艾科瑞生物
Accurate Biology

Instruction for Use

ApexHF HS DNA Polymerase FS

AG12201
Version.V3E1

Research Use Only
Not For Diagnosis Procedures

1. Description

ApexHF HS DNA Polymerase FS is a high-fidelity DNA polymerase featuring high amplification efficiency, high sensitivity, high specificity, efficient annealing, and rapid extension speed. The optimized PCR reaction system in this product incorporates a unique extension factor, enhancing annealing efficiency and extension speed, significantly shortening the extension time and enabling fast PCR reactions. Additionally, this product contains a monoclonal antibody that inhibits DNA polymerase activity at room temperature, allowing Hot Start PCR. This effectively prevents primer dimer formation and non-specific amplification, ensuring superior PCR performance.

2. Kit Information

Kit Name	Cat. No	Specification
ApexHF HS DNA Polymerase FS	AG12201	50 rxns / 50 µl

3. Transportation and Storage

Storage	Store at –20°C
Transportation	Transport at –20°C Dry Ice or Blue Ice Condition

4. Kit Components

Cat. No AG 12201

Kit Components	Volume
ApexHF FS DNA Polymerase FS (1U/µl)	50 µl
5X *ApexHF* FS Buffer (Mg^{2+} plus)*	500 µl
dNTP Mix (10 mM each)	50 µl

* Mg^{2+} concentration is 5 mM

** At 74°C for 30 minutes, using activated salmon sperm DNA as the template/primer, the amount of enzyme required to incorporate 10 nmol of deoxynucleotides into acid-insoluble material is defined as one unit of enzyme activity (U).

5. P.rotocol

5.1 Reagent Preparation

The final reaction volume in this protocol is 50µl. The volumes given here may be scaled for larger or smaller reaction volume.

Components	Final Concentration	Volume
ApexHF HS DNA Polymerase FS (1U/µl)	1U	1 µl
5X *ApexHF* FS Buffer (Mg^{2+} plus)	1X	10 µl
dNTP Mix (10 mM each)	0.2 mM	1 µl
Primer F (10µM) *2	0.2 µM	1 µl
Primer R (10µM) *2	0.2 µM	1 µl
Template	≤ 200 ng*3	-
RNase free water	-	Up to 50 µl

*1: Thaw the reagent tube, and vigorously vortex for 30–60 sec to ensure homogeneity before use. Briefly centrifuge to collect contents at the bottom of the tube.

*2: Recommended final concentration for Primer is 0.2µM, could be optimized between 0.1 ~ 0.4µM.

*3: Recommended final concentration is less than 200 ng. For template more than 200 ng, PCR program extension step could be adjusted between 10 - 60 sec /kb.

5.2 Thermal Cycling Program

The cycling parameters below are offered as a guideline and may be modified as necessary for optimal results.

Program for 3 Step PCR

Step	Temperature	Time	Number of Cycles
Initial-Denaturation*1	94°C	30 sec	1
Denaturation*2	98°C	10 sec	
Annealing*3	55°C	5 or 15 sec	25~35
Extension	72°C	5 sec / kb*4	

*1: For simple structure template, Initial-Denaturation could be skipped;
For complex template, recommended Initial-Denaturation setup is 94°C for 30 sec-1min.

*2: Could be adjusted per instrument. Recommended to be 94°C for 10-15 sec, or 98°C for 5-10 sec.

*3: Annealing Temperature is recommended to be 5 or 15 sec to prevent smear of electrophoresis result.
When Tm value> 55°C, annealing time shall be 5 sec; for Tm value< 55°C, annealing time shall be 15 sec.

*4: Recommended extension setup is 5 sec/kb; extension time could be extended to 10-60 sec/kb for complex templates or unsatisfying trials.

*5: 2 Step PCR program (as below) could be adopted for high Tm values or unsatisfying result using 3 Step PCR.

*** Program for 2 Step PCR**

Step	Temperature	Time	Number of Cycles
Initial-Denaturation	94°C	30 sec	1
Denaturation	98°C	10 sec	
Extension	68°C	5 sec / kb	25~35

6. Result Analysis

Purified PCR product could be analyzed via Agarose Gel Electrophoresis.

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