

CYP4A11 (N-14): sc-323772

BACKGROUND

Cytochrome P450 proteins are heme-thiolate monooxygenases that mediate NADPH-dependent electron transport and function to oxidize a variety of structurally unrelated compounds, including steroids, fatty acids and xenobiotics. Specifically, Cytochrome P450s are responsible for metabolizing arachidonic acid to hydroxyeicosatetraenoic acid (a regulator of blood pressure) and epoxyeicosatrienoic acid (a molecule involved in signaling events). Cytochrome P450 4A11 (CYP4A11), also known as CP4Y, CYP4A2, P450HL- ω or CYP4AII, is a 519 amino acid protein that is expressed in kidney and liver. Localized to the membrane of the endoplasmic reticulum, CYP4A11 uses heme as a cofactor to catalyze the oxygen-dependent hydroxylation of medium-chain fatty acids, such as myristate, laurate and palmitate, thereby playing an important role in fatty acid metabolism. CYP4A11 exists as two isoforms that are produced by alternative splicing events.

REFERENCES

1. Imaoka, S., et al. 1993. Complete cDNA sequence and cDNA-directed expression of CYP4A11, a fatty acid ω -hydroxylase expressed in human kidney. *DNA Cell Biol.* 12: 893-899.
2. Powell, P.K., et al. 1998. Metabolism of arachidonic acid to 20-hydroxy-5,8,11, 14-eicosatetraenoic acid by P450 enzymes in human liver: involvement of CYP4F2 and CYP4A11. *J. Pharmacol. Exp. Ther.* 285: 1327-1336.
3. Chang, Y.T. and Loew, G.H. 1999. Homology modeling and substrate binding study of human CYP4A11 enzyme. *Proteins* 34: 403-415.
4. Lasker, J.M., et al. 2000. Formation of 20-hydroxyeicosatetraenoic acid, a vasoactive and natriuretic eicosanoid, in human kidney. Role of Cyp4F2 and Cyp4A11. *J. Biol. Chem.* 275: 4118-4126.
5. Hoch, U. and Ortiz De Montellano, P.R. 2001. Covalently linked heme in cytochrome p4504a fatty acid hydroxylases. *J. Biol. Chem.* 276: 11339-11346.
6. Gainer, J.V., et al. 2005. Functional variant of CYP4A11 20-hydroxyeicosatetraenoic acid synthase is associated with essential hypertension. *Circulation* 111: 63-69.
7. Fu, Z., et al. 2008. Haplotype-based case study of human CYP4A11 gene and cerebral infarction in Japanese subject. *Endocrine* 33: 215-222.
8. Ward, N.C., et al. 2008. A single nucleotide polymorphism in the CYP4F2 but not CYP4A11 gene is associated with increased 20-HETE excretion and blood pressure. *Hypertension* 51: 1393-1398.
9. Fava, C., et al. 2008. The V433M variant of the CYP4F2 is associated with ischemic stroke in male Swedes beyond its effect on blood pressure. *Hypertension* 52: 373-380.

CHROMOSOMAL LOCATION

Genetic locus: CYP4A11 (human) mapping to 1p33.

SOURCE

CYP4A11 (N-14) is an affinity purified goat polyclonal antibody raised against a peptide mapping at the N-terminus of CYP4A11 of human origin.

PRODUCT

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

Blocking peptide available for competition studies, sc-323772 P, (100 μ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

CYP4A11 (N-14) is recommended for detection of CYP4A11 of human 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); may cross-react with CYP4A22.

Suitable for use as control antibody for CYP4A11 siRNA (h): sc-88588, CYP4A11 shRNA Plasmid (h): sc-88588-SH and CYP4A11 shRNA (h) Lentiviral Particles: sc-88588-V.

Molecular Weight of CYP4A11: 52 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.

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.

MONOS
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Guaranteed

Try **CYP4A11 (M25-P2A10): sc-101385**, our highly recommended monoclonal alternative to CYP4A11 (N-14).