SANTA CRUZ BIOTECHNOLOGY, INC.

LSD1 siRNA (h): sc-60970

BACKGROUND

Histone methylation regulates chromatin structure and transcription and maintains an epigenetic state of the cell. Histone methylation is dynamically regulated by histone methylases and demethylases. Lysine-specific histone demethylase 1 (LSD1), also designated BHC110, is a flavin-dependent amine oxidase which catalyzes the removal of one or two methyl groups from the methyl-lysine-4 side chain of Histone H3. The LSD1 protein contains a SWIRM domain, a FAD-binding motif and an amine oxidase domain. Association with CoREST, a SANT domain-containing corepressor, positively regulates LSD1. CoREST mediates the demethylation ability of LSD1 and protects it from proteasomal degradation *in vivo*. PHF21A also designated BCH80, a PHD domain-containing protein, inhibits activity of LSD1/CoREST mediated demethylation. The LSD1 protein also co-localizes with the androgen receptor in human prostate tumor cells and in unaffected prostate cells, stimulating androgen-receptor-dependent transcription.

REFERENCES

1. Shi, Y., et al. 2004. Histone demethylation mediated by the nuclear amine oxidase homolog LSD1. Cell 119: 941-953.
2. Forneris, F., et al. 2005. Histone demethylation catalysed by LSD1 is a flavin-dependent oxidative process. FEBS Lett. 579: 2203-2207.
3. Lee, M.G., et al. 2005. An essential role for CoREST in nucleosomal histone 3 lysine 4 demethylation. Nature 437: 432-435.

CHROMOSOMAL LOCATION

Genetic locus: KDM1A (human) mapping to 1p36.12.

PRODUCT

LSD1 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 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see LSD1 shRNA Plasmid (h): sc-60970-SH and LSD1 shRNA (h) Lentiviral Particles: sc-60970-V as alternate gene silencing products.

For independent verification of LSD1 (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-60970A, sc-60970B and sc-60970C.

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

LSD1 siRNA (h) is recommended for the inhibition of LSD1 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 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.

GENE EXPRESSION MONITORING

LSD1 (B-9): sc-271720 is recommended as a control antibody for monitoring of LSD1 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).

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor LSD1 gene expression knockdown using RT-PCR Primer: LSD1 (h)-PR: sc-60970-PR (20 µl, 419 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Yang, J., et al. 2010. Reversible methylation of promoter-bound Stat3 by histone-modifying enzymes. Proc. Natl. Acad. Sci. USA 107: 21499-21504.
2. Xu, G., et al. 2013. The combined effect of retinoic acid and LSD1 siRNA inhibition on cell death in the human neuroblastoma cell line SH-SY5Y. Cell. Physiol. Biochem. 31: 854-862.
3. Han, P., et al. 2015. Puerarin suppresses high glucose-induced MCP-1 expression via modulating histone methylation in cultured endothelial cells. Life Sci. 130: 103-107.
4. Alarcon, V., et al. 2016. The enzymes LSD1 and Set1A cooperate with the viral protein HBx to establish an active hepatitis B viral chromatin state. Sci. Rep. 6: 25901.
5. Song, H., et al. 2018. Crosstalk between lysine methylation and phosphorylation of ATG16L1 dictates the apoptosis of hypoxia/reoxygenation-induced cardiomyocytes. Autophagy 14: 825-844.
6. Pezone, A., et al. 2020. Targeted DNA oxidation by LSD1-SMAD2/3 primes TGF-β1/EMT genes for activation or repression. Nucleic Acids Res. 48: 8943-8958.
7. Wang, M., et al. 2021. Downregulation of lysine-specific demethylase 1 enhances the sensitivity of hormone-sensitive prostate cancer cells to androgen deprivation therapy. Oncol. Lett. 21: 93.
8. Sobczak, M., et al. 2021. LSD1 facilitates pro-inflammatory polarization of macrophages by repressing catalase. Cells 10: 2465.

RESEARCH USE

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