

## UNG Protein, Human, Recombinant (GST)

### General Information

Synonyms:	uracil-DNA glycosylase;HIGM4;UNG15;UNG1;DGU;UNG2;HIGM5;UDG
Protein Construction:	A DNA sequence encoding the human UNG isoform 1 (P13051-2) (Phe 85-Leu 304) was fused with the GST tag at the N-terminus. Predicted N terminal: Met
Species:	Human
Expression Host:	E. coli
Accession:	P13051-2
Molecular Weight:	52 kDa (predicted); 48 kDa (reducing conditions)

### QC Testing

Biological Activity:	Activity testing is in progress. It is theoretically active, but we cannot guarantee it. If you require protein activity, we recommend choosing the eukaryotic expression version first.
Purity:	> 90 % as determined by SDS-PAGE
Endotoxin:	Please contact us for more information.
Formulation:	Lyophilized from a solution filtered through a 0.22 µm filter, containing 40 mM Tris, 0.15M NaCl, 2 mM GSH, pH 7.5. Typically, a mixture containing 5% to 8% trehalose, mannitol, and 0.01% Tween 80 is incorporated as a protective agent before lyophilization.

### Preparation and Storage

Reconstitution:	A Certificate of Analysis (CoA) containing reconstitution instructions is included with the products. Please refer to the CoA for detailed information.
Stability & Storage:	It is recommended to store recombinant proteins at -20°C to -80°C for future use. Lyophilized powders can be stably stored for over 12 months, while liquid products can be stored for 6-12 months at -80°C. For reconstituted protein solutions, the solution can be stored at -20°C to -80°C for at least 3 months. Please avoid multiple freeze-thaw cycles and store products in aliquots. <small>Actual storage temperature shall be subject to the COA.</small>
Shipping:	In general, lyophilized powders are shipped with blue ice, while solutions are shipped with dry ice.

### Protein Background

Isoform 1 is widely expressed with the highest expression in skeletal muscle, heart and testicles. Isoform 2 has the highest expression levels in tissues containing proliferating cells. Uracil-DNA glycosylase exists in two forms: mitochondrial uracil-DNA glycosylase 1 (UNG1) and nuclear uracil-DNA glycosylase 2 (UNG2). uracil-DNA glycosylase. This gene encodes one of several uracil-DNA glycosylases. One important function of uracil-DNA glycosylases is to prevent mutagenesis by eliminating uracil from DNA molecules by cleaving the N-glycosylic

bond and initiating the base-excision repair (BER) pathway. Uracil bases occur from cytosine deamination or misincorporation of dUMP residues. Alternative promoter usage and splicing of this gene leads to two different isoforms: the mitochondrial UNG1 and the nuclear UNG2. The UNG2 term was used as a previous symbol for the CCNO gene (GeneID 10309), which has been confused with this gene, in the literature and some databases. Defects in UNG are a cause of immunodeficiency with hyper-IgM type 5 (HIGM5). A rare immunodeficiency syndrome characterized by normal or elevated serum IgM levels with absence of IgG, IgA, and IgE. It results in a profound susceptibility to bacterial infections.

### Reference

Akbari M, et al. (2007) Different organization of base excision repair of uracil in DNA in nuclei and mitochondria and selective upregulation of mitochondrial uracil-DNA glycosylase after oxidative stress. *Neuroscience*. 145(4): 1201-12.

Slupphaug G, et al. (1996) Properties of a recombinant human uracil-DNA glycosylase from the UNG gene and evidence that UNG encodes the major uracil-DNA glycosylase. *Biochemistry*. 34(1): 128-38.

Pytel D, et al. (2008) Uracil-DNA glycosylases. *Postepy Biochem*. 54(4): 362-70.

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