

# 3 $\beta$ -HSD (h2): 293T Lysate: sc-173046

## BACKGROUND

3 $\beta$ -hydroxysteroid dehydrogenase (3 $\beta$ -HSD), also known as HSD3B1 or HSD3B3, is a bifunctional enzyme that plays a crucial role in the synthesis of all classes of hormonal steroids. Two human 3 $\beta$ -HSD proteins, designated type I (3 $\beta$ -HSD) and type II (3 $\beta$ -HSD2), are expressed by different genes and function in different areas of the body. Localized to the membrane of the endoplasmic reticulum (ER) and expressed in skin and placenta, 3 $\beta$ -HSD is the type I protein that catalyzes the oxidative conversion of  $\delta^5$ -ene-3- $\beta$ -hydroxy steroid, as well as the conversion of various ketosteroids. Defects in the gene encoding 3 $\beta$ -HSD are associated with classic salt wasting, genital ambiguity, hypogonadism, Insulin-resistant polycystic ovary syndrome (PCOS) and an increased susceptibility to prostate cancer. Additionally, congenital deficiency of 3 $\beta$ -HSD activity results in a severe depletion of steroid formation which can be lethal in young children.

## REFERENCES

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2. Thomas, J.L., et al. 2003. Structure/function relationships responsible for coenzyme specificity and the isomerase activity of human type 1 3 $\beta$ -hydroxysteroid dehydrogenase/isomerase. *J. Biol. Chem.* 278: 35483-35490.
3. Foti, D.M. and Reichardt, J.K. 2004. YY1 binding within the human HSD3B2 gene intron 1 is required for maximal basal promoter activity: identification of YY1 as the 3 $\beta$ 1-A factor. *J. Mol. Endocrinol.* 33: 99-119.
4. Thomas, J.L., et al. 2004. Serine 124 completes the Tyr, Lys and Ser triad responsible for the catalysis of human type 1 3 $\beta$ -hydroxysteroid dehydrogenase. *J. Mol. Endocrinol.* 33: 253-261.
5. Carbanaru, G., et al. 2004. The hormonal phenotype of nonclassic 3 $\beta$ -hydroxysteroid dehydrogenase (HSD3B) deficiency in hyperandrogenic females is associated with Insulin-resistant polycystic ovary syndrome and is not a variant of inherited HSD3B2 deficiency. *J. Clin. Endocrinol. Metab.* 89: 783-794.
6. Thomas, J.L., et al. 2007. Structure/function of human type 1 3 $\beta$ -hydroxysteroid dehydrogenase: An intrasubunit disulfide bond in the Rossmann-fold domain and a Cys residue in the active site are critical for substrate and coenzyme utilization. *J. Steroid Biochem. Mol. Biol.* 107: 80-87.
7. Wang, L., et al. 2007. Human 3 $\beta$ -hydroxysteroid dehydrogenase types 1 and 2: Gene sequence variation and functional genomics. *J. Steroid Biochem. Mol. Biol.* 107: 88-99.
8. Mao, T.L., et al. 2008. HSD3B1 as a novel trophoblast-associated marker that assists in the differential diagnosis of trophoblastic tumors and tumor-like lesions. *Am. J. Surg. Pathol.* 32: 236-242.

## STORAGE

Store at -20° C. Repeated freezing and thawing should be minimized. Sample vial should be boiled once prior to use. Non-hazardous. No MSDS required.

## CHROMOSOMAL LOCATION

Genetic locus: HSD3B1 (human) mapping to 1p12.

## PRODUCT

3 $\beta$ -HSD (h2): 293T Lysate represents a lysate of human 3 $\beta$ -HSD transfected 293T cells and is provided as 100  $\mu$ g protein in 200  $\mu$ l SDS-PAGE buffer.

## APPLICATIONS

3 $\beta$ -HSD (h2): 293T Lysate is suitable as a Western Blotting positive control for human reactive 3 $\beta$ -HSD antibodies. Recommended use: 10-20  $\mu$ l per lane.

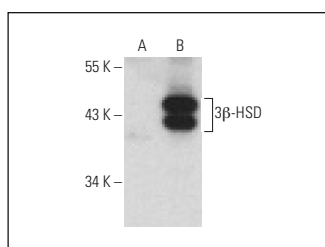
Control 293T Lysate: sc-117752 is available as a Western Blotting negative control lysate derived from non-transfected 293T cells.

3 $\beta$ -HSD (37-2): sc-100466 is recommended as a positive control antibody for Western Blot analysis of enhanced human 3 $\beta$ -HSD expression in 3 $\beta$ -HSD transfected 293T cells (starting dilution 1:100, dilution range 1:100-1:1,000).

## RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended:  
1) Western Blotting: use m-IgG $\kappa$  BP-HRP: sc-516102 or m-IgG $\kappa$  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.

## DATA



3 $\beta$ -HSD (37-2): sc-100466. Western blot analysis of 3 $\beta$ -HSD expression in non-transfected: sc-117752 (A) and human 3 $\beta$ -HSD transfected: sc-173046 (B) 293T whole cell lysates.

## 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.