Novel Lignases and Aldo-Keto Reductases for Biomass Conversion

Utilizing novel enzymes to efficiently convert lignin-containing materials into products ready for fermentation.

Lignin is one of the most abundant natural polymers constituting one-fourth to one-third of the total dry weight of physiologically mature plants, however, it is currently a barrier to the production of second generation, non-food ethanol. Lignin limits access to plant cell wall sugars that can be fermented into bioethanol, and it has a negative impact on overall conversion efficiency.

Purdue University researchers have developed digestive enzymes from termites as lignin targets that enable greater release of fermentable sugars. Utilization of these enzymes has the capacity to increase the yield and conversion efficiency of biomass to ethanol. These enzymes can also have applications in the production of value-added byproducts, as well as more sustainable plant-based fossil fuel additives.

Advantages:

-Breaks lignocellulose down into more accessible sugars for ethanol fuel production

-Increases efficiency of biomass to ethanol conversion

TRL: 3

Intellectual Property:

Provisional-Patent, 2012-02-23, United States | PCT-Patent, 2013-02-11, WO | NATL-Patent, 2014-08-20, United States

Keywords: Lignases, Aldo-Keto Reductases, Biomass Conversion, Enzyme Technology, Biofuels, Biorefinery, Lignin Degradation, Biocatalysis, Industrial Enzymes, Sustainable Chemistry, Agriculture, Biofuels, Energy, Ethanol, Green Technology

Explore other available products test at The Office of Technology Commercialization Online Licensing Store

Technology ID
65927

Category
Biotechnology & Life Sciences/Bioprocessing & Biomanufacturing
GreenTech/Circular Economy & Waste Reduction

Authors
Michael Scharf
Amit Sethi

Further information
Raquel Peron
rperon@prf.org

View online