SANTA CRUZ BIOTECHNOLOGY, INC.

LXRα siRNA (h): sc-38828

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 LXRα (also referred to as RLD-1), LXRβ 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. LXRα and LXRβ share considerable sequence homology and several functions, respond to the same endogenous and synthetic ligands and play critical roles in maintaining lipid homeostasis. LXRβ is ubiquitously expressed and enriched in tissues of neuronal and endocrine origin.

REFERENCES

1. 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.
2. Song, C., et al. 1994. Ubiquitous receptor: a receptor that modulates gene activation by retinoic acid and thyroid hormone receptors. Proc. Natl. Acad. Sci. USA 91: 10809-10813.

CHROMOSOMAL LOCATION

Genetic locus: NR1H3 (human) mapping to 11p11.2.

PRODUCT

LXRα 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 LXRα shRNA Plasmid (h): sc-38828-SH and LXRα shRNA (h) Lentiviral Particles: sc-38828-V as alternate gene silencing products.

For independent verification of LXRα (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-38828A, sc-38828B and sc-38828C.

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

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

LXRα/β (H-7): sc-377260 is recommended as a control antibody for monitoring of LXRα 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 LXRα gene expression knockdown using RT-PCR Primer: LXRα (h)-PR: sc-38828-PR (20 µl, 425 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Lee, T.S., et al. 2010. Anti-atherogenic effect of berberine on LXRα-ABCA1-dependent cholesterol efflux in macrophages. J. Cell. Biochem. 111: 104-110.
2. Hu, C., et al. 2014. LXRα-mediated downregulation of FOXM1 suppresses the proliferation of hepatocellular carcinoma cells. Oncogene 33: 2888-2897.
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 LXRβ transcription factors. J. Cell. Biochem. 118: 382-396.
5. Zhang, M., et al. 2017. Allicin decreases lipopolysaccharide-induced oxidative stress and inflammation in human umbilical vein endothelial cells through suppression of mitochondrial dysfunction and activation of Nrf2. Cell. Physiol. Biochem. 41: 2255-2267.
6. Kim, S., et al. 2018. Activation of LXRα/β by cholesterol in malignant ascites promotes chemoresistance in ovarian cancer. BMC Cancer 18: 1232.
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. E-published.

RESEARCH USE

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