



Cat. No.: FTAQ-001



Fast *Taq* DNA Polymerase

(ETERBIO-EZ-FTAQ-001)

Lot: _____

Expiry Date: yy / mm / dd

Store at -20°C

DESCRIPTION

Fast *Taq* DNA Polymerase is a second-generation enzyme engineered from *Thermus aquaticus* DNA polymerase, offering faster extension rates. In addition to speed, Fast *Taq* DNA Polymerase provides higher yields and sensitivity than wild-type *Taq* DNA polymerase across a broad range of targets. Fast *Taq* DNA polymerase has 5'→3' DNA polymerase and 5'→3' exonuclease activities that lacking a 3'→5' exonuclease (proofreading) activity.

Origin

E. coli cells that carry the *polA* gene from *Thermus aquaticus*

Specification

Appearance Colorless-liquid

Activity ≥ 5 U/ μ l

Functions

Deoxynucleoside triphosphate + DNA(n) = diphosphate + DNA(n+1), 5'-3' polymerase and 5'-3' exonuclease, DNA repair, recombination and replication

Reagents Supplied with Enzyme

10X Eternal *Taq* Reaction Buffer

PROPERTIES

Unit Definition

One unit is defined as the amount of enzyme that synthesizes 1 nmol of DNA within 3 minutes at 72°C

Unit Assay Conditions

1X Eternal *Taq* Reaction Buffer, 125 μ M dNTPs and 15 nM primed M13 DNA

1X Eternal *Taq* Reaction Buffer

10 mM Tris-HCl (pH 8.8), 50 mM KCl, 1.5 mM MgCl₂, 0.1% Triton X-100

Storage Buffer

20 mM Tris-HCl (pH 8.0), 100 mM KCl, 1 mM DTT, 0.1 mM EDTA, 0.5% Tween[®] 20, 50% Glycerol

Molecular Weight

Theoretical: 97,000 daltons

Storage

Store at -20°C

**CERTIFICATE OF ANALYSIS****Functional Assay**

Good performance in PCR was tested for amplification of 1.8 kb gene.

USAGE

1. Gently vortex and briefly centrifuge Fast *Taq* DNA Polymerase after thawing.
2. Set up each reaction as follows (Keep on ice):

Component	50 µl reaction	Final Concentration
10X Fast <i>Taq</i> Reaction Buffer	5 µl	1X
Primer A	variable	0.1–1.0 µM
Primer B	variable	0.1–1.0 µM
dNTPs	variable	200 µM
Template DNA	variable	< 1.0 µg
Fast <i>Taq</i> DNA Polymerase	0.5 µl	2.5 U/50 µl PCR
Nuclease-free water	to 50 µl	

3. Gently mix the solution a few times and spin down.
4. Perform PCR using the recommended thermal cycling conditions outlined below:
(For maximum yield and specificity, temperatures and cycling times should be optimized for each new template target or primer pair)

Step	Temperature	Time
Initial Denaturation	95°C	3 minutes
30 Cycles	95°C	15-30 seconds
	45-68°C	15-30 seconds
	72°C	1-15 seconds/kb
Final Extension	72°C	1 minute/kb
Hold	4-10°C	

***Mg²⁺ and additives**

The optimal Mg²⁺ concentration of 1.5 mM empirically, as provided in the 1X Fast *Taq* Reaction Buffer, will generate satisfactory amplification of most amplicons. However, in some difficult targets, Mg²⁺ can be improved by increasing 0.5-1.5 mM. Amplification of some cases, reactions may be improved with additives, like DMSO.

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