

Construction of a butanol production platform in *Escherichia coli* amino acid to biofuels

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We designed the novel synthetic pathway to *Escherichia coli* for the production of butanol by using 2-ketoisovalerate as an intermediate. Based on the previously constructed L-valine over-producing strain of *E. coli*, in which all the known negative regulations by L-valine were removed and the carbon flux towards L-valine formation was increased, the novel pathway for the biosynthesis of butanol from 2-ketoisovalerate, the direct precursor of L-valine, was further engineered. The resulting engineered *E. coli* strain was able to produce 118 mg/L butanol in batch culture. [This work was supported by the Technology Development Program to Solve Climate Changes (systems metabolic engineering for biorefineries) (NRF-2012-C1AAA001-2012M1A2A2026556) and by the Advanced Biomass R&D Center of Korea (ABC-2011-0028386) 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.]