



# ROR $\gamma$ siRNA (h): sc-38880

## BACKGROUND

The nuclear orphan receptors ROR $\alpha$  and ROR $\gamma$  are members of the nuclear hormone receptor superfamily. This family acts by directly associating with DNA sequences known as hormone response elements (HREs) and typically bind DNA as either homo- or heterodimers. ROR $\alpha$  and ROR $\gamma$  are unique in that they bind DNA as monomers. ROR $\alpha$  has multiple isoforms that share common DNA and putative ligand-binding domains, but differ in their amino terminal domains, which are generated by alternative RNA processing. ROR $\gamma$  comprises a 560 amino acid protein that shares 50% amino acid identity with ROR $\alpha$  and is most highly expressed in skeletal muscle. Although these proteins are considered "orphan receptors", due to a lack of defined ligands, experimental evidence has shown that melatonin may be the natural ligand for these nuclear receptors. The gene encoding ROR $\alpha$  maps to chromosome 15q22.2 and the gene encoding ROR $\gamma$  maps to chromosome 1q21.3.

## REFERENCES

1. Giguere, V., et al. 1994. Isoform-specific amino-terminal domains dictate DNA-binding properties of ROR $\alpha$ , a novel family of orphan hormone nuclear receptors. *Genes Dev.* 8: 538-543.
2. Hirose, T., et al. 1994. ROR $\gamma$ : the third member of ROR/RZR orphan receptor subfamily that is highly expressed in skeletal muscle. *Biochem. Biophys. Res. Commun.* 205: 1976-1983.
3. Carlberg, C., et al. 1995. The orphan receptor family RZR/ROR, melatonin and 5-lipoxygenase: an unexpected relationship. *J. Pineal Res.* 18: 171-178.
4. Mangelsdorf, D.J., et al. 1995. The nuclear receptor superfamily: the second decade. *Cell* 83: 835-839.

## CHROMOSOMAL LOCATION

Genetic locus: RORC (human) mapping to 1q21.3.

## PRODUCT

ROR $\gamma$  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  $\mu$ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see ROR $\gamma$  shRNA Plasmid (h): sc-38880-SH and ROR $\gamma$  shRNA (h) Lentiviral Particles: sc-38880-V as alternate gene silencing products.

For independent verification of ROR $\gamma$  (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-38880A, sc-38880B and sc-38880C.

## 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

ROR $\gamma$  siRNA (h) is recommended for the inhibition of ROR $\gamma$  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  $\mu$ 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

ROR $\gamma$  (D-4): sc-365476 is recommended as a control antibody for monitoring of ROR $\gamma$  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 ROR $\gamma$  gene expression knockdown using RT-PCR Primer: ROR $\gamma$  (h)-PR: sc-38880-PR (20  $\mu$ l, 428 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 ROR $\alpha$  and ROR $\gamma$  and its potential relevance to human liver diseases. *Mol. Endocrinol.* 27: 106-115.
2. Chaudhari, S.N., et al. 2021. A microbial metabolite remodels the gut-liver axis following bariatric surgery. *Cell Host Microbe* 29: 408-424.e7.

## RESEARCH USE

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

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) for detailed protocols and support products.