

rDNase I, RNase-Free



- A recombinant version of bovine DNase I
- Highly pure enzyme that is free of contaminating RNases
- Ideal for sensitive applications such as removal of genomic DNA from RNA preps as well as removal of template DNA following *in vitro* transcription reactions

Description:

Recombinant DNase I, RNase-Free, is overexpressed and purified from a non-animal host, which is vastly lower in endogenous RNase levels than pancreatic tissue, the source for bovine DNase I. Hence, the recombinant enzyme is readily purified without any detectable RNase contamination.

DNase I is an endonuclease that hydrolyzes phosphodiester linkages in DNA to yield di-, tri-, and oligonucleotides with a 5'-phosphate and a 3'-hydroxyl termini⁽¹⁾. DNase I can cleave dsDNA, ssDNA, chromatin and DNA:RNA hybrids. However, the cleavage rates for ssDNA and DNA:RNA hybrids are much lower than dsDNA. This enzyme is totally inactive against RNA⁽²⁾. For maximum activity, DNase I requires both Ca²⁺ and Mg²⁺ ⁽³⁾. Ca²⁺ stabilizes DNase I to maintain the active conformation and Mg²⁺ is required for activity.

Applications:

1. Removal of DNA from protein and RNA preparations.
2. Degradation of template DNA from RNA after *in vitro* transcription.
3. Removal of genomic DNA prior to RT-PCR.
4. Nick translation with DNA Polymerase I [PN 70010].

rDNase I, RNase-Free PN 78311

Pack Size	List Price
1000 units	\$50.00
2500 units	\$106.00

Includes:

10X rDNase I Reaction Buffer [PN 78316]:
200mM Tris-HCl (pH 8.4), 20mM MgCl₂

Stop Solution [PN 78317]:
50mM EDTA (pH 8.0)

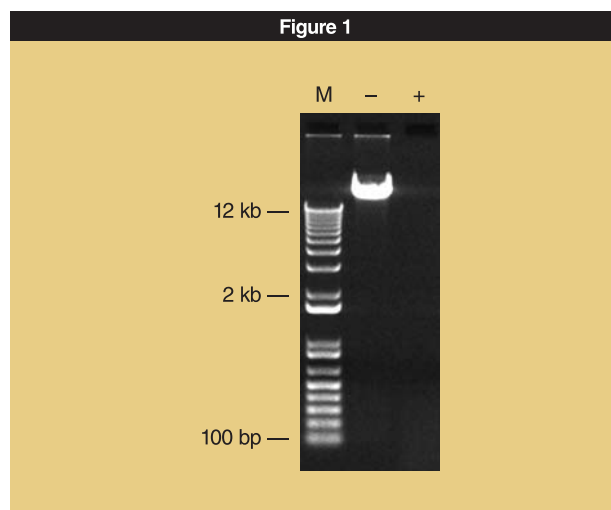


Figure 1
Digestion of lambda DNA with USB recombinant DNase I (PN 78311). 1 µg of lambda DNA was incubated without (-) or with (+) 2 units rDNase I in 1X rDNase I Reaction Buffer (PN 78316) in a 10 µl reaction volume. Following 15 minutes at 22°C, 1 µl of Stop Solution (PN 78317) was added and the reactions were heat-inactivated at 65°C for 10 minutes before loading on a 0.8% agarose gel.

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Properties:

Molecular Weight: ~30,000 Da

Activators: Mg²⁺ and Ca²⁺ for maximum activity

Inhibitors: EDTA and EGTA

Heat Inactivation: 75°C for 10 min at a 0.1 unit/μl DNase I concentration. Add EDTA to a final concentration of 5mM before heating to avoid chemical scission of RNA.

Purity:

Tested for contaminating ribonucleases and proteases. Residual DNA contamination was tested by real time quantitative PCR.

Storage Buffer:

20mM HEPES (pH 7.5) 10mM CaCl₂, 10mM MgCl₂, 1mM DTT, 50% glycerol.

Shipping and Storage:

Shipped on dry ice. Store at -20°C.

Assay Conditions:

The reaction mixture contains 40mM Tris-HCl (pH 7.9) 10mM NaCl, 6mM MgCl₂, 1mM CaCl₂, 1 μg lambda DNA, 1 unit of DNase I.

Unit Definition:

One unit is the amount of enzyme required to completely degrade 1 μg lambda DNA in 10 min at 37°C.

Concentration:

2 units/μl

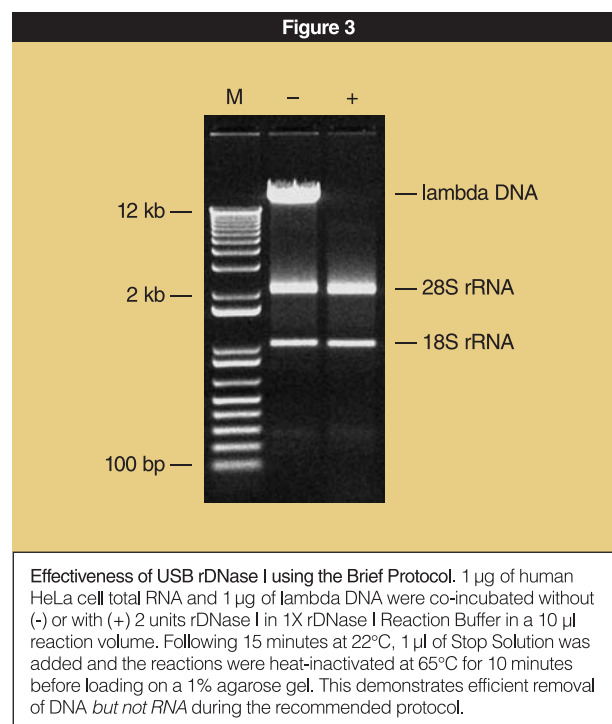
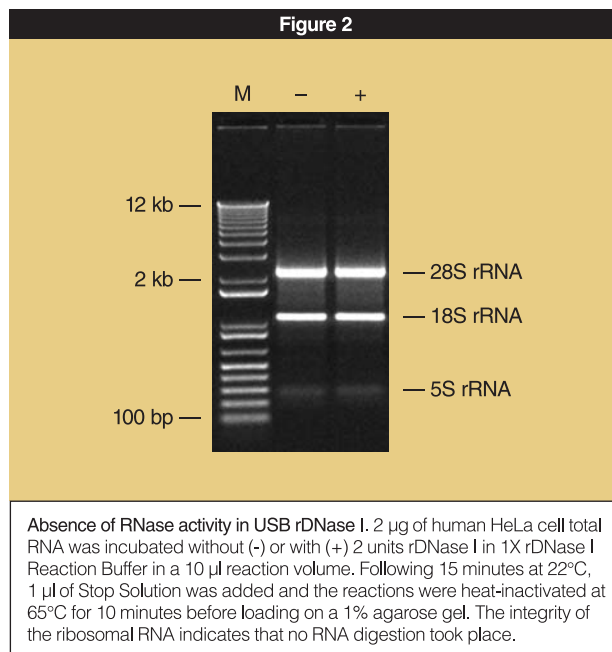
References:

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2. SUTTON, D. H., CONN, G. L., BROWN, T., AND LANE, A. N. (1997) *Biochem. J.* **321**, 481-486.
3. CLARK, R. AND EICHHORN, G. L. (1974) *Biochem.* **13**, 5098.



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