枯草芽孢杆菌羊毛硫细菌素 Subtilomycin 环化酶基因 *subC* 的大肠杆菌表达

中文题目 枯草芽孢杆菌羊毛硫细菌素 Subtilomycin 环化酶基因 *subC* 的大肠杆菌表达

外文题目 Expression of subtilomycin cyclase gene *subC* of *Bacillus subtilis* in *Escherichia coli*

摘 要

为了研究枯草芽孢杆菌（*Bacillus subtilis*）SX3411 菌株中羊毛硫细菌素 subtilomycin 在体外人工合成，对其中的环化酶基因 *subC* 进行原核表达。根据 NCBI 数据库中 subtilomycin 基因簇（GenBank 序列号：JX912247.1）的环化酶基因 *subC* 序列，设计引物，以枯草芽孢杆菌 SX3411 全基因组 DNA 为模板，PCR 扩增出带 6×His 标签的序列，命名为 *subC1*，利用基因工程技术构建重组质粒 pET-41a(+)-*subC1*，转化大肠杆菌（*Escherichia coli*）进行表达。结果表明，环化酶基因 *subC* 在大肠杆菌中获得表达，为进一步研究 subtilomycin 的人工合成奠定了基础。

本实验成功通过基因工程技术构建了 subtilomycin 的环化酶基因 *subC* 的原核表达载体，对 SubC 蛋白的原核表达特性获得了初步的检测与分析。

关键词：枯草芽孢杆菌，环化酶基因 *subC*，原核表达

Expression of subtilomycin cyclase gene *subC* of *Bacillus subtilis* in *Escherichia coli*

Abstract

In order to study in vitro artificial synthesis of subtilomycin in *Bacillus subtilis* SX3411, the prokaryotic expression of cyclase gene *subC* encoding subtilomycin was conducted. According to the *subC* sequence of the subtilomycin gene cluster (GenBank sequence number: JX912247.1) in the NCBI database, designed primers. The whole genome DNA of *Bacillus subtilis* SX3411 was used as the template to amplify the gene sequence with 6×His tag by PCR, which was named *subC1*. The recombinant plasmid pET-41a(+)-*subC1* was constructed with genetic engineering technology, and the expression of *Escherichia coli* was transformed. The results showed that the cyclase gene *subC* was expressed in *E. coli*, which laid a foundation for further study of subtilomycin synthesis.

In this experiment, the prokaryotic expression vector of subtilomycin cyclase gene *subC* was successfully constructed by genetic engineering technology, and the prokaryotic expression characteristics of SubC protein were preliminarily detected and analyzed.

Key words: *Bacillus subtilis*, Cyclase gene *subC*, Prokaryotic expression