

**DNase I (RNase free)**

DNA modifying enzyme
Bovine pancreas

Cat. No.	Amount
EN-173S	2.000 units (Kunitz units)
EN-173L	5 x 2000 units (Kunitz units)

Unit Definition: One Kunitz unit is defined as the amount of enzyme required to produce an increase in absorbance of 260 nm of 0.001/min/ml at 25°C of highly polymerized DNA. ^[1]

For *in vitro* use only!

Shipping: shipped on blue ice

Storage Conditions: store at -20 °C

Additional Storage Conditions: avoid freeze/thaw cycles

Shelf Life: 12 months

Form: liquid

Concentration: 2 units/μl (Kunitz) [1]

Applications:

DNase I is commonly added to cell lysis reagents to remove the viscosity caused by the DNA content in bacterial cell lysates or to remove DNA templates from RNA produced by *in vitro* transcription. DNase I removes unwanted DNA from cell lysates to improve protein extraction efficiency.

Description:

DNase I (RNase free), Deoxyribonuclease I is a single, glycosylated polypeptide that degrades single- and double-stranded DNA. The enzyme works by cleaving DNA into 5' phosphodinucleotide and small oligonucleotide fragments.

DNase I is used for application requiring the digestion of DNA in which it is crucial to avoid damage to RNA.

Content:**DNase I (RNase free)**

2 units/μl DNase I in 10 mM Tris-HCl pH 7.5, 10 mM CaCl₂, 10 mM MgCl₂ and 50 % [v/v] glycerol

DNase I Reaction Buffer

10 x conc. reaction buffer containing 100 mM Tris-HCl pH 7.6 (25°C), 25 mM MgCl₂, 5 mM CaCl₂

Reaction Conditions

1x DNase I Reaction Buffer

Incubation at 37°C

High levels of monovalent ions such as Na⁺ and K⁺ (i.e. 100 mM) may decrease DNase I activity.

Inactivation:

DNase I is completely inactivated by incubation at 65 °C for 10 minutes.

Activity:

> 2500 units/mg protein

[1] DNase I activity is also measured in 'Degradation Assay units' defined as the amount of enzyme required to completely degrade 1 μg of plasmid DNA in 10 minutes at 37 °C in 10 mM Tris-HCl pH 7.5, 50 mM MgCl₂ and 13 mM CaCl₂.

1 'Degradation Assay unit' is equivalent to 0.3 'Kunitz units'.

Selected References:

Sambrook *et al.* (1989) *Molecular Cloning: A Laboratory Manual*, 2nd ed. New York: *Cold Spring Harbor Laboratory Press* 10.6

Tabor *et al.* (1997) DNA-Dependent DNA Polymerases. In: *Current Protocols in Molecular Biology*. Ausubel *et al.*, eds. Wiley & Sons Inc. 3.5.4-6.

Pan *et al.* (1999) Ca²⁺- dependent activity of human DNase I and its hyperactive variants. *Protein Sci.* 8:1780.