

# FCR 8

Office of the President  
March 9, 2010

Members, Board of Trustees:

## PATENT ASSIGNMENT REPORT

Recommendation: that the Board of Trustees accept the patent assignment report for the period September 1 through December 31, 2009.

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.

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Action taken:     Approved     Disapproved     Other \_\_\_\_\_

PATENT ASSIGNMENT  
QUARTERLY FOR THE PERIOD THROUGH DECEMBER 31, 2009

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:** October 6, 2009  
**Title:** “Enantioselective Synthesis of (+) and (-)-2-[1-(2,6-Dichlorophenoxy)-Ethyl]-1,3-Diazacyclopent-2-Ene”  
**Inventors:** Drs. Peter A. Crooks and Ashish Pramod Vartak (Pharmaceutical Sciences)  
**Technical Description:** This invention relates to a method for the enantioselective synthesis of (+) and (-) lofexidine or 2-[1-(2,6)-dichlorophenoxy)-ethyl]-1,3-diazacyclopent-2-ene.  
**Summary:** Lofexidine is used to treat a variety of disorders, including hypertension and opiate withdrawal. Current formulations of lofexidine include a mixture of the mirror image molecules of lofexidine, (+)-lofexidine and (-)-lofexidine. While (+)-lofexidine is much more effective at treating hypertension, a mixture has been used because creating pure (+)-lofexidine has been too expensive. The inventors have invented a method of selectively synthesizing highly purified (+)-lofexidine [or (-)-lofexidine] that is much less expensive than current methods of synthesis, opening the possibility of using these purified forms clinically.
- 2. U.S. Patent Application Serial Number: (to be assigned)**  
**Filed:** October 9, 2009  
**Title:** “Use of Tris-Quaternary Ammonium Salts As Pain-Modulating Agents”  
**Inventors:** Drs. Joseph R. Holtman (Anesthesiology), Peter A. Crooks, Linda P. Dwoskin and J. Michael McIntosh (Pharmaceutical Sciences)  
**Technical Description:** This invention relates to the use of tris-quaternary ammonium salts for pain modulation.  
**Summary:** Pain management is a critical health issue. The financial loss due to pain has been estimated at \$100 billion per year as a result of medical fees, decreased productivity, litigation, and the cost of drugs. Current drugs used to treat pain are either only moderately effective or are highly addictive. The inventors have developed a novel class of drugs that have been shown to decrease pain in laboratory animals and that may provide more effective pain relief without being addictive.

- 3. U.S. Patent Application Serial Number: (to be assigned)**  
**Filed:** October 13, 2009  
**Title:** “Use of a Novel Alpha-7 nAChR Antagonist to Suppress Pathogenic Signal Transduction in Cancer and AIDS”  
**Inventors:** Drs. Peter A. Crooks, Linda P. Dwoskin, Zhenfa Zhang, and Guangrong Zheng (Pharmaceutical Sciences) and Roger L. Papke, Gretchen Lopez Hernandez and Jeffrey Thinschmidt (outside inventors).  
**Technical Description:** This invention provides a method for the use of select quaternary ammonium antagonists to alpha-7 nAChR for the treatment of cancer and HIV and AIDS.  
**Summary:** Several of the deadly symptoms of lung cancer and AIDS are thought to be mediated [or aggravated] by the stimulation neuronal nicotinic acetylcholine receptors [nAChR]. The inventors have proposed a method of treating some symptoms of lung cancer and AIDS by blocking the activity of nAChR with quaternary ammonium antagonists.
- 4. U.S. Patent Application Serial Number: (to be assigned)**  
**Filed:** October 29, 2009  
**Title:** “Methods and Compositions for Treating Tumors and Metastases through the Modulation of Latexin”  
**Inventors:** Drs. Gary Van Zant and Ying Liang (Internal Medicine/Hematology)  
**Technical Description:** This invention relates to methods for treating cancers and metastatic disease by modulating latexin expression and/or latexin activity.  
**Summary:** Cancer remains the second leading cause of death worldwide, despite prolonged and concentrated efforts to develop cures. The inventors have discovered that tumor growth in animals can be inhibited by increasing the activity of latexin, an enzyme already present in animals. The inventors propose that cancer can be treated in humans by increasing the activity of latexin in humans.
- 5. U.S. Patent Application Serial Number: (to be assigned)**  
**Filed:** November 4, 2009  
**Title:** “Intranasal Benzodiazepine Compositions”  
**Inventor:** Dr. Daniel Wermeling (Pharmacy Practice and Science)  
**Technical Description:** This invention relates to benzodiazepine compositions formulated to be delivered intranasally.  
**Summary:** Benzodiazepines are drugs that been used to treat a wide variety of clinical conditions, including anxiety, convulsions, and spasticity. Successful treatment of these conditions requires a strict adherence to the prescribed schedule of administration. However, many benzodiazepines are administered intravenously, which is painful and known to be associated with a higher level of treatment avoidance by patients. The inventor has devised formulations of benzodiazepine compositions that can be administered intranasally, a mode which is associated with a higher rate of patient compliance with prescribed schedules.

