

## SMUG1 Protein, Human (His-SUMO)

<b>Cat. No.:</b>	HY-P71560
<b>Synonyms:</b>	FDG; HMUDG; MGC104370; Single strand selective monofunctional uracil DNA glycosylase 1; Single strand selective monofunctional uracil DNA glycosylase; Single-strand selective monofunctional uracil DNA glycosylase; SMUG 1; Smug1; SMUG1 protein; SMUG1_HUMAN; UNG 3; UNG3
<b>Species:</b>	Human
<b>Source:</b>	E. coli
<b>Accession:</b>	Q53HV7 (1M-177L)
<b>Gene ID:</b>	23583
<b>Molecular Weight:</b>	Approximately 35.6 kDa

### PROPERTIES

<b>AA Sequence</b>	<p>           M P Q A F L L G S I    H E P A G A L M E P    Q P C P G S L A E S    F L E E E L R L N A            E L S Q L Q F S E P    V G I I Y N P V E Y    A W E P H R N Y V T    R Y C Q G P K E V L            F L G M N P G P F G    M A Q T G V P F G E    V S M V R D W L G I    V G P V L T P P Q E            H P K R P V L G L E    C P Q S E G P R Q S    M G H E I K S E L L    M G G C S W I R G K            I Q C D R V Q V R R    P G F S S Q L         </p>
<b>Appearance</b>	Lyophilized powder.
<b>Formulation</b>	Lyophilized after extensive dialysis against solution in Tris-based buffer, 50% glycerol.
<b>Endotoxin Level</b>	<1 EU/μg, determined by LAL method.
<b>Reconstitution</b>	It is not recommended to reconstitute to a concentration less than 100 μg/mL in ddH <sub>2</sub> O.
<b>Storage &amp; Stability</b>	Stored at -20°C for 2 years. After reconstitution, it is stable at 4°C for 1 week or -20°C for longer (with carrier protein). It is recommended to freeze aliquots at -20°C or -80°C for extended storage.
<b>Shipping</b>	Room temperature in continental US; may vary elsewhere.

### DESCRIPTION

<b>Background</b>	<p>The SMUG1 protein serves as a pivotal factor in base excision DNA repair, specifically recognizing and initiating repair processes for base lesions in the genome. Functioning as a monofunctional DNA glycosylase, SMUG1 displays specificity for uracil (U) residues in DNA, with a notable preference for single-stranded DNA substrates. Its enzymatic activity is more pronounced toward mismatches (U/G) compared to matches (U/A). SMUG1 exhibits the capability to excise not only uracil (U) but also 5-formyluracil (fU), and uracil derivatives with oxidized groups at C5, such as 5-hydroxyuracil (hoU) and 5-hydroxymethyluracil (hmU), in both single-stranded (ssDNA) and double-stranded DNA (dsDNA). Importantly, this DNA glycosylase does not act on analogous cytosine derivatives (5-hydroxycytosine and 5-formylcytosine), nor other oxidized</p>
-------------------	---

---

bases. SMUG1's activity is damage-specific and exhibits dependence on salt concentration, with a substrate preference hierarchy of ssDNA > dsDNA (G pair) = dsDNA (A pair) under low salt conditions, and dsDNA (G pair) > dsDNA (A pair) > ssDNA under high salt concentrations.

---

**Caution: Product has not been fully validated for medical applications. For research use only.**

Tel: 609-228-6898

Fax: 609-228-5909

E-mail: [tech@MedChemExpress.com](mailto:tech@MedChemExpress.com)

Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA