

FCR 30

Office of the President
April 24, 2007

Members, Board of Trustees:

PATENT ASSIGNMENT REPORT

Recommendation: that the Board of Trustees accept the patent assignment report for the period ending March 19, 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 FEBRUARY 1, 2007 THROUGH MARCH 19, 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: February 28, 2007
Title: “Novel Delivery System for Providing Protein and Protein Products to Plant Surfaces”
Inventors: Drs. George Wagner and Ryan Shepard (Plant and Soil Sciences)
Technical Description: The present invention relates to a system for the secretion of proteins and protein byproducts to a plant’s aerial surfaces. For example, this system can be used to secrete proteins, such as an antifungal protein, phylloplanin, to a plant’s aerial surfaces. Further, using the system, one can create transgenic plants that secrete desired proteins which can be collected from the plant’s aerial surface.
Summary: The inventors previously discovered that plants produce an antifungal protein, phylloplanin, on their leafy surfaces. In the present invention, the inventors reveal the genetic mechanism that causes phylloplanins to be deposited on leafy surfaces. The genetic mechanism can be used to confer fungal resistance to plants not naturally having phylloplanins. In an alternative use, the genetic mechanism can be used to cause plants to deposit other useful proteins on plant surfaces.
- 2. U.S. Patent Application Serial Number: (to be assigned)**
Filed: February 23, 2007
Title: “Precatalysts Useful in Polyolefin Polymerization Reactions”
Inventors: Drs. Folami Ladipo, Richard Eaves, Alexey Zazybin, and Sean Parkin (Chemistry)
Technical Description: The present invention relates to the polymerization catalyst field and, more particularly, to precatalysts useful in polyolefin polymerization reactions and ligand intermediates useful in the production of these catalysts.
Summary: Many heavily used materials, such as ethylene and propylene, are polymers of polyolefins. Because of their industrial importance, ways of lowering the cost of production are sought. The inventors have developed catalysts that reduce the cost of producing these important polymers.
- 3. U.S. Patent Application Serial Number: (to be assigned)**
Filed: January 11, 2007
Title: “Composition and Method for Identifying Inducers and Repressors of the hNIS Promoter”

Inventors: Drs. Kenneth Ain and Wei Lei (Internal Medicine)

Technical Description: The present invention relates to the fields of oncology and drug discovery. Specifically, this invention relates to methods of treating cancer, methods of screening compounds for anti-cancer activity, and methods of identifying anti-cancer target proteins.

Summary: Thyroid cancers are treated with radioiodide. Unfortunately, some thyroid cancers do not concentrate radioiodide, making them resistant to treatment. The inventors have discovered nucleic acid sequences of the protein responsible for concentrating radioiodide. This sequence can be used to design methods of identifying compounds that induce radioiodide concentration in treatment-resistant thyroid cancers.

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

Filed: February 14, 2007

Title: “Withanolides, Probes and Binding Targets and Methods of Use Thereof”

Inventors: Drs. Royce Mohan, Paola Bargagna Mohan, and Kyung Bo Kim (Ophthalmology)

Technical Description: The present invention relates to 1) compounds for targeting human or animal disease states characterized by aberrant expression of the intermediate filament type III proteins, such as vimentin, 2) methods for detecting such intermediate filament type III proteins and 3) compounds for screening small molecules that target intermediate filament proteins.

Summary: Withaferin A is a natural compound that has antitumor activity. Withaferin acts by binding to intermediate filament type III proteins. The inventors have developed molecular probes by binding reporter molecules to Withaferin A. These probes can be used to identify other antitumor molecules by screening for molecules that exclude Withaferin A binding to intermediate filament type III proteins in competition assays.

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

Filed: January 24, 2007

Title: “Modeling of mPGES-1 Three-Dimensional Structures: Applications in Drug Discovery”

Inventors: Dr. Chang-Guo Zhan (Pharmaceutical Sciences)

Technical Description: Computational methods for determining the three-dimensional structure of one or more polypeptides are provided. Also provided are three-dimensional models of a microsomal prostaglandin synthase molecule and computer-implemented methods for identifying compounds that interact with the molecule.

Summary: The enzyme mPGES-1 is involved in a number of disease states, including arthritis, pain, atherosclerosis, cancer, and Alzheimer’s disease. The inventors have developed a computer model of the structure of mPGES-1. The computer model is useful in identifying compounds that bind mPGES-1. These compounds therefore are candidates for drug treatment of the aforementioned disease states.

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

Filed: January 25, 2007

Title: “Methods and Compositions for Treating Neurological Disorders”

Inventors: Drs. Tae Ji and Inhae Ji (Chemistry)

Technical Description: This invention relates to methods and compositions useful for the treatment of dementia. More particularly, the invention relates to methods and compositions for the treatment of neurodegenerative diseases, including senile dementia and Alzheimer’s disease.

Summary: The inventors have discovered that the onset of dementia correlates with the levels of the polypeptide kalirin in the bodily fluids of patients. The inventors propose using the discovery to predict the onset of dementia, and to reverse or slow dementia by stimulating levels of kalirin.

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

Filed: February 9, 2007

Title: “Method for Assessing Biological Test Specimens”

Inventors: Drs. John Stencil (Chemical and Materials Engineering), Haiping Song, Clair Hicks, and Fred Payne (Animal Sciences)

Technical Description: This invention relates to the dynamic assessment of cells and their interactions with viruses.

Summary: Detecting bacteria in samples is important in many situations. The inventors have discovered that bacteria in samples can be detected by identifying acoustic signals emitted by the bacteria. The inventors disclose that by using an acoustic fingerprint, both the presence and identity of bacteria can be determined.

Patent Activities
Fiscal year to date as of

Number of Patent Applications	25
Number of Patents Issued	16
Patent Income	\$791,086.