Cat.:FE16-NA

Robustart Taq DNA Polymerase-Low DNA (Glycerol-Free)

V01

Product Description

Robustart Taq (NA) (DG) is a specialized enzyme optimized and formulated according to the specific requirements of lyophilized reagents. This product not only effectively inhibits non-specific reactions caused by non-specific primer annealing or primer polymerization during PCR system preparation and amplification, ensuring excellent specificity and enhanced efficiency for amplifying low-concentration templates—making it suitable for multiplex PCR reactions—but also demonstrates excellent system compatibility, delivering stable amplification results across various PCR reaction types. Processed through a specialized technique, the product contains no residual DNA and is suitable for development of detection reagents in biopharmaceutical applications.

Size

5 U/μL

Reagent Composition

1. 5 U/μL Robustart Taq (NA) (DG)
2. 10× PCR Buffer II (Mg^{2+}free) (Optional)
3. 25 mM $MgCl_2$ (optional)

* 10× PCR Buffer II (Mg^{2+}free) contains neither dNTPs nor Mg^{2+}; when preparing the reaction system, please add dNTPs and $MgCl_2$.

Unit Definition

At 74°C for 30 minutes, using activated salmon sperm DNA as the template/primer, the enzyme amount required to incorporate 10 nmol of deoxyribonucleotides into the acid-insoluble substance was 1 active unit (U).

Storage

Storage at -20±5°C. Mix thoroughly before use and avoid repeated 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 Taq (NA) (DG)	0.25-0.5 μL	1.25-2.5 U
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

Two-step method				Three-step method			
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	35-50	Denaturation	95°C	1-5 s	35-50
Annealing and Extension	56-64°C	20-60 s		Annealing and Extension	56-64°C 72°C	10-30 s 10-60 s	

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Notes

1. Capable of rapid thermal initiation at 95°C or 94°C for 1–5 minutes.
2. The system exhibits strong adaptability with enhanced specificity and sensitivity.
3. Suitable as a high-sensitivity PCR detection reagent for 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 qualitative and quantitative detection in conventional PCR and RT-PCR.
6. The 3' end of PCR products carries an A base, enabling direct cloning onto T vectors. 7. For primers with lower annealing temperatures or amplification of fragments exceeding 200 bp, a three-step protocol is recommended.