

### Biosynthesis of poly (3-hydroxybutyrate-co-3-hydroxyvalerate) using recombinant *Escherichia coli*

\_\_\_\_\_, 1, 2, 3, \*

; 1 ; 2 ;

3

(leesy@kaist.ac.kr\*)

Due to its biodegradability and biocompatibility, polyhydroxyalkanoate has drawn many interest as a thermoplastic. Among the different types of PHA co-polymers, poly(3-hydroxybutyrate-co-3-hydroxyvalerate) [P(3-HB-co-3-HV)] has lower melting point and better flexibility compared to the 3-hydroxybutyrate. Until now, toxic second auxiliary carbon source is being added for the production of P(3-HB-co-3-HV). Therefore, metabolically engineered *Escherichia coli* that can synthesize 3-HB-CoA and 3-HV-CoA in a stable manner with the ratio being controlled was developed from glucose independent of the feeding of the carbon source. "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). "