dsDNase, Double-strand specific DNases

Cat #: C-BSM0206

Size: 50 rxns

Storage: -20°C

Components

Components	Size
dsDNase(1 rxn/μl)	50 μl
10×dsDNase Buffer	200 μl

Product Introduction

dsDNase is a type of endonuclease that cleaves the phosphodiester bonds in DNA, generating oligonucleotides with a 5'-phosphate and a 3'-hydroxyl group. dsDNase specifically digests double-stranded DNA (dsDNA) without digesting single-stranded DNA, primers, probes, and RNA. dsDNase is thermosensitive and rapidly inactivated at 55°C. It is primarily used to quickly remove genomic DNA contamination from RNA samples prior to reverse transcription experiments. Compared to the traditional method of using DNase I to remove genomic DNA contamination, dsDNase does not require additional EDTA for inactivation, reducing RNA damage, saving experimental time, and ensuring accurate quantification of RNA levels.

Enzyme Activity Definition

According to the Kunitz assay method, under pH 5.0 at 25°C, the enzyme activity is defined as 1 unit (U) when it causes an increase in absorbance of 0.001 at 260 nm per minute using an excess amount of high molecular weight DNA as the substrate.

Storage Buffer

25 mM Tris-HCl (pH 7.5, at 25°C), 2.0 mM $MgCl_2$, 10 mM NaCl, 0.01% (v/v) Triton X-100, 50% (v/v) glycerol.

Inhibition and Inactivation

Inhibition: Metal ions, EDTA, SDS, DTT, β-mercaptoethanol, high salt ion concentrations, etc., can inhibit the activity of dsDNase.

Inactivation: Incubation at 55°C for 5 minutes.

Quality Control

Protein purity

Determined by SDS-PAGE and Coomassie Brilliant Blue staining, the enzyme purity is ≥90%.

RNA nuclease activity

The enzyme is incubated with RNA substrate at 37°C for 1 hour, and gel electrophoresis is performed to confirm no degradation of the RNA substrate.

Functional testing

The product was tested for the removal of genomic DNA from RNA samples and subsequent RT-qPCR amplification, showing a removal rate of ≥99.9%. The quantity of RNA is not affected by dsDNase treatment.

Instructions for use:

1. Prepare the reaction mixture on ice as follows:

Components	Volume
dsDNase	1 µl
10×dsDNase Buffer	10 µl
Template RNA:	X µl
Total RNA	1 pg~5 µg/10 µl
mRNA	0.1 pg~500 ng/10 µl
Specific RNA	0.01 ng~500 ng/10 µl
Nuclease-Free Water	To 10 µl

2. Gently tap and mix the reaction mixture, then incubate the mixture at 37°C for 2-5 minutes.

3. Heat inactivate at 65°C for 2 minutes, and quickly place the obtained RNA on ice for subsequent experiments.

For long-term storage, store at -80°C, avoiding repeated freeze-thaw cycles.

Notes

1. If the downstream application of the RNA sample is RT-PCR and the target gene length is ≥3 kb, add a final concentration of 10 mM DTT before the inactivation step.

2. To prevent RNA degradation, add an appropriate amount of RNase inhibitor to the reaction mixture.

Disclaimer

The reagent is only used in the field of scientific research, not suitable for clinical diagnosis or other purposes.

Biogradetech Inc • 123 Beaver Street, Suite 204，Waltham, MA 02452 • USA
E-mail : order@biogradetech.com • Phone: (800) 832-2612 • Website: www. biogradetech.com