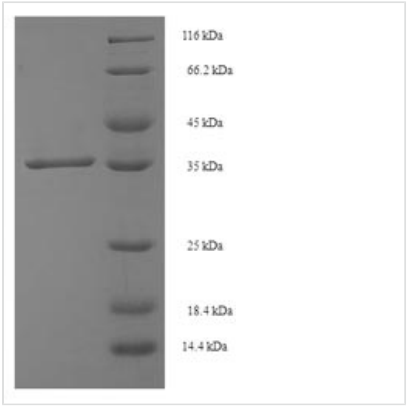
Recombinant Human Single-strand selective monofunctional uracil DNA glycosylase (SMUG1)

Product Code	CSB-EP706636HU
Relevance	Recognizes base lesions in the genome and initiates base excision DNA repair. Acts as a monofunctional DNA glycosylase specific for uracil (U) residues in DNA with a preference for single-stranded DNA substrates. The activity is greater toward mismatches (U/G) compared to matches (U/A). Excises uracil (U), 5-formyluracil (fU) and uracil derivatives bearing an oxidized group at C5 [5-hydroxyuracil (hoU) and 5-hydroxymethyluracil (hmU)] in ssDNA and dsDNA, but not analogous cytosine derivatives (5-hydroxycytosine and 5-formylcytosine), nor other oxidized bases. The activity is damage-specific and salt-dependent. The substrate preference is the following: ssDNA > dsDNA (G pair) = dsDNA (A pair) at low salt concentration, and dsDNA (G pair) > dsDNA (A pair) > ssDNA at high salt concentration.
Abbreviation	Recombinant Human SMUG1 protein
Storage	The shelf life is related to many factors, storage state, buffer ingredients, storage temperature and the stability of the protein itself. Generally, the shelf life of liquid form is 6 months at -20°C/-80°C. The shelf life of lyophilized form is 12 months at -20°C/-80°C.
Uniprot No.	Q53HV7
Product Type	Recombinant Protein
Immunogen Species	Homo sapiens (Human)
Purity	Greater than 90% as determined by SDS-PAGE.
Sequence	MPQAFLLGSIHEPAGALMEPQPCPGSLAESFLEEELRLNAELSQLQFSEPVGII YNPVEYAWEPHRNYVTRYCQGPKEVLFLGMNPGPFGMAQTGVPFGEVSMV RDWLGIVGPVLTPPQEHPKRPVLGLECPQSEGPRQSMGHEIKSELLMGGCS WIRGKIQCDRVQVRRPGFSSQL
Research Area	Epigenetics and Nuclear Signaling
Source	E.coli
Target Names	SMUG1
Protein Names	Recommended name: Single-strand selective monofunctional uracil DNA glycosylase EC= 3.2.2.-
Expression Region	1-177aa
Notes	Repeated freezing and thawing is not recommended. Store working aliquots at 4°C for up to one week.
Tag Info	N-terminal 6xHis-SUMO-tagged
Mol. Weight	35.6kDa
Protein Length	Full Length of Isoform 2

Image



(Tris-Glycine gel) Discontinuous SDS-PAGE (reduced) with 5% enrichment gel and 15% separation gel.

Description

Amino acids 1-177 constitute the expression domain of recombinant Human SMUG1. This SMUG1 protein is expected to have a theoretical molecular weight of 35.6 kDa. Expression of this SMUG1 protein is conducted in e.coli. Fusion of the N-terminal 6xHis-SUMO tag into the SMUG1 encoding gene fragment was conducted, allowing for easier detection and purification of the SMUG1 protein in subsequent stages.

Human single-strand selective monofunctional uracil DNA glycosylase (SMUG1) is a DNA repair enzyme crucial for base excision repair. SMUG1 specifically recognizes and removes uracil from single-stranded DNA, preventing mutagenesis. In genomics, SMUG1 is essential for maintaining genome integrity and stability. Research on SMUG1 extends to immunology, where it influences somatic hypermutation during antibody maturation. Additionally, SMUG1 is implicated in neurobiology, playing a role in oxidative DNA damage repair in neurons. Investigating SMUG1 provides insights into DNA repair mechanisms, genomic stability, and disease susceptibility, offering potential applications in understanding and preventing mutagenic events, as well as implications for immunology and neurological disorders.

Reconstitution

We recommend that this vial be briefly centrifuged prior to opening to bring the contents to the bottom. Please reconstitute protein in deionized sterile water to a concentration of 0.1-1.0 mg/mL.We recommend to add 5-50% of glycerol (final concentration) and aliquot for long-term storage at -20°C/-80°C. Our default final concentration of glycerol is 50%. Customers could use it as reference.

Shelf Life

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