

FCR 12

Office of the President
June 19, 2012

Members, Board of Trustees:

PATENT ASSIGNMENT REPORT

Recommendation: that the Board of Trustees accept the patent assignment report for the period January 1 through March 31, 2012.

Background: On March 4, 1997, 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 THROUGH MARCH 31, 2012

Patent

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

1. **U.S. Patent Application Serial Number: 13/399,406**

Filed: February 17, 2012

Title: High-Activity Mutants of Butyrylcholinesterase for Cocaine Hydrolysis

Inventors: Chang-Guo Zhan, Fang Zheng, Wenchao Yang, Liu Xue, and Shurong Hou (Pharmaceutical Sciences)

Technical Description: This invention relates to a method of treating a cocaine-induced condition through the use of butyrylcholinesterase (BChE) polypeptide variants that enhance the catalytic efficiency for (-)-cocaine and a suitable pharmaceutical carrier for the variants.

Summary: Cocaine mediates its reinforcing and toxic effects by blocking neurotransmitter re-uptake, and the classical pharmacodynamic approach has failed to yield small-molecule receptor/transporter antagonists due to the difficulties inherent in blocking a blocker. An alternative approach is to interfere with the delivery of cocaine to its receptors/transporters and accelerate its metabolism in the body. The dominant pathway for cocaine metabolism in humans is butyrylcholinesterase (BChE)-catalyzed hydrolysis at the benzoyl ester group. More than 90% of cocaine is catalyzed by BChE. Human experiments have shown that enhancement of BChE activity by administering exogenous enzyme substantially decreases cocaine half-life. This invention discloses BChE variants that enhance the catalytic efficiency for (-)-cocaine and a suitable pharmaceutical carrier. The treatment described involves administering an effective amount of one of the BChE variants to lower blood cocaine concentration.

Patent Activities

Fiscal year to date as of March 31, 2012

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| Number of Patent Applications | 10 |
| Number of Patents Issued | 16 |
| Patent Gross Revenue | \$851,031.96 |