Super High Fidelity DNA Polymerase

Cat No.	Description	Concentration	Quantity
E05-01	SuperHiFi™ DNA Polymerase	5U/μl	50 μl
E05-02	SuperHiFi™ DNA Polymerase	5U/μl	100 μl
E05-03	SuperHiFi™ DNA Polymerase	5U/μl	200 μl

Product Description

Super High Fidelity DNA Polymerase is a new generation of ultra fidelity DNA polymerase modified from Pfu DNA Polymerase, which has greatly improved its long segment amplification ability, amplification specificity, and amplification yield. By optimizing the reaction buffer and using simple templates such as lambda DNA and plasmids, fragments up to 40kb can be effectively amplified; Using complex templates such as genomic DNA, fragments up to 20kb can be amplified; The use of cDNA templates can effectively expand fragments up to 10kb in length. Its mismatch rate is 1/53 of that of ordinary Taq enzymes and 1/6 of that of Pfu enzymes, and the amplification speed can reach 15-30 seconds/kb. High fidelity and excellent amplification efficiency make Super Fidelity DNA Polymerase suitable for direct PCR of bacteria, fungi, plant tissue, animal tissue, or whole blood samples, with amplification products being flat ended.

Product Components	250 U	500 U	1000 U
SuperHiFi™ DNA Polymerase (5U/μl)	50 μl	100 μl	200 μl
5X PCR Buffer, with Mg^{2+}	0.25 ml	0.5 ml	1 ml

Application

This product is suitable for PCR reactions using genomic DNA, cDNA, Plasmid DNA, and crude samples as templates.

1. High fidelity PCR and vector construction;
2. Gene cloning;
3. Gene directed mutagenesis;
4. High throughput PCR and sequencing.

Unit definition

Using activated salmon sperm DNA as a template/primer, the activity of an acidic insoluble substance is defined as one active unit (U) when 10 nmol of whole nucleotide is ingested within 30 minutes at 74 ℃.

Shipping and Storage

Store at -30~-15°C and transport in ice bags at ≤ 0 ° C to avoid repeated freeze-thaw cycles.

Protocol

1. Reaction preparation

Component	Volume
5×Reaction Buffer(with Mg^{2+})*	10 μl
dNTP Mix (10mM each)	1 μl
5' Primers (10μM)	2 μl
3' Primers (10μM)	2 μl
Super High Fidelity DNA Polymerase (5U/μl)	1 μl
Template DNA	x μl
ddH_2O	Up to 50μl

* Note: 5×Reaction Buffer(with Mg^{2+})* already contains Mg^{2+}, with a final concentration of 2mM

2. Reaction program

Step	Temperature	Time	Cycle No.
Initial denaturation	95℃	3 minutes	1
Denaturation	95℃	15 seconds	25-35 cycles
Annealing*	55℃	15 seconds	
Extension	72℃	30-60 sec/kb	
Final Extension	72℃	5 minutes	1

*Note: Please set the annealing temperature according to the primer Tm value. If necessary, a temperature gradient can be established to find the optimal temperature for primer template binding. In addition, the annealing temperature directly determines the amplification specificity. If poor amplification specificity is found, the annealing temperature can be appropriately increased.

Note

1. Please use high-quality templates.
2. Do not use dUTP and primers and templates containing uracil.
3. If necessary for the experiment, the usage of Super Fidelity DNA Polymerase can be increased appropriately, but it is recommended not to exceed 2 U of enzyme in a 50μl system.
4. Super Fidelity DNA Polymerase has strong proofreading activity. Therefore, if amplification products require TA cloning, DNA purification must be performed before adding A.
5. To prevent the degradation of primers due to the proofreading activity of Super Fidelity DNA Polymerase, please add polymerase at the end when preparing the reaction system.

Bioland Scientific LLC, Tel: (562) 602-8882 Fax: (562) 733-6008,
Email: order@bioland-sci.com www.bioland-sci.com