S. Patent Application Serial Number: (to be assigned)**
Filed: January 27, 2007
Title: “Vectors and Methods for Cancer Cell Specific Gene Expression”
Inventors: Drs. David Kaetzel and Susan Kraner (Pharmacology)
Technical Description: The invention relates to the fields of gene delivery vectors and gene therapy. More specifically, the invention relates to vectors useful in gene therapy for human tumor or cancer cells.
Summary: Traditional cancer therapies are toxic to both cancer and normal tissues. Genetic therapies are being developed to avoid toxicity to normal tissues. Currently, these genetic therapies are not efficient enough to replace the traditional therapies. Drs. David Kaetzel and Susan Kraner have developed an efficient method of implementing gene therapy in liver, lung, bone, brain, and placental cancers.
- 2. U.S. Patent Application Serial Number: (to be assigned)**
Filed: February 16, 2007
Title: “CCR3 Inhibition for Ocular Angiogenesis and Macular Degeneration”
Inventor: Dr. Jayakrishna Ambati (Ophthalmology)
Technical Description: The method relates to compositions and methods for the treatment or prevention of ocular neovascularization by reducing macrophage infiltration into the eye.
Summary: Age-related macular degeneration (AMD) is one of the leading causes of blindness. Blindness in AMD is caused by an overgrowth of blood vessels in the eye, or neovascularization. Dr. Ambati has developed a novel treatment to inhibit or prevent neovascularization, and the resulting blindness. The treatment involves the therapeutic application of drugs that block the action of the CCR3 receptor, a naturally occurring protein.
- 3. U.S. Patent Application Serial Number: (to be assigned)**
Filed: March 13, 2007
Title: “Withanolide Compounds as Inhibitors of Fibrosis and Identification of Molecular Targets for Anti-Fibrotic Drug Development”
Inventors: Drs. Royce Mohan and Paola Bargagna-Mohan (Ophthalmology)
Technical Description: The invention relates to methods of screening compounds for treating fibrosis and to methods for treating fibrosis.
Summary: Fibrosis occurs during tissue repair and is a serious complication after surgery. It also can occur during cancerous growth, endometriosis, liver

damage, and other common disorders. No effective treatment exists for the prevention of fibrosis. The inventors have developed a method of screening a large number of drugs to identify those useful in preventing the development of fibrosis.

4. U.S. Patent Application Serial Number: (to be assigned)

Filed: April 24, 2007

Title: “Method of Improving Cheese Quality”

Inventors: Drs. Donal O’Callaghan, Colm O’Donnell (Outside Inventors), Manuel Castillo and Fred Payne (Biosystems and Agricultural Engineering).

Technical Description: The invention relates to the cheese-making art and, more particularly, to a method of improving the quality of cheese produced from a curd and whey mixture.

Summary: Syneresis is the step in cheese making in which whey is removed from the curd grains. Current methods of controlling syneresis are achieved by estimating proper temperature, stirring, and time. Because they are estimates, there is an unwanted variability in the quality of the resulting cheese. The inventors have developed a better method of controlling syneresis that involves using color data from the curd mixture.

5. U.S. Patent Application Serial Number: (to be assigned)

Filed: March 20, 2007

Title: “Trans-Excision-Splicing Ribozyme and Methods of Use”

Inventors: Drs. Stephen Testa and Michael Bell (Chemistry)

Technical Description: This invention relates to the field of genetic therapeutics. More particularly, it relates to a trans-excision-splicing ribozyme having adaptable sequence recognition specificity that provides a powerful tool for genetic therapies.

Summary: All life processes, both normal and abnormal, rely on the production of cellular proteins. The production of proteins can be regulated by manipulating RNA, which encodes protein sequences. Scientists have begun attempting to regulate disease processes by manipulating RNA. Drs. Testa and Bell have developed a new method of manipulating RNA that may prove useful in treating disease processes.

6. U.S. Patent Application Serial Number: (to be assigned)

Filed: May 2, 2007

Title: “New Technique and Program Code Constituting Use of Local-Global Solution Modes for Sparse Direct Representations of Wave-like Phenomena”

Inventor: Dr. Robert J. Adams (Electrical and Computer Engineering)

Technical Description: The invention relates to computerized techniques for determining solutions for electromagnetic (EM) scattering from surfaces of structures/objects such as those encountered when designing systems for the transmission and receipt of EM radiation/waves. The invention also relates to computerized techniques for determining solutions for other types of wave phenomena, such as acoustic, scattering from surfaces of structures/objects. More

particularly, the novel technique is directed to assist in performing modeling, design, and analysis of wave phenomena – in an effort to characterize associated fields – as is done in the design and implementation of whole system and modular approaches used in connection with characterizing transmission and/or receipt of radiation/wave phenomena.

Summary: The analysis of waves is necessary in the development of many devices, including acoustic devices, antennae, medical imaging devices, and microwaves. Dr. Adams has developed an improved method of analyzing waves that will assist in the development and improvement of such devices.

7. U.S. Patent Application Serial Number: (to be assigned)

Filed: May 11, 2007

Title: “Bis-Quaternary Ammonium Cyclophane Compounds That Interact with Nicotinic Acetylcholine Receptors”

Inventors: Drs. Peter Crooks, Linda P. Dwoskin, Guangrong Zheng, Sangeetha Sumithran, Zhenfa Zhang (Pharmaceutical Sciences), Davis Allen and Paul Lockman (Outside Inventors)

Technical Description: This invention relates to bis-quaternary ammonium cyclophane compounds that interact with nicotinic acetylcholine receptors, and to methods of using the compounds to treat central nervous system diseases.

