Ribonuclease A from bovine pancreas

Catalog Numbers R5125, R4875, R5503, R5000, R5250, and R5500

Storage Temperature –20 °C

CAS RN 9001-99-4
EC 3.1.27.5
Synonyms: Ribonuclease I, Pancreatic ribonuclease, Ribonuclease 3'-pyrimidinooligonucleotidohydrolase, RNase A, Endoribonuclease I

Product Description
RNase A is an endoribonuclease that attacks at the 3' phosphate of a pyrimidine nucleotide. The sequence of pG-pG-pA-pG will be cleaved to give pG-pG-pCpA-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. Activators of RNase A include potassium and sodium salts.

Molecular mass: 13.7 kDa (amino acid sequence)
Extinction coefficient: E1%= 7.1 (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

Precautions and Disclaimer
For R&D use only. Not for drug, household, or other uses. Please consult the Safety Data Sheet for information regarding hazards and safe handling practices.

Note: RNase A is stable to both heat and detergents. In addition, it adsors strongly to glass. Scrupulous precautions are necessary to ensure RNase A residue does not cause artifacts in processes requiring intact RNA.

Preparation Instructions
When Sigma-Aldrich tests the activity of RNase A, a stock solution is prepared in water at 1 mg/mL.

Solutions prepared from powdered RNase A products can be made free of DNase by boiling. According to one literature method:

1. Prepare a 10 mg/mL stock solution in 10 mM sodium acetate buffer, pH 5.2.
2. Heat to 100 °C for 15 minutes. Allow to cool to room temperature.
3. Adjust to pH 7.4 using 0.1 volume of 1 M Trizma®-HCl, pH 7.4.
4. Aliquot and store at –20 °C.

If RNase A is boiled at a neutral pH, precipitation will occur. When boiled at the lower pH, some precipitation may occur because of protein impurities that are present.

Storage/Stability
Store at RNase A at –20 °C. Stock solutions stored in frozen aliquots remain active for at least 6 months.

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.

Procedure
A major application for RNase A is the removal of RNA from preparations of plasmid DNA. For this application, DNase free RNase A is used at a final concentration of 10 µg/mL.
References


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