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MLH1 Antibody

Purified Mouse Monoclonal Antibody (Mab)
Catalog # AP52809

Product Information

Primary Accession	P40692
Host	Mouse
Clonality	Monoclonal
Isotype	IgG2b
Calculated MW	84601

Additional Information

Gene ID	4292
Other Names	COCA 2;COCA2;DNA mismatch repair protein Mlh1;FCC 2;FCC2;hMLH 1;hMLH1;HNPCC 2;HNPCC; HNPCC2;MGC5172;MLH 1;MLH1;MLH1_HUMAN;MutL homolog 1 (E. coli);MutL homolog 1;MutL homolog 1 colon cancer nonpolyposis type 2;MutL homolog 1, colon cancer, nonpolyposis type 2 (E. coli);MutL protein homolog 1;MutL, E. coli, homolog of, 1.
Format	Purified mouse monoclonal antibody in PBS(pH 7.4) containing with 0.09% (W/V) sodium azide,0.1mg/mlBSA and 50% glycerol.
Storage	Store at 4°C short term. Aliquot and store at -20°C long term. Avoid freeze/thaw cycles.

Protein Information

Name	MLH1
Synonyms	COCA2
Function	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.
Cellular Location	Nucleus. Chromosome. Note=Recruited to chromatin in a MCM9- dependent manner.
Tissue Location	Colon, lymphocytes, breast, lung, spleen, testis, prostate, thyroid, gall bladder and heart

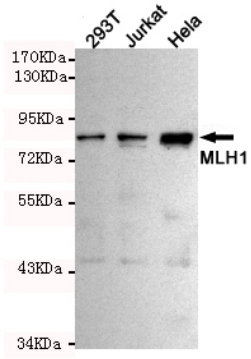
Background

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-MSH6) 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.

References

Bronner C.E.,et al.Nature 368:258-261(1994).
Papadopoulos N.,et al.Science 263:1625-1629(1994).
Kolodner R.D.,et al.Cancer Res. 55:242-248(1995).
Han H.-J.,et al.Hum. Mol. Genet. 4:237-242(1995).
Ota T.,et al.Nat. Genet. 36:40-45(2004).

Images



Western blot detection of MLH1 in Hela,293T and Jurkat cell lysates using MLH1 mouse mAb (1:500 diluted).Predicted band size:85KDa.Observed band size:85KDa.