Superstart Taq DNA Polymerase M2

Cat.No.: HYA115

Product Description

Superstart Taq DNA Polymerase M2 is a hot-start rapid-amplification Taq enzyme developed by Hyasen. It is a specialized enzyme optimized and formulated to meet the specific requirements of lyophilized reagents. This product not only effectively inhibits nonspecific reactions caused by primer nonspecific annealing or primer dimers during PCR system preparation and amplification—endowing it with excellent specificity—but also enables more efficient amplification of low-concentration templates, making it suitable for multiplex PCR amplification reactions. Additionally, it exhibits outstanding compatibility with various reaction systems, consistently delivering stable amplification performance across different types of PCR reactions.

Components

1. 5 U/μL Superstart Taq DNA Polymerase M2
2. 10×PCR Buffer (Mg^{2+} free) (Optional)
3. 25 mM $MgCl_2$ (Optional)

*10×PCR Buffer (Mg^{2+} free) does not contain dNTP or Mg^{2+}. Please add dNTPs and $MgCl_2$ when preparing the reaction system.

Activity Definition

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

Storage

Store at -20℃ for long-term storage. Mix thoroughly before use and avoid repeated freeze-thaw cycles.

Quality Control

1. Electrophoretic purity by SDS-PAGE ≥ 98%.
2. Amplification sensitivity, inter-batch variation, and stability.
3. Free of extraneous nuclease activity, as well as extraneous endonuclease and exonuclease contamination.

Instructions

1. PCR reaction system

Components	Volume	Concentration in Master Mix
10 × PCR Buffer (Mg^{2+}free)*	5 uL	1×
dNTPs（10 mM each dNTP）	1 μL	200 μM
25 mM $MgCl_2$	5-10 μL	2.5-5 mM
5U/μL Superstart Taq DNA Polymerase M2	0.25-0.5 μL	1.25-2.5 U
25×Primer Mix**	2 μL	1×
Template	——	< 1 μg/reaction
ddH_2O	Up to 50 μL	——

*10 × PCR Buffer does not contain dNTPs or Mg^{2+} and must be supplemented with dNTPs and $MgCl_2$ before use.

**If used for qPCR/qRT-PCR, fluorescent probes should be added to the reaction system. Usually, a final primer concentration of 0.2 μM can give good results; if the reaction performance is poor, the primer concentration can be adjusted in the range of 0.2-1 μM. The probe concentration is usually optimized in the range of 0.1-0.3 μM. Concentration gradient experiments can be performed to find the best combination of primer and probe.

2. Reaction Program

Standard PCR Program			
Step	**Temperature**	**Time**	**Cycles**
Hot start	95 ℃	1-5 min	1
Denaturation	95 ℃	10-20 s	40-50
Annealing-Extension	56~64℃	20-60 s	

Rapid PCR Program			
Step	**Temperature**	**Time**	**Cycles**
Hot start	95 ℃	30 s	1
Denaturation	95 ℃	1-5 s	40-45
Annealing-Extension	56~64℃	5-20 s	

Technical Specifications

1. The amplification rate of the rapid DNA polymerase is no less than 1 kb/10 s. Significant variations exist in temperature ramping rate, temperature control mode, and heat transfer efficiency among different PCR instruments. It is recommended to optimize the optimal reaction parameters in conjunction with specific rapid PCR instruments.
2. Exhibits excellent compatibility with reaction systems, along with enhanced specificity and sensitivity.
3. Suitable for use as a high-sensitivity PCR detection reagent and compatible with multiplex PCR amplification reactions.
4. Possesses 5’-3’ polymerase activity and 5’-3’ exonuclease activity; lacks 3’-5’ exonuclease activity and proofreading function.
5. Applicable for the preparation of RT-PCR reaction systems.
6. PCR products feature an A-overhang at the 3’ end, allowing direct use for T-vector cloning.
7. For primers with low annealing temperatures or amplification of long fragments exceeding 200 bp, it is recommended to use the three-step PCR protocol.
8. For Research Use Only！