Taq DNA Polymerase

Cat No: PR-M-001-500
Size: 500U (5U/µl)
Store at – 20°C

MOLEQULE-ON®

Contents

- 10X Reaction Buffer with $MgCl_2$: 1.25ml x 2 vials
- Taq DNA Polymerase: 500 U (5U/µl)

Description

Taq DNA Polymerase is a thermostable DNA polymerase that catalyzes the polymerization of nucleotides into duplex DNA in the 5' →3' direction. MOLEQULE-ON's Taq DNA polymerase is isolated from *E. coli* strain containing the Taq DNA polymerase gene from *Thermus aquaticus*. The buffer system is optimized for high specificity and guarantees minimal by-product formation. Usually 1-1.5 u of Taq DNA Polymerase is used in 50 µl of reaction mix. Higher Taq DNA Polymerase concentrations may cause synthesis of nonspecific products. However, if inhibitors are present in the reaction mix (e.g., if the template DNA used is not highly purified), higher amounts of Taq DNA Polymerase (2-3 U) may be necessary to obtain a better yield of amplification products. This product can be used in Routine PCR, SYBR-Green-based qPCR, Dual-labeled probe based qPCR, primer extension, TA cloning and gene sequencing.

Features

- 5'→3' exonuclease activity: Yes
- 3'→5' exonuclease activity: No
- 3' A overhang: Yes
- Nuclease contamination: No
- Extension rate: 3–10 kb/minute depending on template complexity

Unit Definition

One unit is defined as the amount of enzyme that incorporates 10 nmole of dNTPs into acid-insoluble material in 30 minutes at 74°C.

Protocol

1. Thaw 10X Reaction buffer, dNTPs mix, Primers solution and Template DNA.
2. Prepare a reaction mixture. Mix the reaction mixture thoroughly and dispense appropriate volumes into PCR tubes.

Component	Final Concentration in 50 µl Reaction
10X Reaction Buffer	1X (2mM $MgCl_2$ included)
10mM dNTPs	200 µM
Forward Primer (10pmole µl)	0.1 – 0.2 µM
Reverse Primer (10pmole/ µl)	0.1 – 0.2 µM
Taq DNA Polymerase (5U/ µl)	1.25 U
Template DNA	10 – 20 ng
PCR Grade Water	Variable

3. Add template DNA to individual PCR tubes.
4. Perform the reaction under the following conditions.

For Standard PCR (3-Step)

Step	Temperature	Time	Cycle
Pre denaturation	94°C	4 min	1 cycle
Denaturation	94°C	15 – 20 sec	
Annealing	At *°C	15 – 30 sec	25 – 35 cycles
Extension	72°C	1 min/kb	
Final Extension	72°C	5 – 7 min	1 cycle

* Annealing temperature set approximately 5°C below the Tm of primer

5. Maintain the reaction at 4°C after completion of amplification. Analyze the PCR product on agarose gel electrophoresis.