

NUCQX® Recombinant DNase I (RNase-free, Yeast) (5 U/μL)

Cat. no. LM105014

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Product Information

Product	NUCQX® Recombinant DNase I (RNase-free, Yeast) (5 U/μL)
Cat.No.	LM105014
Size	1000 U/5000 U
Unit definition:	Using calf thymus DNA as substrate, at 25°C, pH 5.0, the amount of enzyme required to increase the absorbance of the reaction solution at 260 nm by 0.001 within 1 min is defined as 1 activity unit (Kunitz Unit).
Source	Pichia yeast strain carrying the gene cloned from bovine pancreatic DNase I
Purity	≥95%
Reaction conditions	37°C, 15-30 min
Heat inactivation conditions	Add 2.5 mM EDTA solution and mix well, then incubate at 65°C for 10 min
Shipping and Storage	This product should be stored at -25~-15°C for two year.

2. Description

DNase I, or Deoxyribonuclease I, is an endonuclease that can digest single-stranded or double-stranded DNA. It hydrolyzes phosphodiester bonds to produce monodeoxynucleotides and oligodeoxynucleotides containing 5'-phosphate groups and 3'-OH groups. The optimal working pH range of DNase I is 7-8. The activity of DNase I depends on Ca²⁺ and can be activated by divalent metal ions such as Co²⁺, Mn²⁺, and Zn²⁺. In the presence of Mg²⁺, DNase I can randomly cut any site of double-stranded DNA; in the presence of Mn²⁺, DNase I can cut the DNA double strand at the same site, forming a blunt end or a sticky end with 1-2 nucleotides protruding, which can be used for the treatment of various RNA samples.

3. Features

- Recombinant DNase I from yeast
- RNase-free
- High enzymatic cleavage efficiency.
- More suitable for applications sensitive to RNase.

4. Applications

- Removal of contaminating genomic DNA from RNA samples
- Degradation of DNA templates in transcription reactions
- Removal of gDNA before RNA extraction or reverse transcription.
- Removal of template DNA in in vitro transcription.

5. Components

Components No.	Name	LM105014-1000 U	LM105014-1000 U
LM105014-A	Recombinant DNase I (RNase-free, Yeast) (5 U/μL)	200 μL	1 mL
LM105014-B	DNase I Reaction Buffer (10×)	1 mL	5×1 mL

6. Notes

1. DNase I is sensitive to physical denaturation. When mixing, gently invert the test tube to shake well. Do not shake violently.
2. The enzyme should be stored in an ice box or ice bath when in use. It should be stored at -20°C immediately after use.
3. This product is for scientific research purposes only.
4. For your safety and health, please wear a lab coat and disposable gloves when operating.

7. Treatment Protocol

7.1. Reaction Setup

Component	Volume (μL)
DNase I Reaction Buffer (10×)	5
Recombinant DNase I (RNase-free, Yeast, 5 U/μL)	2
RNA (20–50 μg)	—
RNase-free ddH ₂ O	Up to 50 μL total

Prepare the following reaction mixture and mix thoroughly:

7.2. Reaction Conditions

Incubate the mixture at 37°C for 15–30 minutes.

Add EDTA to a final concentration of 2.5 mM, mix well.

Incubate at 65°C for 10 minutes to inactivate the DNase I.

The treated RNA is now ready for downstream applications such as RT-PCR or RT-qPCR.

8. Performance display

8.1. Strong digestive activity

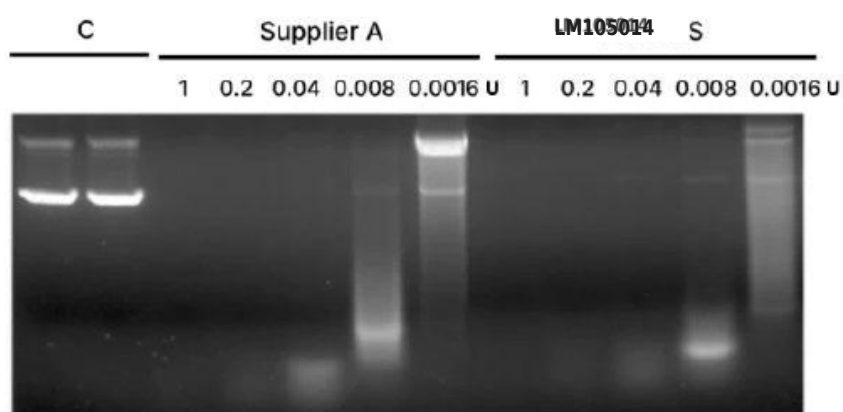


Figure 1. Plasmid DNA digestion

1 µg of plasmid DNA was digested using different amounts of DNase I from NUCQX® and Supplier A. The results showed that the plasmid DNA removal efficiency of LM105014 was better than that of Supplier A.

8.2. No RNase residue

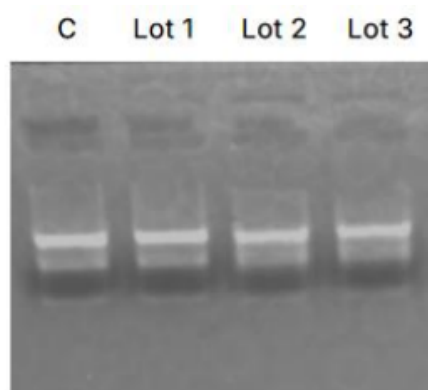


Figure 2. RNase residue detection

10 U of NUCQX® Recombinant DNase I (RNase-free, Yeast) was incubated with RNA substrate at 37°C for 1 h. Agarose gel electrophoresis analysis showed that no residual RNase activity was detected in the three batches of the enzyme preparation, completely eliminating the risk of RNA sample degradation.

8.3. RNA extraction application verification

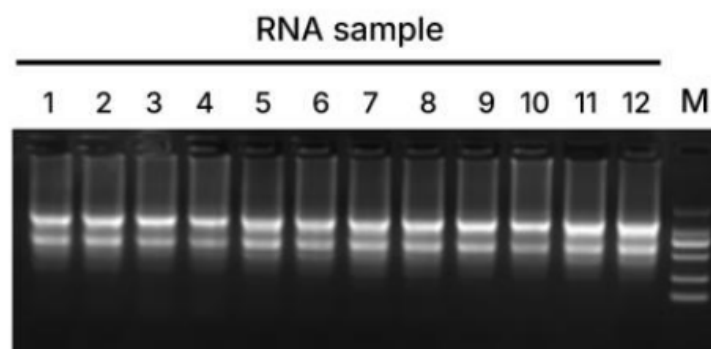


Figure 3. RNA extraction application verification

20 U of the enzyme preparation was used to treat 12 pre-treatment samples of mouse liver from different sources. RNA extraction and agarose gel electrophoresis analysis showed that the RNA integrity of the enzyme-treated group was good, indicating that this DNase I can effectively digest DNA without affecting the quality of RNA, and fully meets the technical requirements of RNA extraction experiments.