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MSH6 Antibody

Purified Mouse Monoclonal Antibody
Catalog # AO1649a

Product Information

Application	WB, IHC, FC, ICC, E
Primary Accession	P52701
Reactivity	Human
Host	Mouse
Clonality	Monoclonal
Clone Names	3E1
Isotype	IgG2a
Calculated MW	152786
Description	This gene encodes a protein similar to the MutS protein. In E. coli, the MutS protein helps in the recognition of mismatched nucleotides, prior to their repair. A highly conserved region of approximately 150 aa, called the Walker-A adenine nucleotide binding motif, exists in MutS homologs. The encoded protein of this gene combines with MSH2 to form a mismatch recognition complex that functions as a bidirectional molecular switch that exchanges ADP and ATP as DNA mismatches are bound and dissociated. Mutations in this gene have been identified in individuals with hereditary nonpolyposis colon cancer (HNPCC) and endometrial cancer.
Immunogen	Purified recombinant fragment of human MSH6 expressed in E. Coli.
Formulation	Ascitic fluid containing 0.03% sodium azide.

Additional Information

Gene ID	2956
Other Names	DNA mismatch repair protein Msh6, hMSH6, G/T mismatch-binding protein, GTBP, GTMBP, MutS-alpha 160 kDa subunit, p160, MSH6, GTBP
Dilution	WB~~1/500 - 1/2000 IHC~~1/200 - 1/1000 FC~~1/200 - 1/400 ICC~~N/A E~~1/10000
Storage	Maintain refrigerated at 2-8°C for up to 6 months. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.
Precautions	MSH6 Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	MSH6 (HGNC:7329)
Synonyms	GTBP
Function	Component of the post-replicative DNA mismatch repair system (MMR). Heterodimerizes with MSH2 to form MutS alpha, which binds to DNA mismatches thereby initiating DNA repair. When bound, MutS alpha bends the DNA helix and shields approximately 20 base pairs, and recognizes single base mismatches and dinucleotide insertion-deletion loops (IDL) in the DNA. After mismatch binding, forms a ternary complex with the MutL alpha heterodimer, which is thought to be responsible for directing the downstream MMR events, including strand discrimination, excision, and resynthesis. ATP binding and hydrolysis play a pivotal role in mismatch repair functions. The ATPase activity associated with MutS alpha regulates binding similar to a molecular switch: mismatched DNA provokes ADP-->ATP exchange, resulting in a discernible conformational transition that converts MutS alpha into a sliding clamp capable of hydrolysis-independent diffusion along the DNA backbone. This transition is crucial for mismatch repair. MutS alpha may also play a role in DNA homologous recombination repair. Recruited on chromatin in G1 and early S phase via its PWWP domain that specifically binds trimethylated 'Lys-36' of histone H3 (H3K36me3): early recruitment to chromatin to be replicated allowing a quick identification of mismatch repair to initiate the DNA mismatch repair reaction.
Cellular Location	Nucleus. Chromosome. Note=Associates with H3K36me3 via its PWWP domain

References

1. Hered Cancer Clin Pract. 2009 Dec 23;7(1):17. 2. Cancer Epidemiol Biomarkers Prev. 2009 Sep;18(9):2460-7.

Images

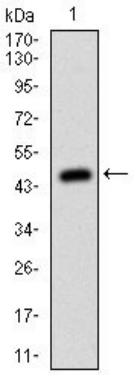
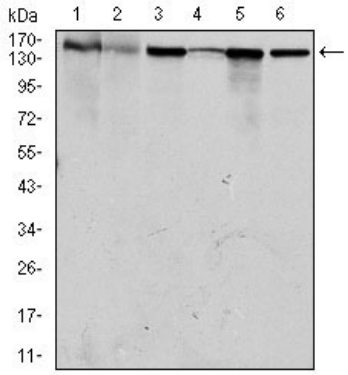


Figure 1: Western blot analysis using MSH6 mAb against human MSH6 (AA: 217-395) recombinant protein. (Expected MW is 45.5 kDa)

Figure 2: Western blot analysis using MSH6 mouse mAb against HEK293 (1), HCT116 (2), A549 (3), A431 (4), MCF-7 (5) and HepG2 (6) cell lysate.



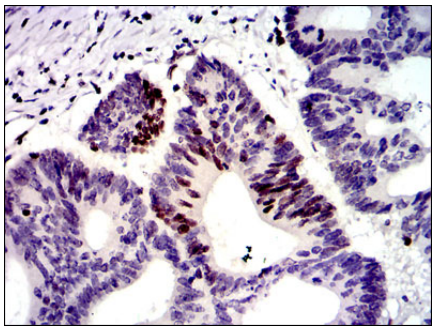


Figure 3: Immunohistochemical analysis of paraffin-embedded colon cancer tissues using MSH6 mouse mAb with DAB staining.

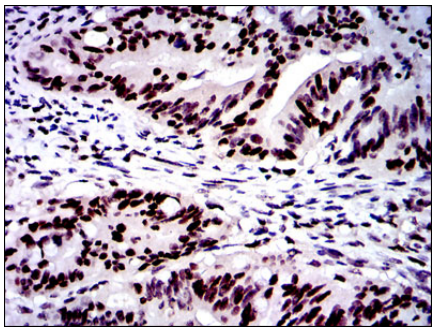


Figure 4: Immunohistochemical analysis of paraffin-embedded rectum cancer tissues using MSH6 mouse mAb with DAB staining.

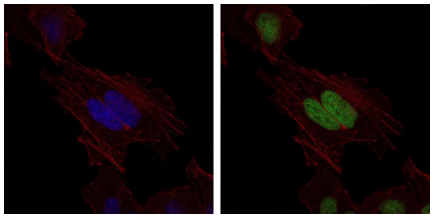


Figure 5: Immunofluorescence analysis of Hela cells using MSH6 mouse mAb (green). Blue: DRAQ5 fluorescent DNA dye. Red: Actin filaments have been labeled with Alexa Fluor-555 phalloidin.

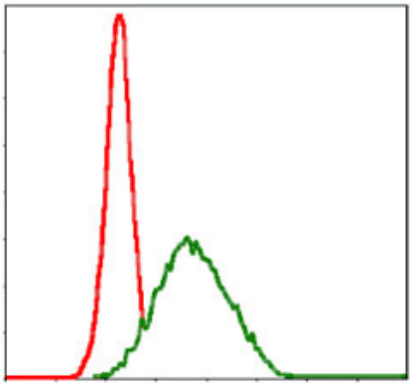


Figure 6: Flow cytometric analysis of MCF-7 cells using MSH6 mouse mAb (green) and negative control (red).