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Ribonuclease from *Bacillus thuringiensis* var. *subtoxicus*: Gene structure and regulation of biosynthesis

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Abstract

The gene for extracellular guanyl-specific ribonuclease of *Bacillus thuringiensis* var. *subtoxicus* (RNase Bth), a close homologue of the *B. intermedius* RNase (binase), was completely sequenced. Analysis of nucleotide sequences in the regions adjoining RNase genes revealed an identical organization of the chromosomal loci of RNase Bth and binase. Growth characteristics of the *Bacillus thuringiensis* var. *subtoxicus* strain and its synthesis of RNase were studied. It was shown that the exogenous inorganic phosphate inhibits the biosynthesis of RNase. At the same time, actinomycin D in low doses stimulates the enzyme synthesis. Comparative analysis of the influence of inorganic phosphate and actinomycin D on the biosynthesis of RNase Bth and binase suggests a possibility of coincidence of regulatory pathways of synthesis of these enzymes.

Keywords

Bacillus thuringiensis, Biosynthesis, repression, Gene sequence, Inorganic phosphate, Ribonuclease