SANTA CRUZ BIOTECHNOLOGY, INC.

RORβ siRNA (h): sc-38872

BACKGROUND

Nuclear receptors that lack a defined ligand are classified as orphan nuclear receptors. Retinoic acid receptor-related orphan nuclear receptor (ROR) proteins RORα, RORβ and RORγ 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. RORα 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. RORβ is primarily expressed in brain and other areas of the central nervous system that process sensory information. The expression levels of RORβ oscillate in the retina and pineal gland with a circadian rhythm. In Neuro2A cells, RORβ binds DNA and efficiently directs transcription. The gene encoding human RORβ maps to chromosome 9q21.13. RORγ comprises a 560 amino acid protein that shares 50% amino acid identity with RORα and is most highly expressed in skeletal muscle.

REFERENCES

1. Hirose, T., et al. 1994. RORγ: the third member of ROR/RZR orphan receptor subfamily that is highly expressed in skeletal muscle. Biochem. Biophys. Res. Commun. 205: 1976-1983.
2. Giguere, V., et al. 1994. Isoform-specific amino-terminal domains dictate DNA-binding properties of RORα, a novel family of orphan hormone nuclear receptors. Genes Dev. 8: 538-543.
3. Carlberg, C., et al. 1994. RZRs, a new family of retinoid-related orphan receptors that function as both monomers and homodimers. Mol. Endocrinol. 8: 757-770.
4. Mangelsdorf, D.J., et al. 1995. The nuclear receptor superfamily: the second decade. Cell 83: 835-839.
5. Andre, E., et al. 1998. Disruption of retinoid-related orphan receptor β changes circadian behavior, causes retinal degeneration and leads to vacillans phenotype in mice. EMBO J. 17: 3867-3877.
6. Gawlas, K., et al. 2000. Differential binding and transcriptional behaviour of two highly related orphan receptors, RORα and RORγ. Biochim. Biophys. Acta 1494: 236-241.

CHROMOSOMAL LOCATION

Genetic locus: RORB (human) mapping to 9q21.13.

PRODUCT

RORβ 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 RORβ shRNA Plasmid (h): sc-38872-SH and RORβ shRNA (h) Lentiviral Particles: sc-38872-V as alternate gene silencing products.

For independent verification of RORβ (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-38872A, sc-38872B and sc-38872C.

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

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

RORβ (4B4): sc-293471 is recommended as a control antibody for monitoring of RORβ 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-IgGκ BP-HRP: sc-516102 or m-IgGκ 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-IgGκ BP-FITC: sc-516140 or m-IgGκ 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 RORβ gene expression knockdown using RT-PCR Primer: RORβ (h)-PR: sc-38872-PR (20 µl, 299 bp). 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.

PROTOCOLS

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