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CYP1A2 Antibody (Center)

Affinity Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP11325C

Product Information

Application	WB, IHC-P, IF, E
Primary Accession	P05177
Other Accession	NP_000752.2
Reactivity	Human, Rat, Mouse
Predicted	Bovine
Host	Rabbit
Clonality	Polyclonal
Isotype	Rabbit IgG
Clone Names	RB16939
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 rabbits immunized with a KLH conjugated synthetic peptide between 255-282 amino acids from the Central region of human CYP1A2.
Dilution	WB~~1:2000 IHC-P~~1:100~500 IF~~1:10~50 E~~Use at an assay dependent concentration.
Format	Purified polyclonal antibody supplied in PBS with 0.09% (W/V) sodium azide. This antibody is purified through a protein A column, followed by peptide affinity purification.
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 (Center) 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

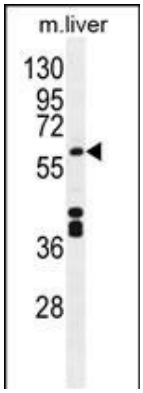
This gene encodes a member of the cytochrome P450 superfamily of enzymes. The cytochrome P450 proteins are monooxygenases which catalyze many reactions involved in drug metabolism and synthesis of cholesterol, steroids and other lipids. The protein encoded by this gene localizes to the endoplasmic reticulum 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.

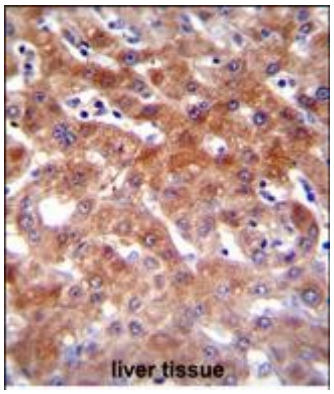
References

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)

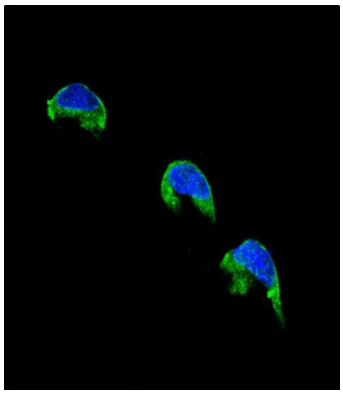
Images

CYP1A2 Antibody (Center) (Cat. #AP11325c) western blot analysis in mouse liver tissue lysates (35ug/lane).This demonstrates the CYP1A2 antibody detected the CYP1A2 protein (arrow).





CYP1A2 Antibody (Center) (Cat. #AP11325c)immunohistochemistry analysis in formalin fixed and paraffin embedded human liver tissue followed by peroxidase conjugation of the secondary antibody and DAB staining.This data demonstrates the use of CYP1A2 Antibody (Center) for immunohistochemistry. Clinical relevance has not been evaluated.



Confocal immunofluorescent analysis of CYP1A2 Antibody (Center) (Cat. #AP11325c) with 293 cell followed by Alexa Fluor® 488-conjugated goat anti-rabbit lgG (green). DAPI was used to stain the cell nuclear (blue).

Citations

- Interaction of Hepatitis B Virus X Protein with the Pregnane X Receptor Enhances the Synergistic Effects of Aflatoxin B1 and Hepatitis B Virus on Promoting Hepatocarcinogenesis
- Pregnancy alters aflatoxin B1 metabolism and increases DNA damage in mouse liver.
- Functional expression and comparative characterization of four feline P450 cytochromes using fluorescent substrates.

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