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Three-step procedure for preparation of pure Bacillus altitudinis ribonuclease

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Abstract

© 2015 The Authors. Published by FEBS Press and John Wiley & Sons Ltd.Ribonucleases are considered as promising tools for anticancer treatment due to their selective cytotoxicity against tumor cells. We investigated a new RNase from Bacillus altitudinis termed BALNASE (B. altitudinisRNase). Balnase is a close homolog of the well-known cytotoxic binase, differing by only one amino acid residue: nonpolar hydrophobic alanine at position 106 in the balnase molecule is replaced by a polar uncharged threonine in binase. The most exciting question is how the physico-chemical properties and biological effects of RNase might be changed by A106T substitution. Here, we have developed a chromatography-based rapid and modern technique for the purification of this new RNase which allowed us to get a protein sample of high quality with specific activity of 1.2 × 106units in preparative amounts, suitable for further investigation of its biological properties.

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Keywords

Bacillus altitudinis, Balnase, Binase, Homogeneous, Purification, Ribonuclease, Substitution