

ER β siRNA (h): sc-35325

BACKGROUND

Estrogen receptors (ER) are members of the steroid/thyroid hormone receptor superfamily of ligand-activated transcription factors. Estrogen receptors, including ER α and ER β , contain DNA binding and ligand binding domains and are critically involved in regulating the normal function of reproductive tissues. They are located in the nucleus, though some estrogen receptors associate with the cell surface membrane and can be rapidly activated by exposure of cells to estrogen. ER α and ER β have been shown to be differentially activated by various ligands. Receptor-ligand interactions trigger a cascade of events, including dissociation from heat shock proteins, receptor dimerization, phosphorylation and the association of the hormone activated receptor with specific regulatory elements in target genes. Evidence suggests that ER α and ER β may be regulated by distinct mechanisms even though they share many functional characteristics.

REFERENCES

1. Green, S., et al. 1986. Human oestrogen receptor cDNA: sequence, expression and homology to v-erb-A. *Nature* 320: 134-139.
2. Katzenellenbogen, B.S., et al. 1987. Structural analysis of covalently labeled estrogen receptors by limited and monoclonal antibody reactivity. *Biochemistry* 26: 2364-2373.
3. Evans, R.M. 1988. The steroid and thyroid hormone receptor superfamily. *Science* 240: 889-895.

CHROMOSOMAL LOCATION

Genetic locus: ESR2 (human) mapping to 14q23.2.

PRODUCT

ER β 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see ER β shRNA Plasmid (h): sc-35325-SH and ER β shRNA (h) Lentiviral Particles: sc-35325-V as alternate gene silencing products.

For independent verification of ER β (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-35325A, sc-35325B and sc-35325C.

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 μ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330 μ l of RNase-free water makes a 10 μ M solution in a 10 μ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

ER β siRNA (h) is recommended for the inhibition of ER β 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 μ M in 66 μ 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

ER β (B-3): sc-373853 is recommended as a control antibody for monitoring of ER β 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).

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor ER β gene expression knockdown using RT-PCR Primer: ER β (h)-PR: sc-35325-PR (20 μ l, 300 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Yada-Hashimoto, N., et al. 2006. Estrogen and raloxifene inhibit the monocytic chemoattractant protein-1-induced migration of human monocytic cells via nongenomic estrogen receptor α . *Menopause* 13: 935-941.
2. Pons, D.G., et al. 2015. The presence of estrogen receptor β modulates the response of breast cancer cells to therapeutic agents. *Int. J. Biochem. Cell Biol.* 66: 85-94.
3. Ronghe, A., et al. 2016. 4-(E)-{(p-tolylimino)-methylbenzene-1,2-diol}, 1 a novel resveratrol analog, differentially regulates estrogen receptors α and β in breast cancer cells. *Toxicol. Appl. Pharmacol.* 301: 1-13.
4. Fortini, F., et al. 2017. Estrogen receptor β -dependent Notch1 activation protects vascular endothelium against tumor necrosis factor α (TNF α)-induced apoptosis. *J. Biol. Chem.* 292: 18178-18191.
5. Chan, K.K.L., et al. 2018. Estrogen receptor modulators genistein, daidzein and ERB-041 inhibit cell migration, invasion, proliferation and sphere formation via modulation of FAK and PI3K/Akt signaling in ovarian cancer. *Cancer Cell Int.* 18: 65.
6. Gao, X., et al. 2019. Estrogen receptors promote NSCLC progression by modulating the membrane receptor signaling network: a systems biology perspective. *J. Transl. Med.* 17: 308.
7. Fan, M., et al. 2020. Triggering a switch from basal- to luminal-like breast cancer subtype by the small-molecule diptoinones G via induction of GABARAP1. *Cell Death Dis.* 11: 635.

RESEARCH USE

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