SANTA CRUZ BIOTECHNOLOGY, INC.

CYP11A1 (D-16): sc-18040

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

CYP11A1, also known as cytochrome P450C11A1, cytochrome P450^{scc} and cytochrome P450, subfamily XIA, is an enzyme that catalyzes the first step of steroid biosynthesis under the modulation of cAMP signal. CYP11A1 in steroidogenic cells converts cholesterol to pregnenolone, which is determined by hormonal control of cholesterol availability. Expression of the CYP11A1 gene is controlled by the transcription factor SF-1, and the upstream SF-1 binding site in the CYP11A1 gene is required for hormonal stimulation. c-Jun and SF-1 may act synergistically to activate CYP11A1 gene expression. Both Forskolin and 8-Br-cAMPS elevate CYP11A1 mRNA levels in the interstitial cell monolayer, which has a fully functional adenylate cyclase. The CYP11A1 protein is coexpressed with 3β-HSD2 in the rat hippocampus, dentate dyrus, cerebellar granular layer and Purkinje cells, indicating that neurosteriods are synthesized in a region-specific manner in the brain. CYP11A1 interacts with its physiological partner, adrenodoxin, by electrostatic interaction.

REFERENCES

1. Kim, Y.C., et al. 1997. Control of cholesterol access to cytochrome P450^{scc} in rat adrenal cells mediated by regulation of the steroidogenic acute regulatory protein. Steroids 62: 10-20.
2. Furukawa, A., et al. 1998. Sterodogenic acute regulatory protein (StAR) transcripts constitutively expressed in the adult rat central nervous system: colocalization of StAR, cytochrome P450^{scc} (CYP XIA1), and 3β-hydroxysteroid dehydrogenase in the rat brain. J. Neurochem. 71: 2231-2238.
3. Lepesheva, G.I., et al. 2000. Site-directed mutagenesis of cytochrome P450^{scc} (CYP11A1). Effect of lysine residue substitution on its structural and functional properties. Biochemistry 65: 1409-1418.

CHROMOSOMAL LOCATION

Genetic locus: CYP11A1 (human) mapping to 15q24.1; Cyp11a1 (mouse) mapping to 9 B.

SOURCE

CYP11A1 (D-16) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of CYP11A1 of human origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-18040 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

STORAGE

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

PROTOCOLS

See our web site at www.scbt.com or our catalog for detailed protocols and support products.

APPLICATIONS

CYP11A1 (D-16) is recommended for detection of CYP11A1 of human and, to a lesser extent, mouse and 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).

CYP11A1 (D-16) is also recommended for detection of CYP11A1 in additional species, including canine.

Suitable for use as control antibody for CYP11A1 siRNA (h): sc-41496, CYP11A1 siRNA (m): sc-41497, CYP11A1 shRNA Plasmid (h): sc-41496-SH, CYP11A1 shRNA Plasmid (m): sc-41497-SH, CYP11A1 shRNA (h) Lentiviral Particles: sc-41496-V and CYP11A1 shRNA (m) Lentiviral Particles: sc-41497-V.

Molecular Weight of CYP11A1: 60 kDa.

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. Sedelaar, J.P. and Isaacs, J.T. 2009. Tissue culture media supplemented with 10% fetal calf serum contains a castrate level of testosterone. Prostate 69: 1724-1729.
2. Gregoraszczuk, E.Ł., et al. 2011. Differential accumulation of HCBz and PeCBz in porcine ovarian follicles and their opposing actions on steroid secretion and CYP11, CYP17, 17β-HSD and CYP19 protein expression. A tissue culture approach. Reprod. Toxicol. 31: 494-499.
3. Rak-Mardy A, A., et al. 2013. Effects of resistin on porcine ovarian follicle steroidogenesis in prepubertal animals: an *in vitro* study. Reprod. Biol. Endocrinol. 11: 45.
4. Gregoraszczuk, E.Ł. and Rak-Mardyła, A. 2013. Supraphysiological leptin levels shift the profile of steroidogenesis in porcine ovarian follicles toward progesterone and testosterone secretion through increased expressions of CYP11A1 and 17b-HSD: a tissue culture approach. Reproduction 145: 311-317.

RESEARCH USE

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