

HB220831

Deoxyribonuclease I (DNase I) GMP-grade (2 U/μL)

Product Information

Product Name	Catalog No.	Size
	10611ES76	500 U
Deoxyribonuclease I (DNase I) GMP-grade (2 U/μL)	10611ES84	2,000 U
	10611ES92	10,000 U

Product Description

DNase I is an endonuclease that can digest single-stranded and double-stranded DNA to produce single deoxynucleotides or single-stranded or double-stranded oligodeoxynucleotides. It can hydrolyze the phosphodiester bond to produce monodeoxynucleotides and oligodeoxynucleotides containing 5'-phosphate groups and 3'-OH groups. The average digestion product is the smallest polytetranucleotide. DNase I can catalyze many forms of DNA, such as single-stranded DNA, double-stranded DNA, and even chromatin (its cutting rate is affected by histones). The optimum pH range is 7-8. The activity of DNase I depends on Ca²⁺ and can be activated by divalent metal ions, such as Co²⁺, Mn²⁺, Zn²⁺, etc. 5 mM Ca²⁺ can protect the enzyme from being hydrolyzed. In the presence of Mg²⁺, the enzyme can recognize and cut any site on any strand of DNA randomly; and in the presence of Mn²⁺, it can recognize two strands of DNA at the same time and cut at almost the same site to form blunt ends, Or sticky ends with 1-2 nucleotides protruding. DNase I is widely used in the preparation of DNA-free RNA; remove the template DNA after in vitro transcription; prepare DNA-free RNA before RT-PCR and RT-qPCR reactions; combine with DNA polymerase I to perform DNA labeling through nick translocation; DNA fragmentation library construction.

This product is produced in accordance with GMP process requirements, and the product is provided in liquid form.

Product Properties

Source	Recombinant <i>E. coli</i> with DNase I gene
Optimum Temperature	37°C
Storage Buffer	10 mM Tris-HCl pH 7.6, 2 mM CaCl ₂ , 50%(v/v) Glycerol
Unit Definition	The amount of enzyme required to increase the absorbance at 260 nm of the reaction solution by 0.001 in 1 minute at 25°C and pH 5.0 using calf thymus DNA as the substrate is defined as one activity unit (Kunitz Unit). (The reaction buffer is: 10 mM Tris-HCl pH 7.6, 2.5 mM MgCl ₂ , 0.5 mM CaCl ₂ , 1 μg plasmid DNA.)

Contents

Contents No.	Name	Catalog No./Specification		
		10611ES76 (500 U)	10611ES84 (2,000 U)	10611ES92 (10,000 U)
10611	Deoxyribonuclease I (DNase I) GMP-grade (2 U/μL)	250 μL	1 mL	5 mL

Shipping and Storage

Deoxyribonuclease I (DNase I) GMP-grade products are shipped with dry ice and can be stored at -15°C ~ -25°C for one year.

Experimental methods

Plasmid template digestion

1. Reaction system:

Use the RNase-free centrifuge tube and pipette tip to prepare the following reaction system:

10× DNase I Buffer*	1 μL
DNase I	1 μL
RNA	x
Rnase-free ddH ₂ O	Up to 10 μL

【Note】 1×DNase I Buffer: 10 mM Tris-HCl, 2.5 mM MgCl₂, 0.5 mM CaCl₂, pH7.6 @25°C

2. Reaction conditions

37°C, 15-30 min later, add a final concentration of 2.5 mM EDTA solution and mix well at 65°C for 10 min. The processed template can be used in subsequent reactions such as capping reaction

DNase I inactivation or inhibition

After adding EDTA to a final concentration of 2.5 mM, heating at 65°C for 10 min can inactivate DNase I. Phenol and chloroform extraction can also inactivate DNase I. The following conditions all have significant inhibitory effect on DNase I: Metal ion chelating agents, zinc ions with a concentration of millimoles/liter, 0.1% SDS, DTT, mercaptoethanol and other reducing agents, the salt concentrations above 50-100 mM.

Note

1. Enzymes should be stored in an ice box or on an ice bath when used, and should be stored at -20°C immediately after use.
2. For your safety and health, please wear personal protective equipment (PPE), such as laboratory coats and disposable gloves, when operating with this product.