SANTA CRUZ BIOTECHNOLOGY, INC.

RORα siRNA (h): sc-38862

BACKGROUND

Retinoids are metabolites of vitamin A (retinol) and represent an important class of signaling molecule during vertebrate development and tissue differentiation. A large group of nuclear transcription factors, including vitamin D_3 receptor (VDR), thyroid hormone receptor (TR), RAR, RXR and ecdysone receptor, have a high affinity for retinoic acids and are members of the steroid receptor superfamily. This family acts by directly associating with DNA sequences known as hormone response elements (HREs) and bind DNA as either homo- or heterodimers. RORα is a member of the steroid receptor superfamily and is classified as an "orphan receptor" due to the lack of a defined ligand. Two isoforms of RORα have been described and are designated RORα1 and RORα2. RORα, also referred to as RZR, binds DNA as a monomer at consensus RORα response elements (ROREs).

REFERENCES

1. 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.
2. 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., 314-349.
3. 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.
4. Leblanc, B.P., et al. 1995. 9-*cis* retinoic acid signaling: changing partners causes some excitement. Genes Dev. 9: 1811-1816.

CHROMOSOMAL LOCATION

Genetic locus: RORA (human) mapping to 15q22.2.

PRODUCT

RORα 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 RORα shRNA Plasmid (h): sc-38862-SH and RORα shRNA (h) Lentiviral Particles: sc-38862-V as alternate gene silencing products.

For independent verification of RORα (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-38862A, sc-38862B and sc-38862C.

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

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

RORα (C-7): sc-518081 is recommended as a control antibody for monitoring of RORα 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 RORα gene expression knockdown using RT-PCR Primer: RORα (h)-PR: sc-38862-PR (20 µl, 622 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Ou, Z., et al. 2013. Regulation of the human hydroxysteroid sulfotransferase (SULT2A1) by RORα and RORγ and its potential relevance to human liver diseases. Mol. Endocrinol. 27: 106-115.
2. Ding, S., et al. 2019. Melatonin stabilizes rupture-prone vulnerable plaques via regulating macrophage polarization in a nuclear circadian receptor RORα-dependent manner. J. Pineal Res. 67: e12581.
3. Chaudhari, S.N., et al. 2021. A microbial metabolite remodels the gut-liver axis following bariatric surgery. Cell Host Microbe 29: 408-424.e7.
4. Kim, H.S., et al. 2022. The role of retinoid-related orphan receptor-α in cigarette smoke-induced autophagic response. Respir. Res. 23: 110.

RESEARCH USE

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

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.