RNase A

BR Grade，For Research Use Only
Cat. No. N9041 Concentration: 10 mg/ml Size: 1 ml
Cat. No. N9042 Concentration: 100 mg/ml Size: 1 ml
Specific Activity: ≥3000 U/mg protein (≥60 Kunitz units/mg protein).

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.

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.

Storage Buffer

The enzyme is supplied in: 50 mM Tris-HCl (pH 7.4) and 50% (v/v) glycerol.

Quality Control

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

Inhibition and Inactivation

--Inhibitors: the most potent inhibitor is a ~50 kDa protein from cytosol of mammalian cells, e.g., RiboLock™ 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 as the RNA strand in RNA-DNA hybrids. However, at NaCl concentrations of 0.3 M or higher, RNase A specifically cleaves single-stranded RNA.