SANTA CRUZ BIOTECHNOLOGY, INC.

3β-HSD (h3): 293T Lysate: sc-173256

BACKGROUND

3β-hydroxysteroid dehydrogenase (3β-HSD), also known as HSD3B1 or HSDB3, is a bifunctional enzyme that plays a crucial role in the synthesis of all classes of hormonal steroids. Two human 3β-HSD proteins, designated type I (3β-HSD) and type II (3β-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, 3β-HSD is the type I protein that catalyzes the oxidative conversion of δ5-ene-3-β-hydroxy steroid, as well as the conversion of various ketosteroids. Defects in the gene encoding 3β-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 3β-HSD activity results in a severe depletion of steroid formation which can be lethal in young children.

REFERENCES

1. Thomas, J.L., et al. 2002. Structure/function relationships responsible for the kinetic differences between human type 1 and type 2 3β-hydroxysteroid dehydrogenase and for the catalysis of the type 1 activity. J. Biol. Chem. 277: 42795-42801.
2. Thomas, J.L., et al. 2003. Structure/function relationships responsible for coenzyme specificity and the isomerase activity of human type 1 3β-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 3β1-A factor. J. Mol. Endocrinol. 33: 99-9119.
4. Thomas, J.L., et al. 2004. Serine 124 completes the Tyr, Lys and Ser triad responsible for the catalysis of human type 1 3β-hydroxysteroid dehydrogenase. J. Mol. Endocrinol. 33: 253-261.
5. Carbunaru, G., et al. 2004. The hormonal phenotype of nonclassic 3β-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 3β-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.
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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

3β-HSD (h3): 293T Lysate represents a lysate of human 3β-HSD transfected 293T cells and is provided as 100 µg protein in 200 µl SDS-PAGE buffer.

APPLICATIONS

3β-HSD (h3): 293T Lysate is suitable as a Western Blotting positive control for human reactive 3β-HSD antibodies. Recommended use: 10-20 µl per lane.

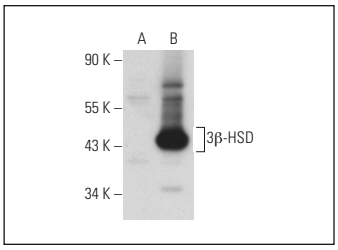
Control 293T Lysate: sc-117752 is available as a Western Blotting negative control lysate derived from non-transfected 293T cells.

3β-HSD (37-2): sc-100466 is recommended as a positive control antibody for Western Blot analysis of enhanced human 3β-HSD expression in 3β-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-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.

DATA



3β-HSD (37-2): sc-100466. Western blot analysis of 3β-HSD expression in non-transfected: sc-117752 (**A**) and human 3β-HSD transfected: sc-173256 (**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 for detailed protocols and support products.