Taq DNA Ligase

Catalog #	3218	3219
Package Size	2,000 units	10,000 units
Volume	50 µl	250 µl
Concentration	40 units/µl	

Description

Taq DNA Ligase catalyzes the formation of a phosphodiester bond in duplex DNA containing adjacent 5'-phosphoryl and 3'-hydroxyl termini, using NAD+ as a cofactor. The ligation will occur only if the oligonucleotides are perfectly paired to the complementary target DNA and have no gaps between them; therefore, a single-base substitution can be detected. *Taq* DNA Ligase is active at elevated temperatures (45°C-70°C) [1, 2].

Protein Purity

The physical purity of this enzyme is ≥99% as assessed by SDS-PAGE with Coomassie® blue staining (see figure below).

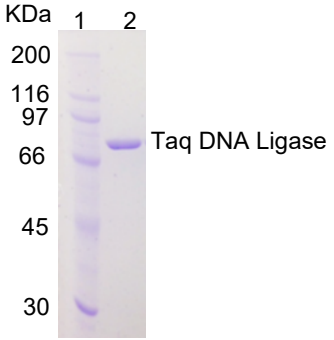

Figure: Lane 1. Protein Marker
Lane 2. *Taq* DNA Ligase

Product Source

E. coli strain expressing the cloned *Taq* DNA ligase gene from *Thermus aqauticus* HB8

Applications

- Allele-specific gene detection by using Ligase Detection Reaction (LDR) and Ligase Chain Reaction (LCR) [1].
- Mutagenesis by incorporation of a phosphorylated oligonucleotide during primer extension amplification [3].

Product Includes

1) *Taq* DNA Ligase
2) 10X *Taq* DNA Ligase Buffer with NAD^+

Storage Temperature

–20 °C

Storage Buffer

50 mM Tris-HCl, 50 mM KCl, 1 mM DTT, 0.1 mM EDTA, 50% Glycerol, pH 7.5 @ 25 ºC

10X *Taq* DNA Ligase reaction buffer with NAD^+

500 mM Tris-HCl, 100 mM $MgCl_2$, 100 mM DTT, 10 mM NAD^+, pH 7.5 @ 25ºC

Unit Definition

One unit is defined as the amount of Taq DNA Ligase required to join 50% of 1 µg of the 12-base cohesive ends of Lambda DNA cut with Sma I and Sal I in 50 µl reaction in 15 min incubation at 45 °C.

Quality Control

Taq DNA Ligase is free from detectable RNase or contaminating DNA endonuclease activities.

Protocol

1. Set-up the reaction as follows:

DNA	x µl (up to 1 µg)
10X Taq DNA Ligase Buffer	5.0 µl
Taq DNA Ligase	2.0 µl
H_2O up to	50.0 µl

2. Incubate at 50 °C for 15-30 minutes.

References

1. Barany, F. (1991). Proc. Natl. Acad. Sci. USA. 88, 189-193.
2. Takahashi, M. et al. (1984). J. Biol. Chem. 259, 10041-10047.
3. Michael, S.F. (1994). Biotechniques. 16, 411-412.