Laq™ DNA Polymerase

(2 Units/µl; Store at -20˚C)

CATALOG #: 9004-500 500 units
9004-2500 2500 units

DESCRIPTION:
Thermostable DNA polymerase of *Pyroccus glycovorans* from the East Pacific Rise has been isolated and characterized. It amplifies **L**ong DNA products with high **A**ccurate and **Q**uick polymerization rate in DNA Polymerization Chain Reaction (PCR). We named the DNA Polymerase Laq™ DNA Polymerase. The Laq™ DNA polymerase provides the most accurate, consistent performance with high-fidelity up to mutation frequency as low as 10^{-7}-10^{-6}. The high processivity of the Laq™ DNA Polymerase shortens PCR cycle time to 1/3-1/2 of regular polymerases and amplify up to 10 or 12kb DNA products. It can be used in most protocol that requires high fidelity, quick amplification and long PCR Reactions.

COMPONENTS:

Component	9004-500	9004-2500
Laq™ DNA Polymerase	500 units	2500 units
Opti-PCR Buffer I	1 x 2 ml	5 x 2 ml

CONCENTRATION: 2 Units/µl

UNIT DEFINITION:
One unit is defined as the amount of enzyme required to catalyze the incorporation of 10 nanomoles of dNTPs into acid insoluble material in 30 minutes at 74˚C under standard DNA polymerase assay conditions.

ENZYME STORAGE BUFFER:
20 mM Tris-HCl, pH 8.0, 100 mM KCl, 0.1 mM EDTA, 1 mM DTT, 50% glycerol, 0.5% Tween 20 and 200 µg/ml BSA.

10X PCR BUFFER:
- **Opti-PCR Buffer I:** Used for high fidelity long PCR cloning.
- **Opti-PCR Buffer II:** Used for long PCR products and/or high GC-rich template.
- The Laq™ polymerase also works with most of other polymerase reaction buffers.

SUGGESTED PCR REACTION MIX:
For each 25 µl PCR reaction, mix the following components in a thin-walled PCR tube:
- 10X PCR Buffer 2.5 µl
- dNTP Mix (2.5 mM each dNTP) 2.0 µl
- Laq™ DNA Polymerase (2.0 u/µl) 0.2-1.0 units
- Template DNA 0.1-500 ng
- Upstream Primer 50-100 pmol
- Downstream Primer 50-100 pmol
- H_2O to a total volume 25 µl

SUGGESTED PCR CYCLES:

Initial Denaturation:	98˚C	30 sec.
Denaturation:	98˚C	10 sec.
Annealing:	50-72˚C	5-10 sec.
Elongation:	72˚C	15-30 sec/kb.
Final Elongation:	72˚C	7 min.

Note:
For optimal specificity of GC-rich template DNA or expected PCR product longer than 10kb, further optimizing the concentration of $MgCl_2$, temperature, cycling time and adding appropriate DMSO could improve PCR performance.

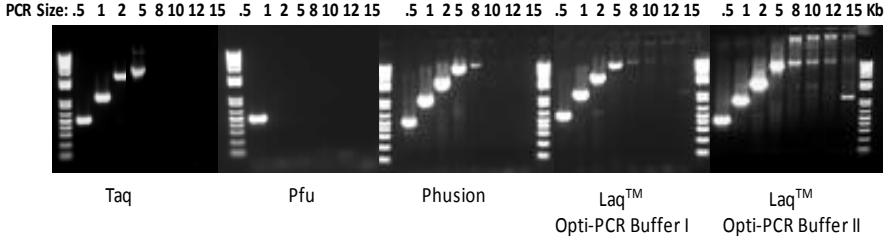

FIGURE LEGEND: DNA polymerase comparisons: PCR reactions are performed using Taq, Pfu, Phusion and Laq™ DNA polymerase in their optimized reaction buffers**.** Laq™ DNA Polymerase can routinely amplify 8 kb DNA fragment, and up to 12 kb DNA fragment when optimizing the reaction conditions.

RELATED PRODUCTS:
- InsertFinder Insert Quick Screening Kit
- Mitochondrial DNA Isolation Kit
- Luciferase Reporter Assay Kit
- T4 DNA Ligase
- dNTP Mix
- Gel-FAST™ 20 Minutes Gel Staining/Destaining Kit
- Protease Inhibitor cocktail
- Link-FAST™ 5 Minutes DNA Ligation Kit
- Genomic DNA Isolation Kit
- β-Galactosidase Staining Kit
- Agarase
- siRNA Vectors

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