CYTOCHROME P450 (CYP) Antibodies

Cytochrome P450 (P450 or CYP) enzymes, a superfamily of b-type heme-containing proteins found in organisms from all domains of life, are major catalysts in the oxidative transformation of a diversity of endogenous and exogenous compounds. CYP enzymes play an important role in the metabolic activation of environmental procarcinogens or chemical carcinogenesis, these enzymes are monooxygenases which catalyze many reactions involved in drug metabolism and synthesis of cholesterol, steroids and other lipids. The enzyme localizes to the endoplasmic reticulum and metabolizes procarcinogens such as polycyclic aromatic hydrocarbons and 17beta-estradiol. Mutations in this gene have been associated with primary congenital glaucoma; therefore it is thought that the enzyme also metabolizes a signaling molecule involved in eye development, possibly a steroid.

The CYP enzymes exist is several isoforms, as regards to their conservation of structural characteristics and differences to their electron supplying redox partners.

CYP1B1 (Cytochrome P450 family 1, subfamily B, polypeptide 1) a 543aa enzyme in mouse, rat and human (chr: 2p22) belongs to a multigene superfamily of monomeric mixed-function monooxygenases, responsible for the phase 1 metabolism of a wide range of structurally diverse substrates by inserting 1 atom of atmospheric oxygen into the substrate molecule, thereby creating a new functional group (e.g., -OH, -NH2, -COOH). This enzyme is involved in an NADH-Dependent electron transport pathway, It oxidizes a variety of structurally unrelated compounds and participates in the metabolism of an as-yet unknown biologically active molecule that is a participant in eye development. Cyp1B1 is expressed in many tissues, Defects in Cyp1B1 causes primary congenital Glaucoma, this recessive disease is characterized by large ocular globes resulting from increased intraocular pressure.

Catalytic activity:
RH + Reduced Flavoprotein + O(2) = ROH + Oxidized Flavoprotein + H(2)O

CYP26A1 (Cytochrome P450, family 26, subfamily A, polypeptide 1) a 497aa enzyme in mouse, rat and human (chr 10q23), a distinct composite retinoic acid response element underlies the complex regulation of retinoic acid metabolism. This endoplasmic reticulum protein acts on retinoids, including all-trans-retinoic acid (RA), with both 4-hydroxylation and 18-hydroxylation activities. This enzyme regulates the cellular level of retinoic acid which is involved in the regulation of gene expression in both embryonic and adult tissues. Highest levels of expression are noticed in adult liver, heart, pituitary gland, adrenal gland, placenta and regions of the brain.

Antibody Ordering Information (http://4adi.com/commerce/catalog/spcategory.jsp?category_id=2537)

Most Product data sheets are posted at the website contact ADI for information.

Item	Antibody host	Peptide Antigen location	**expected Ab Cross reactivity	Affinity Pure IgG Cat #	Control peptide Cat #
CYP1B1	Rb	14aa,~C-terminal	M, H, R	CYP1B11-A	CYP1B11-P
CYP26A1 Ab #1	Rb	15aa, ~N-terminal	M, R, H	CYP26A11-A	CYP26A11-P
CYP26A1 Ab#2	Rb	18aa, ~C-terminal	M, R, H	CYP26A12-A	CYP26A12-P

Rb=Rabbit; **Ch**=Chicken; **m**=mouse; **r**=rat; h=human; b=bovine; ~CT/NT=near C or N-terminus. ***Expected antibody cross reactivity** information is based upon high (>70%) sequence conservation of antigenic/control peptides in various species. t does not necessarily mean that ab-crossreactivity has been experimentally verified. Significant antigenic similarity exist but antibody cross reactivity is questionable

Control peptide (#*******-P) is suitable for ELISA and Antibody neutralization to show antibody specificity in ELISA/Western/IHC etc. It is a small peptide of about 2-3 Kda and it cannot be used as protein to run on Western. **Protein controls**, if available, are listed as #*****-C. **Unpurified antiserum** (#******-S) can be used for ELISA/Western but the **affinity purified antibodies** (#********-A) will provide cleaner results in ELISA, Western, and IHC/IF.

Please consult the List of publication for the use of our antibodies

List of Publication Using CYP antibodies_130801

This is a list of publications where ADI antibodies were referenced the peer reviewed journal. Cat# of the antibodies have been provided if given in the publication and what techniques the antibodies are were used (Western, IHC, IP etc). ADI may have some of the publication on file. If you have used our antibodies and not listed here, please contact ADI and perhaps get some discount on the purchase of the antibodies.

