



## 5 $\alpha$ -Reductase 1 (H-105): sc-20658

### 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. Steckelbroeck, S., et al. 2001. Characterization of the 5 $\alpha$ -reductase-3 $\alpha$ -hydroxysteroid dehydrogenase complex in the human brain. *J. Clin. Endocrinol. Metab.* 86: 1324-1331.
5. 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.

### CHROMOSOMAL LOCATION

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

### SOURCE

5 $\alpha$ -Reductase 1 (H-105) is a rabbit polyclonal antibody raised against amino acids 61-165 mapping at the N-terminus of 5 $\alpha$ -Reductase 1 of human origin.

### PRODUCT

Each vial contains 200  $\mu$ g IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

### STORAGE

Store at 4° C, \*\*DO NOT FREEZE\*\*. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

### APPLICATIONS

5 $\alpha$ -Reductase 1 (H-105) is recommended for detection of 5 $\alpha$ -Reductase 1 of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1–2  $\mu$ g per 100–500  $\mu$ g of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for 5 $\alpha$ -Reductase 1 siRNA (h): sc-41396, 5 $\alpha$ -Reductase 1 shRNA Plasmid (h): sc-41396-SH and 5 $\alpha$ -Reductase 1 shRNA (h) Lentiviral Particles: sc-41396-V.

Molecular Weight of 5 $\alpha$ -Reductase 1: 26 kDa.

### RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/ 2.0 ml). 3) Immunofluorescence: use goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

### SELECT PRODUCT CITATIONS

1. Carneiro, M.M., et al. 2008. Androgen receptor and 5 $\alpha$ -Reductase are expressed in pelvic endometriosis. *BJOG* 115: 113-117.
2. Liu, S., et al. 2008. Different patterns of 5 $\alpha$ -Reductase expression, cellular distribution, and testosterone metabolism in human follicular dermal papilla cells. *Biochem. Biophys. Res. Commun.* 368: 858-864.

### 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) or our catalog for detailed protocols and support products.