PR1MA™ Hot Start Taq DNA Polymerase

Description

Engineered for controlled polymerase activity, PR1MA Hot Start Taq is bound with a monoclonal antibody that blocks enzyme activity. This allows reactions to be set up at room temperature without the risk of non-specific amplification. Improved yield, activity, sensitivity and speed are achieved by modifying the polymerase with the addition of hydrophilic residues. A proprietary 5X buffer system with PCR enhancers and optimal levels of $MgCl_2$ has been created to partner with PR1MA Hot Start Taq DNA Polymerase and is supplied in this package. Little, if any, optimization is needed.

- -Performs across a wide range of DNA templates including genomic DNA and GC-rich and AT-rich sequences
- -Proprietary 5X reacton buffer includes enhancers for maximizing enzyme activity and reaction speed
- -Improved solubility and template affinity

Storage

Upon receipt, immediately store at -20°C. Avoid excessive freeze/thaw cycles. When stored as directed, this product will retain its activity for 12 months from date of receipt. The product may also be stored at 4°C for up to one month.

Limitations of Use

For research purposes only. Not intended for therapeutic or diagnostic use.

Quality Control

PR1MA enzymes and reagents are tested under general assay conditions for activity, reproducibility, efficiency, heat activation, sensitivity, and absence of nuclease contamination and nuclease activity. This product is manufactured under a comprehensive quality management system, following ISO 9001:2008 standards.

General Guidelines

1. *Reaction Buffer*

The 5X reaction buffer supplied with the PR1MA Taq DNA polymerase has been formulated for maximum efficiency, sensitivity and successful PCR with a variety of difficult templates. Proprietary PCR enhancers and 15mM $MgCl_2$ are included in the buffer. Use of additional PCR enhancers may have a negative effect on the reaction.

2. *Template*

For PCR of complex genomic DNA, 5ng - 500ng of template DNA may be added per reaction. Do not add more than 100ng of DNA for cDNA or plasmid DNA

3. *Primers*

Primers should have a predicted melting temperature of approximately 60°C, using default Primer 3 settings (http://frodo.wi.mit.edu/primer3). The final primer concentration should be 0.2µM to 0.6µM.

4. Annealing Temperature

An initial annealing temperature of 55°C is recommended. If nonspecific products appear, increase the temperature in 2°C increments. Alternately, a temperature gradient may be performed.

5. Extension

The polymerase performs optimally at 72°C. Extension time is dependent upon amplicon complexity and length. Generally, 15 seconds per kb is recommended for eukaryotic genomic DNA and cDNA. A one second extension is sufficient for shorter amplicons.

Technical Support

For trouble-shooting and tech support, contact us at tech@midsci.com or call 800 227-9997.

Reaction setup

Prepare the reaction as follows:

Component	*25 µl reaction*	*50 µl reaction*	*Final concentration*
PR1MA 5x Hot Start Taq Reaction Buffer	5 µl	10 µl	1X
100mM dNTPs (25mM each)	0.25 µl	0.5 µl	1mM
Forward Primer (10µM)	1.0 µl	2.0 µl	400 nM
Reverse Primer (10µM)	1.0 µl	2.0 µl	400 nM
Template DNA	<100ng cDNA, <500ng genomic		variable
PR1MA Hot Start Taq (5u/µl)	0.1µl - 0.5 µl	0.20 µl - 1 µl	variable
PCR-grade water	to final reaction volume		

For other volumes, adjust the amount of each component accordingly.

Gently mix the solution. If needed, spin briefly in a microcentrifuge to bring reaction mixture to the bottom of the tube. Transfer samples to a thermal cycler and begin cycling. Be sure to include an initial activation/denaturation step of 1-2 minutes.

Routine PCR Cycling

Step	Temperature	Time
Enzyme activation	95°C	1-2 minutes
25-40 cycles	95°C	15 seconds
	55°C to 67°C*	15 seconds
	72°C	15-30 seconds per Kb

*Annealing temperature to be determined by user

Package contents and reordering

Hot Start Taq Polymerase is supplied at a concentration of 5 units/µl. Available in 500, 1000 and 6000 unit packages with 5X buffer.

PR1MA Hot Start Taq, Sample Pack
Catalog number PR1000-HS-S
Includes 10 µl of enzyme and buffer.

PR1MA Hot Start Taq 500 units
Catalog number PR1000-HS-500
Includes 100 µl of enzyme and 4ml of 5X buffer in1ml aliquots.

PR1MA Hot Start Taq, 1000 units
Catalog number PR1000-HS-1000
Includes 200 µl of enzyme in 100 µl aliquots, and 8ml of 5X buffer in1ml aliquots.

PR1MA Hot Start Taq, 6000 units
Catalog number PR1000-HS-6000
Includes 1200 µl of enzyme in 100 µl aliquots, and 48ml of 5X buffer in1ml aliquots.

Visit www.midsci.com for details on the entire PCR reagent product line.

MIDSCI™

PR1MA™

Hot Start Taq
PR1000-HS

5 units/µl, supplied with 5X Buffer
Package contains:
500 units Hot Start Taq Polymerase (1x100 µl)
4ml 5X Taq Buffer (4x1ml)
Store at -20°C upon receipt

888-227-9997 custserv@midsci.com