RNase I_f

1-800-632-7799
info@neb.com
www.neb.com

M0243S 0151511117111

M0243S

RR NEB3 37° Yes

5,000 units	**50,000 U/ml**	**Lot: 0151511**
RECOMBINANT	**Store at –20°C**	**Exp: 11/17**

Description: Ribonuclease I_f (RNase I_f) is an RNA endonuclease which will cleave at all RNA dinucleotide bonds leaving a 5´ hydroxyl and 2´, 3´ cyclic monophosphate (1). It has a preference for single-stranded RNA over double-stranded RNA. RNase I_f is a recombinant protein fusion of RNase I (from *E. coli*) and maltose-binding protein. It has identical activity to RNase I.

Source: An *E. coli* strain containing a genetic fusion of the RNase I gene (rna) from *E. coli* and the gene coding for maltose-binding protein (MBP)(2).

Supplied in: 100 mM NaCl, 10 mM Tris-HCl (pH 8.0), 0.5 mM EDTA, 1 mM dithiothreitol and 50% glycerol.

Applications:

- Degradation of single-stranded RNA to mono-, di- and trinucleotides (3)
- Used in ribonuclease protection assays

Reagents Supplied with Enzyme:
10X NEBuffer 3.

Reaction Conditions: 1X NEBuffer 3. Incubate at 37°C.

1X NEBuffer 3:
100 mM NaCl
50 mM Tris-HCl
10 mM $MgCl_2$
1 mM dithiothreitol
pH 7.9 @ 25°C

Unit Definition: One unit is defined as the amount of enzyme required to fully digest 1 picomole of synthetic ssRNA 33-mer in a total reaction volume of 10 µl in 15 minutes in 1X NEBuffer 3 as visualized on a 20% acrylamine gel (40:1 Bis) stained with SYBR Gold®.

Unit Assay Conditions: 1X NEBuffer 3 containing 3.3 µM of synthetic ssRNA 33-mer in a total reaction volume of 10 µl.

Quality Control Assays

ss DNA Exonuclease Activity: Incubation of 50 units of enzyme with 1 µg sonicated and denatured [^{3}H] DNA (10^5 cpm/µg) for 30 minutes at 37°C in 50 µl reaction buffer released < 1% radioactivity.

ds DNA Exonuclease Activity: Incubation of 50 units of enzyme with 1 µg sonicated [^{3}H] DNA (10^5 cpm/µg) for 30 minutes at 37°C in 50 µl reaction buffer released < 1% radioactivity.

Endonuclease Activity: Incubation of 50 units of enzyme with 1 µg ϕX174 RF I DNA for 1 hour at 37°C in 50 µl reaction buffer resulted in < 10% conversion to RF II.

Heat Inactivation: 70°C for 20 minutes.

Note: RNase I_f will not degrade DNA. It has a preference for single-stranded RNA over double-stranded RNA.

References:

1. Spahr, P. F. and Hollingworth, B. R. (1961) *J. Biol. Chem.* 236, 823–831.
2. Meador, J. III and Kennell, D. (1990) *Gene* 95, 1–7.
3. Meador, J. III Cannon, B., Cannistraro, V. J. and Kennel, D. (1990) *Eur J. Biochem.* 187, 549–553.

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CERTIFICATE OF ANALYSIS

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CERTIFICATE OF ANALYSIS