Cat.:E04-2-NA

AcuGenix™ Heat-labile Uracil-DNA Glycosylase (UNG)-LowDNA-V2 V01

Product Description

Temperature-sensitive UNG II (TS-UNG II) is a thermolabile UNG enzyme obtained by recombinant expression in Escherichia coli.This enzyme catalyzes the release of free uracil from uracil-containing single-stranded and double-stranded DNA, and exhibits no activity against RNA. Compared with conventional UNG derived from E. coli, TS-UNG possesses higher activity at low temperatures (20°C–37°C) and features thermolability with easy inactivation at 50°C. It eliminates the residual activity of ordinary UNG after inactivation, which would otherwise degrade dUTP-containing amplification products at room temperature.Therefore, TS-UNG II is highly suitable for contamination prevention in conventional PCR and is fully compatible with RT-PCR amplification procedures for anti-contamination applications in RT-PCR.With specially processed manufacturing technology, Through specialized treatment, this product is devoid of DNA residues and is appropriate for the development of biopharmaceutical-related detection reagents.

Size

1 U/μL

Unit Definition

Employing poly(A)•Oligo(dT)$_{25}$ as a template/primer, One unit of activity (U) refers to the amount of enzyme required to incorporate 1 nmol of dTTP within 10 minutes at 37°C.

Storage Buffer

20 mM Tris-HCl (pH7.5), 100 mM NaCl, 0.1 mM EDTA, 1 mM DTT, Stabilizer.

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

Component	Volume per Reaction	Concentration in Master Mix
10×PCR Buffer (Mg^{2+} free)	5 μL	1×
dNTPs（dATP, dGTP, dCTP）	——	200 μM
dUTP（replace dTTP）	——	200-600 μM
25 mM $MgCl_2$	2-8 μL	1-4 mM
5 U/μL Taq	0.25 μL	1.25 U
1 U/μL TS-UNG II (NA)	0.5 μL (0.1-0.5 μL)	0.5 U (0.1-0.5 U)
25×Primer Mix *	2 μL	1×
Template	——	< 1 μg/reaction
ddH_2O	To 50 μL	——

*For qPCR/qRT-PCR assays, fluorescent probes need to be added to the reaction system.Generally, a final primer concentration of 0.2 μM yields optimal results.For reactions with poor amplification efficiency, the primer concentration can be adjusted within the range of 0.2~1 μM.The probe concentration is typically optimized between 0.1 μM and 0.3 μM.It is recommended to design concentration gradient experiments to screen the optimal combination of primers and probes.

Notes

This reagent is suitable for optimizing the reverse transcription temperature within the range of 50°C to 55°C. It exhibits excellent stability, is suitable for high-temperature reverse transcription amplification, can efficiently traverse the complex structural regions of RNA, and is appropriate for one-step multiplex fluorescent quantitative RT-PCR detection. It shows remarkable compatibility with various PCR amplification enzymes and is suitable for high-sensitivity RT-PCR reactions. This reagent is applicable to high-sensitivity one-step fluorescent quantitative RT-PCR reactions, which can effectively improve the detection rate of low-concentration templates. It is suitable for the construction of cDNA libraries and applicable to 3′ and 5′ RACE.