



Bst 3.0 DNA Polymerase Instructions

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CONTENTS

<u>Contents</u>	<u>Page</u>
Product Information	1
Product Introduction	1
Storage	1
Materials supplied	1
Unit definition	2
Inactivation	2
Enzyme storage solution	2
Other materials required	2
Recommended reaction system	3
Notes	4

Product Information	
Product name	Bst3.0 DNA Polymerase (8 U/μl)
Expression system	Escherichia coli
Quality	Recombinant protein
Form	Liquid

Product Introduction

Bst 3.0 DNA Polymerase is a novel isothermal amplification DNA polymerase obtained by directed evolution of Bst 2.0 DNA Polymerase (DNA polymerase I from *Geobacillus stearothermophilus*).

Bst 3.0 exhibits robust DNA polymerase activity and strand-displacement activity, with no 3'→5' exonuclease activity. It enables rapid and efficient DNA amplification under isothermal conditions.

Compared with Bst 2.0, Bst 3.0 delivers higher amplification efficiency and faster reaction kinetics. It is particularly suitable for LAMP isothermal amplification systems demanding high amplification speed and detection sensitivity.

Bst 3.0 is especially well-suited for combination with specific probes or CRISPR detection technologies, such as LAMP-probe, LAMP-RNase H2 and LAMP-CRISPR systems, enabling rapid, highly sensitive and highly specific nucleic acid detection.

Storage

-20°C. Suggest to aliquot after receiving. Avoid repeated freeze-thaw.

Materials supplied

Cat:	BST3 -1600	BST3 -8000
Bst3.0 DNA Polymerase (8 U/μl)	1600U	8000U
Isothermal Amplification Buffer (10X)	0.5 mL	0.5mL*6
MgSO4 (100mM)	0.5 mL	0.5mL*4

Unit definition

One unit is defined as the amount of enzyme that will incorporate 25 nmol of dNTP into acid insoluble material in 30 minutes at 65°C.

Inactivation

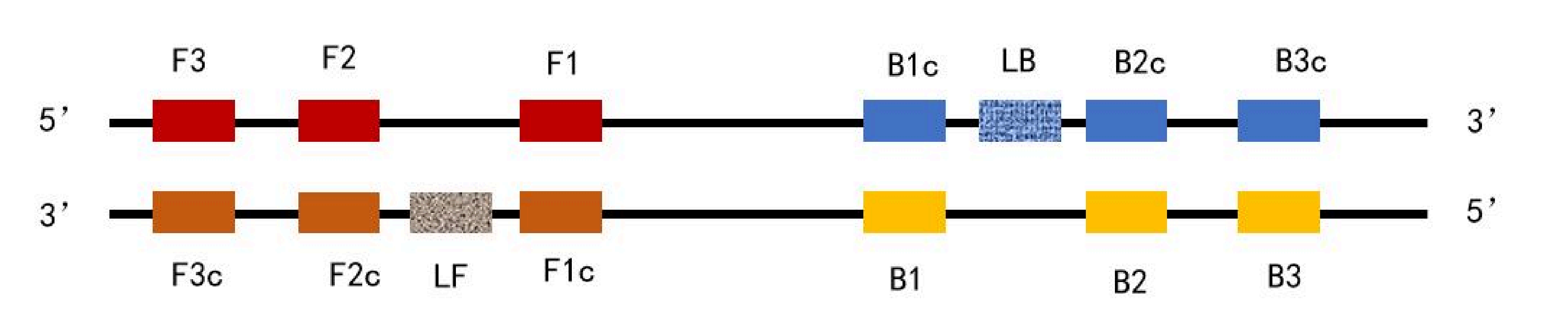
85°C for 10 minutes.

Enzyme storage solution

50 mM Tris-HCl, pH 8.0, 50 mM KCl, 0.1% Tween-20, 0.1% Triton X-100, 1 mM DTT, 50% Glycerol

Other materials required

- i. Template DNA or RNA
- ii. SYBRTM or Eva GreenTM dye or Probes
- iii. dNTP Mix
- iv. Nuclease-free water
- v. Q-PCR thermal cycler or heat block
- vi. Primers (Recommend LAMP primer online design software: <https://lamp.neb.com/#!/t/>)



- F1c: Complementary sequence of F1
- B1c: Complementary sequence of B1
- FIP: Forward Inner Primer (F1c + F2)
- BIP: Backward Inner Primer (B1c + B2)
- LF: Forward loop primer
- LB: Backward loop primer

Recommended reaction system

1、 Prepare reactions as following table. Reactions should be setup on ice.

Component	Volume	Working concentration
Isothermal Amplification Buffer (10X)	2.5 μl	1X
MgSO4 (100mM)	1.5 μL	6mM+2mM in buffer=8mM final
dNTPs (10mM)	3.5ul	1.4mM
Primers(10X)	2.5 μl	1.6 μM FIP/BIP, 0.4 μM LF/LB, 0.2 μM F3/B3,
Bst 2.0 (8 U/μl)	1 μl	0.32 U/μL
模板 DNA	1 μl	>10 copies or more
ddH2O	Up to25 μl	-

2、 Incubate at 65°C for 30 to 60 minutes. Read fluorescence in real-time PCR machine or analyze final result by running DNA agarose gel.

Notes

- Running a no template control is strongly recommended to ensure amplification specificity.
- Designate and use distinct areas for sample preparation, reaction setup, and analysis.
- If optimization is desired, try titrating concentration of Mg (4–10 mM final) or Bst 2.0 (0.04–0.32 U/μL), or changing reaction temperature (50–72 °C).
- LAMP primer online design: <http://primerexplorer.jp/e/>