

BspQ I restriction endonuclease

Cat.No.:HYJ111

Product Description

BspQ I restriction endonuclease is a recombinant protein encoded by the BspQ I gene of *Bacillus sphaericus* expressed recombinantly in *Escherichia coli*. It is a class IIS restriction endonuclease that recognizes specific sites. Its recognition sequence and cleavage site are as follows:

5'.....GCTCTTC(N).....3'

3'.....CGAGAAG(NNNN).....5'

Components

Components	0.5KU	2.5KU	10KU	100KU	1000KU
BspQ I (10 U/μL)	50 uL	250 uL	1 mL	10 mL	100 mL
10×BspQ I Buffer	1.25 mL	1.25 mL	4 × 1.25 mL	5 × 10 mL	5 × 100 mL

Storage

Store at -25°C to -15°C, valid for 2 years.

Storage buffer

20 mM Tris-HCl, 0.1 mM EDTA, 500 mM KCl, 1.0 mM dithiothreitol, 500 μg/ml Recombinant Albumin, 0.1% Triton X-100 and 50% glycerol (pH 7.0 @ 25°C).

Activity Definition

One unit of activity is defined as the amount of enzyme required to completely cleave 1 μg of internal control DNA in a 50 μL reaction at 50°C within 1 hour.

Quality control

- Protein purity (SDS-PAGE):** BspQ I purity was ≥95% as determined by SDS-PAGE analysis.
- RNase activity:** 10 U of this product reacted with 1.6 μg of MS2 RNA at 50°C for 4 hours, resulting in no change in the RNA electrophoretic bands.
- Nonspecific DNase activity:** 10 U of this product reacted with 1 μg of λ DNA at 50°C for 16 hours, resulting in no excess DNA bands compared to a 1-hour reaction at 50°C.

4. **Enzyme digestion-ligation-re-digestion assay:** 10 U of this product was used to digest 1 µg of λ DNA at 16°C with an appropriate amount of T4 DNA ligase. The digested products were then religated and re-cleaved using the same endonuclease.
5. **Residual E. coli DNA assay:** E. coli 16s rDNA-specific TaqMan qPCR assay was performed. Genome Residue ≤ 0.1 pg/ul;
6. **Host protein residue:** ≤ 50 ppm;
7. **Bacterial endotoxin (Endotoxin):** LAL-Test, Chinese Pharmacopoeia 2020 Edition, Part IV, Gel Limit Test, General Rules (1143), bacterial endotoxin content ≤ 10 EU/mg;

Reaction system and conditions

Components	Volume
BspQ I (10 U/µL)	1 uL
10×BspQ I Buffer	5 uL
DNA	1 µg
ddH ₂ O	Up to 50 µL

Reaction conditions: 50°C, 1-16 h.

Heat inactivation: 80°C, 20 min.

The system recommended in this manual provides optimal enzymatic digestion results. For reference only, please refer to experimental results for details.

Product Features

1. High restriction enzyme activity, enabling rapid digestion.
2. Low nonspecific endonuclease activity, ensuring scalpel-like precision.
3. No animal-derived BSA (BSA) is used in the system.

Methylation effects

1. dam methylation: no effect;
2. dcm methylation: no effect;
3. CpG methylation: no effect.

Notes

1. The volume of restriction endonuclease added should not exceed 1/10 of the reaction volume.
2. Star activity may occur when the glycerol concentration is >5%.

3. Enzyme:DNA nicking activity may occur when the enzyme dosage is below the recommended ratio.