



Product Datasheet

Product Name	Pfu-DNA Polymerase Recombinant
Cata No	CB501363
Source	<i>Escherichia Coli.</i>
Synonyms	DNA polymerase, EC 2.7.7.7, Pfu polymerase, Pfu-DNA Polymerase.

Description

Pfu DNA polymerase enzyme is found in the hyperthermophilic archaeon *Pyrococcus furiosus*, where it functions in vivo to replicate the organism's DNA. In vitro, Pfu is used to swiftly amplify DNA in the Polymerase Chain Reaction, where the enzyme serves the central function of copying a new strand of DNA during each extension step. Pfu DNA polymerase has superior thermostability and 'proofreading' properties compared to other thermostable polymerases. Unlike Taq DNA polymerase, Pfu DNA polymerase possesses 3' to 5' exonuclease proof reading activity, meaning that it works its way along the DNA from the 5' end to the 3' end and corrects nucleotide misincorporation errors. Pfu DNA polymerase-generated PCR fragments will have fewer errors than Taq-generated PCR inserts. As a result, Pfu is more commonly used for molecular cloning of PCR fragments than the historically popular Taq. Pfu DNA polymerase is superior for techniques that require high-fidelity DNA synthesis, but can also be used in conjunction with Taq polymerase to obtain the fidelity of Pfu with the speed of Taq polymerase activity.

Pfu DNA polymerase is a cloned *pyrococcus furiosus* DNA polymerase (Pfu) containing thermostable **dUTPase** that enhances PCR product yields and increases target length capability without altering DNA replication fidelity. The main inhibitor of PCR with Pfu DNA polymerase is the dUTP generated from the dCTP deamination during PCR

reaction. Removing dUTP from PCR reaction by thermostable dUTPase can increase the yield and length of the product.

Pfu DNA polymerase can be used to amplify complex genomic DNA targets up to 19 kb and vector targets up to 15 kb in length.

Physical Appearance

Sterile liquid formulation.

Formulation

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

Stability

Pfu DNA Polymerase although stable at 10°C for 5 days, should be stored desiccated below -18°C.

Please prevent freeze-thaw cycles.

Applications

1. Ideal for high-fidelity amplification.
2. 3'-5' exonuclease activity provides a low error rate.
3. One of the most thermostable DNA polymerases known.
4. Lack of extendase activity means no unwanted 3' overhangs.
5. Optimal for blunt-end PCR cloning.
6. Optimum temperature near 75°C.
7. 95% active after 1-hour incubation at 98°C.

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