

# ENGINEERED B-GLUCOSIDASES

Concordia University: UCON-183

## BACKGROUND

$\beta$ -glucosidases (BGLs) are a critical component of natural and engineered enzyme systems that convert cellulosic biomass to fermentable sugars, like glucose.

Improving the production of glucose from biomass is crucial for biofuel production. The yield and rate of this production are restrained by the limitations of the BGLs such as glucose inhibition, pH and hydrolysis activity as well as substrate concentration. Therefore, there is a need for improved BGLs for efficient large scale conversion of glucose.

## TECHNOLOGY

The technology is a novel engineered variant of  $\beta$ -glucosidase with increased expression and loss on inhibition at high substrate concentration.

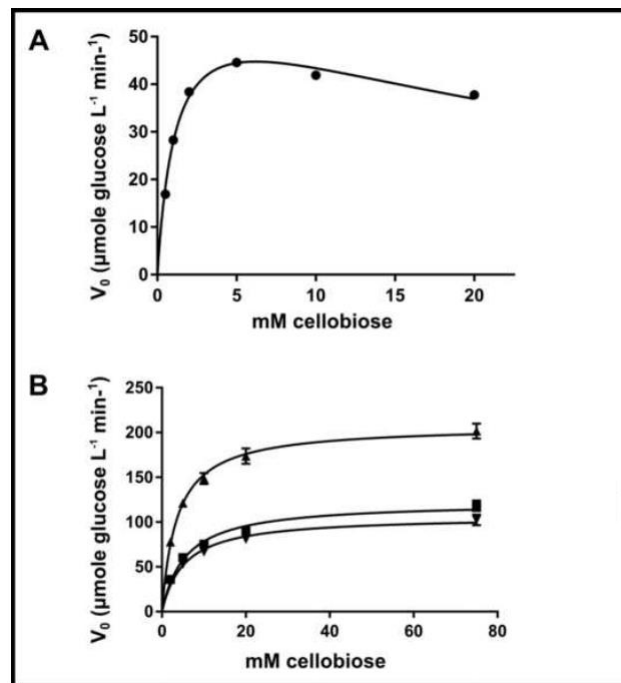
The technology allows for several variants of the enzyme BGL1 to address the industry needs.

## COMPETITIVE ADVANTAGES

- Reduces the amount of enzyme necessary for the conversion leading to cost reduction.
- Increases hydrolytic activity for both synthetic and natural substrates.
- Optimized for reaction at high substrate concentrations
- Completely independent modification which can be combined with several beneficial mutations.

## APPLICATIONS

Allows for the efficient large-scale conversion of cellulosic biomass to glucose in any field. Several applications exist for the production of biofuel as well as in food and beverage industry.



**Legend:** Kinetic data of conversion of natural cellobiose using A) Wild type  $\beta$ -glucosidases or B) Engineered  $\beta$ -glucosidases

## TECHNOLOGY DEVELOPMENTAL STAGE

Successful engineering of BGL1 enzyme with multiples modifications and proof of concept on natural substrates.

## PATENT STATUS

PCT application in March 2017

## BUSINESS OPPORTUNITY

Licensing/co-development for any fields.

## FOR INFORMATION PLEASE CONTACT:

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