SANTA CRUZ BIOTECHNOLOGY, INC.

Ox-LDL R-1 siRNA (h): sc-40185

BACKGROUND

The oxidized low density lipoprotein (lectin-like) receptor-1, Ox-LDL R-1, is a type II membrane protein that is a member of the C-type lectin family and acts as a cell-surface receptor for oxidized low density lipoprotein (Ox-LDL). Ox-LDL plays a role in early atherosclerosis, which includes the transformation of monocyte-derived macrophages to foam cells in atherosclerotic lesions. The binding of Ox-LDL to Ox-LDL R-1 may also trigger the activation of the NFκB signal transduction pathway. Ox-LDL R-1, also designated scavenger receptor class E, member 1 (SCARE1); lectin-type oxidized LDL receptor 1 (LOX-1); and CLEC8A), is expressed by vascular endothelial cells, smooth muscle cells and macrophages. It is expressed endogenously as a precursor form with N-linked high mannose carbohydrate chains and as a mature form due to further glycosylation. The N-linked glycosylation of Ox-LDL R-1 appears to be necessary for adequate transportation to the cell surface and efficient ligand binding.

REFERENCES

1. Kataoka, H., et al. 1999. Expression of lectin-like oxidized low-density lipoprotein receptor-1 in human atherosclerotic lesions. Circulation 99: 3110-3117.
2. Aoyama, T., et al. 1999. Structure and chromosomal assignment of the human lectin-like oxidized low-density lipoprotein receptor-1 (LOX-1) gene. Biochem. J. 339: 177-184.

CHROMOSOMAL LOCATION

Genetic locus: OLR1 (human) mapping to 12p13.2.

PRODUCT

Ox-LDL R-1 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 Ox-LDL R-1 shRNA Plasmid (h): sc-40185-SH and Ox-LDL R-1 shRNA (h) Lentiviral Particles: sc-40185-V as alternate gene silencing products.

For independent verification of Ox-LDL R-1 (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-40185A, sc-40185B and sc-40185C.

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

Ox-LDL R-1 siRNA (h) is recommended for the inhibition of Ox-LDL R-1 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

Ox-LDL R-1 (LOX19-22): sc-66155 is recommended as a control antibody for monitoring of Ox-LDL R-1 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 Ox-LDL R-1 gene expression knockdown using RT-PCR Primer: Ox-LDL R-1 (h)-PR: sc-40185-PR (20 µl, 407 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Wang, L., et al. 2013. Angiotensin (1-7) ameliorates Angiotensin II-induced inflammation by inhibiting LOX-1 expression. Inflamm. Res. 62: 219-228.
2. Hein, T.W., et al. 2014. Selective activation of lectin-like oxidized low-density lipoprotein receptor-1 mediates C-reactive protein-evoked endothelial vasodilator dysfunction in coronary arterioles. Circ. Res. 114: 92-100.
3. Ding, Z., et al. 2015. Hemodynamic shear stress modulates endothelial cell autophagy: role of LOX-1. Int. J. Cardiol. 184: 86-95.
4. Chen, C.H., et al. 2016. Electronegative low density lipoprotein induces renal apoptosis and fibrosis: STRA6 signaling involved. J. Lipid Res. 57: 1435-1446.
5. Shiotsugu, S., et al. 2019. The biological effects of interleukin-17A on adhesion molecules expression and foam cell formation in atherosclerotic lesions. J. Interferon Cytokine Res. 39: 694-702.
6. Akhmedov, A., et al. 2022. TNFα induces endothelial dysfunction in rheumatoid arthritis via LOX-1 and arginase 2: reversal by monoclonal TNFα antibodies. Cardiovasc. Res. 118: 254-266.
7. Liu, J., et al. 2022. Angiotensin II type 2 receptor prevents extracellular matrix accumulation in human peritoneal mesothelial cell by ameliorating lipid disorder via LOX-1 suppression. Ren. Fail. 44: 1687-1697.
8. Amagai, R., et al. 2023. The antimicrobial peptide cathelicidin exerts immunomodulatory effects via scavenger receptors. Int. J. Mol. Sci. 24: 875.

RESEARCH USE

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