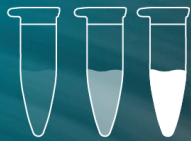


# IsoFast™ Bst Polymerase



- Fast
- High yield
- Versatile

IsoFast™ Bst Polymerase is a recombinant form of the large fragment of Bst DNA polymerase containing strand-displacing 5'-3' polymerase activity. The enzyme offers fast amplification and strong strand displacement capabilities, making it ideal for nucleic acid amplification methods such as isothermal amplification.

## Features

- Has strand-displacing 5'-3' polymerase activity
- Lacks 5'-3' exonuclease activity
- Synthesises DNA at a constant temperature
- Active over a broad temperature range, with an optimum of 65°C
- Gives rapid and consistent amplification across a wide range of templates
- Includes a 2-part buffer system for higher yield under difficult conditions
- 30 minute protocol
- Flexible formats, with the option of fluorescent dye
- Also available as a 2x ready mix
- Glycerol-free enzyme

## Applications

- Whole genome amplification
- Multiple displacement amplification
- Isothermal amplification
- Loop mediated isothermal amplification (LAMP)
- Molecular diagnostics
- Field diagnostics

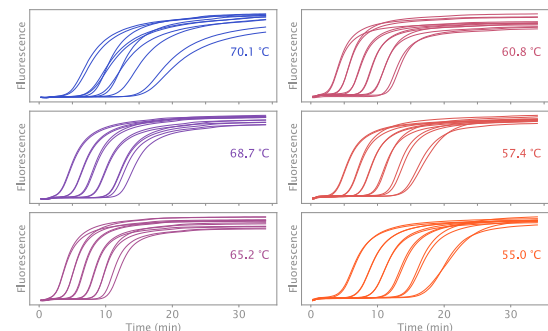


Figure 1. Active over a broad temperature range

Isothermal amplification of scaffolding protein gene using M13 genome was successfully achieved incubating the reaction between 55°C and 70.1°C.

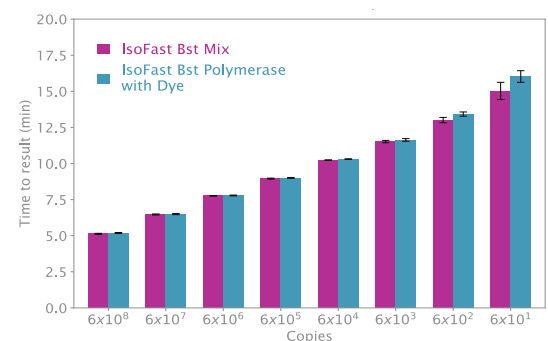
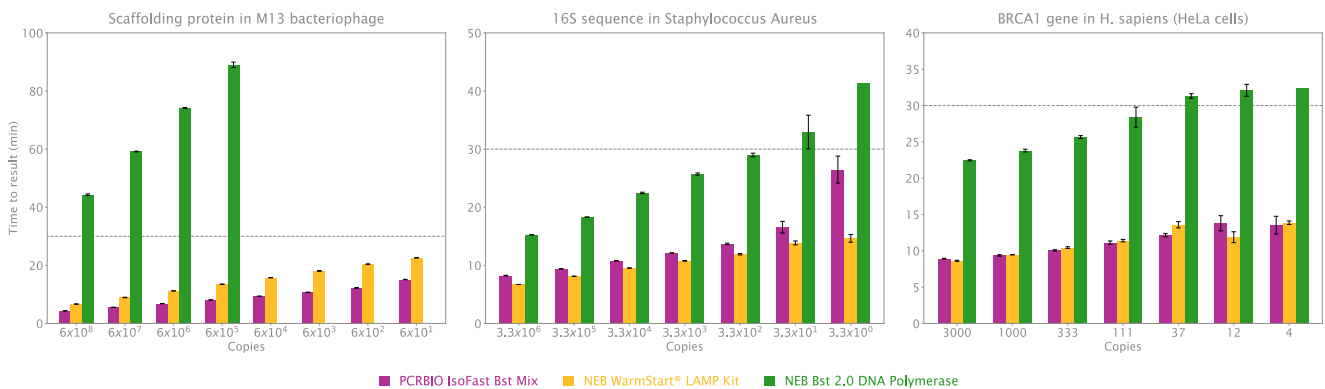


Figure 2. Flexible formats providing consistent results

No difference in isothermal amplification of scaffolding protein gene using M13 genome was observed using either 2x IsoFast Bst Mix or 10x IsoFast Bst Polymerase.





