

## Polyclonal Antibody to UNG (uracil-DNA glycosylase)



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### Polyclonal Antibody to UNG (uracil-DNA glycosylase)

**Catalog No :** IMG-403  
**Formulation :** 100 ug in 200 ul PBS containing 0.2% gelatin and 0.05% sodium azide. Sodium azide is highly toxic  
**Isotype :** Rabbit IgG  
**Clone :** N/A  
**Purification :** Protein G Chromatography  
**Species React :** Human, Mouse, Rat  
**Predicted React :** Chimpanzee, Dog, Zebrafish, Xenopus, Chicken  
**Host :** Rabbit

#### Application

Western blot analysis: 2 ug/ml

#### Storage

This antibody is supplied as protein-G purified protein. Store at 4°C, stable at 4°C for 6 months. For long-term storage, store at -20°C.

**Recommended Positive Control:** HeLa (Imgenex Cat. No. # 40161)

#### Background

The human UNG gene encodes both nuclear (UNG2) and mitochondrial (UNG1) forms of uracil-DNA glycosylase. These forms are generated by alternative splicing and the use of two differentially regulated promoters, PA and PB (Slupphaug et al., 1993; Nilsen et al., 1997). The cDNAs for UNG1 and UNG2 are of similar size (2061 and 2058 bp, respectively) and as a result the corresponding mRNAs are not resolved as two species in gel electrophoresis (Huang et al., 1998). Nuclear UNG2 differs from mitochondrial UNG1 in 44 amino acids of the N-terminal sequence that is not necessary for catalytic activity. A major role of the UNG gene products is to repair mutagenic U:G mispairs caused by cytosine deamination. For example, UNG2 removes misincorporated dUMP residues. The level and expression pattern of UNG1 and UNG2 differs between cell and tissue type (Huang et al. 1998). Additionally, the expression of UNG is cell cycle regulated (Nagelhus et al. 1995). The expression and activity of UNG has been found in general to be higher in proliferating as compared to nonproliferating tissues and cells (reviewed in Kruman et al. 2004). UNG1 is a 304 amino acid protein. UNG2 is a 313 amino acid protein.

#### Antigen

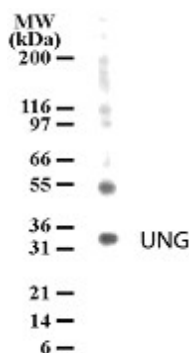
This antibody was generated by immunizing rabbit with a synthetic peptide sequence CRHFSKTNELLQKSGKKP corresponding to amino acids 281-298 of human UNG1 (NP 003353.1) and amino acids 290-307 of human UNG2 (NP 550433.1). The peptide sequence used for immunogen is highly conserved between mammalian and invertebrates.

#### Application Notes

- (1). The synthetic peptide sequence used for immunogen is 100% conserved between UNG1 and UNG2. Thus the antibody recognizes both UNG1 and UNG2. As UNG1 and UNG2 are not resolved as two species in gel electrophoresis (Huang et al., 1998), they are indistinguishable by western blot. The observed molecular weight of UNG (UNG1 and UNG2) on western blots may vary: 26 kDa, 27.5 kDa, 31 kDa, and 38 kDa forms have been described (Bharati et al., 1998; Slupphaug et al., 1993).
- (2). Please see Kruman et al. (Fig. 1D, 2004) for an example of western blot in rat.
- (3). This specificity of this antibody has been validated by antisense UNG oligonucleotide (Kruman et al. 2004).

#### Genebank Info (Protein)

NP\_550433



Western blot analysis of UNG in HeLa cell lysate with using IMG-403 at 2ug/ml.

#### Related Products

1. 20301 [Goat Anti-Rabbit HRP Conjugate]
2. IMG-5142A [Polyclonal Antibody to beta Actin]
3. IMG-5143A [Polyclonal Antibody to GAPDH]

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4. 40161 [HeLa cell line lysate (cervical carcinoma)]

### Reference

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2. Slupphaug G, F-H Markussen, LC Olsen, R Aasland, N Aarsaether, O Bakke, HE Krokan, and DE Hellend. 1993. Nuclear and mitochondrial forms of human uracil-DNA glycosylase are encoded by the same gene. *Nucleic Acids Res.* 21:2579-2584.
3. Nilsen H, M Otterlei, T Huag, K Solum, TA Nagelhus. 1997 Nuclear and mitochondrial uracil-DNA glycosylases are generated by alternative splicing and transcription from different positions in the UNG gene. *Nucleic Acids Res.* 25:750-755.
4. Bharati S, HE Krokan, L Kristiansen, M Otterlei, and G Slupphaug. 1998. Human mitochondrial uracil-DNA glycosylase preform (UNG1) is processed to two forms one of which is resistant to inhibition by AP sites. *Nucleic Acid Res.* 26:4953-4959.
5. Huag T, F Skorpen, PA Aas, V Malm, C Skjelbred and HE Krokan. 1998. Regulation of expression of nuclear and mitochondrial forms of human uracil-DNA glycosylase. *Nucleic Acids Res.* 26:1449-1457.
6. Nilsen H, I Rosewell, P Robins, CF Skjelbred, S Andersen, G Slupphaug, G Daly, HE Krokan, T Lindahl, and DE Barnes. 2000. Uracil-DNA glycosylase (UNG)-deficient mice reveal a primary role of the enzyme during DNA replication. *Mol Cell.* 5:1059-1065.
7. Krokan HE, M Otterlei, H Nilsen, B Kavli, F Skorpen, S Andersen, C Skjelbred, M Akbari, PA Aas, and G Slupphaug. 2001. Properties and functions of human uracil-DNA glycosylase from the UNG gene. *Prog Nucleic Acid Res Mol Biol.* 68:365-386.

### Product Citations

1. **Activation-induced deaminase cloning, localization, and protein extraction from young VH-mutant rabbit appendix.** Guibin Yang, Harold Obiakor, Rajesh K. Sinha, Barbara A. Newman, Brian L. Hood, Thomas P. Conrads, Timothy D. Veenstra, and Rose G. Mage. *PNAS*, Nov 2005; 10.1073/pnas.0501338102.
2. **Suppression of uracil-DNA glycosylase induces neuronal apoptosis.** Kruman II, E Schwartz, Y Kruman, R Cutler, X Zhu, NH Greig, and MM Mattson. 2004. . *J. Biol. Chem.*, 279: 43952-43960. (**Western Blot:Rat, Fig.1D**)

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