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CYP1A2 Antibody

Mouse Monoclonal Antibody (Mab)
Catalog # AM2066b

Product Information

Application	WB, E
Primary Accession	P05177
Other Accession	NP_000752.2
Reactivity	Human
Predicted	Bovine
Host	Mouse
Clonality	Monoclonal
Isotype	IgG3
Clone Names	499CT13.2.2
Calculated MW	58407
Antigen Region	255-282

Additional Information

Gene ID	1544
Other Names	Cytochrome P450 1A2, CYPIA2, Cytochrome P(3)450, Cytochrome P450 4, Cytochrome P450-P3, CYP1A2
Target/Specificity	This CYP1A2 antibody is generated from mice immunized with a KLH conjugated synthetic peptide between 255-282 amino acids from human CYP1A2.
Dilution	WB~~1:500~1000 E~~Use at an assay dependent concentration.
Format	Purified monoclonal antibody supplied in PBS with 0.09% (W/V) sodium azide. This antibody is prepared by Euglobin precipitation followed by dialysis against PBS.
Storage	Maintain refrigerated at 2-8°C for up to 2 weeks. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.
Precautions	CYP1A2 Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	CYP1A2 {ECO:0000303|PubMed:2575218, ECO:0000312|HGNC:HGNC:2596}
Function	A cytochrome P450 monooxygenase involved in the metabolism of various endogenous substrates, including fatty acids, steroid hormones and vitamins

(PubMed:10681376, PubMed:11555828, PubMed:12865317, PubMed:19965576, PubMed:9435160). Mechanistically, uses molecular oxygen inserting one oxygen atom into a substrate, and reducing the second into a water molecule, with two electrons provided by NADPH via cytochrome P450 reductase (NADPH--hemoprotein reductase) (PubMed:10681376, PubMed:11555828, PubMed:12865317, PubMed:19965576, PubMed:9435160). Catalyzes the hydroxylation of carbon-hydrogen bonds (PubMed:11555828, PubMed:12865317). Exhibits high catalytic activity for the formation of hydroxyestrogens from estrone (E1) and 17beta- estradiol (E2), namely 2-hydroxy E1 and E2 (PubMed:11555828, PubMed:12865317). Metabolizes cholesterol toward 25-hydroxycholesterol, a physiological regulator of cellular cholesterol homeostasis (PubMed:21576599). May act as a major enzyme for all-trans retinoic acid biosynthesis in the liver. Catalyzes two successive oxidative transformation of all-trans retinol to all-trans retinal and then to the active form all-trans retinoic acid (PubMed:10681376). Primarily catalyzes stereoselective epoxidation of the last double bond of polyunsaturated fatty acids (PUFA), displaying a strong preference for the (R,S) stereoisomer (PubMed:19965576). Catalyzes bisallylic hydroxylation and omega-1 hydroxylation of PUFA (PubMed:9435160). May also participate in eicosanoids metabolism by converting hydroperoxide species into oxo metabolites (lipoxygenase-like reaction, NADPH- independent) (PubMed:21068195). Plays a role in the oxidative metabolism of xenobiotics. Catalyzes the N-hydroxylation of heterocyclic amines and the O-deethylation of phenacetin (PubMed:14725854). Metabolizes caffeine via N3-demethylation (Probable).

Cellular Location Endoplasmic reticulum membrane; Peripheral membrane protein. Microsome membrane; Peripheral membrane protein

Tissue Location Liver.

Background

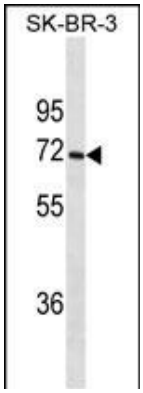
This gene encodes a member of the cytochrome P450 superfamily of enzymes. The cytochrome P450 proteins are monooxygenases which catalyze many reactions involved in drug metabolism and synthesis of cholesterol, steroids and other lipids. The protein encoded by this gene localizes to the endoplasmic reticulum and its expression is induced by some polycyclic aromatic hydrocarbons (PAHs), some of which are found in cigarette smoke. The enzyme's endogenous substrate is unknown; however, it is able to metabolize some PAHs to carcinogenic intermediates. Other xenobiotic substrates for this enzyme include caffeine, aflatoxin B1, and acetaminophen. The transcript from this gene contains four Alu sequences flanked by direct repeats in the 3' untranslated region.

References

Gentile, G., et al. J Headache Pain 11(5):431-435(2010)
Uslu, A., et al. BMB Rep 43(8):530-534(2010)
Wang, X., et al. J. Pharm. Pharmacol. 62(8):1077-1083(2010)
Schmidt, R.J., et al. Birth Defects Res. Part A Clin. Mol. Teratol. 88(7):560-569(2010)
Jiang, Z., et al. Pharmacogenet. Genomics 16(5):359-367(2006)

Images

CYP1A2 Antibody (Cat. #AM2066b) western blot analysis in SK-BR-3 cell line lysates (35µg/lane).This demonstrates the CYP1A2 antibody detected the CYP1A2 protein (arrow).



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