Enhanced Production of Ornithine by Metabolic Engineering of Corynebacterium glutamicum

최유진, 김서윤, 이상엽*
KAIST
(leesy@kaist.ac.kr*)

Ornithine is an amino acid that plays a role in the urea cycle through the action of the enzyme arginase on L-arginine, creating urea. Therefore, ornithine is a central part of the urea cycle. Also, Ornithine is the starting point for the synthesis of polyamines, such as putrescine, and cocaine and then modified greatly by cytochrome. At present, L-Ornithine has been produced commercially from a citrulline-requiring mutant of a Corynebacterium glutamicum, which was obtained by classical mutagenesis. Metabolic engineering has great potential to improve the production of L-Ornithine by employing recombinant DNA techniques for overcoming existing limiting steps in biosynthetic pathways. [This work was supported by the Technology Development Program to Solve Climate Changes on Systems Metabolic Engineering for Biorefineries (NRF-2012-C1AAA001-2012M1A2A2026556); the Intelligent Synthetic Biology Center through the Global Frontier Project (2011-0031963) of the Ministry of Education, Science and Technology (MEST) through the National Research Foundation of Korea]