Superstart Taq plus DNA Polymerase

Product Description

Superstar Taq plus DNA Polymerase is a new type of hot start enzyme product developed by Biori. This product not only better suppresses non-specific reactions caused by false annealing or primer dimers during PCR system preparation and amplification, which enables this product to achieve better results in multiplex amplification; but also optimizes its amplification for extremely low concentration templates, obtaining higher yields and more stable maximum amplification effects.

Components

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

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

Unit Definition

One unit of activity (U) refers to the amount of enzyme needed to incorporate 10 nmol of deoxyribonucleotides into acid-insoluble material using activated salmon sperm DNA as a template/primer within 30 minutes at 74°C.

Storage

Storage at -20±5℃. Mix thoroughly before use and avoid repeated freeze-thaw cycles.

Quality Control

1. SDS-PAGE electrophoresis purity no less than 98%
2. Amplification sensitivity, batch-batch difference, and stability.
3. No exogenous nuclease activity, no exogenous endonuclease or exonuclease contamination.

Prepare the PCR Reaction Mix

Component	Volume per Reaction	Final Concentration
10×PCR Buffer Ⅱ (Mg^{2+} free) [1]	5 μL	1×
dNTPs（10 mM each）	1 μL	200 μM
25 mM $MgCl_2$	2-8 μL	1-4 mM
5 U/μL Superstart Taq plus DNA Polymerase	0.25-0.5 μL	1.25-2.5U
25×Primer Mix [2]	2 μL	1×
Template	——	<1 μg / Reaction
ddH_2O	To 50 μL	——

1 . This buffer does not contain dNTPs or Mg^{2+}, so they must be added to the reaction system before use.

2. If used for qPCR/qRT-PCR, a fluorescent probe needs to be added to the reaction system. Typically, a final primer concentration of 0.2 μM performs good results; if the reaction performance is poor, adjust the primer concentration within the range of 0.2-1 μM. Typically, probe concentrations are optimized in the range of 0.1-0.3 μM. Combinations of primers and probes can be tested using gradient experiments to find their optimal combination.

Thermocycling conditions

Two-step Method	Three-step Method

Procedure	Temp.	Time	Cycle	Procedure	Temp.	Time	Cycle
Denaturation	95℃	1~5 min	1	Denaturation	95℃	1~5 min	1
Denaturation	95℃	10~20 s	35~50	Denaturation	95℃	10~20 s	40
Annealing and Elongation	56~64℃	20~60 s		Annealing and Elongation	56~64℃	10~30 s	
				Extension	72℃	10~60 s	

Notes

1. Can be quickly hot-started at 95°C or 94°C for 1-5 minutes.
2. The system has strong adaptability and higher specificity and sensitivity.
3. It can obtain greater product yields in regular PCR and improve curve uniformity and fluorescence values for amplification of extremely low-concentration templates in qPCR/qRT-PCR; suitable for use as a high-sensitivity PCR detection reagent,especially for multiplex PCR.
4. Has both 5'-3' polymerase and exonuclease activity; no 3'-5' exonuclease activity or proofreading function.
5. Suitable for qualitative/quantitative detection in regular PCR and RT-PCR.
6. PCR products have an A-tail at the end, which can be directly cloned into T vector.
7. For primers with low annealing temperature or amplification of fragments longer than200 bp,it is recommended to use a three-step method.