Cellulosic Ethanol fermentation Using Recombinant *Saccharomyces cerevisiae* Engineered for Production of minicellulosome

한성옥*
고려대학교
(samhan@korea.ac.kr*)

Lignocellulosic biofuels have been widely regarded as the only foreseeable alternative to conventional transport fuels. In this study, we report engineering of *Saccharomyces cerevisiae* for assembly of minicellulosomes by heterologous expression of a recombinant scaffolding protein and a chimeric endoglucanase. In this proposed minicellulosome by using cohesin-dockerin interaction, the recombinant scaffolding protein mini-CbpA containing two cohesin domains of CbpA from *Clostridium cellulovorans* was expressed. To assemble the minicellulosome, we constructed a chimeric CelE containing the catalytic domain of CelE fused with dockerin domain of *C. cellulovorans* EngB. The resulting strain was able to ferment amorphous cellulose into ethanol with the aid of β-glucosidase 1. The minicellulosome assembled *in vivo* is useful for direct ethanol production with synergic effect from cellulosic substrates. The development of a more effective cellulosic ethanol fermentation process is required to bring about a necessary dramatic reduction of production costs. So this strain will lead to more efficient ethanol production.