SANTA CRUZ BIOTECHNOLOGY, INC.

LRP1 siRNA (h): sc-40101

BACKGROUND

Members of the LDL receptor gene family, including LDLR (low density lipoprotein receptor), LRP1 (low density lipoprotein related protein), megalin (also designated GP330), VLDLR (very low density lipoprotein receptor) and ApoER2 are characterized by a cluster of cysteine-rich class A repeats, epidermal growth factor (EGF)-like repeats, YWTD repeats and an O-linked sugar domain. LRP1, also designated LRP and α-2-Macroglobulin receptor, is an endocytic receptor that mediates the uptake of at least 15 ligands, including α-2-Macroglobulin and apoE. LRP1 is cleaved into a membrane subunit and an extracellular subunit, which remain non-covalently associated. Proper folding and trafficking of LRP1 is facilitated by the receptor-associated protein (RAP), a molecular chaperone. The uptake of all known ligands through LRP1 can be blocked by RAP, which induces a conformational change in the receptor that renders it unable to bind ligands. LRP1, which is expressed in brain, liver and lung, is also implicated in Alzheimer's disease (AD), as the human LRP gene localizes to a potential AD locus on chromosome 12q13.3.

REFERENCES

1. Vash, B., et al. 1998. Three complement-type repeats of the low-density lipoprotein receptor-related protein define a common binding site for RAP, PAI-1, and lactoferrin. Blood 92: 3277-3285.
2. Trommsdorff, M., et al. 1999. Reeler/disabled-like disruption of neuronal migration in knockout mice lacking the VLDL receptor and apoE receptor 2. Cell 97: 689-701.
3. Mikhailenko, I., et al. 1999. Functional domains of the very low density lipoprotein receptor: molecular analysis of ligand binding and acid-dependent ligand dissociation mechanisms. J. Cell Sci. 112: 3269-3281.
4. Neels, J.G., et al. 1999. The second and fourth cluster of class A cysteine-rich repeats of the low density lipoprotein receptor-related protein share ligand-binding properties. J. Biol. Chem. 274: 31305-31311.

CHROMOSOMAL LOCATION

Genetic locus: LRP1 (human) mapping to 12q13.3.

PRODUCT

LRP1 siRNA (h) is a target-specific 19-25 nt siRNA 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 LRP1 shRNA Plasmid (h): sc-40101-SH and LRP1 shRNA (h) Lentiviral Particles: sc-40101-V as alternate gene silencing products.

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

LRP1 siRNA (h) is recommended for the inhibition of LRP1 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

LRP1 (8G1): sc-57353 is recommended as a control antibody for monitoring of LRP1 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 LRP1 gene expression knockdown using RT-PCR Primer: LRP1 (h)-PR: sc-40101-PR (20 µl, 429 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Gilardini Montani, M.S., et al. 2015. Capsaicin-mediated apoptosis of human bladder cancer cells activates dendritic cells via CD91. Nutrition 31: 578-581.
2. Talme, T., et al. 2016. Methotrexate and its therapeutic antagonists caffeine and theophylline, target a motogenic T-cell mechanism driven by thrombospondin-1 (TSP-1). Eur. J. Immunol. 46: 1279-1290.
3. Panezai, J., et al. 2017. T-cell regulation through a basic suppressive mechanism targeting low-density lipoprotein receptor-related protein 1. Immunology 152: 308-327.
4. Dong, W., et al. 2019. miR-640 aggravates intervertebral disc degeneration via NFκB and Wnt signalling pathway. Cell Prolif. 52: e12664.
5. Lee, M.K., et al. 2020. The *Pseudomonas aeruginosa* Hsp90-like protein HtpG regulates IL-8 expression through NFκB/p38 MAPK and CYLD signaling triggered by TLR4 and CD91. Microbes Infect. 22: 558-566.
6. Sakamoto, H., et al. 2021. PAI-1 derived from cancer-associated fibroblasts in esophageal squamous cell carcinoma promotes the invasion of cancer cells and the migration of macrophages. Lab. Invest. 101: 353-368.

RESEARCH USE

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