Cat.:FE04-2

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

Product Description

AcuGenix™ Heat-labile Uracil-DNA Glycosylase (UNG) (Glycerol-Free)-V2 is a temperature-sensitive UNG enzyme recombinantly expressed 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 E. coli-derived UNG, this variant maintains higher activity at low temperatures ranging from 20°C to 37°C. It is heat-labile and can be efficiently inactivated at 50°C, which prevents the degradation of dUTP-containing amplicons at room temperature caused by residual activity of conventionally inactivated UNG. AcuGenix™ Heat-labile Uracil-DNA Glycosylase (UNG) (Glycerol-Free)-V2 is specially optimized and formulated to meet the unique requirements of lyophilized reagents. It delivers excellent performance in PCR contamination prevention and is highly compatible with standard RT-PCR thermal cycling protocols, making it suitable for anti-contamination control in RT-PCR assays.

Size

1 U/μL

Unit Definition

One unit (U) is defined as the amount of enzyme required to degrade 1 μg of dU-containing single-stranded DNA within 1 hour at 37°C.

Storage Buffer

20 mM Tris-HCl (pH 7.5), 100 mM NaCl, 0.1 mM EDTA, 1 mM DTT, Stabilizer, 50% Glycerol.

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 (dNTP free, 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 AcuGenix™ Heat-labile Uracil-DNA Glycosylase (UNG) (Glycerol-Free)-V2	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	——

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.

Notes

1. AcuGenix™ Heat-labile Uracil-DNA Glycosylase (UNG) (Glycerol-Free)-V2 features a low optimal reaction temperature, with functional activity maintained from 20°C to 37°C. Optimal performance can be achieved by adjusting enzyme dosage between 0.1–0.5 U and incubation time within 5–10 min. Furthermore, the enzyme is readily inactivated throughout the reverse transcription process.
2. This product is recommended for anti-contamination applications in conventional PCR and RT-PCR assays.
3. Avoid repeated freeze-thaw cycles and exposure to environments with drastic temperature fluctuations.
4. The efficiency of dUTP utilization and sensitivity to UNG enzyme varies for different genes to be amplified. If the detection sensitivity is reduced due to the use of the UNG system, adjust and optimize the reaction system accordingly. If technical support is required, please contact our company.