

# ROR $\beta$ siRNA (m): sc-38873

## BACKGROUND

Nuclear receptors that lack a defined ligand are classified as orphan nuclear receptors. Retinoic acid receptor-related orphan nuclear receptor (ROR) proteins ROR $\alpha$ , ROR $\beta$  and ROR $\gamma$  are members of the nuclear hormone receptor superfamily. Unlike other members of the nuclear hormone receptor superfamily that bind DNA as homo- or heterodimers, ROR proteins directly bind the hormone response element (HRE) DNA sequence 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 $\beta$  is primarily expressed in brain and other areas of the central nervous system that process sensory information. The expression levels of ROR $\beta$  oscillate in the retina and pineal gland with a circadian rhythm. In Neuro2A cells, ROR $\beta$  binds DNA and efficiently directs transcription. The gene encoding human ROR $\beta$  maps to chromosome 9q21.13. 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.

## REFERENCES

- 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.
- 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.
- Carlberg, C., et al. 1994. RZRs, a new family of retinoid-related orphan receptors that function as both monomers and homodimers. *Mol. Endocr.* 8: 757-770.
- Mangelsdorf, D.J., et al. 1995. The nuclear receptor superfamily: the second decade. *Cell* 83: 835-839.
- Andre, E., et al. 1998. Disruption of retinoid-related orphan receptor  $\beta$  changes circadian behavior, causes retinal degeneration and leads to vacillans phenotype in mice. *EMBO J.* 17: 3867-3877.

## CHROMOSOMAL LOCATION

Genetic locus: Rorb (mouse) mapping to 19 B.

## PRODUCT

ROR $\beta$  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 ROR $\beta$  shRNA Plasmid (m): sc-38873-SH and ROR $\beta$  shRNA (m) Lentiviral Particles: sc-38873-V as alternate gene silencing products.

For independent verification of ROR $\beta$  (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-38873A, sc-38873B and sc-38873C.

## PROTOCOLS

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

## 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 $\beta$  siRNA (m) is recommended for the inhibition of ROR $\beta$  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

ROR $\beta$  (4B4): sc-293471 is recommended as a control antibody for monitoring of ROR $\beta$  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<sup>™</sup> Molecular Weight Standards: sc-2035, UltraCruz<sup>®</sup> 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<sup>®</sup> Mounting Medium: sc-24941 or UltraCruz<sup>®</sup> Hard-set Mounting Medium: sc-359850.

## RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor ROR $\beta$  gene expression knockdown using RT-PCR Primer: ROR $\beta$  (m)-PR: sc-38872-PR (20  $\mu$ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

## RESEARCH USE

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