Ver. HB230113

Hieff™ Taq DNA Polymerase

Product description

Hieff™ Taq DNA polymerase is a thermostable recombinant DNA polymerase expressed by *Thermus aquaticus* with a molecular weight of 94 KDa. It has 5'→3' polymerase activity and 5'→3' exonuclease activity but without 3'→5' exonuclease activity. The amplified product has 3'- dA and can be directly used for TA cloning.

Components

Components No.	Name	10101ES80 (1, 000 U)	10101ES92 (10, 000 U)
10101-A	10×Taq Buffer (Mg^{2+} Free)	4×1 mL	4×10 mL
10101-B	25 mM $MgCl_2$	2×1 mL	2×10 mL
10101-C	Hieff™ Taq DNA Polymerase (5 U/μL)	200 μL	2×1 mL

Specifications

Polymerase	Taq DNA polymerase
Molecular Weight	94 KDa
Unit Definition	Using the activated DNA of salmon sperm as template/primer, the activity is defined as one active unit (U) when 10 nmol of total nucleotide was ingested as acid insoluble substance at 74°C for 30 min.

Storage

The product should be stored at -25°C ~ -15°C for two years.

Instructions

1. Reaction composition (Preparation on ice)

Components	Volume(μL)	Final Concentration
ddH_2O	to 50	-
10×Taq Buffer (Mg^{2+} Free)	5	1×
25 mM $MgCl_2$	3	1.5 mM
dNTP Mix (10 mM each)	1 μL	0.2 mM
DNA template	X μL	-
Forward primer (10 μM)	2 μL	0.4 μM
Reverse primer (10 μM)	2 μL	0.4 μM
Hieff™ Taq DNA Polymerase (5 U/μL)	0.4 μL	0.04 U/μL

Notes:

1) Final concentration of Mg^{2+}: The optimal concentration of Mg^{2+} is 1.5 - 2 mM. If necessary, the optimal concentration of Mg^{2+} can be explored upward at intervals of 0.2 - 0.5 mM.

2) Polymerase addition: The polymerase has a certain degree of 5'- 3' polymerase activity at room temperature. In order to prevent non-specific amplification, it is suggested to add the polymerase to the reaction system in the last step.

3) Concentration of polymerase: 0.04 U/μL is recommended. It can be optimized between 0.025-0.04 U/μL.

4) Recommended use of different templates (50 μL reaction system):

Type of template	Template usage
Genomic DNA	50 ng-100 ng
Plasmid DNA	10 pg-20 ng
cDNA	1-5 μL (No more than 1/10 of the reaction system)

2. Thermal cycling protocol

Stage	Temperature (°C)	Time	Cycles
Pre-denaturation	94	30 sec-5 min	1
Denaturation	94	30 sec	35
Annealing	50-60	30 sec	
Extension	72	60 sec/kb	
Final Extension	72	10 min	1

Notes:

1) Pre-denaturation temperature and time: 94°C is recommended. The recommended pre denaturation time: 30 sec for plasmid DNA and other simple templates; 3 min for complex templates such as cDNA and genomic DNA; 5-10 min for the template with high GC.

2) Annealing temperature and time: 60°C is recommended. Temperature gradient can be set up to find the optimum temperature for primer annealing. The recommended annealing time is set to 20 sec and can be adjusted within 10-30 sec. Too long annealing time may cause the amplified products diffusion on the agarose gel.

3) Amplification products: Please store the PCR amplification products at - 20°C to prevent DNA degradation.

Notes

1. For your safety and health, please wear lab coats and disposable gloves for operation.
2. For research use only!