Data sheet

T4 DNA Polymerase

Cat. No: P0042 , 100U (5U/µl)

Cat. No: P0043 , 500U (5U/µl)

Introduction

Bacteriophage T4 DNA polymerase is a DNA-directed 5’ to 3’ DNA polymerase. It is the product of gene 43 of the bacteriophage T4, and is therefore often referred to as T4 gp43 DNA Polymerase. The enzyme catalyzes the polymerization of deoxynucleotide triphosphates in a 5’ to 3’ direction. It possesses very active 3’ to 5’ exonuclease activity that is more active on single than double stranded DNA; T4 DNA polymerase has no 5’ to 3’ exonuclease activity. For polymerase activity the enzyme requires DNA with a 5’ protruding end and a high concentration of dNTPs.

Features

- Isolated from a recombinant source (*E.coli* cells with a cloned gene 43 of bacteriophage T4).
- **Stronger 3'-5' exonuclease activity** on single-stranded than on double-stranded DNA.
- Supplied with 10X Reaction Buffer.

Applications

- Generation of blunt double-stranded DNA from DNA containing 5' overhangs
- Generation of blunt double-stranded DNA from DNA containing 3' overhangs
- 5'-end or 3'-end labeling of double-stranded DNA
- In vitro mutagenesis

Assay conditions

67 mM Tris-HCl (pH 8.8), 6.7 mM MgCl2, 1 mM DTT, 16.7 mM (NH4)2SO4, 0.2 mg/mL BSA, 0.033 mM of each dNTP, 0.4 MBq/mL [3H]-dTTP and 0.2 mM heat-denatured and nuclease-digested calf thymus DNA.

Unit definition

One unit of the enzyme catalyzes the incorporation of 10 nmol of deoxyribonucleotides into a polynucleotide fraction (adsorbed on DE-81) in 30 min at 37°C.

Concentration

5 U/µL

Storage Buffer

The enzyme is supplied in: 20 mM potassium phosphate (pH 7.5), 200 mM KCl, 2 mM DTT, and 50% (v/v) glycerol.

5X Reaction Buffer

335 mM Tris-HCl (pH 8.8 at 25°C), 33 mM $MgCl_2$, 5 mM DTT, 84 mM $(NH_4)_2SO_4$.

Quality Certifications

No conversion of covalently closed circular DNA to nicked DNA was detected after incubation of 10 units of DNA polymerase I with 1 µg of pUC18 DNA for 4 hours at 37°C.

Storage: Store at -20°C.

Recomended protocol for DNA blunting of 5´- or 3´-overhangs.

T4 DNA Polymerase	0.2µl (1U)
5X reaction buffer	4 µl
Linear DNA or PCR product	1µg
dNTP Mix (8mM)	1µl
H20, nuclease-free	up to 20 µl

- **Mix thoroughly, spin briefly and incubate at 11°C for 20 minutes or at room temperature for 5 minutes.**
- **Stop the reaction by heating at 75°C for 10 minutes.**

PRODUCT USE LIMITATION

This product is developed, designed and sold exclusively for research purposes and in vitro use only. The product was not tested for use in diagnostics or for drug development, nor is it suitable for administration to humans or animals. Please refer to www.canvaxbiotech.com for Material Safety Data Sheet of the product.