

# MLH1 (D-2): sc-166625

## BACKGROUND

DNA-mismatch repair (MMR) is an essential process in maintaining genetic stability. Lack of a functional DNA-mismatch repair pathway is a common characteristic of several different types of human cancers, either due to an MMR gene mutation or promoter methylation gene silencing. MLH1 is an integral part of the protein complex responsible for mismatch repair that is expressed in lymphocytes, heart, colon, breast, lung, spleen, testis, prostate, thyroid and gall bladder and is methylated in several ovarian tumors. Loss of MLH1 protein expression is associated with a mutated phenotype, microsatellite instability and a predisposition to cancer. In hereditary nonpolyposis colorectal cancer (HNPCC), an autosomal dominant inherited cancer syndrome that signifies a high risk of colorectal and various other types of cancer, the MLH1 gene exhibits a pathogenic mutation. Certain cancer cell lines, including leukemia CCRF-CEM, colon HCT 116 and KM12, and ovarian cancers SK-OV-3 and IGROV-1, show complete deficiency of MLH1, while MLH1 is expressed in 60% of melanomas, 70% of noninvasive squamous cell carcinomas and 30% of invasive squamous cell carcinomas.

## REFERENCES

1. Taverna, P., et al. 2000. Characterization of MLH1 and MSH2 DNA mismatch repair proteins in cell lines of the NCI anticancer drug screen. *Cancer Chemother. Pharmacol.* 46: 507-516.
2. Jarvinen, H.J., et al. 2000. Surveillance on mutation carriers of DNA mismatch repair genes. *Ann. Chir. Gynaecol.* 89: 207-210.
3. Korabiowska, M., et al. 2000. Analysis of the DNA mismatch repair proteins expression in malignant melanomas. *Anticancer Res.* 20: 4499-4505.
4. Giarnieri, E., et al. 2000. MSH2, MLH1, Fhit, p53, Bcl-2, and Bax expression in invasive and *in situ* squamous cell carcinoma of the uterine cervix. *Clin. Cancer Res.* 6: 3600-3606.

## CHROMOSOMAL LOCATION

Genetic locus: MLH1 (human) mapping to 3p22.2; Mlh1 (mouse) mapping to 9 F3.

## SOURCE

MLH1 (D-2) is a mouse monoclonal antibody raised against amino acids 457-756 mapping at the C-terminus of MLH1 of human origin.

## PRODUCT

Each vial contains 200 µg IgG<sub>1</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin. Also available as TransCruz reagent for ChIP application, sc-166625 X, 200 µg/0.1 ml.

## STORAGE

Store at 4° C, **\*\*DO NOT FREEZE\*\***. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) for detailed protocols and support products.

## APPLICATIONS

MLH1 (D-2) is recommended for detection of MLH1 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for MLH1 siRNA (h): sc-35943, MLH1 siRNA (m): sc-35944, MLH1 shRNA Plasmid (h): sc-35943-SH, MLH1 shRNA Plasmid (m): sc-35944-SH, MLH1 shRNA (h) Lentiviral Particles: sc-35943-V and MLH1 shRNA (m) Lentiviral Particles: sc-35944-V.

MLH1 (D-2) X TransCruz antibody is recommended for ChIP assays.

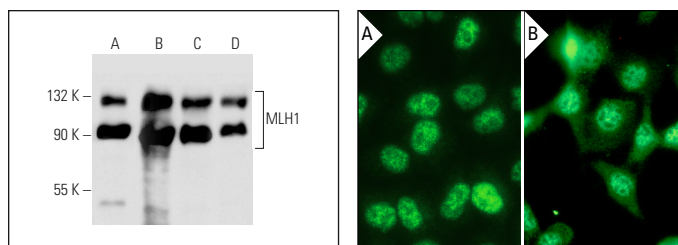
Molecular Weight of MLH1: 85 kDa.

Positive Controls: KNRK nuclear extract: sc-2141, Ramos nuclear extract: sc-2153 or MM-142 cell lysate: sc-2246.

## RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

## DATA



MLH1 (D-2): sc-166625. Western blot analysis of MLH1 expression in MM-142 whole cell lysate (A) and SW480 (B), Ramos (C) and KNRK (D) nuclear extracts.

MLH1 (D-2): sc-166625. Immunofluorescence staining of methanol-fixed HeLa cells showing nuclear localization (A). Immunofluorescence staining of methanol-fixed HeLa cells showing nuclear localization (B).

## RESEARCH USE

For research use only, not for use in diagnostic procedures.