Bst 2.0 WarmStart™
DNA Polymerase

1,600 units 8,000 U/ml Lot: 0031406
RECOMBINANT Store at ~20°C Exp: 6/16

Description: Bst 2.0 WarmStart DNA Polymerase is an in silico designed homologue of Bacillus stearothermophilus DNA Polymerase I, Large Fragment (Bst DNA Polymerase, Large Fragment) with a reversibly-bound aptamer, which inhibits polymerase activity at temperatures below 45°C. The aptamer rapidly releases the Bst 2.0 WarmStart DNA Polymerase above 45°C and therefore no special activation step is needed to activate the polymerase. Bst 2.0 WarmStart DNA Polymerase contains 5′→3′ DNA polymerase activity and strong strand-displacement activity but lacks 5′→3′ exonuclease activity. Bst 2.0 WarmStart DNA Polymerase displays improved amplification speed, yield, salt tolerance, and thermostability compared to wild-type Bst DNA Polymerase, Large Fragment.

Applications:
- Isothermal DNA amplification
- Applications requiring strand-displacement DNA synthesis
- DNA sequencing through high GC regions
- Rapid sequencing from nanogram amounts of DNA template

Supplied in: 50 mM KCl, 10 mM Tris-HCl (pH 7.5), 0.1 mM EDTA, 1 mM dithiothreitol, 0.1% Triton® X-100 and 50% glycerol.

Reagents Supplied with Enzyme:
- Isothermal Amplification Buffer (10X)

Heat Inactivation: 80°C for 20 minutes.

Quality Control Assays

Exonuclease Assay: Incubation of a 50 µl reaction in 1X ThermoPol® Reaction Buffer containing a minimum of 500 units of Bst 2.0 DNA Polymerase with 1 µg of supercoiled φX174 DNA for 4 hours at 65°C results in < 10% conversion to the nicked form as determined by agarose gel electrophoresis.

Physical Purity: Purified to > 99% homogeneity as determined by SDS-PAGE analysis using Coomassie Blue detection.

(see other side)
Phosphatase Assay: Incubation of a 200 µl reaction in 1 M Diethanolamine (pH 9.8) and 0.5 mM MgCl₂ containing 2.5 mM p-Nitrophenol Phosphate and a minimum of 100 units of Bst 2.0 DNA Polymerase incubated for 4 hours at 37°C yields no detectable phosphatase activity as determined by spectrophotometric analysis of released p-nitrophenylene anion at 405 nm.

RNase Activity: Incubation of a 10 µl reaction in 1X NEBuffer 4 containing a minimum of 1 µl of Bst 2.0 WarmStart DNA Polymerase and 40 ng of F-300 RNA transcript incubated for 16 hours at 37°C results in < 10% substrate degradation as determined by gel electrophoresis using fluorescent detection.

Enzyme Properties

**Activity in NEBuffers**
- ThermoPol Buffer: 125%
- Unit Assay Conditions: 100%
- NEBuffer 1: 25%
- NEBuffer 2: 100%
- NEBuffer 3: 100%
- NEBuffer 4: 100%
- NEBuffer EcoRl: 100%

**Notes on Use:** Bst 2.0 WarmStart DNA Polymerase does not exhibit 3’→5’ exonuclease activity.
- Reaction temperatures above 70°C are not recommended.
- Bst 2.0 WarmStart DNA Polymerase cannot be used for thermal cycle sequencing or PCR.

Companion Products Sold Separately:
- **Bst 2.0 DNA Polymerase**
  - #M0537S: 1,600 units
  - #M0537L: 8,000 units
  - #M0537M: 8,000 units
- **Bst DNA Polymerase, Large Fragment**
  - #M0275S: 1,600 units
  - #M0275L: 8,000 units
  - #M0275M: 8,000 units

**Magnesium Sulfate (MgSO₄) Solution**
- #B1003S: 6.0 ml

**Isothermal Amplification Buffer Pack**
- #B0537S: 6.0 ml

**Deoxynucleotide Solution Set**
- #N0446S: 25 µmol each

**Deoxynucleotide Solution Mix**
- #N0447S: 8 µmol each
- #N0447L: 40 µmol each

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