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Actinomycin D Influence on Biosynthesis of Extracellular Ribonucleases by Sporulating Bacteria

Gabdrakhmanova L., Znamenskaya L., Leshchinskaya I.
Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

The influence of actinomycin D on the synthesis of extracellular ribonucleases by "Bacillus intermedius" (binase), *B.pumilus* (RNase Bp) and *B.amyloliquefaciens* (barnase) was studied comparatively. When added during the active synthesis of the enzymes actinomycin D stimulated the biosynthesis of binase and RNase Bp and had no influence on the barnase biosynthesis. The response of the bacillary RNase biosynthesis to the added actinomycin D correlated with the differences in the nucleotide sequences of the genes encoding the enzymes. The *Escherichia coli* SURE recombinant strains carrying the plasmids with the genes of binase, RNase Bp and barnase under different regulatory sequences, as well as the *E.coli* MC4100 recombinant strains carrying the plasmids with the β -galactosidase gene under the promoters of the bacillary RNase were isolated. However, the expression of the bacillary ribonuclease genes in the *E.coli* recombinant strains carrying the plasmids with the genes of the enzymes, as well as the expression of the β -galactosidase gene from the promoters of the bacillary RNases was not stimulated by actinomycin D irrespective of the dose and addition time.

Keywords

Actinomycin D, *Escherichia coli* SURE, Extracellular ribonucleases, RNase genes