DNase I

Cat.No.:HYJ234

Product Description

DNase I (deoxyribonuclease I) is an endodeoxyribonuclease that digests single-stranded or double-stranded DNA. It recognizes and cleaves phosphodiester bonds, generating monodeoxynucleotides or single-stranded or double-stranded oligodeoxynucleotides with a phosphate group at the 5' end and a hydroxyl group at the 3' end. DNase I activity is dependent on Ca^{2+} and can be activated by divalent metal ions such as Mn^{2+} and Zn^{2+}. 5mM Ca^{2+} protects the enzyme from hydrolysis. In the presence of Mg^{2+}, the enzyme can randomly recognize and cleave any site on either DNA strand. In the presence of Mn^{2+}, it can recognize both DNA strands simultaneously and cleave at nearly identical sites, forming blunt-ended or sticky-ended DNA fragments with one to two nucleotide overhangs.

Components

Components	0.1KU	0.5KU	5KU	50KU
DNase I, RNase-free (5U/uL)	0.02 mL	0.1 mL	1 mL	10 mL
10×DNase I Buffer	1 mL	1 mL	5×1 mL	5×10 mL

Storage

Store at -25 to -15°C. Valid for 2 years.

Storage buffer

10mM Tris-HCl, 2mM $CaCl_2$, 50% glycerol, pH 7.6 @25°C.

Activity Definition

One unit (U) of activity refers to the amount of enzyme required to completely degrade 1 μg of pBR322 DNA at 37°C in 10 minutes.

Quality Control

1. **RNase activity:** 5 U of this product and 1.6 μg of MS2 RNA reacted at 37°C for 4 hours; the RNA electrophoretic band did not change.
2. **Endotoxin:** LAL-Test, Chinese Pharmacopoeia 2020 Edition, Part IV, Gel Limit Test, General Rules (1143), bacterial endotoxin content ≤ 10 EU/mg.

Reaction system and conditions

1. Prepare the reaction solution in an RNase-free reaction tube according to the following ratio:

Components	Volume
RNA	X μg
10×DNase I Buffer	1 uL
DNase I, RNase-free (5U/uL)	1 U per μg RNA
ddH_2O	Up to 10 uL

2. Incubate at 37°C for 15 minutes.
3. Add Stop Buffer to terminate the reaction. Heat at 65°C for 10 minutes to inactivate DNase I. The sample can then proceed directly to the next transcription experiment.

Notes

1. Use 1U of DNase I per μg of RNA. If the RNA amount is less than 1μg, use 1U of DNase I.
2. To prevent RNA degradation during enzyme inactivation, add EDTA to a final concentration of 5mM.