Cat.:FE04-2-NA

AcuGenix™ Heat-labile Uracil-DNA Glycosylase (UNG)-Low DNA (Glycerol-Free)-V2 V01

Product Description

Temperature-sensitive UNG II (Temperature Sensitive UNG, abbreviated as TS-UNG II) is a temperature-sensitive UNG enzyme obtained through recombinant expression in Escherichia coli. This enzyme catalyzes the release of free uracil from both single-stranded and double-stranded DNA containing uracil, while exhibiting no activity toward RNA. Compared to conventional UNG enzymes derived from E. coli genes, TS-UNG demonstrates higher activity at low temperatures (20°C–37°C), exhibits temperature sensitivity, and is readily inactivated at 50°C. This characteristic eliminates the potential residual activity of conventional UNG enzymes after inactivation, which may degrade dUTP-containing amplification products at room temperature. Therefore, TS-UNG II (NA) (DG) is a specialized enzyme optimized and formulated according to the specific requirements of lyophilized reagents. It is not only well-suited for PCR contamination prevention reactions but also perfectly compatible with RT-PCR amplification protocols for use in RT-PCR contamination control. The product undergoes specialized processing to ensure complete DNA removal and is suitable for the development of detection reagents in biopharmaceutical applications.

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 the PCR 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) (DG)	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.-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.