Cat.: E40-NA

Robustart Fast Taq DNA Polymerase-Low DNA-V3

V01

Product Description

Robustart Fast Taq DNA Polymerase-Low-DNA-V3 is a hot-start rapid amplification Taq enzyme product.This product not only better suppresses non-specific reactions caused by primer non-specific annealing or primer dimerization during PCR system preparation and amplification processes, making it highly specific with more effective amplification of low template concentrations suitable for multiple PCR amplification reactions, but also has good system adaptability and can obtain stable amplification results in different types of PCR reactions. Through specialized treatment, this product is devoid of DNA residues and is appropriate for the development of biopharmaceutical-related detection reagents.

Components

1. 5 U/μL Robustart Fast Taq DNA Polymerase-Low DNA-V3
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 required 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

Store at -20±5℃. Vortex before use. Avoid freeze-thaw cycles.

Quality Control

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

Prepare Reaction Mix

Components	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 MgCl2	2-8 μL	1-4 mM
5 U/μL Robustart Fast Taq DNA Polymerase-Low-DNA-V3	0.25-0.5 μL	1.25-2.5U/Reaction
25×Primer Mix [2]	2 μL	1×
Template	——	＜1 μg/Reaction
ddH_2O	To 50 μL	——

1. This Buffer does not contain dNTP or Mg^{2+}. dNTPs and $MgCl_2$ must be added before use.
2. If used for qPCR/qRT-PCR, fluorescent probes need to be added to the reaction system. The final concentration of primers is usually 0.2 μM for better results. when the reaction performance is poor, the primer concentration can be adjusted within 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 primers and probes.

Reaction Programe

Standard PCR Protocol			
Procedure	Temp.	Time	Cycle
Hot Start	95°C	1-5 min	1
Denaturation	95°C	10-20 s	40-50
Annealing/ Extension	56-64°C	20-60 s	

FAST PCR Protocol			
Procedure	Temp.	Time	Cycle
Hot Start	95°C	30 s	1
Denaturation	95°C	1-3 s	40-45
Annealing/ Extension	56-64°C	3-20 s	

Notes

1. The fast DNA polymerase amplification rate is no less than 1 kb/10 s. Different PCR instruments exhibit significant

differences in temperature ramp rate, temperature control mode, and thermal conductivity. Therefore, it is recommended to optimize the optimal reaction conditions based on the specific characteristics of the fast PCR instrument.

2. Strong system adaptability, higher specificity and sensitivity.
3. Suitable as a high-sensitivity PCR detection reagent that can be used for multiple PCR amplification reactions.
4. The DNA polymerase has 5′-3′ polymerase activity, 5′-3′ exonuclease activity, lacks 3′-5′ exonuclease activity or proofreading function.
5. Suitable for qualitative and quantitative detection of conventional PCR and RT-PCR.
6. The PCR product has an A at the 3′ end and can be directly cloned into T vectors.
7. For primers with low annealing temperatures or amplicon fragments longer than 200 bp, it is recommended to use a three-step method for amplification.