SANTA CRUZ BIOTECHNOLOGY, INC.

17β-HSD siRNA (h): sc-41381

BACKGROUND

17β-hydroxysteroid dehydrogenase type 1 (17β-HSD) catalyzes the final step in the formation of estradiol and testosterone from estrone and androstenedione, respectively. Ovarian granulosa cells and breast tissue both express 17β-HSD. Other tissues that express 17β-HSD include testis, placenta, uterus, prostate and adipose tissue. 17β-HSD functions as a homodimer and prefers NADP(H) over NAD(H) for oxidation and reduction. The gene encoding human 17β-HSD maps to chromosome 17q21.2. The importance of 17β-HSD to estradiol production suggests the specific inhibition of 17β-HSD may aid in breast cancer therapy. Breast cancer patients with an amplification of 17β-HSD expression statistically have a worse outcome than those without. 17β-HSD amplification in tamoxifen-treated patients correlates to decreased breast cancer survival.

REFERENCES

1. Luu-The, V., et al. 1990. Structure of two in tandem human 17β-hydroxysteroid dehydrogenase genes. Mol. Endocrinol. 4: 268-275.
2. Winqvist, R., et al. 1990. The gene for 17β-hydroxysteroid dehydrogenase maps to human chromosome 17, bands q12-q21, and shows an RFLP with ScaI. Hum. Genet. 85: 473-476.
3. Lin, S.X., et al. 1992. Subunit identity of the dimeric 17β-hydroxysteroid dehydrogenase from human placenta. J. Biol. Chem. 267: 16182-16187.
4. Poutanen, M., et al. 1993. Differential estrogen substrate specificities for transiently expressed human placental 17β-hydroxysteroid dehydrogenase and an endogenous enzyme expressed in cultured COS-m6 cells. Endocrinology 133: 2639-2644.
5. Luu-The, V., et al. 1995. Characteristics of human types 1, 2 and 3 17β-hydroxysteroid dehydrogenase activities: oxidation/reduction and inhibition. J. Steroid Biochem. Mol. Biol. 55: 581-587.
6. Vihko, P., et al. 2001. Structure and function of 17β-hydroxysteroid dehydrogenase type 1 and type 2. Mol. Cell. Endocrinol. 171: 71-76.
7. Gunnarsson, C., et al. 2003. Amplification of HSD17B1 and ERBB2 in primary breast cancer. Oncogene 22: 34-40.

CHROMOSOMAL LOCATION

Genetic locus: HSD17B1 (human) mapping to 17q21.2.

PRODUCT

17β-HSD 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 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see 17β-HSD shRNA Plasmid (h): sc-41381-SH and 17β-HSD shRNA (h) Lentiviral Particles: sc-41381-V as alternate gene silencing products.

For independent verification of 17β-HSD (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-41381A, sc-41381B and sc-41381C.

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-HSD siRNA (h) is recommended for the inhibition of 17β-HSD 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 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

17β-HSD (D-8): sc-373902 is recommended as a control antibody for monitoring of 17β-HSD 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 17β-HSD gene expression knockdown using RT-PCR Primer: 17β-HSD (h)-PR: sc-41381-PR (20 µl, 566 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 for detailed protocols and support products.