

JMJD2B siRNA (m): sc-62518

BACKGROUND

JMJD2B (JmjC domain-containing histone demethylation protein 3A) is a 1,064 amino acid protein encoded by the human gene JMJD2B. JMJD2B belongs to the JMJD2B histone demethylase family and contains one JmjC domain, one JmjN domain, two PHD-type zinc fingers and two Tudor domains. The two Tudor domains recognize and bind methylated histones and have an interdigitated structure; the unusual fold is required for its ability to bind methylated histone tails. JMJD2B is a histone demethylase that specifically demethylates Lys 9 residues of Histone H3, thereby playing a role in histone code. It does not demethylate Histone H3 Lys 4, H3 Lys 27, H3 Lys 36 or H4 Lys 20, however, and is only able to demethylate trimethylated H3 Lys 9 and has weaker activity than JMJD2A, JMJD2C and JMJD2D. JMJD2B demethylation of lysine residues will generate formaldehyde and succinate. JMJD2B is a ubiquitously expressed nuclear protein.

REFERENCES

1. Katoh, M. and Katoh, M. 2004. Identification and characterization of JMJD2 family genes in silico. *Int. J. Oncol.* 24: 1623-1628.
2. Zhang, D., et al. 2005. JMJD2A is a novel N-CoR-interacting protein and is involved in repression of the human transcription factor achaete scute-like homologue 2 (ASCL2/Hash2). *Mol. Cell. Biol.* 25: 6404-6414.
3. Gray, S.G., et al. 2005. Functional characterization of JMJD2A, a histone deacetylase- and retinoblastoma-binding protein. *J. Biol. Chem.* 280: 28507-28518.
4. Fodor, B.D., et al. 2006. JMJD2B antagonizes H3K9 trimethylation at pericentric heterochromatin in mammalian cells. *Genes Dev.* 20: 1557-1562.
5. Whetstine, J.R., et al. 2006. Reversal of histone lysine trimethylation by the JMJD2 family of histone demethylases. *Cell* 125: 467-481.
6. Katoh, Y. and Katoh, M. 2007. Comparative integromics on JMJD2A, JMJD2B and JMJD2C: preferential expression of JMJD2C in undifferentiated ES cells. *Int. J. Mol. Med.* 20: 269-273.
7. Adamsen, B.L., et al. 2007. Apoptosis, cell cycle progression and gene expression in TP53-depleted HCT116 colon cancer cells in response to short-term 5-fluorouracil treatment. *Int. J. Oncol.* 31: 1491-1500.

CHROMOSOMAL LOCATION

Genetic locus: Jmjd2b (mouse) mapping to 17 D.

PRODUCT

JMJD2B siRNA (m) 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 JMJD2B shRNA Plasmid (m): sc-62518-SH and JMJD2B shRNA (m) Lentiviral Particles: sc-62518-V as alternate gene silencing products.

For independent verification of JMJD2B (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-62518A, sc-62518B and sc-62518C.

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

JMJD2B siRNA (m) is recommended for the inhibition of JMJD2B 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

JMJD2B (F-12): sc-374241 is recommended as a control antibody for monitoring of JMJD2B 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 JMJD2B gene expression knockdown using RT-PCR Primer: JMJD2B (m)-PR: sc-62518-PR (20 μ l). 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.