

## ENGINEERING OF CORYNEBACTERIUM GLUTAMICUM FOR THE SECRETORY PRODUCTION OF RECOMBINANT PROTEINS VIA TAT-DEPENDENT PATHWAY

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*Corynebacterium glutamicum*, which has been an industrial producer of various L-amino acids, nucleic acids, and vitamins, is now also regarded as a potential host for the secretory production of recombinant proteins since it exhibits numerous ideal features for protein secretion: (i) it has a single cellular membrane as a gram-positive bacterium, which allows proteins to be easily secreted into the extracellular medium. (ii) *C. glutamicum* secretes only a few endogenous proteins into the culture medium, which allows the simpler purification of target proteins in downstream process. (iii), secreted proteins from *C. glutamicum* can be kept stable because extracellular protease activity is rarely detectable. To harness its potential as an industrial platform for recombinant protein production, the development of an efficient secretion system is necessary. To achieve this goal first, we engineered several genetic parts in *C. glutamicum*: (i) synthetic promoters, (ii) plasmid copy number, (iii) signal peptides, (iv) co-expression of secretion machinery proteins. Using the engineered host-vector systems, gram-scale production of recombinant proteins could be achieved in fed-batch cultivation.