

Estrogen Receptor alpha siRNA (m): sc-29306

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. Mason, B.H., et al. 1983. Progesterone and estrogen receptors as prognostic variables in breast cancer. *Cancer Res.* 43: 2985-2990.
2. Evans, R.M. 1988. The steroid and thyroid hormone receptor superfamily. *Science* 240: 889-895.

CHROMOSOMAL LOCATION

Genetic locus: Esr1 (mouse) mapping to 10 A1.

PRODUCT

Estrogen Receptor alpha siRNA (m) is a pool of 4 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 Estrogen Receptor alpha shRNA Plasmid (m): sc-29306-SH and Estrogen Receptor alpha shRNA (m) Lentiviral Particles: sc-29306-V as alternate gene silencing products.

For independent verification of Estrogen Receptor alpha (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-29306A, sc-29306B, sc-29306C and sc-29306D.

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

Estrogen Receptor alpha siRNA (m) is recommended for the inhibition of Estrogen Receptor alpha 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 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

Estrogen Receptor alpha (D-12): sc-8005 is recommended as a control antibody for monitoring of Estrogen Receptor alpha 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 Estrogen Receptor alpha gene expression knockdown using RT-PCR Primer: Estrogen Receptor alpha (m)-PR: sc-29306-PR (20 μ l, 478 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Dasgupta, S. and Eudaly, J. 2012. Estrogen Receptor alpha mediates Toll-like receptor-2 agonist-induced monocyte chemoattractant protein-1 production in mesangial cells. *Results Immunol.* 2: 196-203.
2. Rzemieniec, J., et al. 2015. Neuroprotective action of raloxifene against hypoxia-induced damage in mouse hippocampal cells depends on ER α but not ER β or GPR30 signalling. *J. Steroid Biochem. Mol. Biol.* 146: 26-37.
3. Rzemieniec, J., et al. 2017. Bazedoxifene and raloxifene protect neocortical neurons undergoing hypoxia via targeting ER α and PPAR- γ . *Mol. Cell. Endocrinol.* 461: 64-78.
4. Rzemieniec, J., et al. 2018. Bazedoxifene and raloxifene protect neocortical neurons undergoing hypoxia via targeting ER α and PPAR- γ . *Mol. Cell. Endocrinol.* 461: 64-78.
5. Ahmad, N., et al. 2018. 17 β -estradiol induces MMP-9 and MMP-13 in TMJ fibrochondrocytes via Estrogen Receptor alpha. *J. Dent. Res.* 97: 1023-1030.
6. Liu, Y., et al. 2019. Atypical GATA protein TRPS1 plays indispensable roles in mouse two-cell embryo. *Cell Cycle* 18: 437-451.
7. Xu, S., et al. 2019. Akt plays indispensable roles during the first cell lineage differentiation of mouse. *J. Mol. Histol.* 50: 369-374.
8. Kajta, M., et al. 2020. Triclocarban impairs autophagy in neuronal cells and disrupts estrogen receptor signaling via hypermethylation of specific genes. *Sci. Total Environ.* 701: 134818.

RESEARCH USE

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