

Product Description

Robustart Fast Taq DNA Polymerase-Low-DNA (Glycerol-Free)-V3 is a hot-start rapid amplification Taq enzyme product. This enzyme is specialized preparation optimized for the specific requirements of lyophilized reagent. This product effectively suppresses non-specific reactions arising from primer mispriming or primer-dimer formation during PCR system preparation and amplification processes, making it highly specific with more effective amplification of low template concentrations, suitable for multiplex PCR amplification reactions. This reagent demonstrates excellent system compatibility and delivers stable amplification results across various 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 (Glycerol-Free)-V3
2. 10×PCR Buffer II (Mg²⁺ free) (optional)
3. 25 mM MgCl₂ (optional)

*10×PCR Buffer II (Mg²⁺ free) does not contain dNTPs or Mg²⁺. Please add dNTPs and MgCl₂ 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°C. 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 MgCl ₂	2-8 μL	1-4 mM
5 U/μL Robustart Fast Taq DNA Polymerase-Low-DNA (Glycerol-Free)-V3	0.25-0.5 μL	1.25-2.5U/Reaction
25×Primer Mix ²	2 μL	1×
Template	—	< 1 μg/Reaction
ddH ₂ O	To 50 μL	—

1. This Buffer does not contain dNTP or Mg²⁺. dNTPs and MgCl₂ 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				FAST PCR Protocol			
Procedure	Temp.	Time	Cycle	Procedure	Temp.	Time	Cycle
Hot Start	95°C	1-5 min	1	Hot Start	95°C	30 s	1
Denaturation	95°C	10-20 s	40-50	Denaturation	95°C	1-3 s	40-45
Annealing/ Extension	56-64°C	20-60 s		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.