

MLL5 siRNA (h): sc-75798

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 19q13.12, 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. 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 overexpression 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 acetylation and histone H3K4 methylation. *J. Biol. Chem.* 282: 4408-4416.

CHROMOSOMAL LOCATION

Genetic locus: KMT2E (human) mapping to 7q22.3.

PRODUCT

MLL5 siRNA (h) is a pool of 3 target-specific 19-25 nt siRNAs designed to knock down gene expression. Each vial contains 3.3 nmol of lyophilized siRNA, sufficient for a 10 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see MLL5 shRNA Plasmid (h): sc-75798-SH and MLL5 shRNA (h) Lentiviral Particles: sc-75798-V as alternate gene silencing products.

For independent verification of MLL5 (h) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-75798A, sc-75798B and sc-75798C.

STORAGE AND RESUSPENSION

Store lyophilized siRNA duplex at -20° C with desiccant. Stable for at least one year from the date of shipment. Once resuspended, store at -20° C, avoid contact with RNases and repeated freeze thaw cycles.

Resuspend lyophilized siRNA duplex in 330 μ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330 μ l of RNase-free water makes a 10 μ M solution in a 10 μ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

MLL5 siRNA (h) is recommended for the inhibition of MLL5 expression in human cells.

SUPPORT REAGENTS

For optimal siRNA transfection efficiency, Santa Cruz Biotechnology's siRNA Transfection Reagent: sc-29528 (0.3 ml), siRNA Transfection Medium: sc-36868 (20 ml) and siRNA Dilution Buffer: sc-29527 (1.5 ml) are recommended. Control siRNAs or Fluorescein Conjugated Control siRNAs are available as 10 μ M in 66 μ l. Each contain a scrambled sequence that will not lead to the specific degradation of any known cellular mRNA. Fluorescein Conjugated Control siRNAs include: sc-36869, sc-44239, sc-44240 and sc-44241. Control siRNAs include: sc-37007, sc-44230, sc-44231, sc-44232, sc-44233, sc-44234, sc-44235, sc-44236, sc-44237 and sc-44238.

GENE EXPRESSION MONITORING

MLL5 (C-10): sc-377182 is recommended as a control antibody for monitoring of MLL5 gene expression knockdown by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) or immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG κ BP-HRP: sc-516102 or m-IgG κ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz MarkerTM Molecular Weight Standards: sc-2035, UltraCruz[®] Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgG κ BP-FITC: sc-516140 or m-IgG κ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz[®] Mounting Medium: sc-24941 or UltraCruz[®] Hard-set Mounting Medium: sc-359850.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor MLL5 gene expression knockdown using RT-PCR Primer: MLL5 (h)-PR: sc-75798-PR (20 μ l, 494 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

RESEARCH USE

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

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.