Taq DNA Polymerase

21 OCT 2022

Catalog Number	Size	Concentration
MB101-0500	500 units	5 units/µl

Storage Conditions

Stable for up to 1 year at -20°C

Description

Taq DNA Polymerase is purified from E. coli. expressing a Thermus aquaticus DNA polymerase gene. This enzyme has a 5' → 3' DNA polymerase and a 5' → 3' exonuclease activity but lacks a 3' → 5' exonuclease activity. The enzyme consists of a single polypeptide with a molecular weight of approximately 94 kDa. Taq DNA polymerase is heat-stable and will synthesize DNA at elevated temperatures from single-stranded templates in the presence of a primer.

Taq Polymerase is recommended for use in routine PCR reactions. The buffer system is optimized for high specificity and guarantees minimal by-product formation. We supplied Taq Polymerase with appropriate buffers. Usually, 1-1.5 U of Taq DNA Polymerase is used in 50 µl of the 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.

Kit Content(s)

Taq DNA Polymerase (5 units/µl)	100 µl x 1 vial
10X PCR buffer	1.25 ml x 2 vials

Required materials but not provided

- A compatible PCR instruments
- Vortex or equivalent
- Microcentrifuge
- Plates and seals for your instruments

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Reaction Setup

1. For each 50 µl reaction, assemble the following in a 0.5 ml PCR tube on ice just prior to use:

Volume	Final Conc.	Component
1 µl	200 µM	dNTP Mix (10 mM each dATP, dCTP, dGTP, dTTP)
1 µl	0.1-0.2 µM	Forward primer, 5-10 µM
1 µl	0.1-0.2 µM	Reverse primer, 5-10 µM
5 µl	2 mM $MgCl_2$	10X PCR Buffer
0.25 µl	1.25 units	Taq DNA Polymerase (5 units/µl)
X µl	10 ng	DNA template
add to 50µl	-	PCR Grade Water
50 µl		Total volume

2. Mix gently. If necessary, centrifuge briefly. Cap tubes and place in thermal cycler.
3. Process in thermal cycler for 25-35 cycles as follows:

Initial Denaturation	2-5 minutes at 94°C	
Denaturation	20-40 seconds	
Annealing	1 min at the proper annealing temperature	30 cycles
Extension	2 min at 72°C	
Final extension	5 min at 72°C	

Note: Optimal conditions for amplification will vary depending on the primers and thermal cycler used. It may be necessary to optimize the system for individual primers, templates, and thermal cycler.

Template

Purified high quality DNA is needed for a successful PCR reaction. The final concentration of cDNA template please refer to "Reaction Setup".

Storage Buffer

The enzyme is supplied in a storage buffer consisting of 20 mM Tris-HCl (pH 8.0), 0.1 mM EDTA, 1 mM DTT, 50% (v/v) glycerol, and 1% Triton X-100.

Unit Definition

One unit is defined as the amount of enzyme that will catalyze the incorporation of 10 nmol of dNTP into acid- insoluble form in 30 min at 74°C in a reaction containing 25 mM TAPS (tris-[hydroxymethyl]-methyl-amino- propane-sulfonic acid, sodium salt), pH 9.3 at 25°C, 50 mM KCl, 2 mM $MgCl_2$, 1 mM β-mercaptoethanol, 0.2 mM dATP, dGTP, and dTTP, 0.1 µM [α-32P] dCTP, and activated salmon sperm DNA.