



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 aquaticus*.

### **Specification**

Appearance Colorless-liquid

Activity  $\geq 5$  U/ $\mu$ 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  $\mu$ 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 MgCl<sub>2</sub>, 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<sup>®</sup> 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/*Hind*III 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/*Hind*III 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 µl	1X
Primer A	Variable	0.1–1.0 µM
Primer B	Variable	0.1–1.0 µM
10 mM dNTPs	1 µl	200 µM of each dNTP
Template DNA	Variable	< 1.0 µg
<i>Taq</i> DNA Polymerase	0.5 µl	2.5 U/50 µl PCR
Nuclease-free water	to 50 µl	

Thermocycling conditions for a routine PCR.

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

**\*Mg<sup>2+</sup> and additives**

The optimal Mg<sup>2+</sup> 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<sup>2+</sup> 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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