SANTA CRUZ BIOTECHNOLOGY, INC.

MLL4 (1F6): sc-517017

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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 leu-kemia and displays increased expression in some adult myeloid leuke-mias. 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 19q13.1, which is a frequent target of rear-rangement 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 chro-matin remodeling and cellular growth suppression. The gene encoding human MLL5 lies within chromosome band 7q22, a region deleted in cytoge-netic aberrations of acute myeloid malignancies.

REFERENCES

1. Huntsman, D.G., et al. 1999. MLL2, the second human homolog of the *Drosophila* trithorax gene, maps to 19q13.1 and is amplified in solid tumor cell lines. Oncogene 18: 7975-7984.
2. 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.
3. Deng, L.W., et al. 2004. MLL 5 protein forms intranuclear foci, and overex-pression inhibits cell cycle progression. Proc. Natl. Acad. Sci. USA 101: 757-762.
4. 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.
5. Nightingale, K.P., et al. 2007. Cross-talk between histone modifications in response to histone deacetylase inhibitors: MLL4 links Histone H3 acetyla-tion and Histone H3K4 methylation. J. Biol. Chem. 282: 4408-4416.
6. Lubitz, S., et al. 2007. Increased apoptosis and skewed differentiation in mouse embryonic stem cells lacking the histone methyltransferase MII2. Mol. Biol. Cell 18: 2356-2366.
7. 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.
8. Lee, S., et al. 2008. Activating signal cointegrator-2 is an essential adap-tor to recruit Histone H3 lysine 4 methyltransferases MLL3 and MLL4 to the liver X receptors. Mol. Endocrinol. 22: 1312-1319.

CHROMOSOMAL LOCATION

Genetic locus: KMT2B (human) mapping to 19q13.12.

SOURCE

MLL4 (1F6) is a mouse monoclonal antibody raised against amino acids 813-904 representing partial length MLL4 of human origin.

PRODUCT

Each vial contains 100 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

MLL4 (1F6) is recommended for detection of MLL4 of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immu-noprecipitation [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).

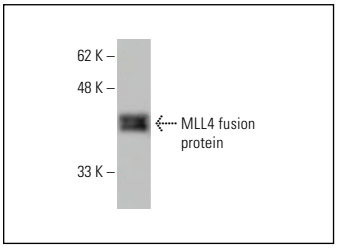
Suitable for use as control antibody for MLL4 siRNA (h): sc-75796, MLL4 shRNA Plasmid (h): sc-75796-SH and MLL4 shRNA (h) Lentiviral Particles: sc-75796-V.

Molecular Weight of MLL4: 293 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) Immunopre-cipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml).

DATA



MLL4 (1F6): sc-517017. Western blot analysis of human recombinant MLL4 fusion protein.

SELECT PRODUCT CITATIONS

1. Su, P.H., et al. 2019. Paired box-1 (PAX1) activates multiple phosphatases and inhibits kinase cascades in cervical cancer. Sci. Rep. 9: 9195.

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.