Ver. HB230113

FuniCut™ DpnI

Product description

FuniCut™ enzymes are a series of engineered restriction enzymes that are capable of fast DNA digestion. All FuniCut™ enzymes show superior activity in the universal FuniCut™ Buffer and are able to digest DNA in 5~15 minutes. This enables any combination of restriction enzymes to work simultaneously in one reaction tube and eliminates the need for sequential digestions. FuniCut™ enzymes have passed multiple strict quality control steps, and can be used to digest plasmid, genomic and viral DNA as well as PCR products.

Components

Components No.	Name	15052ES50 (50 T)
15052-A	FuniCut™ DpnI	50 μL
15052-B	10× FuniCut™ Buffer	1 mL
15052-C	10× FuniCut™ Color Buffer	1 mL

Specifications

Enzyme	DpnI
Cutting Site	5'-GAm6↓TC-3' 3'-CT↑Am6G-5'
Optimal Reaction Temperature	37°C
Sensitive to Heat Inactivation	YES
Type IIs RE	NO
Methylation Sensitivity	Not CpG Methylation-Sensitive, Not Dam Methylation-Sensitive, Not Dcm Methylation-Sensitive, Not EcoKI Methylation-Sensitive, EcoBI Methylation-Sensitive
Star Activity	3 h incubation did not show star activity, and delayed enzyme digestion might show star activity
Isoschizomers	NO

Storage

The product should be stored at -25°C ~ -15°C for two years. Please avoid repeated freeze-thaw.

Instructions

1. Protocol for Fast DNA Digestion.

1.1 Combine the following reaction components on ice in the order indicated:

Components	Plasmid DNA	PCR product	Genomic DNA
ddH_2O	15 μL	16 μL	30 μL
10× FuniCut™ Buffer or 10× FuniCut™ Color Buffer	2 μL	3 μL*	5 μL
DNA	2 μL (1 μg)	10 μL (0.2 μg)	10 μL (5 μg)
FuniCut™ DpnI	1 μL	1 μL	5 μL
Total	20 μL	30 μL	50 μL

*For purified PCR products. Amount of 10× FuniCut™ Buffer may be reduced to 2 μL due to the remaining ionic strength in the unpurified PCR products. We recommend to purify PCR products before digestion because the exonuclease activity of some DNA polymerases may compromise DNA digestion ends.

1.2 Mix gently and spin down.

1.3 Incubate at 37°C for 15 min (plasmid DNA) or for 15~30 min (PCR product) or for 30~60 min (genomic DNA).

1.4 Optional: Inactivate the enzyme by heating for 20 min at 80°C.

2. Double and Multiple Digestion of DNA.

2.1 Use 1 μL of each enzyme and scale up the reaction conditions appropriately.

2.2 The combined volume of the enzymes in the reaction mixture should not exceed 1/10 of the total reaction volume.

2.3 If the enzymes require different reaction temperatures, start with the enzyme that requires a lower temperature, then add the second enzyme and incubate at the higher temperature.

3. Scaling up Plasmid DNA Digestion Reaction.

Components	Volume (20 μL)	Volume (20 μL)	Volume (50 μL)
DNA	1 μg	2 μg	5 μg
10× FuniCut™ Buffer or 10× FuniCut™ Color Buffer	2 μL	2 μL	5 μL
FuniCut™ DpnI	1 μL	2 μL	5 μL
Total	20 μL	20 μL	50 μL

Increase the incubation time if the total reaction volume exceeds 20 μL, use heat block or water thermostat.

4. Number of Recognition Sites in DNA.

λDNA	ΦX174	pBR322	pUC57	pUC18/19	SV40	M13mp18/19	Adeno2
116	0	22	15	15	8	7	87

5. Activity in Different Buffers.

Reaction Buffer	FuniCut™ Buffer	Thermo Scientific FastDigest Buffer	NEB CutSmart® Buffer	Takara QuickCut™ Buffer
Activity	100%	100%	100%	100%

The activity data comes from the test under the standard reaction system of Yeasen restriction enzyme.

CutSmart® is a trademark of NEB.

Notes

1. For your safety and health, please wear lab coats and disposable gloves for operation.
2. This product is for research use ONLY!