

Cat. No.: ETAQ-001

Taq DNA Polymerase

(ETERBIO-EZ-ETAQ-001)

Lot:
Expiry Date: yy / mm / dd
Store at -20°C

Origin

E. coli cells that carry the polA gene from Thermus aquatics.

Specification

Appearance Colorless-liquid

Activity $\geq 5 \text{ U/µl}$

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 µM dNTPs and 15 nM primed M13 DNA.

1X Eternal Tag 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.

5' - 3' Exonuclease

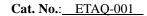
Yes.

3' - 5' Exonuclease

No.

Storage

Store at -20°C. Stable for 1 year in constant freezer temperature. Store at 4°C for a few weeks. Avoid repeated freeze-thawing cycles.





CERTIFICATE OF ANALYSIS

Endonuclease Assay

No conversion of covalently closed circular DNA to nicked form was detected after incubation of 10 units of *Taq* DNA Polymerase with 1 µg of supercoiled plasmid DNA (pUC19) in 1X Eternal *Taq* Reaction Buffer for 4 hours at 37 °C.

Exonuclease Assay

No degradation of DNA was observed after incubation of 1 µg of lambda DNA/*Hin*dIII fragments in 1X Eternal *Taq* Reaction Buffer containing 10 units *Taq* DNA Polymerase for 4 hours at 37 °C. No degradation of DNA was observed after incubation of 1 µg of lambda DNA/*Hin*dIII fragments in 1X Eternal *Taq* Reaction Buffer containing 10 units *Taq* DNA Polymerase for 4 hours at 70 °C.

Functional Assay

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

USAGE

We recommend assembling all reaction components on ice and quickly transferring the reaction to a thermocycler preheated to the denaturation temperature (95°C).

Component	50 μl reaction	Final Concentration
10X <i>Taq</i> Reaction Buffer	5 μΙ	1X
Primer A	Variable	0.1–1.0 μΜ
Primer B	Variable	0.1–1.0 μΜ
10 mM dNTPs	1 μl	200 μM of each dNTP
Template DNA	Variable	< 1.0 µg
Taq DNA Polymerase	0.5 μ1	2.5 U/50 μl PCR
Nuclease-free water	to 50 μ1	

Thermocycling conditions for a routine PCR.

Step	Temperature	Time
Initial Denaturation	95℃	30 seconds
30 Cycles	95°C 45-68°C 72°C	15-30 seconds 15-60 seconds 1 minute/kb
Final Extension	72°C	5 minutes
Hold	4-10°C	

*Mg²⁺ and additives

The optimal Mg^{2+} concentration of 1.5 mM empirically, as provided in the 1X Eternal Taq Reaction Buffer, will generate satisfactory amplification of most amplicons. However, in some difficult targets, Mg^{2+} can be improved by increasing 0.5-1.5 mM. Amplification of some cases, reactions may be improved with additives, like DMSO.

For Research Use Only