

AllBio Sma I-Fast Cut



Cat. No. ABTGRES501
 Storage : at -20°C for two years
 Concentration : 20,000 units/ml

Recognition Site
 5'...CCC[▼]GGG...3'
 3'...GGG[▲]CCC...5'

Description

AllBio Sma I-Fast Cut is expressed and purified from *E.coli* that carries the recombinant Sma I gene. The molecular weight is 29.7 kDa, with the recognition site at CCC[^]GGG. The reaction is conducted for 5-15 minutes at 25°C, and heat-inactivated at 65°C for 20 minutes. This enzyme is not sensitive to dam, dcm, but sensitive to mammalian CpG methylation.

Enzyme Properties

Fast digestion in 5-15 minutes with high fidelity

Application

Genomic DNA, plasmid DNA, PCR product

Kit Contents

Component	ABTGRES501-01	ABTGRES501-02
AllBio Sma I-Fast Cut	1,000 units	2×1,000 units
10×FastCut Buffer	250 ul	500 ul
10×DNA Loading Buffer	1 ml	1 ml

Unit Definition

One unit is defined as the amount of enzyme required to digest 1 µg of λ DNA in 1 hour at 37°C in a total reaction volume of 50 µl.

Quality Control

Ligation and re-cutting: After 10-fold overdigestion with AllBio Sma I, more than 95% of the DNA fragments can be ligated with T4 DNA ligase at 25°C. Of these ligated fragments, more than 95% can be recut.

16-Hour incubation: A 50 µl reaction containing 1 µg of DNA and 10 units of enzyme incubated for 16 hours results in the same pattern of DNA bands as a reaction incubated for 1 hour with 1 unit of enzyme.

Blue/White screening (Terminal integrity): A DNA vector is digested at a unique site within lacZα gene with a 10-fold excess of enzyme, and then ligated, transformed and plated on X-gal/IPTG plate. Successful expression of the β-galactosidase indicates that lacZα gene remains integrity after cloning. A blue colony represents an intact gene, and a white colony represents an interrupted gene. To be Blue/White certified, enzymes must produce fewer than 3% white colonies.

Exonuclease activity: After incubation for 4 hours at 37°C, a 50 µl reaction containing 100 units of enzyme and 1 µg ³H DNA releases less than 0.1% radioactive substance.

Endonuclease activity: After incubation for 4 hours at 37°C, a 50 µl reaction containing 15 units of enzyme with 1 µg pBR322 RFI DNA results in less than 10% conversion from RFI to RFII.

Storage Buffer

20 mM Tris-HCl pH7.4, 250 mM NaCl, 0.1 mM EDTA, 1.5 mM DTT, 400 µg/ml BSA, 50% Glycerol

10×FastCut Buffer

500 mM Tris-Ac pH7.9, 1 M KAc, 120 mM MgAc₂, 1 mg/ml BSA

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Reaction Components

Component	20 μ l Volume	50 μ l Volume
DNA	$\leq 1 \mu\text{g}$	1-2 μg
10 \times FastCut Buffer	2 μ l	5 μ l
AllBio Sma I-Fast Cut	0.5 μ l	1 μ l
ddH ₂ O	to 20 μ l	to 50 μ l

Prior to use, please completely mix the FastCut Buffer. Increase the volume of enzyme, in case of digestion of $>2 \mu\text{g}$ DNA or incomplete digestion, but the total volume of enzyme should be less than 1/10 of the reaction system.

Incubation for 5-15 minutes at 25°C. Enzyme is inactivated by adding 10 \times DNA Loading Buffer to a final concentration at 1 \times , or by heating at 65°C for 20 minutes.

Notes

- Thaw the 10 \times FastCut Buffer completely and mix well before use.
- Low ionic strength, high enzyme concentration, glycerol concentration $> 5\%$, or pH > 8.0 may result in star activity.