Overexpression of transcription factor *SPT3* in engineered *Saccharomyces cerevisiae* using glycerol for improving ethanol production

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Ethanol plays an important role in substituting more and more limited petrol as the high value renewable power fuel for industrial application. In our previous article, we successfully established the conversion of glycerol to ethanol by engineered *Saccharomyces cerevisiae* [1]. However the ethanol yield is still relatively low. Hence, enhancing ethanol and osmotic tolerance in ethanol fermentation is a powerful approach for yeast strains to improve fermentation performance under the control of multiple genes. The transcription factor *SPT3* plays a central role in improvement of ethanol and osmotic strains. Overexpression of *SPT3* can increase the production of ethanol by improving osmotic tolerance and ethanol tolerance of engineered strains using glycerol. To investigate the effect of modulation of transcription factor in the fermentation properties of *S. cerevisiae* strains and to evaluate whether overexpression of transcription factor would result in higher ethanol yield.

[1] KO Yu, SW Kim, SO Han. *Biores. Technol.* 2010 *In press*