

Available
Technologies

A Targeted Mutagenesis Tool in Mesophilic Cellulolytic Clostridia species

Applications:

- *Clostridium cellulolyticum* ATCC35319
- Hydrolysis/saccharification of cellulose
- Biomass ethanol

Advantages:

- Only targeted mutagenesis system for *Clostridium cellulolyticum*
- Possible reductions in enzyme/saccharification costs

Contact:

Renae Speck, Ph.D.
Oak Ridge National Laboratory
P.O. Box 2008, Mail Stop 6196
Oak Ridge, TN 37831
(865)576.4680
speckrr@ornl.gov
www.ornl.gov/partnerships

Summary:

Technology Description

This is a targeted mutagenesis system for mesophilic cellulolytic Clostridia species with proof-of-principle in *Clostridium cellulolyticum*-ATCC35319. With this system, it is possible to disrupt a cellulosome subunit and generate mutants.

Technology Application

This system is used to knock out metabolic genes and improve biomass ethanol production and resistance for potential industrial applications. The system enables better understanding of the cellulolytic process involved in the hydrolysis/saccharification of cellulose from biomass. This is the only targeted mutagenesis system for the mesophilic cellulolytic Clostridia species and can be used to identify and characterize structural and regulatory genes critical for cellulosome function in *Clostridium cellulolyticum*. The technology may lead to reductions in enzyme and saccharification costs associated with the cellulose degradation of biomass.

Stage of Development: Proof of Principle

Patent Status: Patent Application Filed US 12/233,806

Licensing Status: Exclusive and non-exclusive licenses available