

BioNanoScience 2017 vol.7 N2, pages 408-414

Screening of Heterologous Signal Peptides for Optimization of the LIKE-Expression System

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Abstract

© 2016, Springer Science+Business Media New York. The LIKE-expression system was optimized and used for the production of serine proteinases: subtilisin-like proteinase (AprBp) and glutamyl endopeptidase (GseBp) from *Bacillus pumilus*. Genes of these enzymes were amplified from genomic DNA of the *B. pumilus* strain 3-19 and cloned into the LIKE-expression system under the control of the Plial antibiotic-inducible promoter. Two parameters were investigated to increase the yield of secretory enzymes: heterologous signal peptides from *B. megaterium* (SPPac, SPYngk) and *B. subtilis* host strain, which is deficient in two major extracellular proteinases (nprE, aprE). Increased production of GseBp with recombinant SPYngk was achieved after 12 h of growth while increased production of AprBp with its own signal peptide after adding bacitracin was achieved after 20 h of growth. These results suggest that optimized LIKE-expression system can be used for heterologous secretory protein production in *B. subtilis*.

<http://dx.doi.org/10.1007/s12668-016-0357-z>

Keywords

LIKE-expression system, Serine proteinase, Signal peptide

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