Ribonuclease I f (RNase I f) is a single strand specific RNA endonuclease which will cleave at all RNA dinucleotide bonds leaving a 5´ hydroxyl and 2´, 3´ cyclic monophosphate (1). 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.

**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% acrylamide gel (40:1 Bis) stained with SYBR Gold®.

**Quality Control Assays**

- **ss DNA Exonuclease Activity:** Incubation of 50 units of enzyme with 1 µg sonicated and denatured [³²P] DNA (10⁵ cpm/µg) for 30 minutes at 37°C and in 50 µl reaction buffer released <1% radioactivity.

- **ds DNA Exonuclease Activity:** Incubation of 50 units of enzyme with 1 µg sonicated [³²P] DNA (10⁵ cpm/µg) for 30 minutes at 37°C in 50 µl reaction buffer released <1% radioactivity.

**References:**

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