

Metabolic Engineering of *Clostridium acetobutylicum* ATCC 824 for production of a fuel mixture with increased octane rate

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Butanol is a promising biofuel that have superior characteristics over ethanol. It is produced by several clostridial species through the so-called acetone-butanol-ethanol fermentation. However, acetone itself is not suitable for current engines. In addition, butanol has slightly lower octane rate when compared to commercial gasoline fuel. In this study, we introduced a primary/secondary alcohol dehydrogenase gene into two hosts, *Clostridium acetobutylicum* ATCC 824 and *C. beijerinckii* NCIMB 8052. Even this gene worked well in both hosts, conversion of acetone into isopropanol slightly reduce butanol yield possibly due to additional consumption of reducing equivalents for acetone reduction. [This work was supported by the Advanced Biomass R&D Center of Korea (ABC-2010-0029799) through the Global Frontier Research Program of the Ministry of Education, Science and Technology (MEST). Further supports by BioFuelChem, EEWS program of KAIST, and the World Class University program (R32-2008-000-10142-0) of the MEST are appreciated.]