

Product: Pfu DNA Polymerase, recombinant
Catalog #: 12-4425
Amount: 500U

DESCRIPTION:

Recombinant Pfu DNA Polymerase is purified from an E.coli strain carrying a plasmid with the cloned gene encoding the hyperthermophilic archae *Pyrococcus furiosus* DNA Polymerase 92KDa. Pfu DNA Polymerase is referred from here on as Pfu. Pfu has been shown to exhibit superior thermostability and proofreading properties compared to other thermostable polymerase. Unlike *Taq* DNA Polymerase, highly thermostable Pfu possesses 3' to 5' exonuclease proofreading activity that enables the polymerase to correct nucleotide-misincorporation errors. This means that Pfu generated PCR fragments will have fewer errors than *Taq*-generated PCR inserts. The error rate for Pfu is reported to be 7 to 10 fold lower than that of nonproofreading *Taq* DNA polymerase, and 2 to 30 fold lower than other proofreading enzymes. Using Pfu in your PCR reactions results in blunt-ended PCR products, which are ideal for cloning into blunt-ended vectors, such as the PCR-Script™ vectors. Pfu is superior for techniques that require high-fidelity DNA synthesis.

The enzyme catalyzes the incorporation of nucleotides into duplex DNA in the 5'=>3' direction in the presence of Mg²⁺ at 70°C- 80°C. Pfu DNA Polymerase exhibits 3'=>5' exonuclease (proofreading) activity, but has no detectable 5'=>3' exonuclease activity.

SOURCE:

One of the most thermostable DNA polymerases known
Escherichia coli

UNIT DEFINITION:

One unit of enzyme catalyzes the incorporation of 10 nanomoles of deoxyribonucleotides (dNTP) into a polynucleotide fraction (adsorbed on DE-81) in 30min at 72°C

CONCENTRATION:

2.5 U/μl

PURITY:

Extensively tested for PCR applications

BUFFER:**Storage Buffer:**

20mM Tris-HCl (pH 8.2), 1mM DTT, 0.1mM EDTA, 100mM KCl, 0.1% Nonidet P40, 0.1% Tween 20 and 50% glycerol

10X PCR Buffer with MgSO₄

200mM Tris-HCl (pH 8.8 at 25°C), 100mM (NH₄)₂SO₄, 100mM KCl, 1% Triton X-100, 1mg/ml BSA, 20mM MgSO₄

APPLICATION:

Ideal for high-fidelity amplification

3'-5' exonuclease activity provides a low error rate

Lack of extendase activity means no unwanted 3' overhangs

Optimal for blunt-end PCR cloning

Optimum temperature near 75°C

95% active after 1-hour incubation at 98°C

STORAGE:

-20°C (aliquot), avoid freezing and thawing cycles

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