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LOX siRNA (h): sc-45218

BACKGROUND

The lysyl oxidase family of extracellular proteins includes LOX and four LOX-like enzymes, which are responsible for the deamination of peptidyl lysine residues of collagens and elastin. They also catalyze inter- and intra-crosslinking reactions. Overexpression of LOX may cause severe fibrotic degeneration due to its high resistance to degradative enzymes. Procollagen C-proteinase activity processes LOX from a precursor protein to a mature form. Activation of LOX occurs in normal developing and adult skin, and alterations in LOX expression and activity are associated with skin aging and senescence. LOX is crucial for development of the cardiovascular and respiratory systems. In addition, LOX plays a role in cancer, wound healing, as well as cell motility, chemotaxis and differentiation.

REFERENCES

1. Uzel, M.I., et al. 2001. Multiple bone morphogenetic protein 1-related mammalian metalloproteinases process pro-lysyl oxidase at the correct physiological site and control lysyl oxidase activation in mouse embryo fibroblast cultures. *J. Biol. Chem.* 276: 22537-22543.
2. Palamakumbura, A.H., et al. 2004. The propeptide domain of lysyl oxidase induces phenotypic reversion of Ras-transformed cells. *J. Biol. Chem.* 279: 40593-40600.
3. 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.
4. Goto, Y., et al. 2005. Transforming growth factor- β 1 mediated up-regulation of lysyl oxidase in the kidneys of hereditary nephrotic mouse with chronic renal fibrosis. *Virchows Arch.* 447: 859-868.

CHROMOSOMAL LOCATION

Genetic locus: LOX (human) mapping to 5q23.2.

PRODUCT

LOX 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 LOX shRNA Plasmid (h): sc-45218-SH and LOX shRNA (h) Lentiviral Particles: sc-45218-V as alternate gene silencing products.

For independent verification of LOX (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-45218A, sc-45218B and sc-45218C.

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

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

LOX (F-8): sc-373995 is recommended as a control antibody for monitoring of LOX 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 LOX gene expression knockdown using RT-PCR Primer: LOX (h)-PR: sc-45218-PR (20 μ l, 535 bp). Annealing temperature for the primers should be 55-60 $^{\circ}$ C and the extension temperature should be 68-72 $^{\circ}$ C.

SELECT PRODUCT CITATIONS

1. Zhang, L., et al. 2012. Pterostilbene protects vascular endothelial cells against oxidized low-density lipoprotein-induced apoptosis *in vitro* and *in vivo*. *Apoptosis* 17: 25-36.
2. Dai, Y., et al. 2017. Xanthine Oxidase induces foam cell formation through LOX-1 and NLRP3 activation. *Cardiovasc. Drugs Ther.* 31: 19-27.
3. Chen, C.H., et al. 2019. Electronegative low-density lipoprotein of patients with metabolic syndrome induces pathogenesis of aorta through disruption of the stimulated by retinoic acid 6 cascade. *J. Diabetes Investig.* 11: 535-544.

RESEARCH USE

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