

3 β -HSD (A-1): sc-515120



The Power to Question

BACKGROUND

3 β -hydroxysteroid dehydrogenase (3 β -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 β -HSD proteins, designated type I (3 β -HSD) and type II (3 β -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 β -HSD is the type I protein that catalyzes the oxidative conversion of δ^5 -ene-3- β -hydroxy steroid, as well as the conversion of various ketosteroids. Defects in the gene encoding 3 β -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 β -HSD activity results in a severe depletion of steroid formation which can be lethal in young children.

CHROMOSOMAL LOCATION

Genetic locus: HSD3B1/HSD3B2 (human) mapping to 1p12; Hsd3b1/Hsd3b2 (mouse) mapping to 3 F2.2.

SOURCE

3 β -HSD (A-1) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 152-178 within an internal region of 3 β -HSD of human origin.

PRODUCT

Each vial contains 200 μ g IgG₃ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

3 β -HSD (A-1) is available conjugated to agarose (sc-515120 AC), 500 μ g/0.25 ml agarose in 1 ml, for IP; to HRP (sc-515120 HRP), 200 μ g/ml, for WB, IHC(P) and ELISA; and to either phycoerythrin (sc-515120 PE), fluorescein (sc-515120 FITC) or Alexa Fluor[®] 488 (sc-515120 AF488) or Alexa Fluor[®] 647 (sc-515120 AF647), 200 μ g/ml, for WB (RGB), IF, IHC(P) and FCM.

Blocking peptide available for competition studies, sc-515120 P, (100 μ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

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APPLICATIONS

3 β -HSD (A-1) is recommended for detection of 3 β -HSD and 3 β -HSD2 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

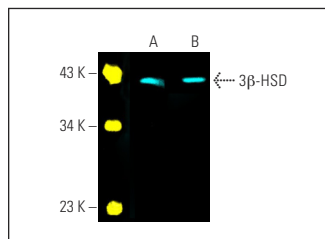
Molecular Weight of 3 β -HSD: 42 kDa.

Positive Controls: rat adrenal gland extract: sc-364802 or mouse adrenal gland extract: sc-364237.

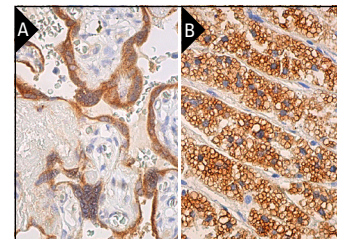
STORAGE

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

DATA



3 β -HSD (A-1) Alexa Fluor[®] 647: sc-515120 AF647. Direct fluorescent western blot analysis of 3 β -HSD expression in rat adrenal gland (A) and mouse adrenal gland (B) tissue extracts. Blocked with UltraCruz[®] Blocking Reagent: sc-516214. Cruz Marker[™] Molecular Weight Standards detected with Cruz Marker[™] MW Tag-Alexa Fluor[®] 488: sc-516790.



3 β -HSD (A-1): sc-515120. Immunoperoxidase staining of formalin fixed, paraffin-embedded human placenta tissue showing cytoplasmic staining of trophoblastic cells (A). Immunoperoxidase staining of formalin fixed, paraffin-embedded human adrenal gland tissue showing cytoplasmic staining of glandular cells (B).

SELECT PRODUCT CITATIONS

- Duan, T., et al. 2016. Role of peroxiredoxin 2 in H₂O₂-induced oxidative stress of primary Leydig cells. *Mol. Med. Rep.* 13: 4807-4813.
- Wang, W., et al. 2017. Continuous soy isoflavones exposure from weaning to maturity induces downregulation of ovarian steroidogenic factor 1 gene expression and corresponding changes in DNA methylation pattern. *Toxicol. Lett.* 281: 175-183.
- Ma, Y., et al. 2018. Lipophagy contributes to testosterone biosynthesis in male rat Leydig cells. *Endocrinology* 159: 1119-1129.
- Li, M.Y., et al. 2019. Adrenomedullin alleviates the pyroptosis of Leydig cells by promoting autophagy via the ROS-AMPK-mTOR axis. *Cell Death Dis.* 10: 489.
- Situ, J., et al. 2020. Hepatitis E viral infection causes testicular damage in mice. *Virology* 541: 150-159.
- Zhang, L., et al. 2021. EHD3 positively regulated by NR5A1 participates in testosterone synthesis via endocytosis. *Life Sci.* 278: 119570.
- Hosseini, E., et al. 2022. Maternal stress induced anxiety-like behavior exacerbated by electromagnetic fields radiation in female rats offspring. *PLoS ONE* 17: e0273206.
- Zhou, J., et al. 2023. SP1 impacts the primordial to primary follicle transition by regulating cholesterol metabolism in granulosa cells. *FASEB J.* 37: e22767.
- Mararajah, S., et al. 2024. *Chlorophytum borivilianum* aqueous root extract prevents deterioration of testicular function in mice and preserves human sperm function in hydrogen peroxide (H₂O₂)-induced oxidative stress. *J. Ethnopharmacol.* 318: 117026.

RESEARCH USE

For research use only, not for use in diagnostic procedures.