Metabolic engineering of *Corynebacterium glutamicum* for enhanced production of L-ornithine

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L-Ornithine is a non-essential amino acid that has various applications in food industry. In this study, high-titer production of L-ornithine was achieved by *Corynebacterium glutamicum* ATCC 13032 through metabolic engineering. First, *proB* and *argF* genes were deleted, optimizing the metabolic pathway. To enhance the flux toward ornithine, argR gene encoding the regulatory repressor of the L-arginine operon was also deleted. This strain was further engineered by plasmid-based overexpression of *argCJBD* genes. Changing the start codons of the *pgi* and *zwf* genes and replacing the native promoter of the tkt operon with the strong sod promoter enriched the NADPH pool. Fed-batch cultivation of the final strain YW06(pSY223) showed a titer of 51.5g/L of L-ornithine in 40 h with productivity of 1.29 g/L/h. The results demonstrates how L-ornithine can be produced with engineered *C. glutamicum*. [This work was supported by the Technology Development Program to Solve Climate Changes on Systems Metabolic Engineering for Biorefineries from the Ministry of Science, ICT through the National Research Foundation (NRF) of Korea (NRF-2012M1A2A2026556 and NRF-2012M1A2A2026557).]