



3050 Spruce Street  
Saint Louis, Missouri 63103 USA  
Telephone 800-325-5832 • (314) 771-5765  
Fax (314) 286-7828  
email: techserv@sial.com  
sigma-aldrich.com

## Product Information

### Anti-MLH1 (N-terminal)

produced in rabbit, affinity isolated antibody

Catalog Number **M8320**

#### Product Description

Anti-MLH1 (N-terminal) is produced in rabbit using as immunogen a synthetic peptide corresponding to amino acids 60-75 of human MLH1 (GeneID: 4292), conjugated to KLH via an N-terminal added cysteine residue. The corresponding peptide sequence is conserved in human, rat, and mouse. The antibody is affinity-purified using the immunizing peptide immobilized on agarose.

Anti-MLH1 (N-terminal) specifically recognizes human MLH1. Applications include immunoblotting, 80-85 kDa, immunoprecipitation, and immunocytochemistry. Staining of the MLH1 band in immunoblotting is specifically inhibited by the immunizing peptide.

MLH, a homolog of the *E. coli* MutL gene, is involved in DNA mismatch repair. A search in EST databases derived from random cDNA clones revealed three human DNA mismatch repair genes, related to the bacterial mutL gene, PMS1, PMS2 and MLH1.<sup>1</sup> The MLH1 gene has a number of splice variants that exist in various tissue types. These include splice variants lacking exons 6/9, 9, 9/10, 9/10/11, 10/11, 12, 16, and 17. All isoforms were found in 43-100% of the mononuclear blood cell samples, as well as in other tissues at different expression levels.<sup>2</sup> MLH1 is part of a large multi-subunit protein complex of tumor suppressors, DNA damage sensors, and signal transducers, named BASC (BRCA1-associated genome surveillance complex). The complex contains the following proteins: BRCA1, ATM, BLM, MSH2, MSH6, MLH1, RAD50, MRE11-NBS1 complex, and the RFC1-RFC2-RFC4 complex. The BASC complex may serve as a sensor of abnormal DNA structures and/or as a regulator of the post-replication repair process.<sup>3</sup>

Nonpolyposis colorectal cancer-2 is caused by a hereditary mutation in the MLH1 gene. This cancer can also be a result of hypermethylation of one MLH1 allele in somatic cells (a germline epimutation). In such families, it was found that the epimutation was

transmitted from mother to son but was erased in his spermatozoa. The findings demonstrated a novel pattern of inheritance of cancer susceptibility and are consistent with trans-generational epigenetic inheritance.<sup>4</sup>

#### Reagent

Supplied as a solution in 0.01 M phosphate buffered saline, pH 7.4, containing 15 mM sodium azide as a preservative.

Antibody concentration: ~1 mg/mL

#### Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

#### Storage/Stability

For continuous use, store at 2-8 °C for up to one month. For extended storage, freeze in working aliquots. Repeated freezing and thawing, or storage in "frost-free" freezers, is not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use. Working dilutions should be discarded if not used within 12 hours.

#### Product Profile

Immunoblotting: a working concentration of 0.5-1 µg/mL is recommended using Jurkat cell lysates.

Immunocytochemistry: a working concentration of 2.5-5 µg/mL is recommended using MCF7 cells fixed with paraformaldehyde-Triton.

Immunoprecipitation: 5-10 µg is recommended using Jurkat cell lysates.

**Note:** In order to obtain the best results using various techniques and preparations, we recommend determining the optimal working dilutions by titration.

## References

1. Papadopoulos, N., et al., *Science*, **263**, 1625-1629 (1994).
2. Genuardi, M., et al., *Hum. Genet.*, **102**, 15-20 (1998).
3. Wang, Y., et al., *Genes Dev.*, **14**, 927-939, 2000.
4. Hitchins, M.P., *New Eng. J. Med.*, **356**, 697-705, (2007).

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