ADI Product Used	Authors	Year of Pub	Journal	Western	IHC	IP	Comments
#CYP26A11-A	Li Y	2013	PLoS ONE 7(9): e45210. doi:10.1371/journal.pone.0045210	WB			INS-1 cells were infected with purified Ad-Raldh1 for 24 h.
#CYP1B12-A	Kucab JE	2012	ENVIRONMENTAL AND MOLECULAR MUTAGENESIS Vol 53, Issue 3, April 2012, : 207–217				Nat1/2 isoenzymes were detected with antiserum (diluted 1:5,000
CYP1B12-A	Tekpli X	2010	Toxicology and Applied Pharmacology, 243, Issue 1, 15 February 2010, Pages 68-76				protein targeted: CYP1B1 species: Mouse
polyclonal anti-mouse CYP1B1	Shi Z	2010	Mol. Pharmacol., Jul 2010; 78: 46 - 57.				polyclonal anti-mouse CYP1B1 antibody that had been developed in our laboratory (Uno et al., 2008) in collaboration with Alpha Diagnostic International
custom ab anti-mouse CYP1B1 ab	Shi Z	2010	Mol. Pharmacol., Jul 2010; 78: 46 - 57.	WB			analyzed spleen microsomes with rabbit polyclonal anti-mouse CYP1B1 antibody
anti-hCYP26A1	Chen P-J	2008	Toxicology and Applied Pharmacology, 234, Issue 2, 15 January 2009, Pages 143-155				
CYP1A1 Ab#CYP1B11-A	Dragin N	2007	Biochemical and Biophysical Research Communications, 359, Issue 3, 3 August 2007, Pages 635-642	WB			mouse liver and intestine, cup1++ and cyp1-/-
CYP1B1-mouse Ab#?	Uno S	2007	Free Radical Biology and Medicine, 44, Issue 4, 15 February 2008, Pages 570-583	WB			the amino acid sequences used to make the peptide immunogen for the anti-CYP1B1 antibody were a combination of 301EKKASGAPGDDSSG312, 437PEDFDPARFLDKDGF451, and 491CNFKANQNESSNMS504
CYP26A1 Ab#CYP26A11-A	Catherino WH	2007	Fertility and Sterility, 87, Issue 6, June 2007, Pages 1388-1398	WB			human myometrium
CYP1A1 Ab#CYP1B11-A	Holme AJ	2007	Chemico-Biological Interactions, 167, Issue 1, 5 April 2007, Pages 41-55	WB			anti-cyp1b1 antibody, with no clear host indication; mouse liver
CYP26A1 Ab#CYP26A11-A	Chang C-L	2007	Oncogene, 27, 2951-2960	IF			cyp26a1 expressed and tested with antibodies; The expression of CYP26A1 (green) was confirmed by immunofluorescence in GihTERT cells stably transfected with pCEP4 empty vector or pCEP4-CYP26A1
rabit monoclonal antibody. CYP1B1.human.	Berstein L M.	2007	International Journal of Cancer 121, Issue 3, pages 514–519				samples of mammary fat located 1.5–2.0 cm from tumor in patients with estrogen receptor-positive or estrogen receptor-negative breast cancer.
CYP1B1 AbCYP1B11-A	Tsuchiya Y	2006	Cancer Res. 66: 9090 - 9098		IHC		human MCF7, HEK cells expressing Cyp1a1 an dcyp1b1 genes
CYP1A1 Ab#CYP1B11-A	Tsuchiya Y	2006	Cancer Res. 66: 9090 - 9098		IHC		human MCF7, HEK cells expressing Cyp1a1 an dcyp1b1 genes
CYP26A1 Ab#CYP26A11-A	Heise R	2006	Journal of Investigative Dermatology 126, 2473 - 2480				
CYP1B1 Ab#CYP1B11-A	Desaulniers D	2005	Toxicol. Sci., 86, 175-184		IHC		
CYP1B1 AbCYP1B11-A	Scallet AC	2005	J. Chemical Neuroanatomy, 29, 71-80	WB	IHC		rhesus monkey
CYP26A1 Ab#CYP26A11-A	Villani MG	2004	Clin. Cancer Res., 10: 6265 - 6275	WB			human ovarian carcinoma cell line A2780
CYP1B1 Ab#CYP1B11-A	Tsuchiya Y	2004	Cancer Res., 66, 9090-9098	WB	IHC		human endometrial cells; PF-paraffin sections
CYP1B1 Ab#CYP1B11-A	Ragavan N	2004	Cancer Lett., 215, 1, 8 November , 69-78		IHC		human prostate tissues
CYP1B1 AbCYP1B11-A	Tsuchiya Y	2004	Cancer Res., 64: 3119 - 3125		IHC		human endometrial cells; PF-paraffin sections

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