SANTA CRUZ BIOTECHNOLOGY, INC.

CYP3A (D-2): sc-271033

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

CYP3A genes encode monooxygenases, enzymes which catalyze drug metabolism and the synthesis of cholesterol, steroids and other lipids. CYP3A (cytochrome P450, family 3, subfamily A), the most abundant p450 enzyme in human liver, is responsible for the metabolism of more than 50% of all clinical drugs. CYP3A members localize in organs that associate with drug disposition, including the liver, gastrointestinal tract and kidney. The CYP3A cluster consists of four genes: CYP3A43, CYP3A4, CYP3A7 and CYP3A5, and two pseudogenes: CYP3A5P1 and CYP3A5P2. The CYP3A cluster maps to gene locus 7q22.1.

REFERENCES

1. Paulussen, A., et al. 2000. Two linked mutations in transcriptional regulatory elements of the CYP3A5 gene constitute the major genetic determinant of polymorphic activity in humans. Pharmacogenetics 10: 415-424.
2. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 606534. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
3. Williams, P.A., et al. 2004. Crystal structures of human cytochrome P450 3A4 bound to metyrapone and progesterone. Science 305: 683-686.

SOURCE

CYP3A (D-2) is a mouse monoclonal antibody raised against amino acids 204-503 mapping at the C-terminus of CYP3A4 of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

CYP3A (D-2) is recommended for detection of all CYP3A family members of mouse, rat and human origin by Western Blotting (starting dilution 1:100, 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).

Molecular Weight of CYP3A: 52-55 kDa.

Positive Controls: AT3B-1 whole cell lysate: sc-364372, Hep G2 cell lysate: sc-2227 or human liver extract: sc-363766.

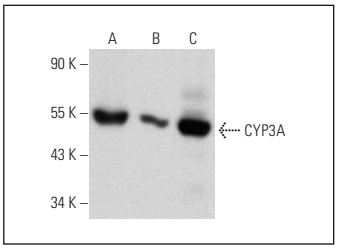
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 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 m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

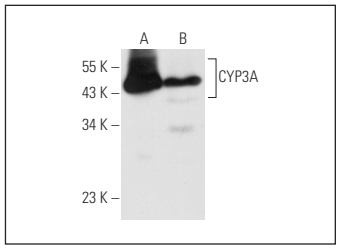
STORAGE

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

DATA



CYP3A (D-2): sc-271033. Western blot analysis of CYP3A expression in AT3B-1 (**A**) and Hep G2 (**B**) whole cell lysates and rat liver tissue extract (**C**).



CYP3A (D-2): sc-271033. Western blot analysis of CYP3A expression in mouse liver (**A**) and human liver (**B**) tissue extracts.

SELECT PRODUCT CITATIONS

1. Roques, B.B., et al. 2012. CYP450-dependent biotransformation of the insecticide fipronil into fipronil sulfone can mediate fipronil-induced thyroid disruption in rats. Toxicol. Sci. 127: 29-41.
2. Ke, X.J., et al. 2019. Effects of carbamazepine on the P-gp and CYP3A expression correlated with PXR or NFκB activity in the bEnd.3 cells. Neurosci. Lett. 690: 48-55.
3. Mohandas, S., et al. 2020. Pregnane X receptor activation by its natural ligand ginkgolide-A improves tight junction proteins expression and attenuates bacterial translocation in cirrhosis. Chem. Biol. Interact. 315: 108891.
4. Du, Y., et al. 2021. Phthalates promote the invasion of hepatocellular carcinoma cells by enhancing the interaction between pregnane X receptor and E26 transformation specific sequence 1. Pharmacol. Res. 169: 105648.
5. Zemanová, N., et al. 2021. Gut microbiome affects the metabolism of metronidazole in mice through regulation of hepatic cytochromes P450 expression. PLoS ONE 16: e0259643.
6. Chandrashekar, D.V., et al. 2022. Effects of chronic cirrhosis induced by intraperitoneal thioacetamide injection on the protein content and Michaelis-Menten kinetics of cytochrome P450 enzymes in the rat liver microsomes. Basic Clin. Pharmacol. Toxicol. E-published.

RESEARCH USE

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

PROTOCOLS

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