

Product components

Components	Component number	Size-1	Size-2
		100 U	500 U
Heat-labile UDG (1,000 U/mL)	RM20530	100 µL	500 µL

Product Description

Heat-labile UDG is derived from *Psychrophilic marine* bacterium. The uracil-DNA Glycosylase (UDG) catalyzes the release of free uracil from uracil-containing DNA. UDG efficiently hydrolyzes uracil from single-stranded or double-stranded DNA, but not from oligomers (6 or fewer bases). It was used to prevent the PCR carry-over contamination. The Heat-labile UDG is sensitive to temperature, and it can be irreversibly inactivated above 50°C. It is suitable for PCR, qPCR, RT-PCR, and RT-qPCR systems.

Product Source

An *E.coli* strain that carries the UDG gene from *Psychrophilic marine* bacterium.

Unit Definition

One unit is defined as the amount of enzyme that catalyzes the release of 1 pmol of uracil per minute from uracil-containing DNA template in 60 min at 37°C.

Storage Temperature

-20°C

Storage Conditions

20 mM Tris-HCl, 100 mM KCl, 1 mM DTT, 0.1 mM EDTA, 50% Glycerol, 0.5% CA630, 0.5% Tween20, pH 7.5 @ 25°C

Heat Inactivation: 95°C, 2 min

Instructions

Treatment of 0.1 µg of uracil-containing DNA with 1 unit of UDG for 10 minutes at 25°C renders the DNA incapable of being copied by DNA polymerase. The Heat-labile UDG enzyme was incubated at 95°C for 2 minutes, which leads to the loss of enzyme activities.

Prepare PCR reaction system (50 µL)

component	amount
ddH ₂ O	To 50 µL
10X PCR Reaction Buffer, Mg ²⁺ plus	5 µL
dUTP*	0.6 mM
dATP/dCTP/dGTP	0.2 mM each
Template DNA	optional
Primer1 (10 µM)	2 µL
Primer2 (10 µM)	2 µL
<i>Taq</i> DNA Polymerase (5,000 U/mL)	0.5 µL
Heat-labile UDG (1,000 U/mL) **	1 µL

*, note: the final concentration of dUTP can be adjusted between 0.2 - 0.6 mM.

**, note: 0.1 - 1 U UDG enzyme used in a 50 µL reaction.

Note: the final concentration of MgCl₂ can be adjusted between 2 - 3 mM.

Reaction procedures

Temperatrue	time	Remarks
UDG reaction		
25°C	10 min	U-containing templates were degraded
95°C	2 min	UDG deactivation, template degeneration
PCR reaction		
94°C	30 s	
55°C	30 s	30 - 35 cycles
72°C	60 s/kb	
72°C	7 min	Complete extension

Note: PCR reaction procedure can be adjusted by the nature of Taq DNA polymerase and in accordance with the experimental needs.

Notes

UDG is active over a broad pH range with an optimum at pH 8.0, does not require divalent cation, and is inhibited by high ionic strength(> 200 mM).