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ProductInformation

Ribonuclease S
From bovine pancreas, Grade XII-S

Product Number **R6000**
Storage Temperature -0 °C

Product Description

CAS Number: 9001-99-4
Molecular Weight: 13.7 kDa

Ribonuclease A, when treated with subtilisin yields a modified ribonuclease A (Ribonuclease S), which can be separated from the native enzyme by ion exchange chromatography upon Amberlite® IRC-50 (Product No. 10338). Ribonuclease S maintains the same enzymatic activity as the native Ribonuclease A.

RNase A and RNase S have the same amino acid composition, with only the peptide bond hydrolyzed in the single chain of RNase A. The short peptide (S-peptide) remains tightly bound due to noncovalent bonding.The only difference in the covalent structure is the hydrolysis of the peptide bond between residues 20 (Ala) and 21 (Ser). RNase S can further be fractionated using TCA into S-protein and S-peptide, neither of which has enzymatic activity, but when they are recombined in an equimolar proportion, a complex RNase S' is formed, with almost the full enzymatic being recovered.[1,2]

Precautions and Disclaimer

For Laboratory Use Only. Not for drug, household or other uses.

Preparation Instructions

This product is soluble in water (1 mg/ml), yielding a clear, colorless solution.

Storage/Stability

The lower thermodynamic stability of Ribonuclease S compared to RNase A is believed to be due to the larger structural flucuations because of the greater conformational flexibility of both the backbone and side chains of Rnase S.[3]

References

1. Richards, F. M., and Vithayathil, P. J., The preparation of subtilisin modified ribonuclease and the separation of the peptide and protein components. J. Biol. Chem., **234**, 1459-1465 (1959).
2. Gross, E., and Witkop, B., The heterogeneity of the S peptide of bovine pancreatic ribonuclease A. Biochemistry, **6**, 745-748 (1967).
3. Catanzano, F., et al., Temperature-induced denaturation of ribonuclease S: A thermodynamic study. Biochemistry, **35**, 13378-13385 (1996).

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