Product Manual

Product Name	KOD DNA Polymerase
Source	Recombinantly expressed in Escherichia coli
Catalog Number	CSB-DEM034
Physical Form	Liquid
Enzyme Activity	5U/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	1 unit (U) of the enzyme is defined as the amount required to incorporate 10 nmol of deoxynucleotide into acid-insoluble material in 30 min at 72°C
Quality Control	No detectable 3'-5' exonuclease and endonuclease activities.
Shelf Life	24 months

Product Description

KOD DNA Polymerase is a highly heat-stable DNA polymerase derived from the hyperthermophilic archaeon Thermococcus kodakaraensis KOD1. It is recombinantly expressed in Escherichia coli and exhibits high amplification efficiency and fidelity. Due to its strong 3'-5' exonuclease activity, it possesses higher fidelity than Taq DNA Polymerase, while maintaining efficient amplification with a speed of up to 1 kb/10 s. KOD DNA Polymerase generates blunt-ended products during amplification.

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Product components

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

Operating instructions

Recommended Reaction System

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

Note：

a. Primer Concentration:

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

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. Increasing the enzyme amount generally improves the amplification yield, but may decrease 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, additives like DMSO or formamide may need to be added to the PCR reaction system.

Recommended PCR Reaction Program

Temperature	Time	Number of cycles
95°C	3 min	1
95°C	10 s	
(TM-5)°C	20 s	25-35
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 sec, which can be adjusted within the range of 10-30 sec.