

# 5 $\alpha$ -Reductase 1 siRNA (h): sc-41396

## BACKGROUND

Steroid 5 $\alpha$ -Reductase is an important enzyme in androgen physiology because it catalyzes the conversion of testosterone into the more potent 5 $\alpha$ -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, 5 $\alpha$ -Reductase 1 shows heterogeneity of protein, and has different levels of transcriptional and translational expression. 5 $\alpha$ -Reductase 1 is expressed in all portions of the hair follicle, whereas 5 $\alpha$ -Reductase 2 is expressed only in mesenchymal portions. In addition, 5 $\alpha$ -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 5 $\alpha$ -dihydrotestosterone, including inhibition of cancer cell proliferation in hormone-dependent human breast carcinoma. The 5 $\alpha$ -Reductase-3 $\alpha$ -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 5 $\alpha$ -Reductase isoenzymes in the human prostate and prostatic carcinomas. *Prostate* 29: 261-267.
2. Taylor, M.F., et al. 1997. Expression of rat steroid 5 $\alpha$ -Reductase (isozyme-1) in *Spodoptera frugiperda*, SF21, insect cells: expression of rat steroid 5 $\alpha$ -Reductase. *Steroids* 62: 373-378.
3. Chen, W., et al. 1998. Evidence of heterogeneity and quantitative differences of the type 1 5 $\alpha$ -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. 5 $\alpha$ -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 5 $\alpha$ -reductase-3 $\alpha$ -hydroxysteroid dehydrogenase complex in the human brain. *J. Clin. Endocrinol.* 86: 1324-1331.

## CHROMOSOMAL LOCATION

Genetic locus: SRD5A1 (human) mapping to 5p15.31.

## PRODUCT

5 $\alpha$ -Reductase 1 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  $\mu$ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see 5 $\alpha$ -Reductase 1 shRNA Plasmid (h): sc-41396-SH and 5 $\alpha$ -Reductase 1 shRNA (h) Lentiviral Particles: sc-41396-V as alternate gene silencing products.

For independent verification of 5 $\alpha$ -Reductase 1 (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-41396A, sc-41396B and sc-41396C.

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

## APPLICATIONS

5 $\alpha$ -Reductase 1 siRNA (h) is recommended for the inhibition of 5 $\alpha$ -Reductase 1 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  $\mu$ M in 66  $\mu$ 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.

## RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor 5 $\alpha$ -Reductase 1 gene expression knockdown using RT-PCR Primer: 5 $\alpha$ -Reductase 1 (h)-PR: sc-41396-PR (20  $\mu$ l). 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](http://www.scbt.com) for detailed protocols and support products.