

## ERR $\beta$ siRNA (h): sc-60603

### BACKGROUND

Estrogen and progesterone receptors are members of a family of transcription factors that are regulated by the binding of their cognate ligands. The interaction of hormone-bound estrogen receptors with estrogen responsive elements (EREs) alters transcription of ERE-containing genes. Estrogen receptor-related proteins (ERR $\alpha$ ,  $\beta$  and  $\gamma$ ) are orphan nuclear receptors. Like estrogen receptors, ERRs bind specifically to EREs to activate reporter genes. ERR $\beta$ , also known as steroid hormone receptor ERR2 or estrogen receptor-like 2, contains a DNA binding domain and is highly homologous to ER $\alpha$ . ERR $\beta$  is expressed during mammary gland development and is critical in embryo development. It is expressed in a subset of diploid trophoblast cells which make up the chorion. The loss of ERR $\beta$  results in severely impaired chorion formation leading to placental failure and embryonic death. This suggests that ERR $\beta$  may be necessary for the proper formation or function of the chorion. In addition, ERR $\beta$  potently represses the transcriptional activity of Nrf2.

### REFERENCES

1. Luo, J., et al. 1997. Placental abnormalities in mouse embryos lacking the orphan nuclear receptor ERR $\beta$ . *Nature* 388: 778-782.
2. Hong, H., et al. 1999. Hormone-independent transcriptional activation and co-activator binding by novel orphan nuclear receptor ERR3. *J. Biol. Chem.* 274: 22618-22626.
3. Chen, F., et al. 1999. Identification of two hERR2-related novel nuclear receptors utilizing bioinformatics and inverse PCR. *Gene* 228: 101-109.
4. 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.
5. Cheung, C.P., et al. 2005. Expression and functional study of estrogen receptor-related receptors in human prostatic cells and tissues. *J. Clin. Endocrinol. Metab.* 90: 1830-1844.
6. Gearhart, M.D., et al. 2005. Inhibition of DNA binding by human estrogen-related receptor 2 and estrogen receptor  $\alpha$  with minor groove binding polyamides. *Biochemistry* 44: 4196-4203.

### CHROMOSOMAL LOCATION

Genetic locus: ESRRB (human) mapping to 14q24.3.

### PRODUCT

ERR $\beta$  siRNA (h) is a pool of 2 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 ERR $\beta$  shRNA Plasmid (h): sc-60603-SH and ERR $\beta$  shRNA (h) Lentiviral Particles: sc-60603-V as alternate gene silencing products.

For independent verification of ERR $\beta$  (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-60603A and sc-60603B.

### 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

ERR $\beta$  siRNA (h) is recommended for the inhibition of ERR $\beta$  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

ERR $\beta$ / $\gamma$  (E-1): sc-376449 is recommended as a control antibody for monitoring of ERR $\beta$  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 ERR $\beta$  gene expression knockdown using RT-PCR Primer: ERR $\beta$  (h)-PR: sc-60603-PR (20  $\mu$ l, 552 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](http://www.scbt.com) for detailed protocols and support products.