



## Taq DNA Ligase

(*Thermus aquaticus*)

Cat. No.	size
E1070-01	1 000 units
E1070-02	5 000 units

### Unit Definition:

One unit catalyzes the ligation of 50% of the cos sites in 0.4 µg of SmaI- and Sall-digested bacteriophage lambda DNA in 1 minute at 45°C in a 20 µl reaction.

### Storage Conditions:

Store at -20°C.

### References:

1. Barany, F. (1991) *PCR Methods and Applications* 1, 5-16.
2. Wu, D.Y. and Wallace, R.B. (1989) *Genomics* 4, 560-569.
3. Barany, F. (1991) *Proc. Natl. Acad. Sci USA* 88, 189.
4. Barany, F. (1991) *The Ligase Chain Reaction in a PCR World*, Cold Spring Harbor Laboratory Press ISSN pp. 5-16.
5. Mischael, S. F. (1994) *Biotechniques* 16, 411-412.

Thermostable Taq DNA Ligase catalyzes the formation of a phosphodiester bond between adjacent 5'-phosphoryl and 3'-hydroxyl cohesive termini in duplex DNA fragments.

### Description:

- Catalyzes the formation of a phosphodiester bond between duplex DNA fragments with cohesive ends.
- Condensation of the 5'-phosphoryl group with an adjacent 3'-hydroxyl group is coupled with the hydrolysis of NAD<sup>+</sup>.
- Stable at elevated temperatures (45°C-65°C) allowing enhanced hybridization stringency (2).
- Enzyme suitable for:
  - allel-specific gene detection using Ligase Detection Reaction and Ligase Chain Reaction (3,4),
  - mutagenesis by incorporation of a phosphorylated oligonucleotide during PCR amplification (5).

### Assay Conditions:

The activity assay is carried out with 0.4 µg of SmaI- and Sall digested bacteriophage lambda DNA in a 20 µl volume. The reaction buffer consists of 20 mM Tris-HCl (pH 7.6 at 25°C), 25 mM potassium acetate, 10 mM dithiothreitol, 10 mM magnesium acetate, 0.6 mM NAD<sup>+</sup> and 0.1% (v/v) Brij-35. The reaction is followed by agarose gel electrophoresis.

### 1 x Reaction Buffer:

20 mM Tris-HCl (pH 7.6 at 22°C), 25 mM potassium acetate, 10 mM magnesium acetate, 10 mM dithiothreitol, 1 mM NAD, 0.1% Triton X-100.

### Storage Buffer:

20 mM Tris-HCl (pH 7.6 at 22°C), 50 mM KCl, 0.1% (v/v) Brij-35 and 50% (v/v) glycerol.

### Quality Control:

All preparations are assayed for contaminating endonuclease, exonuclease, nonspecific single- and double-stranded DNase activities.

This product is developed, designed and sold exclusively for research purposes and in vitro use only.

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