GDS dsDNA Fragmentase

Instruction for Use

【Product Name】

GDS dsDNA Fragmentase

【Cat. No./Spec.】

K024-A (50 rxns); K024-B (250 rxns)

【Concentration】

500 rxns/mL

【Product Description】

GDS dsDNA Fragmentase, a double-stranded DNA fragmentase, produces dsDNA breaks in a time-dependent manner, producing DNA fragments of 50-1,000 bp depending on reaction time. The GDS dsDNA Fragmentase consists of two enzymes, one that randomly generates nicks on dsDNA and the other recognizes the nicked sites and cuts the opposite DNA strand aross from the nick, thus producing dsDNA breaks. The resulting DNA fragment contains short overhangs, 5' -phosphate, and 3' -hydroxyl groups. The random nicking activity of GDS dsDNA Fragmentase has been demonstrated by the preparation of next-generation sequencing libraries. The comparison of the sequencing results between libraries prepared by genomic DNA sheared by GDS dsDNA Fragmentase with mechanically shearing showed that GDS dsDNA Fragmentase does not introduce any detectable bias in the preparation of sequencing libraries, and there is no difference in sequence coverage between the two methods.

【Components】

Component	K024-A (50 rxns)	K024-B (250 rxns)
GDS dsDNA Fragmentase	100 μL	500 μL
10X GDS dsDNA Fragmentase Reaction Buffer	100 μL	500 μL
200mM $MgCl_2$	100 μL	500 μL

【Storage Condition & Shelf Life】

All reagents should be stored at -20°C. The product is valid for 18 months.

【Application】

Fragmentation of dsDNA.

【Protocol】

1. Vortex GDS dsDNA Fragmentase for 3 seconds, quick spin and place on ice.
2. Combine the following components in a sterile PCR tube and vortex:

Reagents	Volume
DNA（5ng~3μg）	1~16 μL
10X GDS dsDNA Fragmentase Reaction Buffer	2 μL
ddH_2O	To 18 μL

3. Add 2.0 μL GDS dsDNA Fragmentase and vortex the mixture for 3 seconds

Note: Fragmentase is very viscous and should be pipetted slowly. If the enzyme has been sitting for several minutes vortex it again before adding to the sample.

4. Incubate at 37°C for the recommended times below to generate the desired fragment size. To determine the exact incubation time for a given sample type, a time course study should be performed.

Desired Fragment Size	Incubation Time
50 bp ~ 200 bp	25~35 min *
200 bp ~ 1000 bp	15~25 min *
1000 bp ~ 2000 bp	10~15 min *

*If starting material is 100 ng or less, incubation times should be increased by 10 minutes.

5. Add 5 μL of 0.5 M EDTA to stop the reaction.
6. Clean up the fragmented DNA.

【Library Preparation Module】

GDSBio offers the following DNA and RNA library construction modules that can be used in combination for high-quality library preparation:

Module	**Product Name**	**Cat. No./Spec.**
cDNA First Strand Synthesis	GDS RNA First Strand Synthesis Module	K020-A/24 rxns K020-B/96 rxns
Directional cDNA Second Strand Synthesis	GDS Directional RNA Second Strand Synthesis Module	K021-A/24 rxns K021-B/96 rxns
Non-Directional cDNA Second	GDS Non-Directional RNA Second Strand	K022-A/20 rxns

Strand Synthesis	Synthesis Module	K022-B/100 rxns
Fragmentation & End Repair	GDS Fragmentation & End Prep Module	K023-A/24 rxns K023-B/96 rxns
Fragmentation	GDS dsDNA Fragmentase	K024-A/50 rxns K024-B/250 rxns
End Repair/dA-Tailing	GDS End Preparation Module	K025-A/24 rxns K025-B/96 rxns
Adapter Ligation	GDS Ligation Module	K026-A/24 rxns K026-B/96 rxns
Amplification	HIFI Library PCR Master Mix	K007-A/40 rxns K007-B/400 rxns K007-C/2000 rxns
Cleanup/Size Selection	GDSPure DNA Selection Magbeads	NC1011/5 mL NC1012/60 mL NC1013/450 mL

This product is for research use only.