Medix Biochemica

**Product Manual**
**Cat. No: #8301**

# Fast *Bst* Polymerase

## Description

Fast *Bst* Polymerase is a recombinant DNA polymerase expressed by Geobacillus stearothermophilus (formerly Bacillus stearothermophilus). The DNA polymerase displays high strand displacement activities, exhibits 5' to 3' polymerase activity, but lacks 5' to 3' exonuclease activity. Fast *Bst* Polymerase is suitable for several nucleic acid amplification methods such as loop-mediated isothermal amplification (LAMP), strand invasion-based amplification (SIBA), whole genome amplification, multiple displacement amplification, and isothermal amplification. This enzyme is glycerol-free.

Fast *Bst* Polymerase is tolerant to inhibitors, enabling rapid and robust LAMP reactions at a constant temperature. The typical reaction temperature is 65°C. However, the enzyme is also active at lower and higher temperatures (55–70°C). The enzyme can be inactivated at temperatures higher than 80°C. Addition of an intercalating dye allows the reaction to be monitored using a real-time PCR instrument. Reactions can also be run using small and portable instruments with incubation and fluorescence measurement capabilities. This product is not suitable for PCR.

## Kit Components

| Component | S pack* | M pack* |
|---|---|---|
| Fast *Bst* Polymerase (8 U/µL) | 0.2 mL | 1 mL |
| ∞ 10x Fast Buffer A | 0.5 mL | 2 x 1.25 mL |
| ∞∞ 5x Fast Buffer B | 1 mL | 3 x 1.7 mL |

*Other pack sizes or bulk orders are available upon request.

∞The 10x MedixMDx Fast Buffer A has been formulated for robust performance. The buffer contains MgSO4, dNTPs, enhancers, and stabilizers.

∞∞The 5x MedixMDx Fast Buffer B contains an additional enhancer to further improve the reaction speed.

## Storage and Shipment

Transport with an ice pack. The reagents should be stored at -20°C upon arrival. The reagents are stable until the expiration date if stored correctly. It is recommended to aliquot the enzyme at the first use to avoid excess freeze/thaws.

## Reaction Master Mix Set-Up

The recommended master mix set-up for a 25 µL reaction volume is shown in the table below. After preparation of the master mix, incubate at 65°C for 30 minutes. The reaction time can be extended, and the incubation temperature can be varied between 55°C and 70°C to improve sensitivity and speed. The reaction can be monitored in a qPCR instrument by measuring fluorescence (FAM) every 10–30 seconds.

| Reagent | Volume (µL) | Final concentration |
|---|---|---|
| 10x Fast Buffer A | 2.5 | 1x |
| 5x Fast Buffer B | 5 | 1x |
| ΔΔ20x Fluorescent dye (optional) | 1.25 | 1x |
| Fast *Bst* Polymerase | 1 | 8 U |
| ΔΔΔ10x LAMP primer set | 2.5 | 1x |
| DNA/cDNA template | X | Variable |
| Nuclease-free Water | Up to 25 µL final volume | |

ΔCat no. #8401 includes the optional intercalating fluorescent dye. Other 20x fluorescent real time dyes may be used but may require optimization.

ΔΔLAMP primers should be designed using an appropriate primer design tool. A predicted melting temperature of around 60˚C is recommended. The 10x primer set should contain 16 µM FIP, 16 µM BIP, 2 µM F3, 2 µM B3, 4–8 µM LoopF, and 4–8 µM LoopB in TE buffer or water.

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## Technical information and support

For technical enquiries or assay development support, please contact us via e-mail at: mdx@medixbiochemica.com.

Additional information and technical resources are available on our website at: info.medixbiochemica.com/resources.

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