

Improved tolerance of the cellular toxicity from lignocellulosic hydrolysate in engineered
Corynebacterium glutamicum

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Acid-pretreatment of lignocellulosic biomasses produced fermentable sugars and cellular inhibitors such as Furfural, HMF, etc. We developed the strain capable of tolerant to the inhibitors. Initially, we focused the effect of the inhibitors to *Corynebacterium glutamicum*. Cellular growth was retarded under various conditions of cellular inhibitors, including furfural that is a derivative of furan in the hydrolysate. *C. glutamicum* grown with furfural showed over 2-folds of reactive oxygen species stresses. Moreover, the conversion rate of furfural was calculated. We have engineered *C. glutamicum* by overexpressing the target genes. When we cultivated the engineered strains with furfural, they showed improved the growth rate. Several metabolic engineering approaches could further improve the tolerance in *C. glutamicum*. This work was supported by the National Research Foundation of Korea Grant funded by the Korean Government (MEST) (2013, University-Institute cooperation program) and 'Creative Allied Program (CAP)' through the Korea Research Council of Fundamental Science and Technology (KRCF) and Korea Institute of Science and Technology (KIST).