Cyrusbioscience

Taq DNA Polymerase

Cat. Number: 101-9012-90-2

Storage: Store at -20°C.

Unit: 5U/μL, 100μL/vial

Sources: *Thermus aquaticus*

Error Rate: $1/10^5$

Application

Polymerase Chain Reaction (PCR)
DNA labeling reactions
Sequencing/cycle sequencing
Primer extension

Description

Taq DNA Polymerase was originally isolated from the thermophilic eubacterium Thermus aquaticus, a strain lacking Taq I restriction endonuclease. Taq catalyzes the polymerization of nucleotides into duplex DNA in the 5'→3' direction in the presence of magnesium. The enzyme has an apparent molecular weight of 94,000 daltons by SDS-PAGE and exhibits 5'→3' exonuclease activity, lacks 3'→5' exonuclease activity. Taq is recommended for use in PCR and primer extension reactions at elevated temperature.

Taq DNA Polymerase has the independent terminal transferal activity which results in the addition of a single nucleotide (adenosine) at 3' end of the extension product. TA cloning vector is recommended if the extension product is needed to be cloned.

Buffers components

10x Reaction Buffer (with Mg^{2+}):
500 mM KCl, 100 mM Tris HCl (pH 9.0 at 25°C), 15 mM MgCl2, 1% Triton X-100 Buffer. This buffer is optimized for use with 200 μM dNTPs.
Note: If not using this buffer, 0.1% Triton X-100 (final concentration) is a must to ensure high activity.

or **10X Reaction Buffer (without Mg^{2+})** with one vial **25mM MgCl2 Buffer**
500mM KCl, 100mM Tris HCl (pH9.0) at 25°C, 1% Triton X-100 Buffer. This buffer is optimized for use with 200uM dNTPs.

In general, 1.5-2.5mM final concentration of MgCl2 is recommended.

*The final MgCl2 concentration may be variable according to individual experiment requirements.

Storage Buffer:

20mM Tris HCl (pH8.0), 0.l mM EDTA, l mM DTT, 0.1% Triton X-100, 50% glycerol.

Recommended Basic PCR Components

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

Component	25 µl reaction	50 µl reaction	Final Concentration
10X Taq Reaction Buffer	2.5µl	5µl	1x
20 µM Forward Primer	0.5µl	1µl	0.2 µM (0.05–1 µM)
20 µM Reverse Primer	0.5µl	1µl	0.2 µM (0.05–1 µM)
10 mM dNTPs	0.5µl	1µl	200 µM
Template DNA	variable	variable	<1,000 ng
Taq DNA Polymerase	0.25µl	0.5µl	2.5 units/50 µl PCR
ddH2O	to 25µl	to 50µl	

Thermocycling conditions for a routine PCR

Step		Temp	Time
Initial Denaturation		95°C	30sec
Denaturation	30 cycles	95°C	15-30sec
Annealing		45-68°C	15-60sec
Extension		72°C	1min/kb
Final Extension		72°C	5min
Hold		4°C	

*Annealing temperature: 5°C below the Tm of your primers.