

Metabolic engineering of *Escherichia coli* for gasoline production from glucose

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Microbial production of highly demanded transport fuel, such as gasoline, from renewable feedstock has been a big challenge. Herein, an *Escherichia coli* strain capable of producing short chain alkanes (gasoline) was developed. Recruitments of a mutated thioesterase, fatty acyl-CoA synthetase, fatty acyl-CoA reductase, and fatty aldehyde decarboxylase led to production of alkanes up to 580.8 mg/L consisting of nonane, dodecane, tridecane, 2-methyl-dodecane, tetradecane, and other hydrocarbons. [This work was supported by the Advanced Biomass Research and Development Center of Korea (NRF-2010-0029799) through the Global Frontier Research Program of the Ministry of Science, ICT and Future Planning (MSIP) through the National Research Foundation (NRF). Systems metabolic engineering work was supported by the Technology Development Program to Solve Climate Changes on Systems Metabolic Engineering for Biorefineries (NRF-2012-C1AAA001-2012M1A2A2026556) by MSIP through NRF].