SANTA CRUZ BIOTECHNOLOGY, INC.

ERRα siRNA (m): sc-44707

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The Power to Question

BACKGROUND

Estrogen related receptor α (ERRα) is a nuclear receptor in the superfamily of ligand-regulated transcription factors and is a member of the NR3B orphan nuclear receptor subgroup (consisting of α, β and γ). ERRα plays a role in modulating the estrogen signaling pathway. In addition, the expression of ERRα has been shown to increase during fasting and cold exposure. ERRα may be important for regulating mitochondrial biogenesis and oxidative metabolism by acting directly on genes necessary for mitochondrial function. Mice lacking ERRα are unable to maintain their body temperature in the cold. ERRα may also be involved in the maintenance and formation of cartilage. This information could be useful in finding therapeutic agents for a variety of diseases affecting the joints.

REFERENCES

1. Chen, F., et al. 1999. Identification of two hERR2-related novel nuclear receptors utilizing bioinformatics and inverse PCR. Gene 228: 101-109.
2. Hong, H., et al. 1999. Hormone-independent transcriptional activation and coactivator binding by novel orphan nuclear receptor ERR3. J. Biol. Chem. 274: 22618-22626.
3. Greschik, H., et al. 2002. Structural and functional evidence for ligand-independent transcriptional activation by the estrogen-related receptor 3. Mol. Cell 9: 303-313.
4. Hentschke, M., et al. 2003. Identification of PNRC2 and TLE1 as activation function-1 cofactors of the orphan nuclear receptor ERRγ. Biochem. Biophys. Res. Commun. 312: 975-982.

CHROMOSOMAL LOCATION

Genetic locus: Esrra (mouse) mapping to 19 A.

PRODUCT

ERRα 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 ERRα shRNA Plasmid (m): sc-44707-SH and ERRα shRNA (m) Lentiviral Particles: sc-44707-V as alternate gene silencing products.

For independent verification of ERRα (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-44707A, sc-44707B and sc-44707C.

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

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

ERRα (2ERR7): sc-65720 is recommended as a control antibody for monitoring of ERRα 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 ERRα gene expression knockdown using RT-PCR Primer: ERRα (m)-PR: sc-44707-PR (20 µl, 491 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Zhang, X., et al. 2016. PGC-1α/ERRα-Sirt3 pathway regulates DAergic neuronal death by directly deacetylating SOD2 and ATP synthase β. Antioxid. Redox Signal. 24: 312-328.
2. Chen, C.Y., et al. 2020. Repression of the transcriptional activity of ERRα with sequence-specific DNA-binding polyamides. Med. Chem. Res. 29: 607-616.

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.