FuniCut™ BamHI

Product description

FuniCut™ series endonucleases are fast restriction enzymes developed through genetic engineering that can precisely cut DNA within 5–15 minutes. These enzymes are suitable for rapid digestion of plasmid DNA, PCR products, genomic DNA, and more. All FuniCut™ fast restriction enzymes share the same digestion buffer, which simplifies reaction setup. Additionally, they have a high enzyme activity margin, making them capable of easily handling excess substrate or challenging templates.

Specifications

Cat. No.	15003ES76 / 15003ES20
Size	500 T / 20,000 T
Recognition Site	5'-G↓GATCC-3' 3'-CCTAG↑G-5'
Recommended Reaction Conditions	1× FuniCut™ Buffer; incubate at 37°C
Enzyme activity	20 U/μL
Inactivation Conditions	Not heat-inactivatable. Use phenol-chloroform extraction or column purification.

Components

Components No.	Name	15003ES76	15003ES20
15003-A	FuniCut™ BamHI	500 μL	20 mL
15003-B	10×FuniCut™ Buffer	3×1 mL	3×40 mL
15003-C	10×FuniCut™ Color Buffer*	3×1 mL	3×40 mL

【Note】: 10× FuniCut™ Color Buffer includes red and yellow tracking dyes, allowing direct loading of reaction products onto agarose gels without additional loading buffer. In 1% agarose gel electrophoresis, the red dye co-migrates with ~2500 bp double-stranded DNA fragments, while the yellow dye migrates similarly to ~10 bp double-stranded DNA fragments.

Storage

This product should be stored at -25~-15°C,Valid for 2 years.

Notes

1. No star activity observed after 3 hours of incubation; prolonged digestion may result in star activity.
2. Not heat-inactivatable.
3. This product is intended for research use only.
4. For your safety and health, wear a lab coat and disposable gloves when handling.

Instructions

1. Fast DNA Digestion Protocol

1) Prepare the reaction mixture on ice using the recommended component volumes below:

Component	Plasmid DNA	PCR Product	Genomic DNA
ddH_2O	15 μL	16 μL	30 μL
10×FuniCut™ Bufferor 10×FuniCut™ Color Buffer	2 μL	3 μL*	5 μL
Substrate DNA	2 μL (~1 μg)	10 μL (~0.2 μg)	10 μL (5 μg)
FuniCut™ BamHI	1 μL	1 μL	5 μL
Total	20 μL	30 μL	50 μL

[Note]:*This system refers to purified PCR products. Unpurified PCR products have a certain ionic strength; the volume of 10× FuniCut™ Buffer can be reduced to 2 μL. If cloning or other downstream experiments are planned, purify the PCR product before digestion.

2) Gently pipette or flick the tube to mix (do not vortex), then briefly centrifuge to collect any liquid on the walls.

3) Incubate at 37°C for 15 min (plasmid), 15–30 min (PCR product), or 30–60 min (genomic DNA).

4) Optional: Phenol-chloroform extraction or column purification.

5) When using FuniCut™ Color Buffer for digestion reactions, the resulting products can be directly loaded onto the gel for electrophoresis without additional loading buffer.

2. Double or Multiple Digestions

1) Use 1 μL of each restriction enzyme, and scale up the reaction volume as needed.

2) The total volume of all enzymes should not exceed 1/10 of the total reaction volume.

3) If the optimal reaction temperatures of the selected enzymes differ, start digestion with the enzyme having the lower optimal temperature, then add the enzyme with the higher optimal temperature and continue incubation at the higher temperature.

3. Scaling Up the Reaction for Plasmid Digestion

Component	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™ BamHI	1 μL	2 μL	5 μL
Total	20 μL	20 μL	50 μL

[Note]:*For total reaction volumes greater than 20 μL, use water bath, metal bath, or sand bath, and extend the incubation time accordingly.

4. Number of Recognition Sites in Different DNAs

λDNA	ΦX174	pBR322	pUC57	pUC18/19	SV40	M13mp18/19	Adeno2
5	0	1	1	1	1	1	5

5. Effect of Methylation Modifications

Dam	Dcm	CpG	EcoKI	EcoBI
None	None	The sequence may be affected by overlap, leading to hindered cleavage.	None	None

6. Activity in Different Reaction Buffers*

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

[Note]:*Activity data is based on testing under standard reaction conditions for restriction enzymes from Yeasen Biotech.