

JMJD7 siRNA (m): sc-148668

BACKGROUND

A crucial regulator of chromatin dynamics and DNA transcription is the covalent modification and methylation of histones. Generally, methylation of certain lysine residues on Histone H3 and Histone H4 can be associated with transcriptionally active or inactive chromatin. This regulation has profound effects on the expression of genes and is part of an epigenetic memory network that determines cell fate. JMJD7 (jumoni domain-containing protein 7) is a member of a family of JMJC domain-containing histone demethylases that are directly involved in removing methyl residues from distinct and unique lysine residues. These actions are implicated in gene expression and the regulation of cell senescence. JMJC domain-containing histone demethylases are also likely involved in development via their ability to regulate gene expression. JMJD7 contains one JMJC domain and was originally thought to be an alternatively spliced isoform of PLA2G4B.

REFERENCES

1. Klose, R.J., et al. 2006. JmjC-domain-containing proteins and histone demethylation. *Nat. Rev. Genet.* 7: 715-727.
2. Tsukada, Y., et al. 2006. Histone demethylation by a family of JmjC domain-containing proteins. *Nature* 439: 811-816.
3. Cloos, P.A., et al. 2006. The putative oncogene GASC1 demethylates tri- and dimethylated lysine 9 on histone H3. *Nature* 442: 307-311.
4. Hong, S., et al. 2007. Identification of JmjC domain-containing UTX and JMJD3 as histone H3 lysine 27 demethylases. *Proc. Natl. Acad. Sci. USA* 104: 18439-18444.

CHROMOSOMAL LOCATION

Genetic locus: Jmjd7 (mouse) mapping to 2 E5.

PRODUCT

JMJD7 siRNA (m) is a pool of 2 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 JMJD7 shRNA Plasmid (m): sc-148668-SH and JMJD7 shRNA (m) Lentiviral Particles: sc-148668-V as alternate gene silencing products.

For independent verification of JMJD7 (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-148668A and sc-148668B.

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

JMJD7 siRNA (m) is recommended for the inhibition of JMJD7 expression in mouse 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

JMJD7 (11K2): sc-134351 is recommended as a control antibody for monitoring of JMJD7 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 JMJD7 gene expression knockdown using RT-PCR Primer: JMJD7 (m)-PR: sc-148668-PR (20 μ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Liu, Y., et al. Histone demethylase Jmjd7 negatively regulates differentiation of osteoclast. *Chin. J. Dent. Res.* 21: 113-118.

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.