

FCR 5

Office of the President
September 10, 2013

Members, Board of Trustees:

PATENT ASSIGNMENT REPORT

Recommendation: that the Board of Trustees accept the patent assignment report for the period April 1 through June 30, 2013.

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
QUARTERLY FOR THE PERIOD THROUGH June 30, 2013

Patents

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: 13/928,160**
Filed: June 26, 2013
Title: Glucan Phosphatase Variants for Starch Phosphorylation
Inventors: Matthew Gentry and Craig Vander Kooi (Molecular and Cellular Biochemistry)
Technical Description: This invention relates to glucan phosphatase polypeptide variants and methods of utilizing them to alter starch metabolism and structure.
Summary: Starch plays a central role in many aspects of daily life, including being a major food source and industrial feedstock, as well as a key to biofuels. Demand exists for “designer starches” that possess novel biophysical properties and functionalities to improve nutrition, increase energy supplies, and provide safer and cheaper industrial feedstocks. However, known chemicals that modify the biophysical properties of native starch for industrial applications are hazardous. Thus, there remains a need for natural starch modification that can alter starch metabolism without the use of hazardous chemicals. This invention addresses that need and discloses multiple variants of glucan phosphatases, which function in the degradation of glucan chains. The glucan phosphatases Starch Excess 4 (SEX4) and Like Sex Four2 (LSF2) have been shown to preferentially dephosphorylate carbons in specific positions within glucose moieties. In addition to disclosing SEX4 and LSF2 variants, this invention also discloses a method of making starch by expressing the disclosed glucan phosphatase variants in plants and collecting the starch produced by the modified plants. In some embodiments, the glucan phosphatase variant can alter the biophysical properties and/or the total biomass of the starch that is collected.

Patent Activities

Fiscal year to date as of June 30, 2013

Number of Patent Applications	17
Number of Patents Issued	30
Patent Gross Revenue	\$4,833,581.67