

MSH2 Protein, Human (sf9, His-GST)

Cat. No.:	HY-P73803
Synonyms:	DNA mismatch repair protein Msh2; hMSH2; MSH2
Species:	Human
Source:	Sf9 insect cells
Accession:	P43246 (M1-T934)
Gene ID:	4436
Molecular Weight:	Approximately 132.6 kDa

PROPERTIES

Appearance	Lyophilized powder.
Formulation	Lyophilized from a 0.2 μ m filtered solution of 20 mM Tris, 500 mM NaCl, pH 7.4, 10% Glycerol, 20 mM GSH. Normally 5 % - 8 % trehalose, mannitol and 0.01% Tween 80 are added as protectants before lyophilization.
Endotoxin Level	<1 EU/ μ g, determined by LAL method.
Reconstitution	It is not recommended to reconstitute to a concentration less than 100 μ g/mL in ddH ₂ O.
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	<p>MSH2 protein is a key component of the post-replicative DNA mismatch repair system (MMR), crucial for maintaining genomic stability. Forming two distinct heterodimers, MutS alpha (MSH2-MSH6) and MutS beta (MSH2-MSH3), MSH2 recognizes and binds to DNA mismatches, initiating repair processes. MutS alpha targets single base mismatches and dinucleotide insertion-deletion loops (IDL), while MutS beta recognizes larger insertion-deletion loops. Upon mismatch binding, MutS alpha or beta forms a ternary complex with the MutL alpha heterodimer, directing downstream MMR events such as strand discrimination, excision, and resynthesis. MSH2's ATPase activity is crucial for mismatch repair, acting as a molecular switch that undergoes ADP\rightarrowATP exchange upon mismatch recognition, enabling its conversion into a sliding clamp for hydrolysis-independent diffusion along DNA. Additionally, MSH2 may participate in DNA homologous recombination repair and modulate UV-B-induced cell cycle regulation and apoptosis in melanocytes. As part of the DNA MMR complex, MSH2 collaborates with MSH3, MSH6, PMS1, and MLH1, forming a highly coordinated system essential for genome integrity. MSH2 engages in various protein interactions, including those with MCM9, MCM8, EXO1, ATR, SLX4/BTBD12, and SMARCAD1, highlighting its multifaceted role in maintaining DNA fidelity and participating in broader cellular processes.</p>
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Caution: Product has not been fully validated for medical applications. For research use only.

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