thermo scientific

PRODUCT INFORMATION

RNase I

Pub. No. MAN0012009
Rev. Date 09 January 2017 (Rev. B.00)

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Lot: _ **Expiry Date: _**

Store at -20 °C

Components	#EN0601	#EN0602
RNase I	10 U/µL 1000 U	10 U/µL 5000 U

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For Research Use Only. Not for use in diagnostic procedures.

Description

RNase I, an endoribonuclease, preferentially hydrolyzes single-stranded RNA to nucleoside 3'-monophosphates via nucleoside 2'-, 3'-cyclic monophosphate intermediates (1). The enzyme does not require any metal ions for activity. This product is the periplasmic form of RNase I.

Applications

- Removal of RNA from DNA solutions (2).
- Removal of RNA from recombinant protein preparations.
- Ribonuclease protection assays (3).

Source

E.coli cells with a cloned *rna* gene of *E.coli.*

Definition of Activity Unit

One unit of the enzyme catalyzes degradation of 100 ng of *E.coli* ribosomal RNA per second into acid-soluble nucleotides at 37 °C.
Enzyme activity is assayed in the following mixture:
20 mM Tris-acetate (pH 8.0), 100 mM NaCl,
0.1 mM EDTA, 0.01% Triton X-100,
40 µg/mL *E.coli* ribosomal [^{3}H]-RNA.

Storage Buffer

The enzyme is supplied in: 50 mM Tris-HCl (pH 8.0), 100 mM NaCl, 0.01% Triton X-100 and 50% (v/v) glycerol.

Inhibition and Inactivation

- Inhibitors: SDS at 0.1% concentration irreversibly inactivates the enzyme.
- Inactivated by heating at 100 °C for 30 min, reliably removed by spin column or phenol/chloroform extraction.

Note

- Mammalian ribonuclease inhibitors have no effect on RNase I.
- RNase I binds to DNA, but does not degrade it.
- RNase I amino acid sequence is typical for the RNase T2 family.
- Non-ionic detergents (e.g., Triton X-100) do not inhibit RNase I, and may even slightly stimulate its activity and stabilize it against heat inactivation. Triton X-100 or BSA (at 0.1 mg/mL) may prevent RNase I from sticking to glass vessels when working with dilute solutions.
- Polyamines stimulate the activity of RNase I.

CERTIFICATE OF ANALYSIS

Endodeoxyribonuclease Assay

No detectable degradation was observed after incubation of supercoiled plasmid DNA with RNase I.

Labeled Oligonucleotide (LO) Assay

No detectable degradation after incubation of single-stranded or double-stranded radiolabeled oligonucleotides with RNase I.

Quality authorized by:  Jurgita Zilinskiene

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Reference

1. Shen, V., Schlessinger, D., RNase I *of Escherichia coli*, The Enzymes (Boyer, P.D., ed), Academic Press Inc., New York, vol. 15B, 503-506, 1982.
2. Zhu, L., Deutscher, M.P., The *Escherichia coli rna* gene encoding RNase I: sequence and unusual promoter structure, Gene, 119, 101-106, 1992.
3. Sambrook, J., Russell, D.W., Molecular Cloning: A Laboratory Manual, the third edition, Cold Spring Harbor Laboratory Press, Cold Spring Harbor, New York, 2001.