- 6. U.S. Patent Application Serial Number: (to be assigned)**  
**Filed:** November 19, 2009  
**Title:** “Diacylglycerol Acetyltransferase Sequences and Related Methods”  
**Inventors:** Drs. David Hildebrand (Plant and Soil Sciences), Runzhi Li (Biochemistry) and Tomoko Hatanaka (outside inventor)  
**Technical Description:** This invention relates to diacylglycerol acetyltransferase (DGAT) sequences and methods of using them. In particular, the invention relates to novel nucleic acid and amino acid sequences for DGAT and methods of using those sequences to increase production of epoxy fatty acids.  
**Summary:** Plant seed oils may one day replace petroleum as the source of many industrial compounds. One interesting class of plant seed oils is the epoxy fatty acids, which are useful in the production of dyes, paints, adhesives, and plastics. Unfortunately, plant species which are amenable to agriculture do not contain high concentrations of epoxy fatty acids in their seeds. The inventors have discovered the genetic sequence of DGAT, which is responsible for the production of epoxy fatty acids in seeds. This enables DGAT genetic material to be introduced into agricultural crops, increasing the concentration of epoxy fatty acids in their seeds.
- 7. U.S. Patent Application Serial Number: (to be assigned)**  
**Filed:** November 19, 2009  
**Title:** “Compounds and Methods for Reducing the Occurrence of Post-Surgical Adhesions”  
**Inventors:** Drs. Thomas D Dziubla, Eugene Kaplan and John Mark Medley (Chemical and Materials Engineering)  
**Technical Description:** This invention relates to compounds and methods for reducing the occurrence of post-surgical adhesions. In particular, this invention relates to reducing adhesions using polymeric compounds comprised of acrylic acid groups and ethylene glycol.  
**Summary:** Post-surgical adhesions occur when surgically damaged human tissue becomes attached to adjacent tissue. These adhesions frequently cause new problems, leading to more than \$1 billion spent each year for corrective surgery. The inventors have developed a class of compounds which, when applied to surgically injured tissue, reduce the formation of post-surgical adhesions.
- 8. U.S. Patent Application Serial Number: (to be assigned)**  
**Filed:** December 3, 2009  
**Title:** “Method for Supplementing the Diet and Ameliorating Oxidative Stress”  
**Inventor:** Dr. Boyd E. Haley (Chemistry)  
**Technical Description:** This invention relates to the field of dietary supplements for mammals and, more particularly, to methods reducing oxidative stress through dietary supplementation.  
**Summary:** Oxidation is a naturally occurring chemical reaction that has the capacity to injure or kill the cells of living tissues. Exposure to heavy metals such as mercury and lead can drastically increase the amount of harmful oxidation in the tissues of animals. The inventor has developed a class of compounds which,

when ingested, can bind and promote the excretion of heavy metals from the body, decreasing the amount of harmful oxidation to cells and tissues.

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

**Filed:** December 7, 2009

**Title:** “Use of Tetrakis-Quaternary Ammonium Salts As Pain-Modulating Agents”

**Inventors:** Drs. Joseph R. Holtman (Anesthesiology), Peter A. Crooks, Linda P. Dvoskin and J. Michael McIntosh (Pharmaceutical Sciences)

**Technical Description:** This invention relates to the use of tetrakis-quaternary ammonium salts for pain modulation.

**Summary:** Pain management is a critical health issue. The financial loss due to pain has been estimated at \$100 billion per year as a result of medical fees, decreased productivity, litigation, and the cost of drugs. Current drugs used to treat pain are either only moderately effective or are highly addictive. The inventors have developed a novel class of drugs that have been shown to decrease pain in laboratory animals and that may provide more effective pain relief without being addictive.

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

**Filed:** December 22, 2009

**Title:** “Lightweight Inflatable Borehole Seismic Receiver”

**Inventor:** Dr. Michael Kalinski (Civil Engineering)

**Technical Description:** This invention relates to a borehole receiver unit for seismic testing and, more particularly, to an improved lightweight, inflatable borehole receiver unit for measuring dynamic seismic waves in downhole and crosshole testing, and a related method for positioning the borehole receiver unit in a borehole.

**Summary:** Seismic testing, such as in the prediction and evaluation of earthquakes, requires the use of special receivers that measure energy waves in the earth. The receivers currently used are heavy and cumbersome. In addition, current receivers are overly sensitive to the positioning of the receiver in a hole in the ground. The inventor has developed a new receiver that is much lighter and much easier to position.

Patent Activities

Fiscal year to date as of December 31, 2009

Number of Patent Applications	16
Number of Patents Issued	12
Patent Income	\$603,077