



DNase I User Manual

DNase I

Cat. No: PC024 (1,000U) , PC025 (5,000U)

User Manual

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DNase I

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I. Description

DNase I is an endonuclease that digests single- and double- stranded DNA. It hydrolyzes phosphodiester bonds producing mono- and oligodeoxyribonucleotides with 5'-phosphate and 3'-OH groups. The enzyme activity is strictly dependent on Ca^{2+} and is activated by Mg^{2+} or Mn^{2+} ions. If in the presence of Mg^{2+} , DNase I cleaves each strand of dsDNA independently, in a statistically random fashion. If in the presence of Mn^{2+} , the enzyme cleaves both DNA strands at approximately the same site, producing DNA fragments with blunt-ends or with one or two nucleotide overhangs.

■ Source

DNase I derived from bovine pancreas was isolated and purified in the expression system of *Pichia pastoris*.

■ Definition of Activity Unit

One unit of the enzyme completely degrades 1 μg of plasmid pUC19 DNA in 10 min at 37°C.

■ Quality Guarantee

No RNase activity was detected.

■ Applications

- ✧ Preparation of DNA-free RNA samples
- ✧ Removal of DNA contamination from RNA samples prior to RT-qPCR reaction
- ✧ DNA template after removal of RNA transcription in vitro

II. Contents and Storage

Cat. No.	Contents	Part No.	Quantity
PC024	DNase I (2U/ μl)	PC024-01	500 μl
	10 \times DNase I Buffer	PC024-02	1ml
PC025	DNase I (2U/ μl)	PC024-01	500 μl \times 5
	10 \times DNase I Buffer	PC024-02	1ml \times 5

Store all components at -20°C (stable for at least 12 months). Avoid repeated freezing/ thawing.

III. Procedures

1. Thaw the reagents well by gently inverting the tubes. Spin down briefly and keep on ice.
2. Pre-heat the PCR instrument.
3. Prepare the reaction solution according to the table below on ice. DNase I is sensitive to physical denaturation and gently reverses the tube to thoroughly mix the reaction solution. Spin down briefly.

Reagent	Volume	Final concentration
10× DNase I Buffer	2ul	1×
DNase I (2U/ul)	0.5ul	
Total RNA	~1μg	
DEPC H ₂ O	To 20ul	

4. 37°C 10min.

*It is proved that DNase I can work normally at 25°C.

Note:

1. When using this product to clear DNA in RNA samples, RNase Inhibitor can be added to the reaction system to protect RNA from degradation.
2. Under some experimental conditions, the optimal amount of DNase I needs to be adjusted through experiments.
3. Inactivation or inhibition: DNase I can be inactivated by adding EDTA with a final concentration of 5 mM and heating at 75°C for 10 min, or by phenol chloroform extraction. The activity of DNase I was significantly inhibited by metal ion chelating agent, Zn²⁺ with concentration of mmol/L, SDS of 0.1%, reducing agents such as DTT, mercaptoethanol, and salt concentrations above 50-100 mM.
4. This product is only used for scientific research, cannot be used for clinical diagnosis or treatment, cannot be used for food or medicine, and cannot be stored in ordinary homes.

IV. Limited Use License and Warranty

Limited Use License

The following terms and conditions apply to the use of **DNase I** (the Product). If the terms and conditions are not acceptable, the Product in its entirety must be returned to GeneCopoeia within 5 calendar days. A limited End-User license is granted to the purchaser of the Product. The Product shall be used by the purchaser for internal research purposes only. The Product is expressly not designed, intended, or warranted for use in humans or for therapeutic or diagnostic use. The Product must not be resold, repackaged, or modified for resale, or used to manufacture commercial products without prior written consent from GeneCopoeia. This Product should be used in accordance with the NIH guidelines developed for recombinant DNA and genetic research. Use of any part of the Product constitutes acceptance of the above terms.

Limited Warranty

GeneCopoeia warrants that the Product meets the specifications described in the accompanying Product Datasheet. If it is proven to the satisfaction of GeneCopoeia that the Product fails to meet these specifications, GeneCopoeia will replace the Product. In the event a replacement cannot be provided, GeneCopoeia will provide the purchaser with a refund. This limited warranty shall not extend to anyone other than the original purchaser of the Product. Notice of nonconforming products must be made to GeneCopoeia within 30 days of receipt of the Product. GeneCopoeia's liability is expressly limited to replacement of Product, or a refund limited to the actual purchase price. GeneCopoeia's liability does not extend to any damages arising from use or improper use of the Product, or losses associated with the use of additional materials or reagents. This limited warranty is the sole and exclusive warranty. GeneCopoeia does not provide any other warranties of any kind, expressed or implied, including the merchantability or fitness of the Product for a particular purpose.

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