

SET7/9 siRNA (h): sc-44094

BACKGROUND

The methylation of histones plays a pivotal role in the regulation of chromatin structure and gene expression. Histone methylation can occur on Arg or Lys residues, with an exquisite site selectivity for Lys methylation at specific positions in the N-termini of Histones H3 and H4. SET7/9, a histone methyltransferase (HMTase), which transfers methyl groups to Lys 4 of Histone H3, forms a complex with S-adenosyl-L-methionine. This complex contains an active site consisting of a binding pocket where an AdoMet molecule in an unusual conformation binds, a narrow substrate-specific channel that only unmethylated lysine residues can access and a catalytic tyrosine residue.

REFERENCES

1. Jenuwein, T. 2001. Re-SET-ting heterochromatin by histone methyltransferases. *Trends Cell Biol.* 11: 266-273.
2. Wang, H., et al. 2001. Purification and functional characterization of a Histone H3-lysine 4-specific methyltransferase. *Mol. Cell* 8: 1207-1217.
3. Wilson, J.R., et al. 2002. Crystal structure and functional analysis of the histone methyltransferase SET7/9. *Cell* 111: 105-115.
4. Nishioka, K., et al. 2002. SET9, a novel Histone H3 methyltransferase that facilitates transcription by precluding histone tail modifications required for heterochromatin formation. *Genes Dev.* 16: 479-489.
5. Kwon, T., et al. 2003. Mechanism of histone lysine methyl transfer revealed by the structure of SET7/9-AdoMet. *EMBO J.* 22: 292-303.
6. Wysocka, J., et al. 2003. Human Sin3 deacetylase and trithorax-related SET1/Ash2 Histone H3-K4 methyltransferase are tethered together selectively by the cell-proliferation factor HCF-1. *Genes Dev.* 17: 896-911.

CHROMOSOMAL LOCATION

Genetic locus: SETD7 (human) mapping to 4q31.1.

PRODUCT

SET7/9 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 SET7/9 shRNA Plasmid (h): sc-44094-SH and SET7/9 shRNA (h) Lentiviral Particles: sc-44094-V as alternate gene silencing products.

For independent verification of SET7/9 (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-44094A, sc-44094B and sc-44094C.

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

SET7/9 siRNA (h) is recommended for the inhibition of SET7/9 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

SET7/9 (C-11): sc-390823 is recommended as a control antibody for monitoring of SET7/9 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 Marker[™] 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 SET7/9 gene expression knockdown using RT-PCR Primer: SET7/9 (h)-PR: sc-44094-PR (20 μ l, 353 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Ea, C.K., et al. 2009. Regulation of NF κ B activity through lysine monomethylation of p65. *Proc. Natl. Acad. Sci. USA* 106: 18972-18977.
2. Yang, J., et al. 2010. Reversible methylation of promoter-bound Stat3 by histone-modifying enzymes. *Proc. Natl. Acad. Sci. USA* 107: 21499-21504.
3. Zhang, Z., et al. 2013. Immune mediators regulate CFTR expression through a bifunctional airway-selective enhancer. *Mol. Cell. Biol.* 33: 2843-2853.
4. Paneni, F., et al. 2015. Adverse epigenetic signatures by histone methyltransferase Set7 contribute to vascular dysfunction in patients with type 2 diabetes mellitus. *Circ. Cardiovasc. Genet.* 8: 150-158.

RESEARCH USE

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