BIONEER *Thermus filiformis(Tfi)* DNA Ligase

ISO 9001 Certified

Headquarters
49-3,Munpyeong-dong, Daedeok-gu,Daejeon306-220, Korea
Phone:+82-42-936-8500
Fax:+82-42-930-8600

Seoul Office
412, DMC Hi-tech industry center, 1580, Sangam-dong, Mapo-gu, Seoul, 121-835, Korea
Phone:+82-2-598-1094
Fax:+82-2-598-1096

USA Bioneer, Inc.
1000 Atlantic Avenue, Alameda, CA 94501 USA
Toll free : 1-877-264-4300
Fax : 1-510-865-0350
E-mail:order.usa@bioneer.com

Order
Domestic only: 1588-9788
E-mail: order@bioneer.co.kr
URL: www.bioneer.com

[Cat. No.]
E- 3111 (2,000 Units)
E- 3112 (10,000 Units)

[Lot No.]

[Concentration]
20 units/uL

● **Description :** *Tfi* DNA Ligase catalyzes the formation of a phosphodiester bonds between adjacent 3'-hydroxyl and 5'-phosphate termini in nicked duplex DNA molecules or between oligonucleotides which are in duplex with a complementary strand at 45 - 65 ^{O}C. *Tfi* DNA Ligase is stable and active at much higher temperatures than conventional DNA ligases. Thus, *Tfi* DNA Ligase is the ideal enzyme for applications the require high-temperature, high-stringency ligation of duplex DNA molecules.

● **Source :** *Tfi* DNA Ligase is isolated from *E. coli* cells containing the ligase gene cloned from *Thermus filiformis*[1].

● **Applications :** Ligase Chain Reaction(LCR)[2], Oligonucleotide Ligation Assay (OLA)[3], Mutagenesis by Incorporation of a Phosphorylated Oligo During PCR Amplication[4], Simultaneous Mutagenesis of Multiple Sites[5]

● **Supplied with Enzyme**
- 10X *Tfi* DNA Ligase Reaction Buffer (1 mL) : 300 mM Tirs-HCl, 250 mM KCl, 50 mM $MgCl_2$, 5 mM NAD (pH 8.3)
- 1X Dilution Buffer for Enzyme(1 mL) : 10 mM Tris-HCl, 0.1 mM EDTA, 50 mM KCl, 1mM DTT, 200 ug/mL Acetylated BSA, 50 % Glycerol (pH 7.6)

● **Storage conditions :** 20 mM Tris-HCl, 2 mM $MgCl_2$, 1 mM EDTA, 1 mM DTT, 0.5 % Tween-20, 0.5 % IGEPAL CA-630, 50 % Glycerol (pH 7.6), store at -20 ^{O}C

● **Unit Definition :** One unit of *Tfi* DNA Ligase is defined as the amount of enzyme required to give 50 % ligation of the 12-base pair cohesive ends of 1 ug of *Psp*EI digested lambda DNA in 10 minutes at 45 ^{O}C.

● **Activity Assay Conditions :** The activity assay is carried out in a 20 uL reaction containing 1 ug of *Psp*EI digested lambda DNA and 1X *Tfi* DNA Ligase Reaction Buffer. After incubation at 45 ^{O}C for 10minutes, the reaction is terminated by addition of stop solution(40 %(w/v) sucrose, 50 mM EDTA and 0.25 % bromophenol blue). Then heat at 70 ^{O}C for 10 minutes and immediately load on a 0.8 % agarose gel.

● **Stability :** The half-life of the enzyme in 1X Reaction Buffer is more than 1 hours at 95 ^{O}C and 55 hours at 65 ^{o}C.

● **Note :** *Tfi* DNA Ligase should not be used as a substitute for other DNA ligases, i.e., T4 DNA Ligase.

Note

For research use only. Not for use in diagnostic or therapeutic procedures.

● **References**

1. Kim HK, Kwon ST. (1998) *Mol. Cells*. **8**:4, 438-443
2. Barany, F. (1991) *Proc. Natl. Acad. Sci. USA*, **88**, 189-193.
3. Landegren, U. *et al*.(1988) *Science* **241**, 1077-1080
4. Michael, Scott F. (1994) *Biotechniques* **16**:3, 410-412.
5. Gerard J. A. *et al*. (1993) *Biotechniques* **15**:1, 172-178.