ALPHA DIAGNOSTIC INTERNATIONAL

Product Specification Sheet

Cat# RNU-01	Ribonuclease (70 U/mg material), Bovine pancreas	**Size**: 500 mg
Cat# RNU-02	Ribonuclease (90 U/mg material), Bovine pancreas	**Size**: 500 mg

General Information

Ribonuclease (commonly abbreviated RNase) is a type of nuclease that catalyzes the degradation of RNA into smaller components. Ribonucleases can be divided into endoribonucleases and exoribonucleases, and comprise several sub-classes within the EC 2.7 (for the phosphorolytic enzymes) and 3.1 (for the hydrolytic enzymes) classes of enzymes. All organisms studied contain many RNases of many different classes, showing that RNA degradation is a very ancient and important process. As well as cleaning of cellular RNA that is no longer required, RNases play key roles in the maturation of all RNA molecules, both messenger RNAs that carry genetic material for making proteins, and non-coding RNAs that function in varied cellular processes. In addition, active RNA degradation systems are a first defense against RNA viruses, and provide the underlying machinery for more advanced cellular immune strategies such as RNAi.

EC 3.1.27.5: RNase A is an RNase that is commonly used in research. RNase A (e.g., bovine pancreatic ribonuclease A: PDB 2AAS) is one of the hardiest enzymes in common laboratory usage; one method of isolating it is to boil a crude cellular extract until all enzymes other than RNase A are denatured. It is sequence specific for single-stranded RNAs. It cleaves 3'end of unpaired C and U residues, leaving a 3'-phosphorylated product, via a 2',3'-cyclic monophosphate.

RNase A is a relatively small protein (124 residues, ~13.7 kDa). It can be characterized as a two-layer α + β protein that is folded in half to resemble a taco, with a deep cleft for binding the RNA substrate. RNase A is a basic protein (pI =8.63); its many positive charges are consistent with its binding to RNA (a poly-anion).

Alternate names: pancreatic ribonuclease 1, RNAse 1, endoribonuclease 1; E.C. Number=3.1.27.5

Source:

Bovine Pancreas. It is supplied in powder form with no additives or preservatives. The product is supplied on enzyme activity for the lot is species on the vial

Cat # RNU-01, typical lot will have sp. activity of at least 70 U/mg material (RNAse content at least 70%). Lot specific activity is provide on the vial.

Cat # RNU-02, typical lot will have sp. activity of at least 81-90 U/mg material (RNAse content at least 95%). Lot specific activity is provide on the vial.

Activity: Amount of enzyme causing the hydrolysis of RNA at a rate such that k (velocity constant) equals unity (kunits unists) at 25oC and pH 5.0.

Contamination: There is no change in banding pattern of HIndIII-digested

Storage and Usage

The enzyme dissolve readily up to 5 mg/ml in water to give a clear solution. Store powder at -20oC or below under dry conditions. Allow the product to reach room temp before opening the vial and dissolve in appropriate buffers for usage. Before returning to storage, re-dessicate under vaccumn over silica gel for a minimum of 4 hours to provide best conditions for long term preservation of enzyme activity. Other buffers may be used for solubility as desired.

References: Wyckoff HW (1967) JBC 242, 3984-3948; Raines RT (1998) Chem. Rev. 98, 1045-1066; Scheraga HA (2001) Meth. Enzymol. 341, 189-221

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