Taq DNA Ligase

Cat. No. : RK20502

Product components

Components	Component number	Concentration	Size1 (10,000 U)	Size2 (10,000 U)	Size3 (40,000 U)
Taq DNA Ligase	RM20506	40,000 U/mL	50 μL	250 μL	1 mL
10X *Taq* DNA Ligase Reaction Buffer	RM20131	10X	150 μL	650 μL	1.25 mL X2

Product Description

Taq DNA Ligase is a thermostable ligase that catalyzes the formation of a phosphodiester bond between the 5´-phosphate and the 3´-hydroxyl of two adjacent DNA strands. The target strands need to be hybridized and accurately paired, with no gap, to a complementary DNA strand; allowing resolution of single nucleotide variants. *Taq* DNA Ligase uses NAD as a cofactor and it is active at elevated temperatures (37°C–75°C).

It is applicable to Allele-specific gene detection using Ligase Detection Reaction and Ligase Chain Reaction, as well as Mutagenesis by incorporation of a phosphorylated oligonucleotide during primer extension amplification.

Product Source

Purified from an *E.coli* strain containing the cloned ligase gene from *Thermus thermophilus* HB.

Storage

Taq DNA Ligase, store at -20°C.

10X *Taq* DNA Ligase Reaction Buffer, -20°C for short term storage, -80°C for long-term storage.

Unit Definition (Cohesive End Unit)

One unit is defined as the amount of enzyme required to give 50% ligation of the 12-base pair cohesive ends of 1 μg of BstEII-digested λ DNA in a total reaction volume of 50 μl in 15 minutes at 45°C.

1X *Taq* DNA Ligase Reaction Buffer

20 mM Tris-HCl, 25 mM Potassium Acetate, 10 mM Magnesium Acetate, 1 mM NAD,

10 mM DTT, 0.1% Triton X-100, pH 7.6@25°C

Storage Conditions

10 mM Tris-HCl, 50 mM KCl, 1 mM DTT, 0.1 mM EDTA, 50% Glycerol, pH 7.4 @ 25°C

Heat Inactivation

No

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Instructions

1. Set up the reaction as follows.

Composition	Amount
ddH_2O	Up to 50 μL
10X *Taq* DNA Ligase Reaction Buffer	5 μL
DNA	Up to 1 μg
Taq DNA Ligase	2 μL (80 U)

2. Incubate at 45°C for 15 minutes.

Notes

1. After thawing 10X *Taq* DNA Ligase Reaction Buffer (RM20131) from low temperature to room temperature, white precipitates may appear in the solution, which can be dissolved by blowing 20-30 times with a pipiter or by vortexing.

2. Reaction Conditions: Incubate DNA and enzyme in 1X *Taq* DNA Ligase Buffer at 45°C for 15 minutes or in a thermocycler with a program suited to the reaction described by *[Barany (1991) Genetic Disease Detection and DNA Amplification Using Cloned Thermostable Ligase. Proc. Natl. Acad. Sci. USA 88, 189-193.]* The reaction is stopped with a mixture of 50% glycerol, 50 mM EDTA, bromphenol blue.

3. 10X *Taq* DNA Ligase Reaction Buffer contains the cofactor NAD and should be stored at -80°C for a long time to prolong the half-life of NAD.

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