

T4 DNA Ligase

02-050 20,000 U (400U/ul) , 02-050-5 5 x 20,000 U (400U/ul)

Bacteriophage T4 derived DNA ligase catalyzes the formation of phosphodiester bonds between 3'-OH termini and 5'-P termini in duplex DNA or RNA (1). This enzyme will join blunt end and cohesive end termini as well as repair single stranded nicks in duplex DNA, RNA or DNA/RNA hybrids.

T4 DNA ligase was expressed in *E.coli* in large quantities and highly purified. MW is 55.3 kDa.

Applications:

- 1) Insertion of DNA fragment into a vector
- 2) Linker (or Adaptor) ligation with DNA fragment

Storage conditions:

10mM Tris-HCl (pH 7.6), 50mM KCl, 0.1mM EDTA, 1mM dithiothreitol, 50% glycerol

Store at -20°C

Concentration:

400 U/ul, where one unit is the amount of enzyme that ligates more than 90% of 6 ug of λ DNA-HindIII fragments in a 20 μ l mixture in 30 minutes at 16°C.

Quality Assurance:

Greater than 95% protein determined by SDS-PAGE (CBB staining)

The absence of endonucleases and exonucleases was confirmed.

Reagents Supplied with Enzyme:

10 x T4 Ligase Reaction Buffer (T4-Lig): 500mM Tris-HCl (pH 7.6), 100mM MgCl₂, 10 mM ATP, 100mM dithiothreitol

Data Link: UniProtKB/Swiss-Prot [P00970](https://www.uniprot.org/uniprot/P00970) (DNLI_BPT4)

References:

1. Weiss B *et al* (1968) "Enzymatic breakage and joining of deoxyribonucleic acid." *J. Biol. Chem.* **243**: 4543-4555 PMID: [4879167](https://pubmed.ncbi.nlm.nih.gov/4879167/)

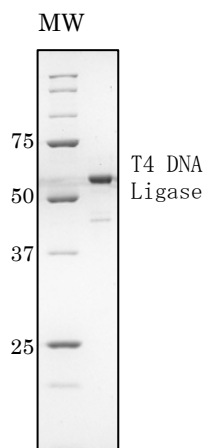


Fig.1 SDS-PAGE of T4 DNA ligase protein

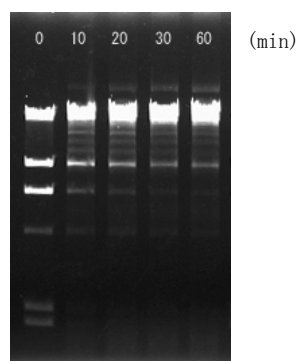


Fig.2 DNA ligation activity

Ligation of Hind III fragments of λ DNA using 1 unit of T4 DNA ligase

Incubation at 16°C for 0, 10, 20, 30, and 60 min.