Product Manual

Product Name	HiFi DNA Polymerase
Source	Recombinant expression in E. coli
Catalog Number	CSB-DEM042
Physical Form	Liquid
Enzyme Activity	1 U/μL
Storage Conditions	-20 ±5°C
Storage Buffer	10 mM Tris-HCl, 100 mM KCl, 1 mM DTT, 0.1 mM EDTA, 0.5% Tween 20, 0.5% NP-40, 50% Glycerol
Activity Definition	Within 30 minutes at 72°C, 1 unit (U) of the enzyme is required to incorporate 10 nmol of deoxynucleotides into acid-insoluble material.
Quality Control	No detectable nuclease and endonuclease activities.
Shelf Life	24 months

Product Description

HiFi DNA Polymerase is a new generation high-fidelity DNA polymerase based on modified Pfu DNA Polymerase. Compared to Pfu DNA Polymerase, HiFi DNA Polymerase exhibits significantly improved performance and can efficiently and accurately complete PCR reactions even with complex templates. Its fidelity is significantly enhanced. This product is equipped with optimized enzyme buffer and PCR enhancement components, which provide the enzyme with strong amplification efficiency and wide template adaptability, making it suitable for amplification of complex templates. The amplification product has blunt ends.

Product components

Component No.	Component Name	Specifications		
1	5×HiFi buffer	0.6mL	3mL	6mL
2	HiFi DNA Polymerase	100 U	500U	1000 U

Operating instructions

Recommended Reaction System

Composition	Addition amount
ddH2O	Up to 30 μL
5×HiFi buffer	6 μL
10 mM dNTPs	0.6 μL
Forward Primer (10 μM)	0.6μL
Reverse Primer (10 μM)	0.6 μL
HiFi DNA Polymerase	1 μL
Template DNA	X μL

Note：

a. Primer Concentration:

Generally, a primer final concentration of 0.2 μM in the reaction system yields good results. If the reaction performance is poor, adjust the primer concentration within the range of 0.1 μM to 1.0 μM.

b. Template Concentration:

Genomic DNA from animals and plants: 0.1-1 μg, E. coli genomic DNA: 10-100 ng, λDNA: 0.1-10 ng, plasmid DNA: 0.1-10 ng. If the template is undiluted cDNA, the volume used should not exceed 1/10 of the total qPCR reaction volume.

c. Polymerase Concentration:

The enzyme amount can be adjusted between 0.25 - 1 μL. In general, increasing the enzyme amount can improve the amplification yield, but it may reduce specificity.

d. Mg2+ and Additives:

The Mg2+ concentration in most PCR reaction systems should be within the range of 1.0-5.0 mM. However, for some challenging samples, such as high GC content DNA samples, additives such as DMSO or formamide may need to be added to the PCR reaction system.

Recommended PCR reaction procedure

Temperature	Time	Cycles
98°C	3 min	1
98°C	10 s	25-35
(TM-5)°C	20 s	
72°C	1 kb/min	

72°C	5 min	1

Note：

e. Annealing Temperature and Time:

The annealing temperature should be adjusted based on the primer's Tm value, generally set 3-5°C below the primer's Tm value. The recommended annealing time is 20 seconds, which can be adjusted within the range of 10-30 seconds.