

FCR 15

Office of the President
December 9, 2014

Members, Board of Trustees:

PATENT ASSIGNMENT REPORT

Recommendation: that the Board of Trustees accept the patent assignment report for the period July 1 – September 30, 2014.

Background: At its March 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

FOR THE PERIOD July 1 - September 30, 2014

Patents

The following assignment on behalf of the Board of Trustees of the University of Kentucky Research Foundation has been executed:

- PCT Application Serial Number: 14/323,457**
Filed: July 3, 2014
Title: Methods of Inhibiting *Alu* RNA and Therapeutic Uses Thereof
Inventor: Jayakrishna Ambati (Ophthalmology and Visual Science)
Technical Description: This invention relates to methods for identifying *Alu* RNA inhibitors and methods and compositions for inhibiting *Alu* RNA and therapeutic uses thereof.
Summary: Geographic atrophy is an advanced form of age-related macular degeneration (AMD) that causes blindness worldwide, and geographic atrophy results from the death of retinal pigmented epithelium (RPE) cells in the eye. *Alu* RNA is dramatically increased in the RPE of human eyes with geographic atrophy, and *Alu* RNA induces death of human RPE cells and RPE degeneration in mice. *DICER* is an enzyme involved in microRNA (miRNA) biogenesis and is reduced in the RPE of human eyes with geographic atrophy and that conditional ablation of *DICER1* induces RPE degeneration in mice. This invention discloses identifying dysregulation of the RNase *DICER1* and the accumulation of transcripts of *Alu* elements as a cause of geographic atrophy and describe treatment strategies to inhibit this pathology *in vivo*. The invention discloses a cell culture method to identify *Alu* RNA inhibitors; a method of treating geographic atrophy by inhibiting *Alu* RNA associated with RPE cells; and methods to inhibit *Alu* RNA associated with a cells such as increasing levels of *DICER* polypeptide in the cell, administering an oligonucleotide targeting *Alu* RNA, and administering an siRNA targeting *Alu* RNA. The invention also disclosed screening methods for candidate compounds (small molecules, biologics, and combinations thereof) to determine their efficacy as antagonists of *Alu* RNA.
- U.S. Patent Application Serial Number: 14/470,715**
Filed: August 27, 2014
Title: Mono Quaternary Ammonium Salts and Methods for Modulating Neuronal Nicotinic Acetylcholine Receptors
Inventors: Peter Crooks (formerly of Pharmaceutical Sciences), Linda Dwoskin, Guangrong Zheng, Sangeetha Sumithran, and Zhenfa Zheng (Pharmaceutical Sciences)
Technical Description: The invention relates to mono quaternary ammonium salts and their use in modulating nicotinic acetylcholine receptors.
Summary: Nicotine produces its effect by binding to a family of ligand-gated ion channels, stimulated by acetylcholine (ACh) or nicotine which causes the ion channel to open and cations to flux with a resulting rapid depolarization of the target cell. For the most part, the subunit compositions and stoichiometrics of nicotine receptors in the brain remain to be elucidated. Thus, neuronal nicotinic receptor subtype diversity originates

from the differences in the amino acid sequence at the subunit level and from the multiple combinations of assemblies of subunits into functional receptor proteins, which affords a wide diversity of pharmacological specificity. Only a limited number of tools are available to study the pharmacology of native receptors. This invention discloses various structures of mono quaternary ammonium salts, which are nicotinic acetylcholinereceptor agents. Thus, they may augment or inhibit [³H]nicotine binding, [³H]MLA binding, evoke or inhibit neurotransmitter release, and/or evoke or inhibit the flux of ions through the nicotinic receptor. The invention also discloses methods for administering therapeutically effective doses of the disclosed compounds to prevent and/or treat substance abuse, gastrointestinal tract disorders and central nervous system disorders.

Patent Activities

Fiscal year to date as of September 30, 2014

Number of Patent Applications	2
Number of Patents Issued	12
Patent Gross Revenue	\$293,606.10