SANTA CRUZ BIOTECHNOLOGY, INC.

LRP6 siRNA (h): sc-37233

BACKGROUND

Members of the LDL receptor gene family, including LDLR (low density lipoprotein receptor), LRP's (low density lipoprotein related proteins), 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 α-2-Macroglobulin receptor, is an endocytic receptor that mediates the uptake of at least 15 ligands, including α-2-Macroglobulin and apoE. LRP1, which is expressed in brain, liver and lung, is also implicated in Alzheimer's disease (AD), as the human LRP1 gene localizes to a potential AD locus on chromosome 12q13.3. The human LRP6 gene localizes to chromosome 12p13.2 and encodes a protein with a unique pattern of four epidermal growth factor (EGF) and three LDLR repeats in the extracellular domain. LRP6 mediates Wnt/β-catenin signaling, which controls various developmental processes, including patterning of the body axis, central nervous system and limbs, and regulation of organogenesis.

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. Brown, S.D., et al. 1998. Isolation and characterization of LRP6, a novel member of the low density lipoprotein receptor gene family. Biochem. Biophys. Res. Commun. 248: 879-888.
3. Lambert, J.C., et al. 1999. Is the LDL receptor-related protein involved in Alzheimer's disease? Neurogenetics 2: 109-113.

CHROMOSOMAL LOCATION

Genetic locus: LRP6 (human) mapping to 12p13.2.

PRODUCT

LRP6 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 LRP6 shRNA Plasmid (h): sc-37233-SH and LRP6 shRNA (h) Lentiviral Particles: sc-37233-V as alternate gene silencing products.

For independent verification of LRP6 (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-37233A, sc-37233B and sc-37233C.

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

LRP6 siRNA (h) is recommended for the inhibition of LRP6 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

LRP6 (C-10): sc-25317 is recommended as a control antibody for monitoring of LRP6 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 LRP6 gene expression knockdown using RT-PCR Primer: LRP6 (h)-PR: sc-37233-PR (20 µl, 414 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Abrami, L., et al. 2008. Functional interactions between anthrax toxin receptors and the WNT signalling protein LRP6. Cell. Microbiol. 10: 2509-2519.
2. Wan, M., et al. 2011. LRP6 mediates cAMP generation by G protein-coupled receptors through regulating the membrane targeting of $G_{\alpha s}$. Sci. Signal. 4: ra15.
3. Tahir, S.A., et al. 2013. Caveolin-1-LRP6 signaling module stimulates aerobic glycolysis in prostate cancer. Cancer Res. 73: 1900-1911.
4. Zhao, D., et al. 2015. WNT5A transforms intestinal CD8αα$^+$ IELs into an unconventional phenotype with pro-inflammatory features. BMC Gastroenterol. 15: 173.
5. Zhang, W., et al. 2016. miR-577 inhibits glioblastoma tumor growth via the Wnt signaling pathway. Mol. Carcinog. 55: 575-585.
6. Oranger, A., et al. 2017. Sclerostin stimulates angiogenesis in human endothelial cells. Bone 101: 26-36.
7. Zhang, F., et al. 2021. Reregulation of hepatic stellate cell contraction and cirrhotic portal hypertension by Wnt/β-catenin signaling via interaction with Gli1. Br. J. Pharmacol. 178: 2246-2265.

RESEARCH USE

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