SANTA CRUZ BIOTECHNOLOGY, INC.

SREBP-2 siRNA (h): sc-36559

BACKGROUND

The low density lipoprotein (LDL) receptor mediates the endocytic uptake of cholesterol-carrying lipoproteins, thereby controlling cholesterol levels in cells and plasma. Transcription of the LDL receptor gene is controlled by a 10 base pair sequence in the 5' flanking region, designated sterol regulatory element 1 (SRE-1). When cellular sterol stores are depleted, the element is activated, the gene is transcribed and the cellular uptake of LDL increases. A set of SRE-binding proteins (SREBPs) have been identified, including two basic helix-loop-helix-leucine zipper (bHLH-Zip) transcription factors, designated SREBP-1 and SREBP-2. SREBP-1 and SREBP-2 have been shown to have the same specificity for SRE-1 *in vitro* and to activate the transcription of reporter genes containing SRE-1 in the same way.

CHROMOSOMAL LOCATION

Genetic locus: SREBF2 (human) mapping to 22q13.2.

PRODUCT

SREBP-2 siRNA (h) is a pool of 4 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 SREBP-2 shRNA Plasmid (h): sc-36559-SH and SREBP-2 shRNA (h) Lentiviral Particles: sc-36559-V as alternate gene silencing products.

For independent verification of SREBP-2 (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-36559A, sc-36559B, sc-36559C and sc-36559D.

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

SREBP-2 siRNA (h) is recommended for the inhibition of SREBP-2 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

SREBP-2 (1C6): sc-13552 is recommended as a control antibody for monitoring of SREBP-2 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-IgGκ BP-HRP: sc-516102 or m-IgGκ 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-IgGκ BP-FITC: sc-516140 or m-IgGκ 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 SREBP-2 gene expression knockdown using RT-PCR Primer: SREBP-2 (h)-PR: sc-36559-PR (20 µl, 518 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Campia, I., et al. 2009. Digoxin and ouabain increase the synthesis of cholesterol in human liver cells. Cell. Mol. Life Sci. 66: 1580-1594.
2. Bell, R.D., et al. 2010. SRF and myocardin regulate LRP-mediated amyloid-β clearance in brain vascular cells. Nat. Cell Biol. 11: 143-153.
3. Seo, Y.K., et al. 2011. Genome-wide localization of SREBP-2 in hepatic chromatin predicts a role in autophagy. Cell Metab. 13: 367-375.
4. Ochiai, A., et al. 2015. Piperine induces hepatic low-density lipoprotein receptor expression through proteolytic activation of sterol regulatory element-binding proteins. PLoS ONE 10: e0139799.
5. Singh, A.B., et al. 2016. SREBP2 activation induces hepatic long-chain Acyl-CoA synthetase 1 (ACSL1) expression *in vivo* and *in vitro* through a sterol regulatory element (SRE) motif of the ACSL1 C-promoter. J. Biol. Chem. 291: 5373-5384.
6. Cai, D., et al. 2019. RORγ is a targetable master regulator of cholesterol biosynthesis in a cancer subtype. Nat. Commun. 10: 4621.
7. Wei, D., et al. 2020. Characterization of the promoter region of the bovine IRX3 gene: roles of SREBF2 and PPARG. Physiol. Genomics 52: 160-167.
8. Findeisen, H.M., et al. 2022. LXRα regulates oxLDL-induced trained immunity in macrophages. Int. J. Mol. Sci. 23: 6166.
9. Kong, Y., et al. 2023. Lipophagy-mediated cholesterol synthesis inhibition is required for the survival of hepatocellular carcinoma under glutamine deprivation. Redox Biol. 63: 102732.

RESEARCH USE

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