Heat-labile UDG

Catalog # P051-01

Version 5.1

Vazyme biotech co., ltd.

Introduction

UDG (Uracil-DNA Glycosylase) catalyses and hydrolyses uracil base and N- glycosidic bond of the sugar phosphate skeleton which belong to single or double-stranded DNA containing dU. Thus, free uracils are released and the base-free sites are dissociated easily by hydrolysis. Heat-labile UDG steming from psychrophilic marine bacterium, is sensitive to high temperature and therefore inactivates enzymes irreversibly when temperature over 50°C, which is suitable for PCR/QPCR, RT- PCR /RT-QPCR system.

Package Information

Components	P051-01 100U
Heat-labile UDG (1 U/μl)	100 μl

Storage Buffer

20 mM Tris-HCl, pH 8.0@ 25°C
0.1 mM EDTA
100 mM KCl
1 mM DTT
50% Glycerol (v/v)
0.5% NP-40 (v/v)
0.5% Tween-20 (v/v)

Storage

Store at -20 ℃

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Origin

Recombinant *E. coli* strain cloned with UDG gene of psychrophilic marine bacterium

Unit Definition

One One unit (U) is defined as the amount of enzyme that releases 1 nmol of uracils from the DNA strand (containing dU) within 1 hour at 37°C in the reaction system containing 70 mM of Tris - HCl, pH 7.5, 10 mM of NaCl, 1 mM of EDTA, 100 μg/ml of BSA reaction liquid.

Specific Activity of Enzyme

≥200,000 U/mg

Quality Control

Exonuclease residue detection: DNA electrophoresis bands do not change when 10 U of this enzyme and 0.6 μg of λ-Hind III are incubated at 37°C for 16 hours.
Endonuclease residue detection: DNA electrophoresis bands do not change when 10 U of this enzyme and 0.6 μg of Supercoiled pBR322 DNA are incubated at 37°C for 4 hours.
RNase residue detection: RNA electrophoresis bands do not change when 10 U of this enzyme and 1 μg of total RNA of HeLa cell are incubated at 37°C for 1 hours.
E. coli DNA residue detection: *E. coli* genome residue of 200 U of this product should be less than 10 copies in TaqMan qPCR detection specified with *E. coli* 16s rDNA .

Protocol

1. Recommended reaction mixture for PCR:

ddH_2O	to 50 μl
10 × Taq Buffer(with 20 mM $MgCl_2$)	5 μl
25 mM $MgCl_2$[a]	Optional
dUTP[b]	0.6 mM
dATP/dCTP/dGTP	0.2 mM each
Template DNA	Optional
Primer 1 (10 μM)	2 μl
Primer 2 (10 μM)	2 μl
Taq DNA Polymerase (5 U/μl)	0.5μl
Heat-labile UDG (1 U/μl)[c]	1 μl

a.The final concentration of Mg^{2+} can be adjusted between 2.0 and 3.0 mM according to experiment needs.

b.The final dUTP concentration can be adjusted to 0.2 - 0.6 mM according to experiment demands.

c.According to the requirements of the experiment, the general amount of the Heat-labile UDG in the 50 μl reaction system is 0.1 - 1 U.

2. PCR conditions:

25 ℃	10 min	U-containing template degradation
95 ℃	2 min	UDG inactivation, template degeneration
PCR Reaction		