Production of 5-aminovalerate and glutarate using metabolically engineered *Escherichia coli*

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Escherichia coli was metabolically engineered for the production of 5-aminovalerate (5AVA) and glutarate. When the recombinant E. coli WL3110 strain harboring the Pseudomonas putida davAB genes encoding delta-aminovaleramidase and lysine 2-monooxygenase was cultured, 3.6 g/L of 5AVA was produced. When the davAB genes were introduced into recombinant E. coli strain XQ56 allowing improved l-lysine synthesis, 0.27 and 0.5 g/L of 5AVA were produced. We further converted 5AVA to glutarate by expression of the P. putida gabTD genes encoding 5AVA aminotransferase and glutarate semialdehyde dehydrogenase. When recombinant E. coli WL3110 strain expressing the davAB and gabTD genes was cultured, 1.7 g/L of glutarate was produced.
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