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# LXR $\beta$ siRNA (m): sc-45317

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

## REFERENCES

- 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.
- 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 (mouse) mapping to 7 B4.

## PRODUCT

LXR $\beta$  siRNA (m) 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  $\mu$ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see LXR $\beta$  shRNA Plasmid (m): sc-45317-SH and LXR $\beta$  shRNA (m) Lentiviral Particles: sc-45317-V as alternate gene silencing products.

For independent verification of LXR $\beta$  (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-45317A, sc-45317B and sc-45317C.

## 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  $\mu$ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330  $\mu$ l of RNase-free water makes a 10  $\mu$ M solution in a 10  $\mu$ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

## APPLICATIONS

LXR $\beta$  siRNA (m) is recommended for the inhibition of LXR $\beta$  expression in mouse 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  $\mu$ M in 66  $\mu$ 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 $\alpha$ / $\beta$  (H-7): sc-377260 is recommended as a control antibody for monitoring of LXR $\beta$  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-IgG $\kappa$  BP-HRP: sc-516102 or m-IgG $\kappa$  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-IgG $\kappa$  BP-FITC: sc-516140 or m-IgG $\kappa$  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 LXR $\beta$  gene expression knockdown using RT-PCR Primer: LXR $\beta$  (m)-PR: sc-45317-PR (20  $\mu$ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

## SELECT PRODUCT CITATIONS

- Lee, C.S., et al. 2013. Liver X receptor activation inhibits melanogenesis through the acceleration of ERK-mediated MITF degradation. *J. Invest. Dermatol.* 133: 1063-1071.
- WANG, Q., et al. 2014. Identification of interferon- $\gamma$  as a new molecular target of liver X receptor. *Biochem. J.* 459: 345-354.
- Ma, X., et al. 2015. Inhibition of tumor growth by U0126 is associated with induction of interferon- $\gamma$  production. *Int. J. Cancer* 136: 771-783.
- Abd Eldaim, M.A., et al. 2017. Retinoic acid modulates lipid accumulation glucose concentration dependently through inverse regulation of SREBP-1 expression in 3T3L1 adipocytes. *Genes Cells* 22: 568-582.
- Gao, T., et al. 2019. Transcriptional regulation of homeostatic and disease-associated-microglial genes by IRF1, LXR $\beta$ , and CEBP $\alpha$ . *Glia* 67: 1958-1975.

## RESEARCH USE

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