

Production of 2-Hydroxybutyrate containing polymer by Metabolic Engineered *Escherichia coli*

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Polyhydroxyalkanoates(PHAs) are biodegradable and biocompatible polyesters. To enhance polymer properties, *E. coli* was metabolically engineered to synthesize PHAs containing 2-hydroxybutyrate (2HB) from glucose. For Heterologous metabolic pathway to supply 2-hydroxybutyrate from glucose was constructed via the citramalate pathway. Recombinant *E. coli* expressing the *phaC1437*, *pct540*, *cimA3.7*, and *leuBCD* genes together with the *L. lactis* II 1403 *panE* gene successfully produced PHAs consisting of 2HB, 3HB, and a small fraction of lactate by varying the 3HB concentration. [“This work was supported by the Technology Development Program to Solve Climate Changes from National Research Foundation of Korea (Development of systems metabolic engineering platform technologies for biorefineries; NRF-2012-C1AAA001-2012M1A2A2026556) and Intelligent Synthetic Biology Center (2011-0031963) of Korea through the Global Frontier Research Program of the Ministry of Education, Science and Technology (MEST).”]