Anti-MLH1 Antibody [A10A3]

HA601184

Product Type:	Mouse monoclonal IgG1, primary antibodies
Species reactivity:	Human
Applications:	WB, IHC
Molecular Wt:	Predicted band size: 85 kDa
Clone number:	A10A3

Description: Heterodimerizes with PMS2 to form MutL alpha, a component of the post-replicative DNA mismatch repair system (MMR). DNA repair is initiated by MutS alpha (MSH2-MSH6) or MutS beta (MSH2-MSH3) binding to a dsDNA mismatch, then MutL alpha is recruited to the heteroduplex. Assembly of the MutL-MutS-heteroduplex ternary complex in presence of RFC and PCNA is sufficient to activate endonuclease activity of PMS2. It introduces single-strand breaks near the mismatch and thus generates new entry points for the exonuclease EXO1 to degrade the strand containing the mismatch. DNA methylation would prevent cleavage and therefore assure that only the newly mutated DNA strand is going to be corrected. MutL alpha (MLH1-PMS2) interacts physically with the clamp loader subunits of DNA polymerase III, suggesting that it may play a role to recruit the DNA polymerase III to the site of the MMR. Also implicated in DNA damage signaling, a process which induces cell cycle arrest and can lead to apoptosis in case of major DNA damages. Heterodimerizes with MLH3 to form MutL gamma which plays a role in meiosis.

Immunogen: Recombinant protein within human MLH1 aa 301-600 / 756.

Positive control: A431 cell lysate, HeLa cell lysate, Daudi cell lysate, K-562 cell lysate, HL-60 cell lysate, SW480 cell lysate, human appendix tissue, human tonsil tissue.

Subcellular location: Nucleus, Chromosome.

Database links: SwissProt: P40692 Human

Recommended Dilutions:

WB	1:1,000
IHC	1:1,000

Storage Buffer: PBS (pH7.4), 0.1% BSA, 40% Glycerol. Preservative: 0.05% Sodium Azide.

Storage Instruction: Store at +4℃ after thawing. Aliquot store at -20℃. Avoid repeated freeze / thaw cycles.

Purity: Protein A affinity purified.

Images

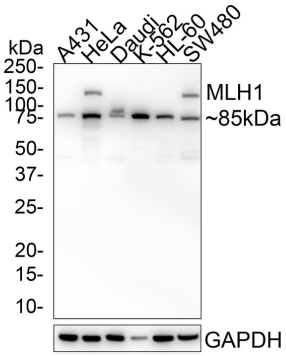

Fig1: Western blot analysis of MLH1 on different lysates with Mouse anti-MLH1 antibody (HA601184) at 1/1,000 dilution.

Lane 1: A431 cell lysate
Lane 2: HeLa cell lysate
Lane 3: Daudi cell lysate
Lane 4: K-562 cell lysate
Lane 5: HL-60 cell lysate
Lane 6: SW480 cell lysate

Lysates/proteins at 20 µg/Lane.

Predicted band size: 84.6 kDa
Observed band size: 85 kDa

Exposure time: 1 minutes 40 seconds;

4-20% SDS-PAGE gel.

Proteins were transferred to a PVDF membrane and blocked with 5% NFDM/TBST for 1 hour at room temperature. The primary antibody (HA601184) at 1/1,000 dilution was used in 5% NFDM/TBST at room temperature for 2 hours. Goat Anti-Mouse IgG - HRP Secondary Antibody (HA1006) at 1/50,000 dilution was used for 1 hour at room temperature.

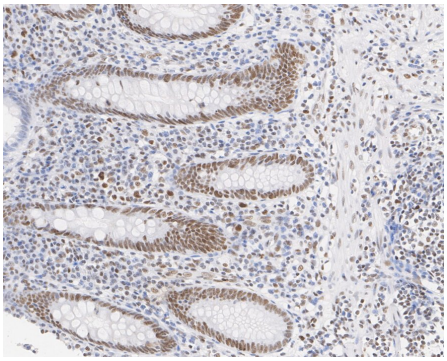

Fig2: Immunohistochemical analysis of paraffin-embedded human appendix tissue with Mouse anti-MLH1 antibody (HA601184) at 1/1,000 dilution.

The section was pre-treated using heat mediated antigen retrieval with sodium citrate buffer (pH 6.0) for 2 minutes. The tissues were blocked in 1% BSA for 20 minutes at room temperature, washed with ddH_2O and PBS, and then probed with the primary antibody (HA601184) at 1/1,000 dilution for 1 hour at room temperature. The detection was performed using an HRP conjugated compact polymer system. DAB was used as the chromogen. Tissues were counterstained with hematoxylin and mounted with DPX.

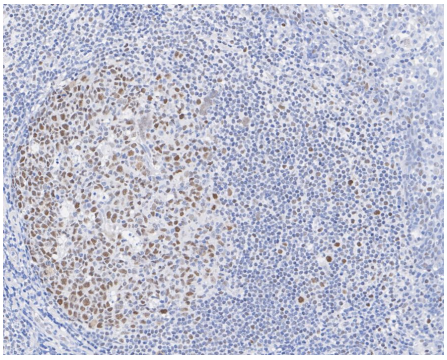

Fig3: Immunohistochemical analysis of paraffin-embedded human tonsil tissue with Mouse anti-MLH1 antibody (HA601184) at 1/1,000 dilution.

The section was pre-treated using heat mediated antigen retrieval with sodium citrate buffer (pH 6.0) for 2 minutes. The tissues were blocked in 1% BSA for 20 minutes at room temperature, washed with ddH_2O and PBS, and then probed with the primary antibody (HA601184) at 1/1,000 dilution for 1 hour at room temperature. The detection was performed using an HRP conjugated compact polymer system. DAB was used as the chromogen. Tissues were counterstained with hematoxylin and mounted with DPX.

Background References

1. Huang Y.et al. 2022 Expressing MLH1 in HCT116 cells increases cellular resistance to radiation by activating the PRKAC. Exp Biol Med (Maywood). 247(5):426-432.
2. Manzoor S. et al. 2022. MLH1 mediates cytoprotective nucleophagy to resist 5-Fluorouracil-induced cell death in colorectal carcinoma. Neoplasia. 24(2):76-85.