MutT Protein, E.coli (His-SUMO)

Cat. No.:	HY-P71482
Synonyms:	mutT; b0099; JW0097; 8-oxo-dGTP diphosphatase; 8-oxo-dGTPase; EC 3.6.1.55; 7,8-dihydro-8-oxoguanine-triphosphatase; Mutator protein MutT; dGTP pyrophosphohydrolase
Species:	E.coli
Source:	E. coli
Accession:	P08337 (1M-129L)
Gene ID:	944824
Molecular Weight:	Approximately 30.9 kDa

PROPERTIES

AA Sequence	M K K L Q I A V G I I R N E N N E I F I T R R A A D A H M A N K L E F P G G K I E M G E T P E Q A V V R E L Q E E V G I T P Q H F S L F E K L E Y E F P D R H I T L W F W L V E R W E G E P W G K E G Q P G E W M S L V G L N A D D F P P A N E P V I A K L K R L
Appearance	Lyophilized powder.
Formulation	Lyophilized after extensive dialysis against solution in Tris-based buffer, 50% glycerol.
Endotoxin Level	<1 EU/μg, determined by LAL method.
Reconsititution	It is not recommended to reconstitute to a concentration less than 100 μg/mL in ddH_2O.
Storage & Stability	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.
Shipping	Room temperature in continental US; may vary elsewhere.

DESCRIPTION

Background	MutT protein plays a pivotal role in maintaining genomic integrity by specifically hydrolyzing both 8-oxo-deoxyguanosine triphosphate (8-oxo-dGTP) and 8-oxo-guanosine triphosphate (8-oxo-GTP) to their corresponding monophosphates. This enzymatic activity is crucial for preventing the misincorporation of 8-oxoGua into DNA and RNA, thereby ensuring the fidelity of nucleotide pools. MutT's ability to remove oxidatively damaged guanine, specifically 8-oxo-dGTP, from DNA and nucleotide pools prevents replicational errors, particularly A.T to G.C transversions. Additionally, MutT may contribute to transcriptional fidelity by cleaning up 8-oxo-GTP from the ribonucleotide triphosphate pool, although its impact on transcriptional fidelity is likely limited due to the lower efficiency of RNA polymerase in incorporating 8-oxo-GTP. Furthermore, MutT demonstrates versatility by hydrolyzing 8-oxo-dGDP and 8-oxo-GDP to their monophosphate forms and can, to a lesser extent, process various nucleoside di- and triphosphates. Collaborating with MutM and MutY, MutT acts

cooperatively to prevent the accumulation of oxidized guanine residues in DNA, highlighting its essential role in maintaining the integrity of the genetic material.

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