Engineering a novel synthetic pathway for butanol production in *Escherichia coli*

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We engineered the novel synthetic pathway for the production of butanol in *Escherichia coli* by using 2-ketoisovalerate as an intermediate. Based on the previously constructed L-valine 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 overexpressed. The resulting engineered *E. coli* strain was able to produce 118 mg/L butanol by microaerobic batch culture. These results suggest that an efficient production of butanol is possible by properly assembling the synthetic metabolic pathways in *E. coli*.
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