

Microbial production of poly (3-hydroxybutyrate-co-3-hydroxyvalerate) using metabolically engineered *Escherichia coli*

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Bio-based Polyhydroxyalkanoates(PHAs) has great interest because of their unique characteristics, biodegradable and biocompatible thermoplastic. Among lots of PHA copolymers, poly(3-hydroxybutyrate-co-3-hydroxyvalerate)[P(3-HB-co-3HV)] is one of the important copolymers because of lower melting point and much better flexible compared to current used in many application. So far, for the production of P(3-HB-co-3HV), adding of auxiliary carbon source was needed. However, due to the toxicity of auxiliary carbon source, it is hard to maintain the balance between cell growth and P(3-HB-co-3HV) production. Thus, we developed the *E. coli* can stably synthesize 3-HB-CoA and 3HV-CoA in controlled ratio from glucose.[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).]