SANTA CRUZ BIOTECHNOLOGY, INC.

17β-HSD4 siRNA (m): sc-61919

BACKGROUND

17β-HSD4 (17β-hydroxysteroid dehydrogenase type 4) is also known as peroxisomal multifunctional enzyme/protein 2 (MFE-2/MFP-2), D-bifunctional enzyme or 17-β Estradiol dehydrogenase type IV. It belongs to the 17β-HSD family of proteins that regulate the availability of steroids within various tissues throughout the body. 17β-HSD4 inactivates Estradiol through its oxidative activity but it is primarily involved in peroxisomal fatty acid and cholesterol β-oxidation. It has a multi-domain structure: the dehydrogenase domain is fused to a hydratase and a lipid transfer domain. 17β-HSD4 is a target protein of chromeceptin and it is essential for the downstream activation of Stat6. 17β-HSD4-deficient patients exhibit Zellweger-like syndrome and die within the first year of life. They display neuronal migration defects, facial dysmorphisms, severe hypotonia and convulsions in the neonatal period.

REFERENCES

1. Husen, B., et al. 2000. Differential expression of 17β-hydroxysteroid dehydrogenases types 2 and 4 in human endometrial epithelial cell lines. J. Mol. Endocrinol. 24: 135-144.
2. Breitling, R., et al. 2001. Evolution of 17β-HSD type 4, a multifunctional protein of β-oxidation. Mol. Cell. Endocrinol. 171: 205-210.
3. Kobayashi, K., et al. 2004. Expression of estrogen receptor α and 17β-hydroxysteroid dehydrogenase 4 in the ciliary body. Graefes Arch. Clin. Exp. Ophthalmol. 242: 172-176.
4. Nagayoshi, Y., et al. 2005. Characterization of 17β-hydroxysteroid dehydrogenase type 4 in human ovarian surface epithelial cells. Mol. Hum. Reprod. 11: 615-621.
5. Otsuka, M., et al. 2005. Vitamin K2 binds 17β-hydroxysteroid dehydrogenase 4 and modulates estrogen metabolism. Life Sci. 76: 2473-2482.
6. Nguyen, T., et al. 2006. Failure of microtubule-mediated peroxisome division and trafficking in disorders with reduced peroxisome abundance. J. Cell Sci. 119: 636-645.

CHROMOSOMAL LOCATION

Genetic locus: Hsd17b4 (mouse) mapping to 18 D1.

PRODUCT

17β-HSD4 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 17β-HSD4 shRNA Plasmid (m): sc-61919-SH and 17β-HSD4 shRNA (m) Lentiviral Particles: sc-61919-V as alternate gene silencing products.

For independent verification of 17β-HSD4 (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-61919A, sc-61919B and sc-61919C.

RESEARCH USE

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

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

17β-HSD4 siRNA (m) is recommended for the inhibition of 17β-HSD4 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor 17β-HSD4 gene expression knockdown using RT-PCR Primer: 17β-HSD4 (m)-PR: sc-61919-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

PROTOCOLS

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