Recombinant DNase I (RNase-free)

Product Information

Product Name	Cat#	Size
Recombinant DNase I (RNase-free)	10325ES80	1,000 U
	10325ES90	5,000 U

Product Description

DNase I is an endonuclease that can digest single- or double-stranded DNA. It can hydrolyze phosphodiester bonds to produce mono- and oligodeoxynucleotides containing a 5'-phosphate group and a 3'-OH group.

The optimal working pH range of DNase I is 7-8. The activity of DNase I depends on Ca^{2+} and can be activated by divalent metal ions such as Co^{2+}, Mn^{2+}, Zn^{2+}, etc. In the presence of Mg^{2+}, DNase I can randomly cleave any site of double-stranded DNA; while in the presence of Mn^{2+}, DNase I can cleave DNA double-stranded at the same site, forming blunt ends or sticky ends with 1-2 nucleotides protruding.

This enzyme is derived from recombinant *E. coli* strains, does not contain RNase, and can be used for the treatment of various RNA samples.

Product Components

Component number	Components	Cat#/Size	
		10325ES80 (1,000 U)	10325ES90 (5,000 U)
10325-A	Recombinant DNase I (RNase-free) -2 U/μL	500 μL	5×500 μL
10325-B	DNase I Reaction Buffer(10×)	1 mL	5×1 mL

Application

1. RNA extraction: Preparation of DNA-free RNA;
2. Remove the template DNA after in vitro transcription with RNA polymerases, such as the T7 RNA Polymerase (Cat#10618);
3. Preparation of DNA-free RNA prior to RT-PCR and RT-qPCR;
4. Use with DNA Polymerase I (Cat#12903) to label DNA by nick translation method;
5. Be used for DNA footprinting assay to analyze the interaction between DNA and protein;
6. Generate random fragment library;
7. Shear genomic DNA as a positive control in the TUNEL apoptosis assay.

Unit Definition

The amount of enzyme required to completely degrade 1 μg of plasmid DNA at 37℃ for 10 mins.

DNase I inactivation or inhibition

After adding EDTA to a final concentration of 2.5 mM, heating at 65℃ for 10 mins can inactivate DNase I. Phenol-chloroform extraction can also inactivate DNase I. Metal chelating agent, zinc ions at a concentration of mmol/L, 0.1% SDS, DTT, mercaptoethanol and other reducing agents, and salt concentrations above 50-100 mM all have a significant inhibitory effect on DNase I.

DNase I stock solution

10 mM Tris-HCl (pH 7.6), 2 mM $CaCl_2$, 50% glycerol

Shipping and Storage

The product is shipped with dry ice and can be stored at -20℃ for two years. Please avoid repeated freeze-thaw.

Cautions

1. DNase I is sensitive to physical denaturation. When mixing, you need to gently invert the tube and shake it up. Do not shake vigorously;
2. The enzyme need to be stored in an ice box when used, and it is best to store it at -20℃ after using;
3. This product is for research use ONLY!
4. For your safety and health, please wear lab coats and disposable gloves for operation.

Instructions (For the removal of DNA in RNA samples, for reference only)

1. Please use RNase-free centrifuge tubes and pipette tips to prepare the following reaction system:

Components	Volume(μL)
DNase I Reaction Buffer (10×)	1
Recombinant DNase I (RNase-free) -2 U/μL	1
RNA	X
RNase-free ddH_2O	Up to 10

2. The reaction conditions are as follows: 37℃, after 15-30 mins, add a final concentration of 2.5 mM EDTA solution and mix well, then 65℃ for 10 mins. The processed template can be used for subsequent RT-PCR or RT-qPCR experiments, etc.