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Product Information

Version 1.1.07

A3806– RNase A, Pancreas, >70U/MG

Alternative names: Ribonuclease I; RNase I; Pancreatic ribonuclease; RNase A; Endoribonuclease I
Systematic name: Ribonuclease 3'-pyrimidino-oligonucleotidohydrolase
Source: Bovine pancreas. The raw material used is of Australian and New Zealand origin, collected from abattoirs which are under veterinary control. Furthermore, the product was exposed to a pH of 4.5 for 2 days and a temperature of 80 °C for approx. 5 minutes during purification.
Form: An essentially protease free, chromatographically prepared freeze dried material
Unit Definition: One unit causing the hydrolysis of RNA at a rate such that k (velocity constant) equals unity (Kunitz units) at 25 °C and pH 5.0.
Activity >70 Kunitz/mg material (RNase A content approximately 70%)
Solubility: Dissolves readily at 2 mg/ml in analytical grade water to give a clear colorless solution.

Product Description

A major application for Ribonuclease A (RNase A) is the removal of RNA from preparations of plasmid DNA. In this application, the presence of DNase activity as an impurity is a concern. The boiling-water bath method used to eliminate contaminating DNase activity has proven unreliable. RNase A is an endoribonuclease that attacks at the 3' phosphate of a pyrimidine nucleotide. The sequence of pG-pG-pC-pA-pG will be cleaved to give pG-pG-pCp and A-pG. The highest activity is exhibited with single stranded RNA. RNase A is a single chain polypeptide containing 4 disulfide bridges. In contrast to RNase B, it is not a glycoprotein. RNase A can be inhibited by alkylation of His12 or His119, which are present in the active site of the enzyme. Activators of RNase A include potassium and sodium salts.

Molecular weight: 13.7 kDa (amino acid sequence)
Extinction coefficient: E1% = 7.0 (280 nm)
Isoelectric point: pI = 9.6
Optimal temperature: 60 °C (activity range of 15-70 °C)
Optimal pH: 7.6 (activity range of 6-10)
Inhibitors: ribonuclease inhibitor

Note: RNase A is stable to both heat and detergents. In addition, it adsorbs strongly to glass. Scrupulous precautions are necessary to ensure that residues of RNase A do not cause artifacts in processes requiring intact RNA.

Application

- RNase protection assays
- Remove unspecifically bound RNA
- Analysis of RNA sequences
- Hydrolyze RNA contained in protein samples
- Purification of DNA

Pancreatic RNase A specifically cleaves at the 3'-side of pyrimidine (uracil or cytosine) phosphate bonds. Ribonucleases do not hydrolyze DNA, because the DNA lacks 2'-OH groups essential for the formation of cyclic intermediates. RNase can also hydrolyze RNA from protein samples.

Storage Condition

-20 °C. Protect from moisture. Allow to come to room temperature before opening.
RNase A is a very stable enzyme and solutions have been reported to withstand temperatures up to 100 °C. At 100 °C, an RNase A solution is most stable between pH 2.0 and 4.5.

Preparation Instructions

A stock solution of 10 mg/ml RNase A could be prepared by dissolving 100mg of RNase A in 9.925ml of 0.01M NaOAC (pH 5.2), plus 0.075ml of 1M Tris (not pH adjusted). Please verify final pH to be neutral.

References

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**** This product is for laboratory research purpose only. Not for human or animal diagnostic and therapeutic use.***