

Tunable gene expression using synthetic promoters in *Corynebacterium glutamicum*

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*Corynebacterium glutamicum* is a non-pathogenic, non-sporulating, Gram-positive bacterium which has been used for the industrial production of various amino acids, nucleotides and vitamins. Recent progress in engineering of *C. glutamicum* shows growing potential of the *C. glutamicum* as an industrial workhorse for the production of various biomolecules and chemicals. For cellular engineering, the expression levels of many related genes need to be tightly regulated, and these controls and regulations require various gene expression systems. However, only a limited number of expression systems are available and various promoters need to be developed for extensive engineering of *C. glutamicum*. In this study, novel synthetic promoters showing various strengths were developed for fine-tuning of gene expression in *C. glutamicum*. Synthetic promoter library was constructed using GFP as a reporter, and highly fluorescent population was isolated by FACS screening. The isolated promoters were characterized by extensive analysis of DNA and mRNA sequence. Finally, the usefulness of the synthetic promoters was verified with production of recombinant proteins and high-valued chemicals.