EURx® MOLECULAR BIOLOGY PRODUCTS

Taq DNA Ligase

(Thermus aquaticus)

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

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

Unit Definition:

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

Storage Conditions:

Store at -20°C.

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^+.
- 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 incoporation of a phosphorylated oligonucleotide during PCR amplification (5).

Assay Conditions:

The activity assay is carried out with 0.4 µg of SmaI- and SalI 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^+ 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% Tergitol™ TMN

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.

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. (1191) 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.*

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