

Taurine production by metabolic engineering of *Escherichia coli*

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Taurine has been shown to be essential in various ways; clinical treatment such as cardiovascular diseases, hepatic disorders, alcoholism and cystic fibrosis. Mammals are able to synthesize taurine but most mammals have low activity levels of cysteine sulfinic acid decarboxylase (CSAD), which plays a key role in taurine synthesis and are thus more dependent on dietary supplementation of taurine. Due to the dependency of taurine uptake on dietary sources, Approximately, five to six thousands of tons of taurine are produced annually. However, its production has relied on chemical synthesis, which led us to develop a biotechnological method for taurine production. Toward this goal, novel synthetic pathway for taurine production was established in *Escherichia coli*, and further metabolic engineering was performed. [This work was supported by the Korean Systems Biology Research Project (20090065571) of the Ministry of Education, Science and Technology (MEST) through the National Research Foundation of Korea (NRF). Further supports by the World Class University Program (R32-2008-000-10142-0) of the MEST, LG Chem Chair Professorship, IBM SUR program, and Microsoft are appreciated.]