



Duplex specific nuclease

Product Number: DSN01

Shipping and Storage

Store at -30~-15°C. Transportation conditions: ≤ 0°C.

Components

Component	DSN01	DSN01	DSN01
Duplex specific nuclease	50U	100U	1KU
10×DSN Reaction Buffer	0.5 ml	0.5 ml	3ml
2×DSN Stop Buffer	1 ml	1 ml	6 m

Description

Duplex specific nuclease can selectively degrade DNA in double stranded DNA and DNA-RNA hybrids, but has almost no activity against single stranded nucleic acid molecules and double stranded RNA. DSN can accurately distinguish DNA double stranded single nucleotide mismatches of 10-12 bp. When dsDNA is greater than 10 bp and DNA RNA is greater than 15 bp, DSN can produce cleavage activity. It is widely used for homogenization of full-length cDNA enrichment, construction of transcriptome libraries based on second-generation sequencing (NGS), SNP detection, multiple fluorescence detection of miRNA, and quantitative detection of telomere ends.

Unit definition

Under the standard reaction system, an increase of 0.001 per minute in the absorbance of 50µg/ml calf thymus DNA at 25°C is defined as one unit.

Protocol

1. Prepare the system reaction solution (on ice operation) according to the following suggestions:

Component	10µl Reaction system
50-500ng DNA	Xµl
10×DSN Reaction Buffer	1µl
Duplex specific nuclease	yµl
ddH ₂ O	up to 10µl

2. Gently mix and centrifuge briefly.
3. Incubate at 65 °C for 7-20 minutes.
4. Join 5µL 2×DSN Stop Buffer, gently mix well, centrifuge briefly, incubate at 65°C for 5 minutes to terminate the reaction.

Note

1. The digestion time of DSN depends on the sample and specific experimental requirements. The incubation temperature can vary between 35 and 70°C; In this case, the incubation time and DSN concentration need to be further optimized.
2. DSN is active in the presence of divalent cations (Mn²⁺, Co²⁺ or Mg²⁺). The concentration of Mg²⁺ ions in most applications should be at least 5mM. EDTA can inhibit DSN activity.
3. The optimal temperature for DSN activity is 60°C. However, at 80°C, DSN only retained 10% of its activity.
4. DSN exhibits tolerance to protease K treatment (incubation at 37°C for 30 minutes).
5. DSN is highly sensitive to salt ion concentration (such as a 10 fold decrease in activity at 0.2M NaCl)