

LXR β siRNA (h): sc-45316

BACKGROUND

Retinoids are metabolites of vitamin A (retinol) and are believed to represent important signaling molecules during vertebrate development and tissue differentiation. The cooperation of liver X receptors (LXRs) α and β and retinoic X receptor (RXR) modulate the expression of several genes involved in lipid metabolism in hepatocyte and macrophages. RXR is the receptor for 9-*cis* retinoic acid and dimerizes with VDR, TR, PPAR and several novel receptors including liver X receptors LXR α (also referred to as RLD-1), LXR β and FXR. FXR and LXR fall into a category of proteins termed "orphan receptors" because of their lack of a defined function, and in the case of LXR, the lack of a defined ligand. Both LXR/RXR and FXR/RXR heterodimers retain their responsiveness to 9-*cis* retinoic acid. LXR α and LXR β share considerable sequence homology and several functions, respond to the same endogenous and synthetic ligands and play critical roles in maintaining lipid homeostasis. LXR β is ubiquitously expressed and enriched in tissues of neuronal and endocrine origin.

REFERENCES

1. Mangelsdorf, D.J., et al. 1994. The retinoid receptors. In Sporn, M.B., et al, eds. The Retinoids: Biology, Chemistry, and Medicine. New York: Raven Press, Ltd., 319-349.
2. Bhat, M.K., et al. 1994. Phosphorylation enhances the target gene sequence-dependent dimerization of thyroid hormone receptor with retinoid X receptor. Proc. Natl. Acad. Sci. USA 91: 7927-7931.

CHROMOSOMAL LOCATION

Genetic locus: NR1H2 (human) mapping to 19q13.33.

PRODUCT

LXR β 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 LXR β shRNA Plasmid (h): sc-45316-SH and LXR β shRNA (h) Lentiviral Particles: sc-45316-V as alternate gene silencing products.

For independent verification of LXR β (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-45316A, sc-45316B and sc-45316C.

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

LXR β siRNA (h) is recommended for the inhibition of LXR β 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

LXR β (H-8): sc-133221 is recommended as a control antibody for monitoring of LXR β 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 LXR β gene expression knockdown using RT-PCR Primer: LXR β (h)-PR: sc-45316-PR (20 μ l, 475 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Scoles, D.R., et al. 2010. Liver X receptor agonist inhibits proliferation of ovarian carcinoma cells stimulated by oxidized low density lipoprotein. Gynecol. Oncol. 116: 109-116.
2. Xu, Y., et al. 2014. Rutaecarpine suppresses atherosclerosis in ApoE^{-/-} mice through upregulating ABCA1 and SR-BI within RCT. J. Lipid Res. 55: 1634-1647.
3. Huang, Y., et al. 2015. Activation of LXR attenuates collagen-induced arthritis via suppressing BlyS production. Clin. Immunol. 161: 339-347.
4. Shavva, V.S., et al. 2016. Insulin-mediated downregulation of apolipoprotein A-I gene in human hepatoma cell line Hep G2: the role of interaction between FOXO1 and LXR β transcription factors. J. Cell. Biochem. 118: 382-396.
5. Ghalali, A., et al. 2017. Atorvastatin decreases HBx-induced phospho-Akt in hepatocytes via P2X receptors. Mol. Cancer Res. 15: 714-722.
6. Shavva, V.S., et al. 2018. Tumor necrosis factor α stimulates endogenous apolipoprotein A-I expression and secretion by human monocytes and macrophages: role of MAP-kinases, NF κ B, and nuclear receptors PPAR α and LXRs. Mol. Cell. Biochem. 448: 211-223.
7. Fan, W., et al. 2020. Reduced sirtuin1 signalling exacerbates diabetic mice hindlimb ischaemia injury and inhibits the protective effect of a liver X receptor agonist. J. Cell. Mol. Med. 24: 5476-5490.

RESEARCH USE

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