# RNase A (Powder)

**#Cat: NB-03-0163 Size: 100mg**

**Specific Activity**

≥3000 U/mg protein (≥60 Kunitz units/mg protein).

**Form**

Contains 100 mg RNase A, Lyophilized Powder

**Description**

The RNase A is an endoribonuclease that specifically degrades single-stranded RNA at C and U residues. It cleaves the phosphodiester bond between the 5'-ribose of a nucleotide and the phosphate group attached to the 3'-ribose of an adjacent pyrimidine nucleotide. The resulting 2', 3'-cyclic phosphate is hydrolyzed to the corresponding 3'-nucleoside phosphate.

**Applications**

- Plasmid and genomic DNA preparation
- Removal of RNA from recombinant protein preparations.
- Ribonuclease protection assays
- Mapping single-base mutations in DNA or RNA

**Storage**

-20ºC recommended. The shelf life of RNase A powder is one year when stored sealed and dry. RNase A powder is shipped at room temperature.

**Quality Control**

Functionally tested for RNA digestion in a plasmid DNA purification procedure.

**Molecular Weight**

13.7 kDa monomer.

**Definition of Activity Unit**

One unit of the enzyme causes an increase in absorbance of 1.0 at 260 nm when yeast RNA is hydrolyzed at 37°C and pH 5.0.

Fifty units are approximately equivalent to 1 Kunitz unit.

**Inhibition and Inactivation**

- Inhibitors: the most potent inhibitor is a ~50 kDa protein from cytosol of mammalian cells, e.g., NeoLock RIBO RNase Inhibitor.
- Other inhibitors: uridine 2',3'-cyclic vanadate, 5'-diphosphoadenosine 3'-phophate and 5'-diphosphoadenosine 2'-phophate (2), SDS, diethyl pyrocarbonate, 4M guanidinium thyocyanate plus 0.1M 2-mercaptoethanol and heavy metal ions. Inactivated by phenol/chloroform extraction.
- Inactivated by phenol/chloroform extraction.
- Inactivated by heating at 95°C for 10 minutes.

**Note**

- The working concentration for RNase A is 1-100 µg/ml depending on the application.
- The enzyme is active under a wide range of reaction conditions. At low salt concentrations (0 to 100 mM NaCl), RNase A cleaves single-stranded and double-stranded RNA as well the RNA strand in RNA-DNA hybrids. However, at NaCl concentrations of 0.3 M or higher, RNase A specifically cleaves single-stranded RNA

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