Product Manual

Product Name	Uracil-DNA Glycosylase (UDG)
Source	Recombinant expression in Escherichia coli
Catalog Number	CSB-DEM026
Physical Form	Liquid
Enzyme Activity	1 U/μL
Storage Conditions	-20 ±5°C
Molecular Weight	25 kDa
Storage Buffer	10 mM Tris-HCl, 50 mM KCl, 1 mM DTT, 0.1 mM EDTA, 0.1 mg/ml BSA, 50% Glycerol, pH 7.4
Activity Definition	1 unit (U) of enzyme is required to release 60 pmol of [3H]-uracil from 0.2 μg of uracil-containing DNA (104-105 cpm/μg) in a 50 μL reaction system at 37°C for 30 minutes.
Quality Control	No detectable endonuclease, single-stranded DNAse, or RNAse activity.
Shelf Life	24 months

Product Description

Uracil-DNA Glycosylase (UDG) is derived from recombinant cloning and expression of Escherichia coli. It catalyzes the release of free uracil from DNA containing uracil (U), but has no activity on RNA. UDG enzyme is used as a component in PCR reaction systems to prevent contamination. UDG efficiently hydrolyzes uracil in single-stranded or double-stranded DNA, but cannot hydrolyze uracil in oligonucleotides (less than 6 bp). It is primarily used to prevent contamination of PCR amplification products. The principle of its action involves replacing dTTP with dUTP in the PCR reaction, resulting in PCR amplification products containing dU bases. The glycosidic bond of dU bases in

the amplified DNA is cleaved by UDG, making the DNA chain highly unstable at the site of dU base loss, which is subsequently degraded during the heating step.

Product components

Component No.	Component Name	Specifications		
1	UDG	100 U	500U	1000 U

Operating instructions

To a DNA sample containing 0.1 μg of uracil, add 1 U of UDG enzyme and incubate at 37°C for 10 minutes. This treatment prevents amplification of the DNA by DNA polymerase. UDG enzyme loses 95% of its activity after incubation at 95°C for 10 minutes. After the 95°C heat treatment, UDG enzyme retains partial activity, and UDG inhibitors can be used to prevent degradation of DNA products or the Reaction products can be purified immediately.

Precautions

UDG enzyme activity reaches its optimum at pH 8.0 and does not require divalent cations. It is inhibited at high ion concentrations (> 200 mM).