

CYP1A1 (1A3-03): sc-101828

BACKGROUND

P450 enzymes constitute a family of monooxygenase enzymes that are involved in the metabolism of a wide array of endogenous and xenobiotic compounds. Several P450 enzymes have been classified by sequence similarities as members of the CYP1A and CYP2A subfamilies. NADPH cytochrome P450 reductase is a microsomal enzyme responsible for the transfer of electrons from NADPH to cytochrome P450 enzymes during the P450 catalytic cycle. NADPH cytochrome P450 reductase is localized to the endoplasmic reticulum where it is also able to transfer electrons to heme oxygenase and cytochrome $\beta 5$. NADPH cytochrome P450 reductase is structurally related to two separate flavoprotein families, ferredoxin nucleotide reductase (FNR) and flavodoxin. Electron transfer of NADPH cytochrome P450 reductase requires the binding of two flavin cofactors, FAD and FMN, to the FNR and flavodoxin domains, respectively.

REFERENCES

- Vermilion, J.L., et al. 1978. Purified liver microsomal NADPH-cytochrome P-450 reductase. Spectral characterization of oxidation-reduction states. *J. Biol. Chem.* 253: 2694-2704.
- Shen, A.L., et al. 1989. Structural analysis of the FMN binding domain of NADPH-cytochrome P-450 oxidoreductase by site-directed mutagenesis. *J. Biol. Chem.* 264: 7584-7589.

CHROMOSOMAL LOCATION

Genetic locus: CYP1A1 (human) mapping to 15q24.1; Cyp1a1 (mouse) mapping to 9 B.

SOURCE

CYP1A1 (1A3-03) is a mouse monoclonal antibody raised against CYP1A1 isolated from 3-methylcholanthrene treated microsomes of rat liver origin.

PRODUCT

Each vial contains 200 μ g IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

CYP1A1 (1A3-03) is available conjugated to agarose (sc-101828 AC), 500 μ g/0.25 ml agarose in 1 ml, for IP; to HRP (sc-101828 HRP), 200 μ g/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-101828 PE), fluorescein (sc-101828 FITC), Alexa Fluor[®] 488 (sc-101828 AF488), Alexa Fluor[®] 546 (sc-101828 AF546), Alexa Fluor[®] 594 (sc-101828 AF594) or Alexa Fluor[®] 647 (sc-101828 AF647), 200 μ g/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor[®] 680 (sc-101828 AF680) or Alexa Fluor[®] 790 (sc-101828 AF790), 200 μ g/ml, for Near-Infrared (NIR) WB, IF and FCM.

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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.

APPLICATIONS

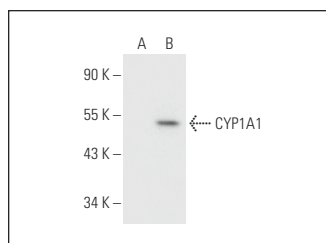
CYP1A1 (1A3-03) is recommended for detection of CYP1A1 of mouse, rat, human and porcine origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), flow cytometry (1 μ g per 1 x 10⁶ cells) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000); non cross-reactive with CYP1A2.

Suitable for use as control antibody for CYP1A1 siRNA (h): sc-41483, CYP1A1 siRNA (m): sc-41484, CYP1A1 siRNA (r): sc-270346, CYP1A1 shRNA Plasmid (h): sc-41483-SH, CYP1A1 shRNA Plasmid (m): sc-41484-SH, CYP1A1 shRNA Plasmid (r): sc-270346-SH, CYP1A1 shRNA (h) Lentiviral Particles: sc-41483-V, CYP1A1 shRNA (m) Lentiviral Particles: sc-41484-V and CYP1A1 shRNA (r) Lentiviral Particles: sc-270346-V.

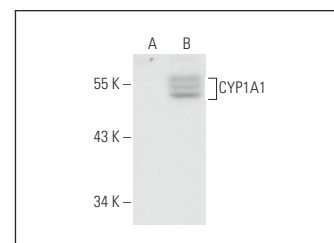
Molecular Weight of CYP1A1: 56 kDa.

Positive Controls: CYP1A1 (h): 293T lysate: sc-114027 or HeLa whole cell lysate: sc-2200.

DATA



CYP1A1 (1A3-03): sc-101828. Western blot analysis of CYP1A1 expression in non-transfected: sc-117752 (A) and human CYP1A1 transfected: sc-114027 (B) 293T whole cell lysates.



CYP1A1 (1A3-03): sc-101828. Western blot analysis of CYP1A1 expression in non-transfected: sc-117752 (A) and human CYP1A1 transfected: sc-174220 (B) 293T whole cell lysates.

SELECT PRODUCT CITATIONS

- Iwasaki, J., et al. 2013. Portocaval shunt for hepatocyte package: challenging application of small intestinal graft in animal models. *Organogenesis* 9: 273-279.
- Gu, Q., et al. 2021. Effect of EGCG on bronchial epithelial cell premalignant lesions induced by cigarette smoke and on its CYP1A1 expression. *Int. J. Mol. Med.* 48: 220.
- Shi, J., et al. 2023. L-arginine enhances oral keratinocyte proliferation under high-glucose conditions via upregulation of CYP1A1, SKP2, and SRSF5. *Molecules* 28: 7020.
- Seo, Y.A., et al. 2024. Development of a normal porcine cell line growing in a heme-supplemented, serum-free condition for cultured meat. *Int. J. Mol. Sci.* 25: 5824.

PROTOCOLS

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