**Figure 3. Rapid and consistent amplification performance across a range of templates**

Isothermal amplification of 3 targets using IsoFast™ Bst Mix, NEB WarmStart® LAMP Kit and NEB Bst 2.0 DNA Polymerase. The manufacturers' protocols were followed to set up the reaction mix. The primer mix consists of 0.2µM for F3 and B3 primers, 1.6µM for FIP and BIP primers and 0.8µM for LoopF and LoopB primers. The total reaction volume is 25µL. 7 serial dilutions of template were used (8 for scaffolding protein gene), corresponding to the copy number indicated. The reaction was run at 65°C for 100 minutes. A BioRad CFX96 Touch instrument was used to record fluorescence every 10 seconds. The time to result is the time required to reach the same fluorescent threshold. IsoFast™ Bst Mix shows fast amplification and consistent performance across a range of templates when compared to leading manufacturers.

## Strong strand displacement

IsoFast™ Bst Polymerase is a recombinant protein expressed in *E. coli* and represents the large fragment of *Geobacillus stearothermophilus* (formerly known as *Bacillus stearothermophilus*) DNA Polymerase. This portion of the protein catalyses the 5'-3' synthesis of DNA and has strand displacement activity but does not contain the 5'-3' exonuclease domain.

Strand displacement refers to the ability of an enzyme to displace downstream DNA encountered during synthesis. IsoFast™ Bst Polymerase displays strong strand displacement activity and is suitable for applications such as whole genome amplification, multiple displacement amplification and isothermal amplification.

## Rapid and consistent results

Designed for fast amplification speed, IsoFast™ Bst Polymerase gives rapid and consistent results across different target sequences (Fig 3). DNA synthesis is performed at a constant temperature with optimum activity at 65°C, however IsoFast™ Bst Polymerase works well over a broad temperature range (55°C to 70°C, Fig 1). The enzyme is provided with an advanced 2-part buffer system ensuring high yields and performance even under difficult conditions.

## Format flexibility

IsoFast™ Bst Polymerase is available in a range of different presentations including a convenient 2x mix, and gives consistent performance regardless of format (Fig 2).

| Cat. No.   | Product Name                     | Pack Size      | Presentation   |
|------------|----------------------------------|----------------|--|
| PB80.10-01 | IsoFast™ Bst Polymerase          | 1600 Units     | [1 x 200µL 8U/µL] & [1 x 500µL Buffer A] & [1 x 1mL Buffer B]                    |
| PB80.10-08 |                                  | 8000 Units     | [1 x 1mL 8U/µL] & [2 x 1.25mL Buffer A] & [3 x 1.7mL Buffer B]                   |
| PB80.11-01 | IsoFast™ Bst Polymerase with Dye | 1600 Units     | [1 x 200µL 8U/µL] & [1 x 500µL Buffer A] & [1 x 1mL Buffer B] & [2 x 125µL Dye]  |
| PB80.11-08 |                                  | 8000 Units     | [1 x 1mL 8U/µL] & [2 x 1.25mL Buffer A] & [3 x 1.7mL Buffer B] & [2 x 625µL Dye] |
| PB80.12-01 | IsoFast™ Bst Mix                 | 100 Reactions  | [1 x 1.25mL Mix] & [1 x 125µL Dye]   |
| PB80.12-05 |                                  | 500 Reactions  | [5 x 1.25mL Mix] & [1 x 625µL Dye]   |
| PB80.30-02 | Fluorescent Dye                  | 200 Reactions  | 1 x 125µL  |
| PB80.30-10 |                                  | 1000 Reactions | 1 x 625µL  |