SANTA CRUZ BIOTECHNOLOGY, INC.

5α-Reductase 2 siRNA (h): sc-41398

BACKGROUND

Steroid 5α-Reductase is an important enzyme in androgen physiology because it catalyzes the conversion of testosterone into the more potent 5α-dihydrotestosterone, which mediates androgen effects on target tissues. The enzyme exists as two isoforms: type 1, which is expressed mainly in the skin; and type 2, which is expressed mainly in the prostate. In cultured human skin cells, 5α-Reductase 1 shows heterogeneity of protein, and has different levels of transcriptional and translational expression. 5α-Reductase 1 is expressed in all portions of the hair follicle, whereas 5α-Reductase 2 is expressed only in mesenchymal portions. In addition, 5α-Reductase 1 is mainly expressed in human breast carcinoma and may play a role in the *in situ* production and actions of the potent androgen 5α-dihydrotestosterone, including inhibition of cancer cell proliferation in hormone-dependent human breast carcinoma. The 5α-Reductase-3α-hydroxysteroid dehydrogenase complex is present in the human brain, suggesting that the complex may be involved in the synthesis of neuroactive steroids or the catabolism of neurotoxic steroids.

REFERENCES

1. Bonkhoff, H., et al. 1996. Differential expression of 5α-Reductase isoenzymes in the human prostate and prostatic carcinomas. Prostate 29: 261-267.
2. Taylor, M.F., et al. 1997. Expression of rat steroid 5α-Reductase (isozyme-1) in *Spodoptera frugiperda*, SF21, insect cells: expression of rat steroid 5α-Reductase. Steroids 62: 373-378.
3. Chen, W., et al. 1998. Evidence of heterogeneity and quantitative differences of the type 1 5α-Reductase expression in cultured human skin cells—evidence of its presence in melanocytes. J. Invest. Dermatol. 110: 84-89.
4. Suzuki, T., et al. 2001. 5α-Reductases in human breast carcinoma: possible modulator of *in situ* androgenic actions. J. Clin. Endocrinol. Metab. 86: 2250-2257.
5. Steckelbroeck, S., et al. 2001. Characterization of the 5α-reductase-3α-hydroxysteroid dehydrogenase complex in the human brain. J. Clin. Endocrinol. 86: 1324-1331.

CHROMOSOMAL LOCATION

Genetic locus: SRD5A2 (human) mapping to 2p23.1.

PRODUCT

5α-Reductase 2 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 5α-Reductase 2 shRNA Plasmid (h): sc-41398-SH and 5α-Reductase 2 shRNA (h) Lentiviral Particles: sc-41398-V as alternate gene silencing products.

For independent verification of 5α-Reductase 2 (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-41398A, sc-41398B and sc-41398C.

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

5α-Reductase 2 siRNA (h) is recommended for the inhibition of 5α-Reductase 2 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

5α-Reductase 2 (1F4): sc-293232 is recommended as a control antibody for monitoring of 5α-Reductase 2 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 5α-Reductase 2 gene expression knockdown using RT-PCR Primer: 5α-Reductase 2 (h)-PR: sc-41398-PR (20 µl, 361 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.