

**Uracil DNA Glycosylase (UDG)**  
**Store at -20°C**

**Product Description**

Uracil DNA Glycosylase (UDG) catalyzes the hydrolysis of the N-glycosylic bond between the uracil and sugar, leaving an abasic site in uracil-containing single or double-stranded DNA. The enzyme shows no measurable activity on short oligonucleotides (< 6 bases), or RNA substrates.

**Source of Protein**

A recombinant *E.coli*- strain carrying the Uracil DNA Glycosylase gene from *E.coli* K-12.

**Components**

Component Name	NP100037	NP100038
Uracil DNA Glycosylase supplied in 10 mM Tris-HCl, pH 7.5, 50 mM NaCl, 1 mM dithiothreitol, 0.1 mM EDTA, 50% Glycerol.	200 µL (2 U/µL)	1 mL (2 U/µL)
10X UDG Reaction Buffer containing 20 mM Tris-HCl, pH 8.2, 1 mM DTT, 1 mM EDTA.	1.5 mL	1.5 mL

**Storage Conditions**

Store at -20°C.

**Concentration**

2 units/µL

**Unit Definition and Unit Characterization Assay**

One unit is defined as the amount of enzyme that catalyzes the release of 3.60 nmol of uracil in one hour from a double-stranded, 1.1 kb DNA fragment containing tritiated uracil at 37°C in 1X UDG Reaction Buffer.

Specific activity is measured using replicate dilutions of UDG in a time-course assay. Dilutions of enzyme are made in a reduced-glycerol (5%) containing UDG storage solution ([UDG]<sub>f</sub> = 6x10<sup>-5</sup>µg/µL) and added to 50 µL reactions containing 15,000 CPM of a <sup>3</sup>H-dUTP containing 1.1kb PCR product and 1X UDG Reaction Buffer. Reactions are incubated for 5, 10, 20, 30, or 40 minutes at 37°C, plunged on ice, and analyzed using a TCA-precipitation method.

**Quality Assurance**

Purified free of contaminating endonucleases and exonucleases. In addition, enzyme purity is analyzed by SDS-PAGE, and negligible *E.coli* genomic DNA is confirmed by qPCR.

**Safety and Use Statement**

All biological materials should be handled as potentially hazardous. Follow universal precautions as established by the Centers for Disease Control and Prevention and by the Occupational Safety and Health Administration when handling and disposing of potentially infectious or hazardous agents. This product is authorized for laboratory research use only. The product has not been qualified or found safe and effective for any human or animal diagnostic application. Uses other than the labeled intended use may be a violation of applicable law.

**Applications**

Treatment of 0.1 µg of uracil-containing DNA with 1 unit of UDG for 10 minutes at 37°C renders the DNA incapable of being copied by DNA polymerase.

**Suggested Reaction Conditions**

Incubate at 37°C with 1X UDG Reaction Buffer.

**Heat Inactivation**

No

**Usage 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).

**References**

- Lindahl, T. et al. (1977)*J. Biol. Chem.*, vol. 252, pp. 3286-3294.
- Wang, Z. et al. (1991)*Gene*, vol. 99, pp. 31-37.
- Devchand, P.R. et al. (1993) *Nucl. Acids Res.*, vol. 21, pp. 3437-3443.