



## High Purity Taq DNA Polymerase, *Recombinant*

***HP Taq DNA Polymerase is guaranteed 100% DNA FREE!***

**Important: Magnesium used with this Taq is supplied as MgSO<sub>4</sub> and re-optimization of PCR protocols may be required.**

**Catalog Number:** HPTaq-01

**Concentration:** 5U/ul

**Size:** 200 ul

**Storage:** -20°C

**Description:** Taq DNA polymerase is a thermostable DNA polymerase isolated from a strain of the bacterium *Thermus aquaticus*. This enzyme has both 5' to 3' polymerase and exonuclease activity but lacks 3' to 5' exonuclease activity. Taq DNA polymerase is an extremely heat stable enzyme, with a half life of 3 hours at 95°C. This stability enables primer extension reactions to occur at elevated temperatures that facilitate the formation of single stranded templates. Taq DNA polymerase has an error rate of 1 bp per million during DNA synthesis.

**Performance and Quality Testing:** Taq DNA Polymerase is highly purified free of contaminating endonucleases, exonucleases and nicking activity. For endonuclease assay, 1 µg of Lambda / Hind III DNA is incubated with 20 units of the enzyme in assay buffer at 75°C for 16 hrs and no visible contaminating activity is observed; For exonucleases assay, 1 µg of pBR322 plasmid DNA is incubated with 10 units of enzyme for 16 hrs at 75°C in assay buffer and no detectable exonuclease is observed. The purity of the enzyme is also evaluated by adding 10 units of Taq DNA Polymerase in 100 µl of a reaction mixture for making first strand cDNA at beginning and no impaired effect on the first strand is observed. For bacterial DNA assay, 1 to 5 Units of Taq DNA is incubated with using two highly conserved regions of the bacterial 16S RNA Primer 1: 5' GGAGGAAGGTGGGGATGACG 3' and Primer 2: 5'ATGGTGTGACGGGCGGTGTG 3'. No bacterial DNA was observed in the present lot of HTD0078.

**Components:** 200 ul HP Taq DNA Polymerase  
2 x 1.5 ml 10X Taq Reaction Buffer  
2 x 1.5 ml 20 mM Magnesium Sulfate

**Storage Buffer:** 100 mM KCl, 20 mM Tris HCl (pH 8.75), 0.1 mM EDTA, 0.5 mM PMSF, 1mM DTT, 50% Glycerol.

**10X Taq Reaction Buffer:** 100 mM KCl, 100 mM (NH<sub>4</sub>)<sub>2</sub>SO<sub>4</sub>, 200 mM Tris HCl (pH 8.75), 1% Triton X-100, 1mg/ml BSA.

**Unit Definition:** One unit incorporates 10 nmoles of dNTPs into acid-insoluble material in 30 minutes at 74°C.

**UBI**

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<b>Basic PCR Reaction:</b>	<u>Volume</u>	<u>Final Concentration</u>
10X Taq Reaction Buffer	10ul	1X
10 mM dNTP Mix	2 ul	0.2 mM
20 mM MgSO <sub>4</sub>	10 ul	2 mM
Primer Mix (10 uM each)	5ul	0.5 uM (each)
Template DNA	1 to 20 ul	X
HP Taq DNA Polymerase	0.2 to 0.5 ul	1.0 – 2.5 U
Water	up to 100 ul	X

NOTE: The use of this product has not been licensed for use in polymerase chain reaction (PCR) under US patents 4683195 and 4683202.

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## QUALITY CONTROL ASSAY DATA

### ***Endodeoxyribonuclease Assay***

No detectable conversion of covalently closed circularDNA to nicked DNA was observed after incubation of

10 units of *Taq* DNA Polymerase with 1µg of pBR322 DNA in 50µl of *Taq* Buffer with KCl containing 1.5mM MgCl<sub>2</sub> for 4 hours at 37°C.

No detectable conversion of covalently closed circularDNA to nicked DNA was observed after incubation of

10 units of *Taq* DNA Polymerase with 1µg of pBR322 DNA in 50µl of *Taq* Buffer with KCl containing 1.5mM MgCl<sub>2</sub> for 4 hours at 70°C.

### ***Exodeoxyribonuclease Assay***

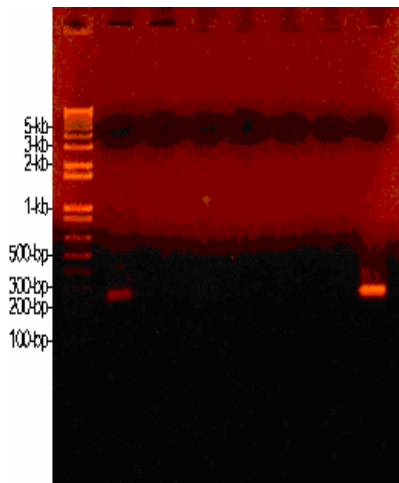
No detectable degradation of lambda DNA/HindIII fragments was observed after incubation of 10 units of *Taq* DNA Polymerase with 1µg of digested DNA in 50µl of *Taq* Buffer with KCl containing 1.5mM MgCl<sub>2</sub> for 4 hours at 37°C.

No detectable degradation of lambda DNA/HindIII fragments was observed after incubation of 10 units of *Taq* DNA Polymerase with 1µg of digested DNA in 50µl of *Taq* Buffer with KCl containing 1.5mM MgCl<sub>2</sub> for 4 hours at 70°C.

### ***Bacterial DNA Assay***

No detectable bacterial DNA was observed after Polymerase Chain Reaction using two highly conserved regions of the bacterial 16S RNA Primer 1: 5' GGAGGAAGGTGGGGATGACG 3' and Primer 2: 5'ATGGTGTGACGGGCGGTGTG 3'.The parameters were as follows: Denaturation for 30 s at 95°C, annealing for 30 s at 50 °C, and extending for 30 s at 70 °C.

## POLYMERASE ACTIVITY USING 16S RNA PRIMERS



1. DNA Marker
2. LOT #76 plus E.Coli DNA Template
3. 5X LOT #76 (5Units)
4. 4X LOT #76 (4Units)
5. 3X LOT #76 (3Units)
6. 2X LOT #76 (2Units)
7. 1X LOT #76 (1Units)
8. 2X LOT #76 plus E.Coli DNA Template

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