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Isoforms of Serratia marcescens nuclease. Comparative analysis of substrate specificity

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Abstract

Comparative analysis of the specificity of Serratia marcescens nuclease isoforms has been carried out. Mononucleotides separated by anion-exchange chromatography in the presence of 7 M urea from partially hydrolyzed RNA with nucleases Sm1 and Sm2 were identified by reverse-phase HPLC. Both enzymes were found to split phosphodiester bonds at nearly all nucleic acid bases. However, nuclease Sm1 demonstrated preferential cleavage of phosphodiester bonds near uracil and nuclease Sm2 near guanine. A possible role of the N-terminal tripeptide fragment in the nuclease mechanism is discussed.

Keywords

Enzyme isoforms, Nuclease, Serratia marcescens, Substrate specificity