

BsaI, GMP Grade

Cat. No.: GMP-RE026

animal-free, ampicillin-free



01/ Product Description

Restriction endonucleases are a class of endonuclease that recognize specific deoxynucleotide sequences and cleave the phosphodiester bond between two deoxyribonucleotides at specific sites in each chain. BsaI derived from *Bacillus Thermophilus*, is a commonly used restriction endonuclease. BsaI recognizes the following sequence:

$$5' \dots \text{GGTCTC}(\text{N})_1 \downarrow \dots 3';$$

$$3' \dots \text{CCAGAG}(\text{N})_5 \uparrow \dots 5'.$$

Our manufacturing processes are strictly controlled to ensure the end products free from host protein or nucleic acid contaminations and other impurities following the Pharmaceutical Manufacturing Guidelines. We guarantee the manufacturing and quality control comply with GMP regulation for tracking each and every step of the manufacturing process, including raw material sourcing.

This product has completed the DMF record of FDA.

02/ Quality Criterion

Element	Standard
Appearance	Clear and transparent solution
Visible Particles	Meet the specification
pH	7.0-8.0
Activity	9-12KU/ml
Endonuclease Residues	The degradation of substrate was $\leq 10\%$
Exonuclease Residues	The degradation of substrate was $\leq 10\%$
RNase Residues	The degradation of substrate was $\leq 10\%$
Bacterial Endotoxins	$<1\text{EU/ml}$
Heavy Metal Residues	$\leq 10\text{ppm}$
Microbial Limit	Total aerobic microbial count $\leq 1\text{cfu}/10\text{ml}$, total yeasts and molds count $\leq 1\text{cfu}/10\text{ml}$

03/ Complying to Following Regulations

1. ISO 9001:2015, certified facility.
2. Good Manufacturing Practice (GMP) for Pharmaceutical Products (current version) and its appendices.
3. Chinese Pharmacopoeia – General Chapter 0232: Quality Control of Raw Materials and Excipients Used in the Production of Biological Products.
4. USP Chapter <1043>, Ancillary Materials for Cell, Gene, and Tissue-Engineered Products.
5. Ph. Eur. General Chapter 5.2.12, Raw Materials of Biological Origin for the Production of Cell-based and Gene Therapy Medicinal Products.

04/ Unit Definition

At 37°C, pH 7.5, within 1 h, the amount of enzyme required for totally digestion 1μg λDNA (HindIII digestion, none Dcm methylation) is defined as one unit of enzyme activity.

05/ Buffer for Storage

10mM Tris-HCl; 300mM NaCl; 1mM DTT; 0.1mM EDTA; 0.5mg/ml HSA; 50% Glycerol; pH 7.4 at 25°C.

06/ Storage Conditions

At -70°C±10°C.

07/ Product Packaging

SKU	Components	Volume
GMP-RE026-01A	BsaI, GMP Grade (10U/μl)	100μl
GMP-RE026-M001	BsaI, GMP Grade (10U/μl)	1ml
GMP-RE026-M010	BsaI, GMP Grade (10U/μl)	10ml
GMP-RE026-M050	BsaI, GMP Grade (10U/μl)	50ml

08/ Reaction System (50μl)

Components	Quantity
10×BsaI Reaction Buffer, GMP Grade	5μl
Substrate DNA	1μg
BsaI, GMP Grade	1μl
RNase Free Water	Up to 50μl

Incubate at 37°C for 1-16 hours. The reaction time can be selected according to the experimental arrangement. The enzyme digestion is fast and specific. If the reaction needs to be terminated, it can be incubated at 80°C for 20min.

09/ Precautions

1. BsaI is sensitive to some methylation modifications. When using it, pay attention to the substrates without BsaI-sensitive methylation modifications. Effects of methylation modification:

- 1) Affected by CpG methylation and Dcm methylation, the sequences were completely overlapped, and shear blocked.
- 2) Due to EcoBI methylation, the sequence overlaps completely, and the shear may be blocked.
- 3) It is not affected by Dam methylation, the sequence is not overlapped, and the shear is not blocked.

2. If the digested product is used as a template for in vitro transcription, it is recommended to use it after purification.

10/ Related Product

Cat. No.	Product Name	Cat. No.	Product Name
GMP-M062	Vaccinia Capping Enzyme, GMP Grade	GMP-E125	RNase Inhibitor, GMP Grade
GMP-M072	mRNA Cap 2'-O-Methyltransferase, GMP Grade	GMP-E121	T7 RNA Polymerase, GMP Grade
GMP-M012	<i>E. coli</i> Poly(A) Polymerase, GMP Grade	GMP-M036	Pyrophosphatase, Inorganic (yeast), GMP Grade
GMP-EB026	10×BsaI Reaction Buffer, GMP Grade	GMP-E127	DNase I, GMP Grade
GMP-E131	T7 RNA Transcription Enzyme Mix, GMP Grade	GMP-S023-026	NTPs, GMP Grade