abcam

ab151728

Anti-Cytochrome P450 1A2 antibody [EPR6138(2)]

Recombinant | RabMAb

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	Preservative: 0.01% Sodium azide Constituents: PBS, 40% Glycerol (glycerin, glycerine), 0.05% BSA
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Clone number	EPR6138(2)
Purification technique	Affinity purification Protein A
Concentration	2 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IP

Not recommended

Species	Human
Dilution info	-
Notes	-

WB

Tested

Species	Human
Dilution info	1/1000 - 1/10000
Notes	-

IHC-P

Not recommended

Species	Human
Dilution info	-
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	1/200 - 1/500
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1/100 - 1/10000
Notes	ab172730 - Rabbit monoclonal IgG, is suitable for use as an isotype control with this antibody.

Target data

See full target information CYP1A2

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).

Storage

Shipped at conditions	Conditional Ambient
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	-20°C

Notes

Species reactivity
Mouse, Rat: We have preliminary internal testing data to indicate this antibody may not react with these species. Please contact us for more information.

Patented technology
Our RabMAb® technology is a patented hybridoma-based technology for making rabbit monoclonal antibodies. For details on our patents, please refer to RabMAb® patents.

What are the advantages of a recombinant monoclonal antibody?
This product is a recombinant monoclonal antibody, which offers several advantages including:

- High batch-to-batch consistency and reproducibility
- Improved sensitivity and specificity
- Long-term security of supply
- Animal-free batch production

For more information, read more on recombinant antibodies.

Supplementary info

This supplementary information is collated from multiple sources and compiled automatically.

Activity summary	Cytochrome P450 1A2 often known as CYP1A2 is an important enzyme in the cytochrome P450 superfamily with a known mass around 58 kDa. It is mainly expressed in the liver where it functions in the metabolism of drugs and the bioactivation of various compounds. CYP1A2 also participates in the oxidation of small organic molecules which include xenobiotics and endogenous substrates. Due to its function researchers frequently study CYP1A2 substrates and its inhibitors to understand better its role in drug metabolism and toxicity.
Biological function summary	CYP1A2 plays a central role in the oxidative biotransformation of drugs and procarcinogens. It does not form part of a larger complex but interacts dynamically with other enzymes in the detoxification process. CYP1A2 metabolizes several clinical drugs such as caffeine and theophylline and regulates the detoxification of aromatic amines and hydrocarbons. Studying CYP1A2 inhibitors can provide insights into clinically relevant drug interactions and potential side effects in pharmacotherapy.
Pathways	CYP1A2 functions within the drug metabolism and synthesis of cholesterol steroids and other lipids pathways. In the drug metabolism pathway CYP1A2 works alongside other cytochrome P450 enzymes such as CYP1A1 and CYP1B1 which together ensure the metabolism and clearance of various exogenous and endogenous compounds. These pathways are vital for maintaining drug efficacy and preventing toxicity through the metabolic clearance of pharmaceutical agents and harmful substances.
Associated diseases and disorders	CYP1A2 activity links to liver disorders and certain cancers. Altered enzyme activity may lead to hepatotoxicity a condition that arises from excessive accumulation of active drug metabolites in the liver. Furthermore due to its role in activating procarcinogens increased CYP1A2 activity relates to a higher risk of developing certain cancers including liver cancer. Researchers often explore these connections to better understand the enzyme's role in disease pathogenesis and to develop CYP1A2-directed therapies.

Product promise

Tested

We have tested this species and application combination and it works. It is covered by our product promise.

Expected

We have not tested this specific species and application combination in-house, but expect it will work. It is covered by our product promise.

Predicted

This species and application combination has not been tested, but we predict it will work based on strong homology. However, this combination is not covered by our product promise.

Not recommended

We do not recommend this combination. It is not covered by our product promise.

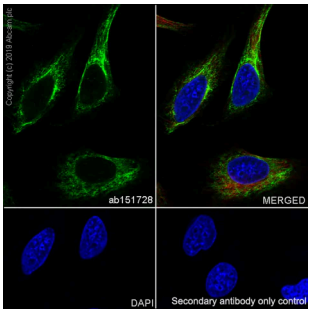
We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

In the unlikely event of one of our products not working as expected, you are covered by our product promise.

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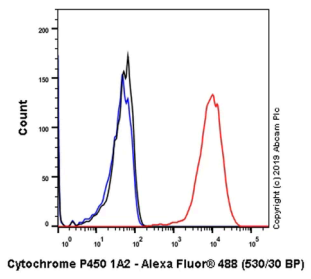
6 product images



Immunocytochemistry/ Immunofluorescence - Anti-Cytochrome P450 1A2 antibody [EPR6138(2)] (ab151728)

Cytochrome P450 1A2 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Cytochrome P450 1A2 antibody

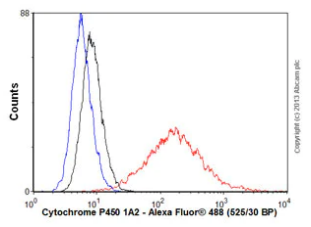
Immunocytochemistry/ Immunofluorescence analysis of HeLa (Human cervix adenocarcinoma epithelial cell) cells labeling Cytochrome P450 1A2 with purified ab151728 at 1/200 dilution (9.4 µg/ml). Cells were fixed in 100% Methanol and permeabilized with None. Cells were counterstained with ab195889 Anti-alpha Tubulin antibody [DM1A] - Microtubule Marker (Alexa Fluor® 594) 1/200 (2.5 µg/ml). Goat anti rabbit IgG (Alexa Fluor® 488, ab150077) was used as the secondary antibody at 1/1000 (2 µg/ml) dilution. DAPI (blue) was used as nuclear counterstain. PBS instead of the primary antibody was used as the secondary antibody only control.



