

Thermolabile UDG (Uracil DNA glycosylase)

Product Description:

Uracil DNA glycosylase (UDG) catalyzes the hydrolysis of the N-glycosidic bond between the uracil base and the sugar backbone, releasing free uracil, leaving an apyrimidinic site that is susceptible to hydrolytic cleavage. Thermolabile UDG (Uracil DNA glycosylase) is derived from psychrophilic marine bacterium, which is a heat-sensitive enzyme that can be irreversibly inactivated above 50°C. This product is commonly used in PCR, qPCR, RT-PCR, RT-qPCR, LAMP and other experiments to prevent carry-over contamination.

Composition and storage conditions

Components	K1109-100 U	K1109-500 U
Thermolabile UDG (Uracil DNA glycosylase) (1 U/μL)	100 μL	500 μL
10×Standard Taq Reaction Buffer	1.5 mL	1.5 mL
Store the components at -20°C for 2 years.		

Protocol

1. PCR reaction system configuration

Components	Volume (μL)	Final concentration
10× Taq PCR Buffer	5	1×
Taq DNA Polymerase (5 U/μL)	0.5	0.05 U/μL
Forward Primer (10 μM)	2	0.4 μM
Reverse Primer (10 μM)	2	0.4 μM
dUTP (10 mM) ^I	3	0.6 mM
dCTP / dGTP/ dATP (10 mM each)	1	0.2 mM each
Template DNA	Optional	-
Thermolabile UDG (Uracil DNA glycosylase) (1 U/μL) ^{II}	1	1 U/50 μL
ddH ₂ O	Up to 50	

Note:

I. The final concentration of dUTP can be adjusted between 0.2 - 0.6 mM for different experiments.

II. The amount of thermolabile UDG for 50 μL reaction is generally between 0.1 - 1 U depending on your needs.

2. PCR reaction procedure

Reaction temperature	Reaction time	Number of cycles	Objective
25°C	10 min	1	Degradation of dU-containing templates
95°C	2 min	1	Inactivation of UDG and initial denaturation
94°C	30 sec	30-35 Cycles	denaturation
55°C (adjust according to T _m)	30 sec		annealing
72°C	60 sec/kb		Extension
72°C	7 min	1	Final extension
4°C	+∞	1	Hold

Notes

1. Application: remove aerosol contamination of dU-containing qPCR/PCR/LAMP products to avoid false positive results due to contamination.
2. Thermolabile UDG Storage buffer: 10 mM Tris-HCl, 50 mM NaCl, 0.1 mM EDTA, 1 mM DTT, 50% Glycerol, pH 7.5 @25°C
3. If you set up your own qPCR system and need to add dUTP and thermolabile UDG to prevent contamination, 0.025 U/μL thermolabile UDG is recommended for most systems.
4. Storage and transportation conditions: store at -20°C and dry ice shipping.
5. This product is active in most PCR or qPCR systems, but for self-set PCR or qPCR systems, it is recommended to test for compatibility with the system at the first time.
6. This product is for scientific research purposes only.

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