Genes for Xylose Fermentation, Enhanced Biofuel Production in Yeast

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Inventors: Audrey Gasch, Dana Wohlbach

The Wisconsin Alumni Research Foundation (WARF) is seeking commercial partners interested in developing a set of genes that are involved in xylose growth and fermentation in yeast and demonstrate substantial utility in enhancing biofuel production.

Overview

Efficient fermentation of cellulosic feedstocks is an essential step in the production of biofuel from plant materials. Glucose and xylose are the two most abundant monomeric carbohydrates found in hemicellulose. *Saccharomyces cerevisiae*, the yeast most commonly used for industrial fermentation, is able to utilize glucose but is unable to ferment xylose. However, several Ascomycete yeasts that ferment and assimilate xylose have been identified, including *Pichia stipitis*, whose genome has recently been sequenced.

The Invention

UW–Madison researchers have identified 10 genes in yeast that are involved in xylose fermentation. These genes could be used to create an organism that can ferment both xylose and glucose for enhanced biofuel production.

Applications

- Biofuel production

Key Benefits

- Could lead to the development of an organism capable of efficiently fermenting both xylose and glucose
- May enhance the production of ethanol and other biofuels
- Significantly improved xylose growth and utilization when engineered in *S. cerevisiae*

Additional Information

For More Information About the Inventors

- Audrey Gasch

Related Intellectual Property

- View Continuation Patent in PDF format.
- View Divisional Patent in PDF format.

Tech Fields

- Clean Technology : Biobased & renewable chemicals & fuels