SANTA CRUZ BIOTECHNOLOGY, INC.

JMJD3 siRNA (m): sc-146326

BACKGROUND

JMJD3 (jumonji domain containing 3), also known as KDM6B (lysine demethylase 6B), is a 1,679 amino acid nuclear protein that contains one JMJC domain and belongs to the highly conserved JMJC domain-containing protein family. Functioning as a histone demethylase, JMJD3 uses iron and ascorbate as cofactors to demethylate dimethylated and trimethylated Lys 27 residues of Histone H3, thereby playing an important role in the modification of the histone code. Additionally, JMJD3 regulates posterior development and is involved in the inflammatory response, specifically by mediating macrophage differentiation. JMJD3 is also thought to control the expression of neurogenesis-related proteins and, via this regulatory mechanism, may be necessary for neural commitment during early development. Two isoforms of JMJD3 exist due to alternative splicing events.

REFERENCES

1. Cousin, P., et al. 2000. Physical map of 17p13 and the genes adjacent to p53. Genomics 63: 60-68.
2. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 611577. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
3. Xiang, Y., et al. 2007. JMJD3 is a Histone H3K27 demethylase. Cell Res. 17: 850-857.
4. Agger, K., et al. 2007. UTX and JMJD3 are Histone H3K27 demethylases involved in HOX gene regulation and development. Nature 449: 731-734.
5. 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.
6. Sen, G.L., et al. 2008. Control of differentiation in a self-renewing mammalian tissue by the histone demethylase JMJD3. Genes Dev. 22: 1865-1870.
7. Li, Y., et al. 2008. Role of the Histone H3 Lysine 4 methyltransferase, SET7/9, in the regulation of NFκB dependent inflammatory genes: relevance to diabetes and inflammation. J. Biol. Chem. 283: 26771-26781.

CHROMOSOMAL LOCATION

Genetic locus: Kdm6b (mouse) mapping to 11 B3.

PRODUCT

JMJD3 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 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see JMJD3 shRNA Plasmid (m): sc-146326-SH and JMJD3 shRNA (m) Lentiviral Particles: sc-146326-V as alternate gene silencing products.

For independent verification of JMJD3 (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-146326A, sc-146326B and sc-146326C.

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 µl of the RNAse-free water provided. Resuspension of the siRNA duplex in 330 µl of RNAse-free water makes a 10 µM solution in a 10 µM Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

JMJD3 siRNA (m) is recommended for the inhibition of JMJD3 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 µM in 66 µl. 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor JMJD3 gene expression knockdown using RT-PCR Primer: JMJD3 (m)-PR: sc-146326-PR (20 µl, 557 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Majumder, S., et al. 2018. Shifts in podocyte Histone H3K27me3 regulate mouse and human glomerular disease. J. Clin. Invest. 128: 483-499.
2. Parmar, N., et al. 2020. *Leishmania donovani* subverts host immune response by epigenetic reprogramming of macrophage M(Lipopolysaccharides + IFN-γ)/M(IL-10) polarization. J. Immunol. 204: 2762-2778.

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.