

JMJD2D siRNA (m): sc-146325

BACKGROUND

JMJD2D (Jumonji domain-containing protein 2D), also known as JHDM3D or KDM4D, is a 520 amino acid protein that belongs to the JHDM3 histone demethylase family. Localized to the nucleus, JMJD2D functions as a histone demethylase that removes specific methyl residues from Histone H3, thereby playing a crucial role in the histone code. JMJD2D binds iron as a cofactor and contains one JMJC domain and one JMJD domain, both of which are thought to exhibit enzymatic activity during chromatin remodeling events. In addition, JMJD2D forms a complex with the ligand-bound form of the androgen receptor (AR) and, through this interaction, activates AR expression. Overexpression of AR is associated with prostate cancer, suggesting that, via its ability to upregulate AR, JMJD2D may be involved in carcinogenesis.

REFERENCES

1. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 609766. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>
2. Katoh, M. and Katoh, M. 2004. Identification and characterization of JMJD2 family genes in silico. *Int. J. Oncol.* 24: 1623-1628.
3. Whetstine, J.R., Nottke, A., Lan, F., Huarte, M., Smolikov, S., Chen, Z., Spooner, E., Li, E., Zhang, G., Colaiacovo, M. and Shi, Y. 2006. Reversal of histone lysine trimethylation by the JMJD2 family of histone demethylases. *Cell* 125: 467-481.
4. Shin, S. and Janknecht, R. 2007. Activation of androgen receptor by histone demethylases JMJD2A and JMJD2D. *Biochem. Biophys. Res. Commun.* 359: 742-746.
5. 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.
6. Shin, S. and Janknecht, R. 2007. Diversity within the JMJD2 histone demethylase family. *Biochem. Biophys. Res. Commun.* 353: 973-977.

CHROMOSOMAL LOCATION

Genetic locus: Kdm4d (mouse) mapping to 9 A1.

PRODUCT

JMJD2D siRNA (m) is a target-specific 19-25 nt siRNA 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 JMJD2D shRNA Plasmid (m): sc-146325-SH and JMJD2D shRNA (m) Lentiviral Particles: sc-146325-V as alternate gene silencing products.

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.

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

JMJD2D siRNA (m) is recommended for the inhibition of JMJD2D 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

JMJD2D (F-7): sc-393750 is recommended as a control antibody for monitoring of JMJD2D 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 JMJD2D gene expression knockdown using RT-PCR Primer: JMJD2D (m)-PR: sc-146325-PR (20 μ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.