SANTA CRUZ BIOTECHNOLOGY, INC.

RXRα siRNA (m): sc-36448

BACKGROUND

Two families of retinoid receptors, RARs and RXRs, have been identified. Retinoic acid receptors (RARs) include RARα, RARβ and RARγ, each of which have a high affinity for all *trans*-retinoic acids and belong to the same class of nuclear transcription factors as thyroid hormone receptors, vitamin D_3 receptor and ecdysone receptor. The ligand-binding domains of the RARs are highly conserved and RAR isoforms are expressed in distinct patterns throughout development and in the mature organism. Members of the retinoid X receptor (RXR) family, RXRα, RXRβ and RXRγ, are activated by 9-*cis*-RA, a stereo- and photo-isomer of all *trans*-RA that is expressed *in vivo* in both liver and kidney and may represent a widely used hormone. As is true for the RAR subfamily, the RXR receptors are closely related to each other both in their DNA-binding and ligand-binding domains and are encoded by separate genes at distinct chromosomal loci.

REFERENCES

1. Ishikawa, T., et al. 1990. A functional retinoic acid receptor encoded by the gene on human chromosome 12. Mol. Endocrinol. 4: 837-844.
2. Yang, N., et al. 1991. Characterization of DNA-binding and retinoic acid-binding properties of retinoic acid receptor. Proc. Natl. Acad. Sci. USA 88: 3559-3563.
3. Koelle, M.R., et al. 1991. The *Drosophila* EcR gene encodes an ecdysone receptor, a new member of the steroid receptor superfamily. Cell 67: 59-77.

CHROMOSOMAL LOCATION

Genetic locus: Rxra (mouse) mapping to 2 A3.

PRODUCT

RXRα 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 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see RXRα shRNA Plasmid (m): sc-36448-SH and RXRα shRNA (m) Lentiviral Particles: sc-36448-V as alternate gene silencing products.

For independent verification of RXRα (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-36448A, sc-36448B and sc-36448C.

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

RXRα siRNA (m) is recommended for the inhibition of RXRα 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 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

RXRα/β/γ (F-1): sc-46659 is recommended as a control antibody for monitoring of RXRα 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 RXRα gene expression knockdown using RT-PCR Primer: RXRα (m)-PR: sc-36448-PR (20 µl, 434 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Kumar, P., et al. 2010. Interactive roles of Ets-1, Sp1, and acetylated histones in the retinoic acid-dependent activation of guanylyl cyclase/atrial natriuretic peptide receptor-A gene transcription. J. Biol. Chem. 285: 37521-37530.
2. Lefebvre, B., et al. 2010. Proteasomal degradation of retinoid X receptor α reprograms transcriptional activity of PPARγ in obese mice and humans. J. Clin. Invest. 120: 1454-1468.
3. Hui, H., et al. 2014. Oroxylin A has therapeutic potential in acute myelogenous leukemia by dual effects targeting PPARγ and RXRα. Int. J. Cancer 134: 1195-1206.
4. Wnuk, A., et al. 2016. The crucial involvement of retinoid X receptors in DDE neurotoxicity. Neurotox. Res. 29: 155-172.
5. Litwa, E., et al. 2016. RXRα, PXR and CAR xenobiotic receptors mediate the apoptotic and neurotoxic actions of nonylphenol in mouse hippocampal cells. J. Steroid Biochem. Mol. Biol. 156: 43-52.
6. Wnuk, A., et al. 2018. Benzophenone-3 impairs autophagy, alters epigenetic status, and disrupts retinoid X receptor signaling in apoptotic neuronal cells. Mol. Neurobiol. 55: 5059-5074.
7. Lv, J., et al. 2018. Heme oxygenase-1 protects airway epithelium against apoptosis by targeting the proinflammatory NLRP3-RXR axis in asthma. J. Biol. Chem. 293: 18454-18465.

RESEARCH USE

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