SANTA CRUZ BIOTECHNOLOGY, INC.

CYP11A1 (H-165): sc-292456

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

CYP11A1, also known as cytochrome P450C11A1, cytochrome P450scc 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 3b-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 P450scc 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 P-450SCC (CYP XIA1), and 3b-hydroxysteroid dehydrogenase in the rat brain. J. Neurochem. 71: 2231-2238.
3. Schwartz, J.R. and Roy, S.K. 2000. Expression of P450 side-chain cleavage (CYP11A1) and P450 17α-hydroxylase-17/20 lyase (CYP17) messager ribonucleic acid in hamster primary interstitial cells *in vitro:* differential regulation of steroidogenesis by cyclic adenosine monophosphate. Biol. Reprod. 63: 503-507.
4. Lepesheva, G.I., et al. 2000. Site-directed mutagenesis of cytochrome p450scc (cyp11a1). Effect of lysine residue substitution on its structural and functional properties. Biochemistry 65: 1409-1418.
5. Chen, C. and Guo, I.C. 2000. Effect of cAMP on protein binding activities of three elements in upstream promoter of human CYP11A1 gene. Life Sci. 67: 2045-2049.
6. Huang, Y., et al. 2001. Action of hormone responsive sequence in 2.3 kb promoter of CYP11A1. Mol. Cell. Endocrinol. 175: 205-210.
7. Hu, M.C., et al. 2001. Functions of the upstream and proximal steroidogenic factor (sf-1) binding sites in the cyp11al promoter in basal transcription and hormonal response. Mol. Endocrinol. 15: 812-818.

CHROMOSOMAL LOCATION

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

SOURCE

CYP11A1 (H-165) is a rabbit polyclonal antibody raised against amino acids 220-384 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.

APPLICATIONS

CYP11A1 (H-165) is recommended for detection of CYP11A1 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], 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).

Suitable for use as control antibody for CYP11A1 siRNA (h): sc-41496, CYP11A1 siRNA (m): sc-41497, CYP11A1 siRNA (r): sc-270347, CYP11A1 shRNA Plasmid (h): sc-41496-SH, CYP11A1 shRNA Plasmid (m): sc-41497-SH, CYP11A1 shRNA Plasmid (r): sc-270347-SH, CYP11A1 shRNA (h) Lentiviral Particles: sc-41496-V, CYP11A1 shRNA (m) Lentiviral Particles: sc-41497-V and CYP11A1 shRNA (r) Lentiviral Particles: sc-270347-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 goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (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) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

SELECT PRODUCT CITATIONS

1. Wu, L., et al. 2012. Abnormal regulation for progesterone production in placenta with prenatal cocaine exposure in rats. Placenta 33: 977-981.

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.

PROTOCOLS

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