

BsrGI

Introduction

BsrGI is a genetically engineered fast restriction endonuclease suitable for fast digestion of plasmid DNA, PCR products or genomic DNA, etc. (enzyme digestion is completed within 5-15 minutes). Its internal matching Reaction Buffer (Color) contains red and yellow tracer dyes for direct use in gel electrophoresis. The migration rate of red dye and 2500 bp double-stranded DNA fragment in 1% agarose gel was similar, and the migration rate of yellow dye and 10 bp double-stranded DNA fragment in 1% agarose gel was similar.

Its recognition sequence and cutting site are as follows:

5'.....T↓GTACA.....3'

3'.....ACATG↑T.....5'

Components and Storage

Size		
Components	K3011 - 600 U	Storage
BsrGI (20 U/μL)	30 μL	-20℃
10×Reaction Buffer	1 mL	-20℃
10×Reaction Buffer (Color)	1 mL	-20℃
Shipping: Dry Ice	Shelf life: 2 years	

Protocol

I DNA Rapid enzyme digestion:

1. Refer to the table below to configure the reaction system on the ice:

Components	Plasmid DNA	PCR products	Genomic DNA
DNA substrate	X μL (1 μg)	X μL (~0.2 μg)	X μL (5 μg)
10×Reaction Buffer or 10×Reaction Buffer (Color)	2 μL	3 μL	5 μL
BsrGI	1 μL	1 μL	5 μL
Nuclease-free Water	To 20 μL	To 30 μL	To 50 μL
Total Reaction Volume	20 μL	30 μL	50 μL

Note: This system is suitable for enzymatic digestion of purified PCR products; Since DNase also has exonuclease activity, it will affect the enzyme digestion products, so the following step needs to be cloned and other operations, it is recommended to purify the PCR products before enzyme digestion.

2. Gently mix the reaction system (gently suck or flick the tube wall, do not swirl), and then instantaneously centrifuge to collect the tube wall residue.
3. Incubate at 37°C for 15 min (plasmid); 15-30 min (PCR product); 30-60 min (genomic DNA).
4. Heating at 80°C for 20 min inactivates BsrGI and terminates the reaction (optional).
5. If 10×Reaction Buffer (Color) is selected for enzyme digestion, the obtained product can be directly subjected to sample electrophoresis.

II Double or multiple enzyme digestion:

1. The dosage of each endonuclease is 1 µL, and the reaction system is appropriately expanded as needed.
2. The total volume of all endonuclease enzymes should not exceed 1/10 of the total reaction system.
3. If the optimal reaction temperature of several selected endonucleoenzymes is different, the enzyme with the lowest optimal temperature should be started first, and then the enzyme with the highest optimal temperature should be added to incubate at a higher temperature.

I Notes

1. Add the BsrGI enzyme last when configuring the enzyme digestion reaction system, and keep the BsrGI on ice when it is removed from the refrigerator.
2. If the total reaction system is greater than 20 µL, the incubation time should be appropriately increased, and the water bath, metal bath or sand bath should be used as far as possible.
3. Mix the components by blowing up and down the pipette or "flicking" the reaction tube, do not use violent vortex mixing.
4. Long enzyme cuts are not recommended, and asterisk activity may occur over a incubation time of 3 hours.
5. For double or multi-enzyme digestion, it is necessary to select an appropriate buffer compatible with two or more endonuclease enzymes, and then refer to the table above to set up the reaction system. If there is no suitable buffer to choose from, one enzyme can be digested and purified first, and then another enzyme digestion reaction can be performed after purification.
6. For research use only. Not to be used in clinical diagnostic or clinical trials.



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