SANTA CRUZ BIOTECHNOLOGY, INC.

CYP4A1/A2/A3 (clo4): sc-53247

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

In animals, P-450 enzymes serve two major functions: biosynthesis of steroids, fatty acids and bile acids and the metabolism of endogenous and a wide variety of exogenous substrates, such as toxins and drugs. The four major families involved in drug metabolism are CYP 1, 2, 3 and 4. The hepatic CYP4A enzymes are important fatty acid and prostaglandin ω-hydroxylases that are highly inducible by fibric acid hypolipidemic agents and other peroxisome proliferators. In humans, 4A1, 4A2 and 4A3 have been cloned from liver, kidney and testis and are detected in renal, hepatic and brain microvessels.

REFERENCES

1. Kimura, S., et al. 1989. The rat clofibrate-inducible CYP4A gene subfamily. I. Complete intron and exon sequence of the CYP4A1 and CYP4A2 genes, unique exon organization, and identification of a conserved 19-bp upstream element. DNA 8: 503-516.
2. Aldridge, T.C., et al. 1995. Identification and characterization of DNA elements implicated of CYP4A1 transcription. Biochem. J. 306: 473-479.

SOURCE

CYP4A1/A2/A3 (clo4) is a mouse monoclonal antibody raised against liver cytochrome P450 4A2 and 4A3 of rat origin.

PRODUCT

Each vial contains 200 µg IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

CYP4A1/A2/A3 (clo4) is available conjugated to agarose (sc-53247 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-53247 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-53247 PE), fluorescein (sc-53247 FITC), Alexa Fluor® 488 (sc-53247 AF488), Alexa Fluor® 546 (sc-53247 AF546), Alexa Fluor® 594 (sc-53247 AF594) or Alexa Fluor® 647 (sc-53247 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-53247 AF680) or Alexa Fluor® 790 (sc-53247 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

CYP4A1/A2/A3 (clo4) is recommended for detection of CYP4A1, CYP4A2 and CYP4A3 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 immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500).

Molecular Weight of CYP4A1: 50 kDa.

Molecular Weight of CYP4A2: 52 kDa.

Molecular Weight of CYP4A3: 54 kDa.

Positive Controls: rat liver extract: sc-2395 or rat kidney extract: sc-2394.

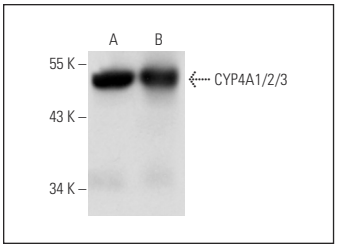
STORAGE

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

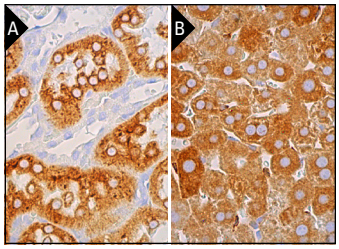
RESEARCH USE

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

DATA



CYP4A1/2/3 (clo4): sc-53247. Western blot analysis of CYP4A1/2/3 expression in rat liver (**A**) and rat kidney (**B**) tissue extracts.



CYP4A1/A2/A3 (clo4): sc-53247. Immunoperoxidase staining of formalin fixed, paraffin-embedded rat kidney tissue showing cytoplasmic staining of cells in tubules (**A**) and mouse liver tissue showing cyto-plasmic staining of hepatocytes (**B**). Blocked with 0.25X UltraCruz® Blocking Reagent: sc-516214. Detection reagents used: m-IgGκ BP-B: sc-516142 and ImmunoCruz® ABC Kit: sc-516216.

SELECT PRODUCT CITATIONS

1. Lukaszewicz, K.M., et al. 2013. Introgression of brown Norway CYP4A genes on to the Dahl salt-sensitive background restores vascular function in SS-5^{BN} consomic rats. Clin. Sci. 124: 333-342.
2. Zhao, H., et al. 2015. 20-hydroxyeicosatetraenoic acid is a key mediator of Angiotensin II-induced apoptosis in cardiac myocytes. J. Cardiovasc. Pharmacol. 66: 86-95.
3. Lukaszewicz, K.M., et al. 2016. Role of vascular reactive oxygen species in regulating cytochrome P450-4A enzyme expression in Dahl salt-sensitive rats. Microcirculation 23: 540-548.
4. Soto, M.E., et al. 2018. Participation of arachidonic acid metabolism in the aortic aneurysm formation in patients with Marfan syndrome. Front. Physiol. 9: 77.
5. Xie, X.L., et al. 2019. PCB52 induces hepatotoxicity in male offspring through aggravating loss of clearance capacity and activating the apoptosis: sex-biased effects on rats. Chemosphere 227: 389-400.
6. Tête, A., et al. 2020. MEHP/ethanol co-exposure favors the death of steatotic hepatocytes, possibly through CYP4A and ADH involvement. Food Chem. Toxicol. 146: 111798.
7. Lee, Y.T., et al. 2022. Sex-divergent expression of cytochrome P450 and SIRTUIN 1-7 proteins in toxicity evaluation of a benzimidazole-derived epigenetic modulator in mice. Toxicol. Appl. Pharmacol. 445: 116039.
8. Pérez-Torres, I., et al. 2023. Effect of *Hibiscus sabdariffa L.* on the metabolism of arachidonic acid in the isolated kidney of a rat model of metabolic syndrome. Int. J. Mol. Sci. 24: 14209.

PROTOCOLS

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