

# 11 $\beta$ -HSD1 (C-17): sc-19259

## BACKGROUND

Glucocorticoid hormone action in target tissues is modulated by 11 $\beta$ -hydroxysteroid dehydrogenase (11 $\beta$ -HSD), which catalyzes the interconversion of hormonally active C11-hydroxylated corticosteroids (cortisol, corticosterone) and their inactive C11-keto metabolites (cortisone, 11-dehydrocorticosterone). At least two isoforms of 11 $\beta$ -HSD exist: a low-affinity NADP-dependent dehydrogenase/oxoreductase (11 $\beta$ -HSD1) and a high-affinity NAD-dependent dehydrogenase (11 $\beta$ -HSD2). The glycosylated 11 $\beta$ -HSD1 protein activates cortisol from cortisone, which is widely expressed in mammals, and is most highly expressed in the liver. 11 $\beta$ -HSD2 inactivates cortisol to cortisone and is expressed in placenta, aldosterone target tissues (kidney, parotid, colon and skin) and pancreas. 11 $\beta$ -HSD1 may play a role in glucose homeostasis and pathogenesis of a number of disorders including Insulin resistance and obesity. 11 $\beta$ -HSD2 associates with differentiation or maturation in human colonic epithelia and may serve as a marker in development and disease. In addition, 11 $\beta$ -HSD2 plays a crucial role in modulating mineralocorticoid and glucocorticoid receptor occupancy by glucocorticoids.

## REFERENCES

1. Tannin, G.M., et al. 1991. The human gene for 11 $\beta$ -hydroxysteroid dehydrogenase. Structure, tissue distribution, and chromosomal localization. *J. Biol. Chem.* 266: 16653-16658.
2. Albiston, A.L., et al. 1994. Cloning and tissue distribution of the human 11 $\beta$ -hydroxysteroid dehydrogenase type 2 enzyme. *Mol. Cell. Endocrinol.* 105: 11-17.
3. Brown, R.W., et al. 1996. Cloning and production of antisera to human placental 11 $\beta$ -hydroxysteroid dehydrogenase type 2. *Biochem. J.* 313: 1007-1017.
4. Takahashi, K., et al. 1998. 11 $\beta$ -hydroxysteroid dehydrogenase type II in human colon: a new marker of fetal development and differentiation in neoplasms. *Anticancer Res.* 18: 3381-3388.
5. Stewart, P.M. and Krozowski, Z.S. 1999. 11 $\beta$ -hydroxysteroid dehydrogenase. *Vitam. Horm.* 57: 249-324.
6. Arcuri, F., et al. 1999. Expression of 11 $\beta$ -hydroxysteroid dehydrogenase in early pregnancy: implications in human trophoblast-endometrial interactions. *Semin. Reprod. Endocrinol.* 17: 53-61.
7. Rauz, S., et al. 2001. Expression and putative role of 11  $\beta$ -hydroxysteroid dehydrogenase isozymes within the human eye. *Invest. Ophthalmol. Vis. Sci.* 42: 2037-2042.
8. Walker, E.A., et al. 2001. Functional expression, characterization, and purification of the catalytic domain of human 11 $\beta$ -hydroxysteroid dehydrogenase type 1. *J. Biol. Chem.* 276: 21343-21350.
9. Morton, N.M., et al. 2001. Improved lipid and lipoprotein profile, hepatic Insulin sensitivity and glucose tolerance in 11 $\beta$ -hydroxysteroid dehydrogenase type 1 null mice. *J. Biol. Chem.* 276: 41293-41300.

## CHROMOSOMAL LOCATION

Genetic locus: HSD11B1 (human) mapping to 1q32.2; Hsd11b1 (mouse) mapping to 1 H6.

## SOURCE

11 $\beta$ -HSD1 (C-17) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the C-terminus of 11 $\beta$ -HSD1 of mouse origin.

## PRODUCT

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

Blocking peptide available for competition studies, sc-19259 P, (100  $\mu$ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## APPLICATIONS

11 $\beta$ -HSD1 (C-17) is recommended for detection of 11 $\beta$ -hydroxysteroid dehydrogenase type 1 of mouse, human and, to a lesser extent, rat origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), 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).

11 $\beta$ -HSD1 (C-17) is also recommended for detection of 11 $\beta$ -hydroxysteroid dehydrogenase type 1 in additional species, including equine and bovine.

Suitable for use as control antibody for 11 $\beta$ -HSD1 siRNA (h): sc-41377, 11 $\beta$ -HSD1 siRNA (m): sc-41378, 11 $\beta$ -HSD1 shRNA Plasmid (h): sc-41377-SH, 11 $\beta$ -HSD1 shRNA Plasmid (m): sc-41378-SH, 11 $\beta$ -HSD1 shRNA (h) Lentiviral Particles: sc-41377-V and 11 $\beta$ -HSD1 shRNA (m) Lentiviral Particles: sc-41378-V.

Molecular Weight of 11 $\beta$ -HSD1: 34 kDa.

Positive Controls: Hep G2 cell lysate: sc-2227.

## RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (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) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

## SELECT PRODUCT CITATIONS

1. Ma, R., et al. 2012. Differential expression of placental 11 $\beta$ -hydroxysteroid dehydrogenases in pregnant women with diet-treated gestational diabetes mellitus. *Steroids* 77: 798-805.

## STORAGE

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

## RESEARCH USE

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