The synthetic pathway for value added chemical from recombinant E. coli

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Due to the petroleum depletion and global warming, the alternative technology including eco-process have been required. Biorefinery produces chemicals, fuels and food for human beings. The products based on biorefinery are made from renewable sources. The main processes are the production of bioenergy and value added chemicals as the building blocks. For the efficient production based on biorefinery, some of the highlighted biotechnologies include genetic engineering, protein engineering, metabolic engineering and bioreactor technology. Glucaric acid was identified one of the top value added chemicals in a report of PNNL and NREL. It has been also reported as a building block for a biodegradable polymer. Currently, this is produced non-selectively by expensively catalytical oxidation of glucose. In this study, we intended to introduce the possibility for the production of glucaric acid in vivo system including synthetic pathway newly designed.