thermo scientific

PRODUCT INFORMATION

RNase T1

Pub. No. MAN0012004
Rev. Date 09 January 2017 (Rev. B.00)

Lot: _ **Expiry Date: _**

Store at -20 °C

Components	#EN0541	#EN0542
RNase T1, 1000 U/µL	100,000 U	500,000 U

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

Description

RNase T1 is an endoribonuclease that specifically degrades single-stranded RNA at G residues. It cleaves the phosphodiester bond between 3'-guanylic residue and the 5'-OH residue of adjacent nucleotide with the formation of the corresponding intermediate 2', 3'-cyclic phosphate (1). The reaction products are 3'-GMP and oligonucleotides with a terminal 3'-GMP. RNase T1 does not require metal ions for activity.

Applications

- Removal of RNA from DNA preparations.
- RNA sequencing (1).
- Ribonuclease protection assays. Used in conjunction with RNase A (2).
- Removal of RNA from recombinant protein preparations.
- Determination of the level of RNA transcripts synthesized *in vitro* from DNA templates containing a “G-less cassette” (3).

Source

E.coli cells with a cloned *mtA* gene of *Aspergillus oryzae*.

Molecular Weight

11.2 kDa monomer.

Definition of Activity Unit

One unit of the enzyme causes an increase in absorbance of 1.0 at 260 nm in 15 min when yeast RNA is hydrolyzed at 37 °C and pH 7.5.
Enzyme activity is assayed in the following mixture:
50 mM Tris-HCl (pH 7.5), 2 mM EDTA, 3 mg/mL yeast RNA.

Storage Buffer

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

Inhibition and Inactivation

- Inhibitors: metal ions Mg^{2+}, Ca^{2+}, Zn^{2+}, Fe^{2+}, Cu^{2+} ($MgCl_2$ at 100 mM concentration is approx. 40% inhibitory, $CaCl_2$ at 10 mM is approx. 30% inhibitory); mononucleotides (2'-GMP, 3'-GMP, etc.); guanilyl-2',5'-guanosine is a specific inhibitor (4).
- Inactivation by heating is reversible, reliably removed by spin column or phenol/chloroform extraction.

CERTIFICATE OF ANALYSIS

Endodeoxyribonuclease Assay

No detectable degradation was observed after incubation of supercoiled plasmid DNA with RNase T1.

Labeled Oligonucleotide (LO) Assay

No detectable degradation after incubation of single-stranded or double-stranded radiolabeled oligonucleotides with RNase T1.

Protease Assay

No detectable degradation of protease substrate after incubation of FTC-casein with RNase T1.

Quality authorized by:  Jurgita Zilinskiene

References

1. Takahashi K., Moore S., RibonucleaseT1, The Enzymes, V, (Boyer, P.D, ed.), Academic Press, New York, the third edition, vol. 15, 435-468, 1982.
2. Sambrook, J., Russell, D.W., Molecular Cloning: A Laboratory Manual, the third edition, Cold Spring Harbor Laboratory Press, Cold Spring Harbor, New York, 2001.
3. Sawadogo, M., Roeder, R.G., Factors involved in specific transcription by human RNA polymerase II: Analysis by a rapid and quantitative *in vitro* assay, Proc. Natl. Acad. Sci. USA, 82, 4394-4398, 1985.
4. Eun, H-M., Enzymology Primer for Recombinant DNA Technology, Academic Press, Inc., 1996.

PRODUCT USE LIMITATION

This product is developed, designed and sold exclusively *for research purposes and in vitro use only.* The product was not tested for use in diagnostics or for drug development, nor is it suitable for administration to humans or animals.

Please refer to www.thermofisher.com for Material Safety Data Sheet of the product.