HotStart *Taq* DNA Polymerase

[Cat. No.] Please refer to the **Ordering Information**

Introduction

HotStart *Taq* DNA Polymerase is designed to perform Hotstart PCR. The HotStart *Taq* DNA Polymerase is inhibited at lower temperature, but is fully activated at temperature above 70°C. This prevents the formation of mis-primed products and primer-dimers during the reaction setup process, resulting in improved PCR specificity.

Applications

- Real-time quantification of DNA and cDNA targets using dual probe and dsDNA binding dye
- HotStart PCR
- Multiplex PCR
- Automated PCR

Components

Components	E-2017	E-2017-2	E-2017-1
HotStart *Taq* DNA Polymerase	250 U (50 µl)	500 U (50 µl x 2)	1,000 U (50 µl x 4)
10X Reaction buffer	0.5 ml	0.5 ml x 2	0.5 ml x 4
10 mM dNTPs	0.5 ml	0.5 ml x 2	0.5 ml x 4
Dilution buffer	0.5 ml	0.5 ml x 2	0.5 ml x 4

Components	E-2017-3	E-2017-4
HotStart *Taq* DNA Polymerase	250 U (50 µl)	1,000 U (50 µl x 4)
10X Reaction buffer	0.5 ml	0.5 ml x 4
10 mM dNTPs	-	-
Dilution buffer	0.5 ml	0.5 ml x 4

*** Note:** For research use only. Not for use in diagnostic or therapeutic procedures.

Specifications

HotStart *Taq* DNA Polymerase	
5' to 3' exonuclease activity	Yes
3' to 5' exonuclease activity	No
3'–A overhang	Yes
Fragment size	Up to 10 kb

Buffer Composition

10X Reaction buffer	100 mM Tris-HCl, 450 mM KCl, 15 mM $MgCl_2$, pH 9.0
Dilution buffer	20 mM Tris-HCl, 0.5 mM EDTA, 1 mM DTT, 100 mM KCl, stabilizer, 50% glycerol, pH 8.0

Storage Buffer

HotStart *Taq* DNA Polymerase is supplied in 50% (v/v) glycerol containing 20 mM Tris-HCl, 0.5 mM EDTA, 1 mM DTT, 100 mM KCl, and stabilizer, pH 8.0.

Unit Definition

One unit is defined as the amount of enzyme that incorporates 10 nmole of dNTP into acid-insoluble products in 30 min at 72°C.

Quality Control

- Nuclease Contamination Assay: Nuclease activity is not detected after incubation of 1 µg of substrate DNA (supercoiled plasmid and Lambda/*Hind* III DNA) with 5 U of HotStart *Taq* DNA Polymerase in 50 µl reaction volume at 37°C and 70°C for 18 hrs.

Storage

Store at -20°C. If stored in the recommended temperature, this product will be stable until the expiration date printed out on the label.

Online Resources

Korean **English**

Visit our **product page** for additional information and protocols.

Ordering Information

Description			Cat. No
250 U	10X Reaction buffer with 15 mM $MgCl_2$	10 mM dNTP	E-2017
			E-2017-3
500 U		10 mM dNTP	E-2017-2
1,000 U		10 mM dNTP	E-2017-1
			E-2017-4

Notice

BIONEER corporation reserves the right to make corrections, modifications, improvements and other changes to its products, services, specifications or product descriptions at any time without notice.

Explanation of Symbols

LOT Batch Code | REF Catalog Number | Caution | Consult Instructions For Use

Contains Sufficient for <n> tests | RUO Research Use Only | Temperature Limitation | Use-by Date

Experimental Procedures

Step 1 — Thaw reagents

1. Thaw 10X Reaction buffer and 10 mM dNTPs on ice and mix thoroughly before use. Then, briefly spin down all components including template DNA, HotStart *Taq* DNA Polymerase, primers and nuclease-free water.

Step 2 — Preparation of reaction mixture

2. Add all components into PCR tubes (not provided) to a total volume of 20 µl or 50 µl.

- Preparation of reaction mixture

Components	20 µl reaction	50 µl reaction
Template DNA*	Variable	Variable
Forward primer (10 pmol/µl)	1-2 µl	2.5-5 µl
Reverse primer (10 pmol/µl)	1-2 µl	2.5-5 µl
10X Reaction buffer	2 µl	5 µl
10 mM dNTPs	2 µl or Variable	5 µl or Variable
HotStart *Taq* DNA Polymerase (5 U/µl)	0.5-1 U	1-2.5 U
Nuclease-free water	Variable	Variable
Total volume	20 µl	50 µl

* Recommended amounts of template DNA is as follows; plasmid and lambda DNA, > 1 pg; bacterial genomic DNA, > 10 pg; human genomic DNA, > 1 ng.

3. Mix the reaction mixture by tapping or pipetting, and briefly spin down.

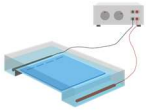
Step 3 — Incubate reactions in a thermal cycler

4. Perform the reaction under the following conditions.

Step	Temperature	Time	Cycles
Pre-denaturation	94°C	15 min	1 cycle
Denaturation	94°C	0.5-1 min	
Annealing	45-65°C†	0.5-1 min	25-35 cycles
Extension	72°C	1 min/kb	
Final extension	72°C	5-10 min	1 cycle

* **Note:** For maximum yield and specificity, temperatures and cycling times should be optimized for each new template DNA or primers.
† Set the annealing temperature to 3-5°C lower than the Tm of the primers.

Step 4 — Analyze with gel electrophoresis



5. After the reaction, maintain the reaction mixture at 4-8°C. The samples can be stored at -20°C until use.

6. Load samples on agarose gel with adding a loading-dye mixture, and perform gel electrophoresis for analysis.