

MLL2 (2E1): sc-293217

BACKGROUND

The mixed lineage leukemia (MLL) gene family comprise a group of Histone H3 lysine 4 (H3K4) methyltransferases within the larger SET1 family. The founding member MLL commonly undergoes translocations in infantile leukemia and displays increased expression in some adult myeloid leukemias. MLL2, also designated ALR, exists within a complex of proteins. MLL2 is important for mouse embryonic development and may be involved in adhesion-related cytoskeletal events affecting cell growth and survival. The MLL2 gene maps to the human locus 12q13.12, which is a frequent target of rearrangement or amplification in solid tumors. MLL3 or its paralogue MLL4 associate with activating signal cointegrator-2 (ASC-2), which regulates ligand-dependent H3K4 trimethylation and expression of LXR-target genes. MLL3 maps to a location on human chromosome 7 that is often deleted in myeloid disorders. MLL3 also exhibits higher expression in peripheral blood, placenta, pancreas, testis, and fetal thymus. MLL5 localizes to the nucleus and forms intranuclear protein complexes, which may regulate chromatin remodeling and cellular growth suppression. The gene encoding human MLL5 lies within chromosome band 7q22, a region deleted in cytogenetic aberrations of acute myeloid malignancies.

REFERENCES

1. Ruault, M., et al. 2002. MLL3, a new human member of the TRX/MLL gene family, maps to 7q36, a chromosome region frequently deleted in myeloid leukaemia. *Gene* 284: 73-81.
2. Deng, L.W., et al. 2004. MLL5 protein forms intranuclear foci, and overexpression inhibits cell cycle progression. *Proc. Natl. Acad. Sci. USA* 101: 757-762.
3. Lee, S., et al. 2006. Coactivator as a target gene specificity determinant for Histone H3 lysine 4 methyltransferases. *Proc. Natl. Acad. Sci. USA* 103: 15392-15397.
4. Lubitz, S., et al. 2007. Increased apoptosis and skewed differentiation in mouse embryonic stem cells lacking the histone methyltransferase MLL2. *Mol. Biol. Cell* 18: 2356-2366.
5. Nightingale, K.P., et al. 2007. Cross-talk between histone modifications in response to histone deacetylase inhibitors: MLL4 links Histone H3 acetylation and Histone H3K4 methylation. *J. Biol. Chem.* 282: 4408-4416.
6. Issaeva, I., et al. 2007. Knockdown of ALR (MLL2) reveals ALR target genes and leads to alterations in cell adhesion and growth. *Mol. Cell Biol.* 27: 1889-1903.

CHROMOSOMAL LOCATION

Genetic locus: KMT2D (human) mapping to 12q13.12.

SOURCE

MLL2 (2E1) is a mouse monoclonal antibody raised against amino acids 1487-1586 of MLL2 of human origin.

PRODUCT

Each vial contains 100 µg IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

MLL2 (2E1) is recommended for detection of MLL2 of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)] and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

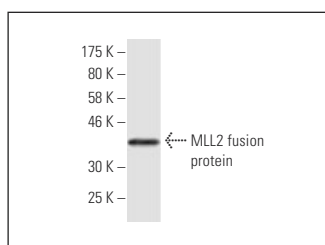
Suitable for use as control antibody for MLL2 siRNA (h): sc-75794, MLL2 shRNA Plasmid (h): sc-75794-SH and MLL2 shRNA (h) Lentiviral Particles: sc-75794-V.

Molecular Weight of MLL2: 564 kDa.

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).

DATA



MLL2 (2E1): sc-293217. Western blot analysis of human recombinant MLL2 fusion protein.

SELECT PRODUCT CITATIONS

1. Mahajan, K., et al. 2017. ACK1/TNK2 regulates Histone H4 Tyr88-phosphorylation and AR gene expression in castration-resistant prostate cancer. *Cancer Cell* 31: 790-803.e8.
2. Shi, B., et al. 2021. UTX condensation underlies its tumour-suppressive activity. *Nature* 597: 726-731.
3. Zhai, Q., et al. 2022. Histone methyltransferase KMT2D mediated lipid metabolism via peroxisome proliferator-activated receptor γ in prostate cancer. *Transl. Cancer Res.* 11: 2607-2621.

STORAGE

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

RESEARCH USE

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