

Esp3I (BsmBI), Animal Free

Cat #: C-BSM1504S, C-BSM1504H

Size: 2000 U (10 U/uL), 2000 U (50 U/uL)

Storage: -20°C



Note:ADCF(animal derived component free), animal-derived component free Free

Isoschizomers*: BsmBI

*Isoschizomers may have different methylation sensitivities.

Components

Components	C-BSM1504S	C-BSM1504H
Esp3I (BsmBI), ADCF	2000 U (10 U/uL)	2000 U (50 U/uL)
10× Esp3I Buffer	4×1.25 ml	4×1.25 ml

Description

Esp3I(BsmBI), ADCF, which has been genetically engineered, is able to digest DNA in 15~60 minutes. It can be used to digest plasmid DNA, PCR products, and genomic. It is animal-derived component free and antibiotics free.

Unit Definition

One unit is defined as the amount of Esp3I required to digest 1 µg of λDNA in 1 hour at 37°C in 50 µL of recommended reaction buffer.

Heat Inactivation

Incubation at 80°C for 20 minutes.

Quality Control

Purification

Greater than 95% by SDS-PAGE.

DNase residues

Incubate 50 U of Esp3I with double-stranded DNA at 37°C for 16 hours, no changes for the DNA were detected in DNA electrophoresis.

RNase residues

Incubate 50 U of Esp3I with RNA at 37°C for 1 hour, no degradation for the RNA was detected in electrophoresis.

Ligation and Recutting

After digestion with 50 U of Esp3I at optimal reaction temperature, the DNA fragments can be ligated with T4 DNA Ligase (Fast) at 22°C. Of these ligated fragments, most of them can be recut with Esp3I as determined by agarose gel electrophoresis.

Host DNA residues

The nucleic acid residues in the enzyme solution were detected by TaqMan qPCR specific for *E.coli* 16S rDNA, less than 10 pg *E.coli* genome residues were detected.

Host Protein residues

The *E.coli* host protein was determined by ELISA to be less than 50 ppm.






Sterility

No *E. coli* was detected.

Endotoxin residues

< 10 EU/mg at 10000 U

Icon Descriptions

-  The enzyme's optimum reaction temperature is 37°C.
-  Cleavage with this restriction enzyme may be blocked or impaired when the substrate DNA is methylated by the CpG methylase.
-  The enzyme can be heat inactivated at by incubation 80°C for 20 minutes.
-  3 hours incubation do not show star activity, but longer incubation may result in star activity.
-  This enzyme is animal-derived component free.

Method of application

1. Protocol for Fast DNA Digestion

- ① Combine the following reaction components on ice in the order indicated:

	DNA
ddH ₂ O	Up to 50 µl
10× Esp3I Buffer	5 µl
DNA ^a	1 µg
Esp3I(BsmBI), ADCF	5-10 U
Total	50 µl

a. The DNA substrate should not contain phenol, chloroform, ethanol, EDTA, detergent or high concentration salt, otherwise it will affect the enzyme activities of Esp3I, ADCF; Methylated DNA will inhibit digestion for certain restriction enzymes.

- ② Mix gently (Do not vortex) and spin down;
- ③ Incubate at 37°C for 15 min-60 min, generally recommended 5~10 U enzyme /µg DNA, 10~20 U enzyme /µg genomic DNA, water bath for 1 h, if overnight enzyme digestion is required, please adjust the enzyme amount to 2.5 U;
- ④ Inactivate the enzyme by heating for 20 minutes at 80°C, Or terminate the reaction by column-based or phenol/chloroform purification.
- ⑤ The volume of enzyme added to the reaction should not exceed 10% of the total volume to avoid excessive glycerol, which may lead to star activity.
- ⑥ The additives in the storage buffer of restriction endonucleases (such as glycerol and salts) and contaminants in the substrate (such as salts, EDTA, or ethanol, etc.) are similar, the smaller the reaction volume, the stronger the inhibitory on the enzyme digestion reaction.

⑦ For small-scale reaction, the recommended reaction components are as follows.

DNA	0.1 µg	0.5 µg
Esp3I(BsmBI), ADCF	1 U	5 U
10× Esp3I Buffer	1 µl	2.5 µl
Total	10 µl ^b	25 µl

b. To avoid evaporation, the incubation time of the 10 µl reaction buffer should not exceed 1 h.

Number of Recognition Sites in DNA

λDNA	ΦX174	pBR322	pUC57	pUC18/19	SV40	M13mp18/19	Adeno2
14	0	1	2	2	0	1	21

Methylation Effects on Digestion

Dam	Dcm	CpG	EcoKI	EcoBI
No effect	No effect	Impaired	No effect	No effect