High-throughput Screening of Synthetic Promoters for High-level Expression of Recombinant proteins in *Corynebacterium glutamicum*

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Corynebacterium glutamicum is an important microorganism which is widely used for industrial production of various L-form amino acids. However, only a limited number of expression systems have been developed for the microorganism. Various promoter systems need to be first developed for further engineering of *C. glutamicum*. Here, we constructed fully synthetic promoter library with 70-bp of random sequences, and green fluorescent protein (GFP) was used as a reporter protein. Highly fluorescent population of the library was screened by fluorescent activated cell sorting (FACS), and twenty potential promoters of different strengths were isolated and characterized through extensive analysis of DNA sequences and mRNA transcripts. The synthetic promoters were then applied for secretory production of two model recombinant proteins. This is the first report about promoter library construction and FACS-based screening in *C. glutamicum*, and our screening strategy together with the use of isolated promoters will contribute to further engineering of *C. glutamicum*.