

Metabolic engineering of *Corynebacterium glutamicum* to overproduce L-arginine

Ziwei Luo<sup>1</sup>, Seok Hyun Park<sup>1</sup>, Hyun Uk Kim<sup>1,2</sup>, Tae Yong Kim<sup>1,2</sup>, Jun Seok Park<sup>3</sup>, Suok-su Kim<sup>3</sup>, 이상엽<sup>1,4,†</sup>

<sup>1</sup>MBEL, Dept. of Chemical and Biomolecular Engineering (BK21 Plus program), KAIST;

<sup>2</sup>BioInformatics Research Center, KAIST; <sup>3</sup>Daesang corporation research center;

<sup>4</sup>BioInformatics Research Center, Institute for the BioCentury, BioProcess Engineering Research Center, KAIST  
(leesy@kaist.ac.kr<sup>†</sup>)

We report a metabolically engineered *Corynebacterium glutamicum* strain for L-arginine production. Random mutagenesis was first performed to improve tolerance to L-arginine. Inactivation of arginine operon repressors, reinforced PPP flux, deletion of the *Ncg11221* exporter gene, optimized expression levels of *argF* and *carAB* and *argGH* operon overexpression resulted in 81 g/L of L-arginine production in a 1,500 L bioreactor under fed-batch conditions. [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 and Future Planning (MSIP) through the National Research Foundation (NRF) of Korea (NRF-2012-C1AAA001-2012M1A2A2026556).]