KACTUS

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BsaI, GMP-Grade

Catalog #GMP- BSA-EE101

Storage Condition -20°C ± 5°C for 24 months. Avoid repeated freeze/thaw cycles.
Form Liquid
Source *E. coli*
Storage Buffer 10mM Tris-HCl, 200mM NaCl, 50% Glycerol, 0.1mM EDTA, 1mM DTT, pH 7.4
Concentration 20U/µL
Unit Definition One unit is defined as the amount of enzyme required to digest 1 µg of pXba DNA in 1 hour at 37°C in a total reaction volume of 50 µL.
Special formulation enables BSA-free reaction.

Product Contents

- BsaI (20U/µL)
- 10X Cut Reaction Buffer (200 mM Tris-acetate, 500 mM Potassium Acetate, 100 mM Magnesium Acetate, 1 mg/ml Recombinant Albumin, pH 7.9)

Product Description

BsaI is designed to be used upstream of *in vitro* mRNA synthesis for mRNA therapeutics and vaccine manufacturing. As one of the type IIS restriction enzymes, it recognizes asymmetric DNA sequences and cleaves outside of their recognition sequence. The cleavage site of BsaI is GGTCTC(N1/N5), where the GGTCTC acts as the recognition site, and the N1/N5 represents the cleavage site with a 5' overhang. KACTUS provides a BSA-free reaction buffer to ensure the safety of mRNA vaccine production.

Applications

- Molecular cloning
- Genotyping
- SNP
- Plasmid Linearization

Quality Control Statement

KACTUS manufactures this product according to GMP guidelines and performs stringent quality control testing before release. Production is antibiotic-free and animal-free. Regulatory support documents are available. Please contact support@kactusbio.us for more information.

Quality Control Release Criteria

Assay	Criteria
Activity (Digestion activity detection)	≥ 20kU/mL
Purity (SEC-HPLC)	≥ 95%
Residual Endonuclease	Negative
Residual Exonuclease	Negative
Endotoxin	≤ 10EU/mL
Residual DNase	Negative
Residual RNase	Negative
Residual Protease	Negative
Residual Host Cell Protein	≤ 20ng/mg
Residual Host Cell DNA	≤ 100pg/mL
Residual Heavy Metal	≤ 10ppm
Bioburden	≤ 1CFU/10mL

Protocol for Restriction Digest

1. Prepare the following reaction mixture:

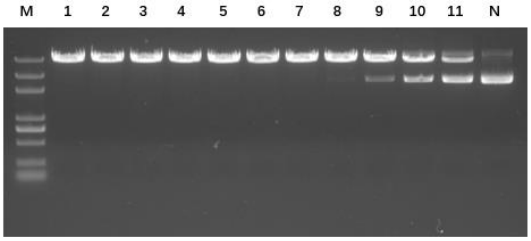
Reagent	Quantity
10X Cut Reaction Buffer	2µL
DNA	2µL (up to 1µg)
BsaI (20 U/µL)	1µL
RNase-free Water	Up to 20µL

2. Mix gently and spin down for a few seconds.
3. Incubate at 37°C for 15 minutes.
4. (Optional) Inactivate BsaI by incubating at 80°C for 20 minutes.

Notes

- BsaI is sensitive to Dam, Dcm, or CpG methylation.

Performance Validation



Results of a 30-minute digest reaction at 37°C with 1µg plasmid and 1µL BsaI (2-fold serial dilution in reaction buffer from lane 1 to lane 11, with lane 1 from 1 µL 20U of BsaI, lane 2 from 1 µL 10 U of BsaI, and so on) in a total reaction volume of 20µL. N is non-digested plasmid.