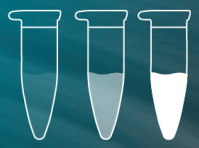
IsoFast™ Bst Polymerase



- 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
- Sythesises DNA at a constant temperature
- Active over a broad temperature range, with an optimum of 65 ºC
- 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

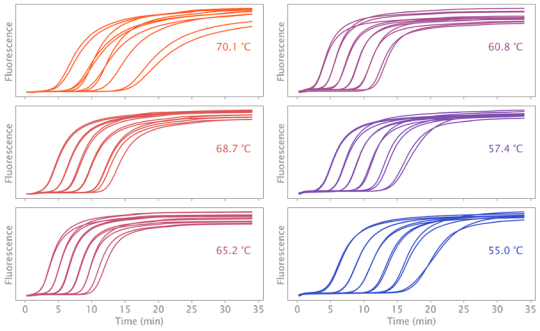


Figure 1. Active over a broad temperature range

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

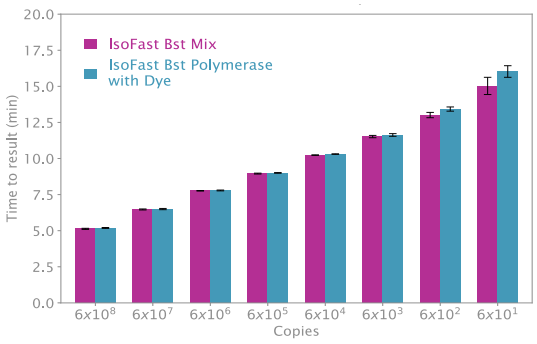


Figure 2. Flexible formats providing consistent results

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.

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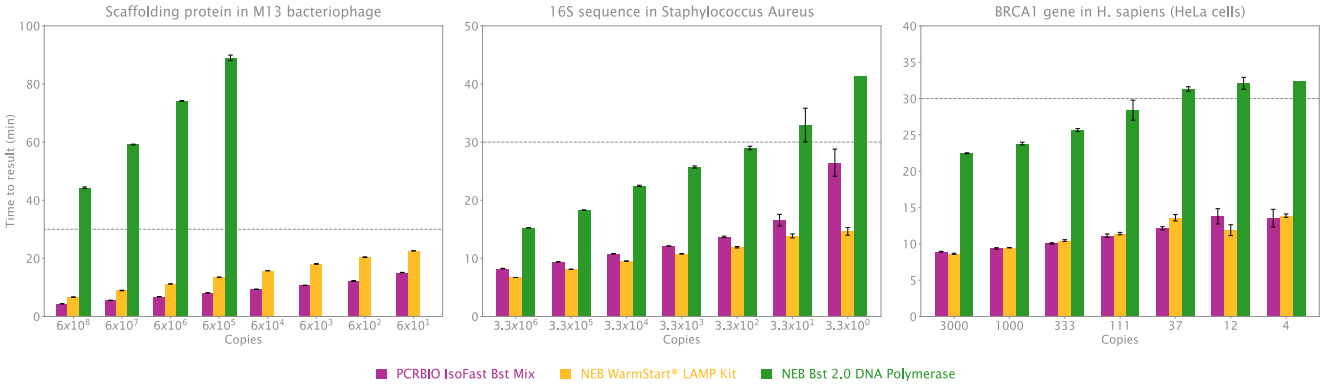

Figure 3. Rapid and consistent amplification performance across a range of templates

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 0.2 µM for F3 and B3 primers, 1.6 µM for FIP and BIP primers and 0.8 µM for LoopF and LoopB primers. The total reaction volume is 25 µL. 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 ºC, however IsoFast™ Bst Polymerase works well over a broad temperature range (55 ºC to 70 ºC, 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 200 µL 8U/µL] & [1 x 500 µL Buffer A] & [1 x 1 mL Buffer B]
PB80.10-08		8000 Units	[1 x 1 mL 8U/µL] & [2 x 1.25 mL Buffer A] & [3 x 1.7 mL Buffer B]
PB80.11-01	IsoFast™ Bst Polymerase with Dye	1600 Units	[1 x 200 µL 8U/µL] & [1 x 500 µL Buffer A] & [1 x 1 mL Buffer B] & [2 x 125 µL Dye]
PB80.11-08		8000 Units	[1 x 1 mL 8U/µL] & [2 x 1.25 mL Buffer A] & [3 x 1.7 mL Buffer B] & [2 x 625 µL Dye]
PB80.12-01	IsoFast™ Bst Mix	100 Reactions	[1 x 1.25 mL Mix] & [1 x 125 µL Dye]
PB80.12-05		500 Reactions	[5 x 1.25 mL Mix] & [1 x 625 µL Dye]
PB80.30-02	Fluorescent Dye	200 Reactions	1 x 125 µL
PB80.30-10		1000 Reactions	1 x 625 µL

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