

LOXL1 siRNA (h): sc-45220

BACKGROUND

Lysyl oxidase (LOX) proteins belong to a family of enzymes that oxidize primary amine substrates to reactive aldehydes. In fibrillar collagens and elastin, LOX catalyzes the lysine-derived cross-links of collagen fibrils and insoluble elastic fibers in the extracellular matrix. It can localize both to the nucleus and the cytoplasm. LOX is involved in tumor suppression, cell motility, cellular senescence and developmental regulation. There are four homologs of LOX, lysyl oxidase-like proteins, designated LOX-like (LOXL1-LOXL4) proteins. LOXL1 is an extracellular protein that localizes specifically to sites of elastogenesis. It serves as a cross-linking enzyme, controlling the deposition of elastin. LOXL1 interacts with Fibulin-5.

REFERENCES

1. Kenyon, K., et al. 1993. A novel human cDNA with a predicted protein similar to lysyl oxidase maps to chromosome 15q24-q25. *J. Biol. Chem.* 268: 18435-18437.
2. Goy, A., et al. 2000. Physical linkage of the lysyl oxidase-like (LOXL1) gene to the PML gene on human chromosome 15q22. *Cytogenet. Cell Genet.* 88: 22-24.
3. Csiszar, K., et al. 2001. Lysyl oxidases: a novel multifunctional amine oxidase family. *Prog. Nucleic Acid Res. Mol. Biol.* 70: 1-32.
4. Noblesse, E., et al. 2004. Lysyl oxidase-like and lysyl oxidase are present in the dermis and epidermis of a skin equivalent and in human skin and are associated to elastic fibers. *J. Invest. Dermatol.* 122: 621-630.
5. Liu, X., et al. 2004. Elastic fiber homeostasis requires lysyl oxidase-like 1 protein. *Nat. Genet.* 36: 178-182.
6. Hayashi, K., et al. 2004. Progressive hair loss and myocardial degeneration in rough coat mice: reduced lysyl oxidase-like (LOXL) in the skin and heart. *J. Invest. Dermatol.* 123: 864-871.
7. Maki, J.M., et al. 2005. Lysyl oxidase is essential for normal development and function of the respiratory system and for the integrity of elastic and collagen fibers in various tissues. *Am. J. Pathol.* 167: 927-936.
8. Atsawasuwan, P., et al. 2005. Expression of lysyl oxidase isoforms in MC3T3-E1 osteoblastic cells. *Biochem. Biophys. Res. Commun.* 327: 1042-1046.

CHROMOSOMAL LOCATION

Genetic locus: LOXL1 (human) mapping to 15q24.1.

PRODUCT

LOXL1 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see LOXL1 shRNA Plasmid (h): sc-45220-SH and LOXL1 shRNA (h) Lentiviral Particles: sc-45220-V as alternate gene silencing products.

For independent verification of LOXL1 (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-45220A, sc-45220B and sc-45220C.

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

LOXL1 siRNA (h) is recommended for the inhibition of LOXL1 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 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

LOXL1 (H-11): sc-166632 is recommended as a control antibody for monitoring of LOXL1 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 LOXL1 gene expression knockdown using RT-PCR Primer: LOXL1 (h)-PR: sc-45220-PR (20 μ l, 413 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Wei, Y., et al. 2017. Fibroblast-specific inhibition of TGF- β 1 signaling attenuates lung and tumor fibrosis. *J. Clin. Invest.* 127: 3675-3688.

RESEARCH USE

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