Super HIFI DNA Polymerase

For research use only

Cat. No./Spec.		
Cat. No	*P1251*	*P1252*
Spec.	*250U*	*1,000U*

Description

Super HIFI DNA Polymerase is a high-fidelity DNA polymerase. Its fidelity is approximately 50 times higher than that of regular Taq DNA polymerase, making it suitable for cloning and other applications that require high fidelity. Compared to other DNA polymerases, Super HIFI DNA Polymerase is robust, with short protocol time, tolerance to PCR inhibitors, and high yields with fewer enzymes. Amplified fragments can be up to 7.5 kb genome and 20 kb lambda DNA in length. The enzyme has 5'→3' polymerase activity and 3'→5' exonuclease activity, and the amplification product has blunt ends.

Components

Component	P1251	P1252
Super HIFI DNA Polymerase（2U/μl）	*50 μl*	*250 μl*
5X Super HF Buffer [1]	*1.5 ml × 2*	*1.5 ml × 6*
5X Super GC Buffer [1]	*1.5 ml*	*1.5 ml × 2*
$MgCl_2$ (50 mM)	*1.5 ml*	*1.5 ml × 2*
DMSO	*500 μl*	*500 μl*

[1] Both 5X Super HF Buffer and 5X Super GC Buffer provide a final concentration of 1.5 mM $MgCl_2$.

Unit Definition

One unit is defined as the amount of enzyme required to incorporate 10 nmol of deoxynucleotide into acid-insoluble species over 30 minutes at 72°C using activated salmon sperm DNA as template/primer.

Storage

Store at -20°C for 2 years.

Protocol

1. Preparation of reaction solution

Add the following reagents to the proper thermal cycler reaction tube or plate on ice:

Ordinal	Component	20-μl rxn	50-μl rxn	Final conc.
1	*Nuclease-free Water [1]*	*To 20 μl*	*To 50 μl*	*-*
2	*5X Super HF Buffer [2]*	*4 μl*	*10 μl*	*1X*
3	*dNTPs（10mM）*	*0.4 μl*	*1 μl*	*0.2 mM*
4	*upstream primer (10 μM) [3]*	*1 μl*	*2.5 μl*	*0.5 μM*
5	*downstream primer (10 μM) [3]*	*1 μl*	*2.5 μl*	*0.5 μM*
6	*template DNA [4]*	*X μl*	*X μl*	*-*
7 (optional)	*DMSO [5]*	*0.6 μl*	*1.5 μl*	*3%*
8	*Super HIFI DNA Polymerase（2U/μl）*	*0.2*	*0.5 μl*	*0.02 U/μl*

[1] Nuclease-free Water (#P9022/P9023) can be ordered from GDSBio.

[2] 5X Super HF Buffer is recommended, and 5X Super GC Buffer is recommended when amplifying complex templates and long fragments.

[3] Recommended range of final primer concentration: 0.2-1μM.

[4] The optimal dosage varies with different templates. The recommended dosage for some DNA templates is as follows (50 μl reaction system).

Template	*Human genomic DNA*	*λDNA*	*cDNA*	*Plasmid DNA*
Dosage	*1ng-500g*	*0.5ng-5ng*	*1-5μl*	*0.1ng-10ng*

[5] DMSO is recommended when the GC content of the amplicon is high.

2. Perform PCR using the following thermal cycling condition

2-step PCR:

Stage	Temperature	Time	Number of Cycles
Initial Denaturation	*98°C*	*30 sec*	*1*
Denaturation	*98°C*	*5-10 sec*	*25-35*
Annealing & Extension	*72°C*	*15-30 sec/kb*	
Final Extension	*72°C*	*5-10 min*	*1*
Hold	*4°C*	*hold*	*hold*

3-step PCR:

Stage	Temperature	Time	Number of Cycles
Initial Denaturation	*98°C*	*30 sec*	*1*
Denaturation	*98°C*	*5-10 sec*	*25-35*
Annealing	*55-68°C*	*10-30 sec*	
Extension	*72°C*	*15-30 sec/kb*	
Final Extension	*72°C*	*5-10 min*	*1*
Hold	*4°C*	*hold*	*hold*

Quality Control

The absence of endodeoxyribonucleases, exodeoxyribonucl- eases and ribonucleases is confirmed by appropriate quality tests. Functionally tested in amplification of a single-copy gene from human genomic DNA.

Product Use Limitations

This product is sold exclusively for research purposes and in vitro use. Neither the product, nor any individual

components, was tested for use in diagnostic applications or for drug development, nor is it suitable for administration to humans or animals. Please refer to the MSDS, available upon request.