

# CYP3A1 (4i69): sc-70903

## BACKGROUND

CYP3A proteins are P450 monooxygenases and in animals, P450 enzymes serve two major functions: biosynthesis of steroids, fatty acids and bile acids, and the metabolism of endogenous and exogenous substrates. A wide variety of exogenous substrates are metabolized by P450 enzymes, including toxins and drugs. The four major families involved in drug metabolism are CYP1, 2, 3 and 4. Cyp3a1, also designated Cyp3a23/3a1 is specifically expressed in rat. There are corresponding homologs described in human and mouse, including CYP3A5 and Cyp3a11, respectively. In humans, CYP3A4 undergoes alternative splicing encoding different isoforms, including one previously designated CYP3A3. CYP3A4 localizes to the endoplasmic reticulum in liver and small intestine, and its expression is induced by glucocorticoids and some pharmacological agents.

## REFERENCES

1. Omiecinski, C.J., et al. 1990. Developmental expression and *in situ* localization of the phen rat hepatic mRNAs for cytochromes CYP2B1, CYP2B2, CYP2C6, and CYP3A1. *Mol. Pharmacol.* 38: 462-470.
2. Ribeiro, V. and Lechner, M.C. 1992. Cloning and characterization of a novel CYP3A1 allelic variant: analysis of CYP3A1 and CYP3A2 sex-hormone-dependent expression reveals that the CYP3A2 gene is regulated by testosterone. *Arch. Biochem. Biophys.* 293: 147-152.
3. Strotkamp, D., et al. 1994. Possible existence of a CYP3A protein in liver microsomes from female rats. *Biol. Chem. Hoppe Seyler* 374: 1093-1098.
4. Larsen, M.C. and Jefcoate, C.R. 1995. Phenobarbital induction of CYP2B1, CYP2B2, and CYP3A1 in rat liver: genetic differences in a common regulatory mechanism. *Arch. Biochem. Biophys.* 321: 467-476.
5. Debri, K., et al. 1996. Distribution and induction of CYP3A1 and CYP3A2 in rat liver and extrahepatic tissues. *Biochem. Pharmacol.* 50: 2047-2056.
6. Nagata, K., et al. 1999. Structure and expression of the rat CYP3A1 gene: isolation of the gene (P450/6βB) and characterization of the recombinant protein. *Arch. Biochem. Biophys.* 362: 242-253.
7. Smirlis, D., et al. 2001. Orphan receptor promiscuity in the induction of cytochromes p450 by xenobiotics. *J. Biol. Chem.* 276: 12822-12826.
8. Day, K.C., et al. 2006. Age-specific pulmonary cytochrome P450 3A1 expression in postnatal and adult rats. *Am. J. Physiol. Lung Cell. Mol. Physiol.* 291: L75-L83.

## CHROMOSOMAL LOCATION

Genetic locus: CYP3A4 (human) mapping to 7q22.1; Cyp3a11 (mouse) mapping to 5 G2.

## SOURCE

CYP3A1 (4i69) is a mouse monoclonal antibody raised against liver Cyp3a1 of rat origin.

## PRODUCT

Each vial contains 200 µg IgG<sub>1</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

## APPLICATIONS

CYP3A1 (4i69) is recommended for detection of CYP3A4 of human origin, Cyp3a1 of rat origin, and potentially Cyp3a11 of mouse origin (based on inducibility) by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)]; may cross react with other CYP3A gene family members of mouse, rat and human origin.

Suitable for use as control antibody for CYP3A4 siRNA (h): sc-43711, Cyp3a11 siRNA (m): sc-155878, CYP3A4 shRNA Plasmid (h): sc-43711-SH, Cyp3a11 shRNA Plasmid (m): sc-155878-SH, CYP3A4 shRNA (h) Lentiviral Particles: sc-43711-V and Cyp3a11 shRNA (m) Lentiviral Particles: sc-155878-V.

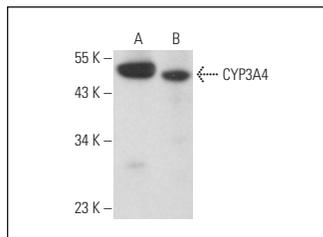
Molecular Weight of CYP3A1: 51 kDa.

Positive Controls: rat liver extract: sc-2395 or mouse liver extract: sc-2256.

## 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).

## DATA



CYP3A4 (4i69): sc-70903. Western blot analysis of CYP3A4 expression in mouse liver (A) and rat liver (B) tissue extracts.

## SELECT PRODUCT CITATIONS

1. Alanazi, M.S., et al. 2010. Molecular characterization of the *Camelus dromedarius* putative cytochrome P450s genes. *Protein J.* 29: 306-313.

## 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](http://www.scbt.com) for detailed protocols and support products.