

BESC - Heat-stable iron-dependent alcohol dehydrogenase for aldehyde detoxification in lignocellulosic hydrolysates

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Technology Summary

A heat-stable, NADPH-dependent alcohol dehydrogenase was cloned and overexpressed in *E. coli*. The enzyme displayed activity against a number of aldehydes including inhibitory compounds that are produced during the dilute-acid pretreatment process for lignocellulosic biomass before fermentation to biofuels. The enzyme reduced aldehydes to their corresponding alcohols, which are less toxic to microorganisms. The enzyme also has potential for use in metabolic engineering strategies for producing longer-chain alcohols from sugars using thermophilic, fermentative microorganisms.

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