Summary: Neurons affected by nicotine play an important role in the neural circuitry relevant to many neurological diseases, including myasthenia gravis, Parkinson's disease, Alzheimer's disease, schizophrenia, eating disorders, and drug addiction. Blocking the activity of neurons sensitive to nicotine is sometimes therapeutic. The inventors have produced compounds that block the activity of nicotine-sensitive neurons. The compounds of this invention should be useful in the treatment of a wide variety of diseases related to the action of nicotine.

8. U.S. Patent Application Serial Number: (to be assigned)

Filed: May 15, 2007

Title: “Toll-like Receptor (TLR) Stimulation for Ocular Angiogenesis and Macular Degeneration”

Inventor: Dr. Jayakrishna Ambati (Ophthalmology)

Technical Description: The invention relates to the suppression of ocular angiogenesis by stimulation of toll-like receptor action.

Summary: Age-related macular degeneration (AMD) is one of the leading causes of blindness. Blindness in AMD is caused by an over-growth of blood vessels in the eye, or neovascularization. Dr. Ambati has developed a novel treatment to inhibit or prevent neovascularization, and the resulting blindness. The treatment involves the therapeutic application of drugs that stimulate the action of the toll-like receptor, a naturally occurring protein.

9. U.S. Patent Application Serial Number: (to be assigned)

Filed: June 6, 2007

Title: “Compositions and Methods Useful for Treating Circulatory and Hypovolemic Shock”

Inventors: Dr. Pete Oeltgen and Meera Govindaswami (Toxicology)

Technical Description: This invention relates to a method of treating hypovolemic and circulatory shock.

Summary: Shock, which refers to a reduction in blood flow and pressure, can deprive vital organs and tissues of oxygen, leading to bodily injury or death. Common causes of shock are blood loss (circulatory) and dehydration (hypovolemic). The inventors have discovered a novel way to prevent shock and its resulting injury by administering a therapeutic dose of the peptide Deltorphin-E to an at-risk patient.

10. U.S. Patent Application Serial Number: (to be assigned)

Filed: June 15, 2007

Title: “Mono Quaternary Ammonium Salts and Methods for Modulating Nicotinic Acetylcholine Receptors”

Inventors: Drs. Peter Crooks , Linda P. Dvoskin, Guangrong Zheng, Sangeetha Sumithran and Zhenfa Zhang (Pharmaceutical Sciences)

Technical Description: This invention relates to mono quaternary ammonium salts and their use in modulating nicotinic acetylcholine receptors.

Summary: Neurons affected by nicotine play an important role in the neural circuitry relevant to many neurological diseases, including myasthenia gravis, Parkinson's disease, Alzheimer's disease, schizophrenia, eating disorders, and drug addiction. Blocking the activity of neurons sensitive to nicotine is sometimes therapeutic. The inventors have produced compounds that block the activity of nicotine-sensitive neurons. The compounds of this invention should be useful in the treatment of a wide variety of diseases related to the action of nicotine.

11. U.S. Patent Application Serial Number: (to be assigned)

Filed: June 15, 2007

Title: “Transdermal Delivery of Naltrexone Hydrochloride, Naltrexol Hydrochloride, or Bis(hydroxyl-methyl) Propionyl-3-O Ester Naltrexone Using Microneedles”

Inventors: Drs. Audra Lynn Stinchcomb, Stan Lee Banks and Raghotham Reddy Pinninti (Pharmaceutical Sciences).

Technical Description: The invention relates to the transdermal delivery of naltrexone hydrochloride, naltrexol hydrochloride, or bis(hydroxyl-methyl) propionyl-3-o ester naltrexone using microneedles.

Summary: Naltrexone and naltrexone derivatives are useful for treating alcohol and narcotic addiction. However, oral naltrexone treatment is subject to adverse side effects, and other methods require surgical implants of naltrexone-releasing devices. The inventors have developed a method of using microneedles to facilitate transdermal delivery of therapeutically effective amounts of naltrexone and naltrexone derivatives for treatment of narcotic dependence, alcohol abuse, and alcoholism.

12. U.S. Patent Application Serial Number: (to be assigned)

Filed: July 9, 2007

Title: “Nucleic Acids Encoding *Sarcocystis Neurona*”

Inventor: Dr. Daniel Howe (Veterinary Science)

Technical Description: This invention relates to the nucleic acid sequences of *Sarcocystis Neurona*.

Summary: *Sarcocystis Neurona* is a parasite that causes encephalitis in horses. Current methods of detecting *Sarcocystis Neurona* infection are not sensitive. Dr. Howe has discovered nucleic acid sequences that are useful in the detection and prevention of *Sarcocystis Neurona* infection in horses.

13. U.S. Patent Application Serial Number: (to be assigned)

Filed: July 24, 2007

Title: “Inhibitors of Plant Peptide Deformylase for Use as Broad-Spectrum Herbicides and Methods for Identifying the Same”

Inventors: Dr. Robert Houtz, Lynette Dirk and Mark Williams (Horticulture)

Technical Description: The invention relates to a method of identifying herbicides and to the use of inhibitors of plant peptide deformylase as broad spectrum herbicides.

Summary: Chemicals that target plant peptide deformylase are lethal to plants, suggesting that herbicides can be developed that target this protein. The inventors have identified inhibitors of plant peptide deformylase that are useful as broad-spectrum herbicides. In addition, the inventors have described a method of identifying additional inhibitors of plant peptide deformylase.

Patent Activities

Fiscal Year 2006-07

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| Number of Patent Applications | 36 |
| Number of Patents Issued | 21 |
| Patent Income | \$1,802,905 |

Fiscal Year to Date

July 1, 2007 to August 1, 2007

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| Number of Patent Applications | 2 |
| Number of Patents Issued | 1 |
| Patent Income | \$87,481 |