Flow Cytometry (Intracellular) - Anti-Cytochrome P450 1A2 antibody [EPR6138(2)] (ab151728)

Cytochrome P450 1A2 Flow Cytometry (Intracellular) staining using rabbit Anti-Cytochrome P450 1A2 antibody

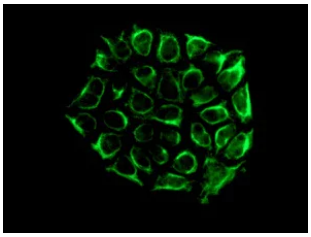
Intracellular Flow Cytometry analysis of MCF7 (Human breast adenocarcinoma epithelial cell) cells labeling Cytochrome P450 1A2 with purified ab151728 at 1/200 dilution (10 µg/ml) (Red). Cells were fixed with 4% Paraformaldehyde and permeabilised with 90% Methanol. A Goat anti rabbit IgG (Alexa Fluor® 488, ab150077) secondary antibody was used at 1/2000. Isotype control - Rabbit monoclonal IgG (Black). Unlabeled control - Cell without incubation with primary antibody and secondary antibody (Blue).



Flow Cytometry (Intracellular) - Anti-Cytochrome P450 1A2 antibody [EPR6138(2)] (ab151728)

Cytochrome P450 1A2 Flow Cytometry (Intracellular) staining using rabbit Anti-Cytochrome P450 1A2 antibody

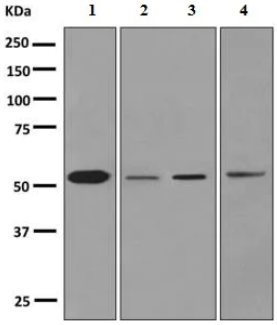
Overlay histogram showing MCF7 cells stained with unpurified ab151728 (red line). The cells were fixed with 4% paraformaldehyde (10 min) and then permeabilized with 0.1% PBS-Tween for 20 min. The cells were then incubated in 1x PBS / 10% normal goat serum / 0.3M glycine to block non-specific protein-protein interactions followed by the antibody (ab151728, 1/10000 dilution) for 30 min at 22°C. The secondary antibody used was Alexa Fluor® 488 goat anti-rabbit IgG (H&L) (ab150077) at 1/2000 dilution for 30 min at 22°C. Isotype control antibody (black line) was rabbit IgG (monoclonal) (0.1µg/1x10^6 cells) used under the same conditions. Unlabelled sample (blue line) was also used as a control. Acquisition of >5,000 events were collected using a 20mW Argon ion laser (488nm) and 525/30 bandpass filter. This antibody gave a positive signal in MCF7 cells fixed with 80% methanol (5 min)/permeabilized with 0.1% PBS-Tween for 20 min used under the same conditions.



Immunocytochemistry/ Immunofluorescence - Anti-Cytochrome P450 1A2 antibody [EPR6138(2)] (ab151728)

Cytochrome P450 1A2 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Cytochrome P450 1A2 antibody

Immunofluorescent analysis of HeLa cells labeling Cytochrome P450 1A2 with unpurified ab151728 at 1/250 dilution.



Western blot - Anti-Cytochrome P450 1A2 antibody [EPR6138(2)] (ab151728)

All lanes:
Western blot - Anti-Cytochrome P450 1A2 antibody [EPR6138(2)] (ab151728) at 1/1000 dilution

Lane 1:
Caco2 cell lysate at 10 µg

Lane 2:
HepG2 cell lysate at 10 µg

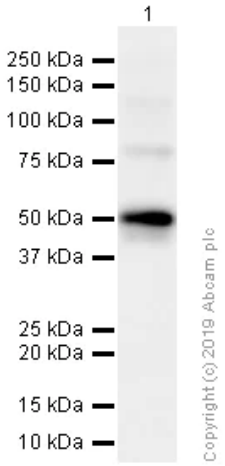
Lane 3:
HeLa cell lysate at 10 µg

Lane 4:
A549 cell lysate at 10 µg

Secondary

All lanes:
Goat anti-rabbit HRP at 1/2000 dilution

Predicted band size: 58 kDa



Western blot - Anti-Cytochrome P450 1A2 antibody [EPR6138(2)] (ab151728)

All lanes:
Western blot - Anti-Cytochrome P450 1A2 antibody [EPR6138(2)] (ab151728) at 1/2000 dilution

All lanes:
HeLa (Human cervix adenocarcinoma epithelial cell) whole cell lysates at 15 µg

Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/20000 dilution

Predicted band size: 58 kDa

Observed band size: 58 kDa

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.