Biosynthesis of 2-hydroxybutyrate containing polyhydroxyalkanoates by recombinant *Escherichia coli*

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As global concerns on environmental problems and availability of petroleum resources increase, production of biomass-driven chemicals has attracted much more attentions. Polyhydroxyalkanoates (PHAs) is one of the most promising alternatives of chemically synthesized polymers having mechanical properties that are similar to those of petroleum-based plastics and they can be easily modified by altering monomer compositions. Biological synthesis of PHA is composed of two distinguished steps. Firstly, hydroxyacyl-CoAs which are the monomers of PHA are produced by natural and engineered microbial strains. Secondly, the PHA synthase, which is the key enzyme in PHA synthesis, accepts its specific monomers and then synthesize PHAs. Here, we report recombinant *E. coli* strains expressing *Clostridium propionicum* propionyl-CoA transferase (PctCp) and *Pseudomonas* sp. 6-19 PHA synthase (PhaC1Ps6-19) genes that are able to produce 2HB-containing PHAs using propionyl-CoA as precursor for 2HB monomers. Detailed results will be presented in this presentation.