abcam

ab180597

Anti-Cytochrome P450 Reductase antibody [EPR14479(B)]

Recombinant | RabMAb | KO Validated | 20ul selling size

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	pH: 7.2 - 7.4 Preservative: 0.01% Sodium azide Constituents: PBS, 50% Tissue culture supernatant, 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	EPR14479(B)
Purity	Tissue culture supernatant

Reactivity data

WB

Tested

Species	Mouse
Dilution info	1/10000 - 1/50000
Notes	-

Species	Rat
Dilution info	1/10000 - 1/50000

Notes	-

Species	Human
Dilution info	1/10000 - 1/50000
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	1/500
Notes	**For unpurified use at 1/100.**

Expected

Species	Mouse, Rat
Dilution info	Use at an assay dependent concentration.
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1/10
Notes	ab172730 - Rabbit monoclonal IgG, is suitable for use as an isotype control with this antibody.

Expected

Species	Mouse, Rat
Dilution info	Use at an assay dependent concentration.
Notes	-

IHC-P

Tested

Species	Human
Dilution info	1/50
Notes	Heat up to 98 °C, below boiling, and then let cool for 10-20 min. Perform heat-mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.

Species	Mouse
Dilution info	1/50
Notes	Heat up to 98 °C, below boiling, and then let cool for 10-20 min. Perform heat-mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.

Species	Rat
Dilution info	1/50
Notes	Heat up to 98 °C, below boiling, and then let cool for 10-20 min. Perform heat-mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.

Target data

See full target information POR

Function	This enzyme is required for electron transfer from NADP to cytochrome P450 in microsomes. It can also provide electron transfer to heme oxygenase and cytochrome B5.

Storage

Shipped at conditions	Conditional Ambient
Appropriate short-term storage duration	1-2 weeks
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	-20°C
Aliquoting information	Upon delivery aliquot
Storage information	Avoid freeze / thaw cycle

Notes

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 reductase also known as NADPH--cytochrome P450 reductase (CPR) is an enzyme important in electron transfer. It has a mass of approximately 77 kDa and is responsible for transferring electrons from NADPH to cytochrome P450 enzymes supporting their function. The enzyme is predominantly expressed in the endoplasmic reticulum of liver cells and other tissues where detoxification processes occur. Cytochrome reductase as it is sometimes called plays a fundamental role in the metabolism of drugs and the synthesis of cholesterol steroids and other lipids.
Biological function summary	CPR facilitates electron donation to all microsomal cytochrome P450 enzymes which are involved in a variety of oxidative reactions. This protein is essential for P450 activity assay as it is part of a multienzyme complex that metabolizes exogenous and endogenous compounds efficiently. Without cytochrome P450 reductase the catalytic activity of cytochrome P450 enzymes becomes impaired affecting metabolizing mechanisms for various substances and having systemic biological impacts.
Pathways	Cytochrome P450 reductase directly participates in drug metabolism and steroid biosynthesis pathways. It together with the cytochrome P450 enzymes metabolizes drugs to make them more water-soluble for excretion. The proteins 3 beta-hydroxysteroid dehydrogenase and CYP3A4 are some of the related components within these pathways working in conjunction to achieve metabolic homeostasis. P450 reductase assays are often utilized to study these pathways further understanding the biological roles and interactions of these proteins.
Associated diseases and disorders	CPR has a significant connection to conditions like congenital adrenal hyperplasia and prostate cancer. Mutations or dysregulations in cytochrome P450 reductase can lead to accumulated steroid precursors and disrupted steroid hormone synthesis contributing to these disorders. The relationship with adrenal enzyme 21-hydroxylase and the androgen receptor illustrates the pathway complexities and the clinical relevance of cytochrome P450 reductase. Understanding these

connections highlights the importance of CPR in maintaining normal physiological functions and how its abnormalities can lead to serious health issues.

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

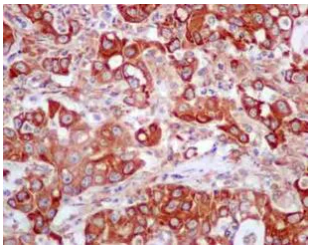
We do not recommend this combination. It is not covered by our product promise.

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.

Full details and terms and conditions can be found here:
Terms & Conditions.

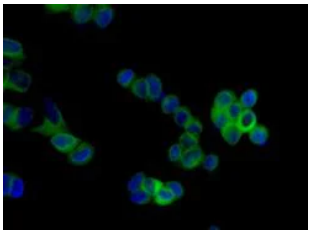
13 product images



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Cytochrome P450 Reductase antibody [EPR14479(B)] (ab180597)

Cytochrome P450 Reductase Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-Cytochrome P450 Reductase antibody

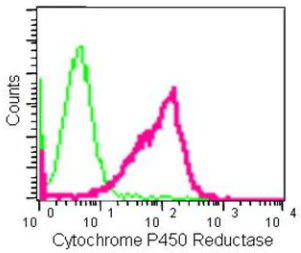
Immunohistochemical analysis of paraffin embedded Human infiltrating duct carcinoma of breast tissue labeling Cytochrome P450 Reductase with ab180597 at a 1/150 dilution. HRP Polymer for Rabbit IgG secondary used. Counterstained with Hematoxylin.
Perform heat mediated antigen retrieval with EDTA buffer pH 9 before commencing with IHC staining protocol.



Immunocytochemistry/ Immunofluorescence - Anti-Cytochrome P450 Reductase antibody [EPR14479(B)] (ab180597)

Cytochrome P450 Reductase Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Cytochrome P450 Reductase antibody

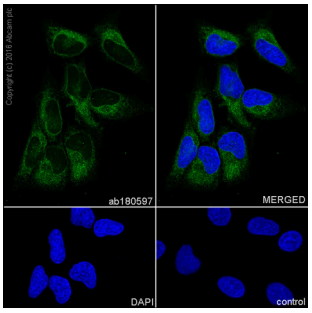
Immunofluorescence analysis of MCF7 cells (fixative 4% paraformaldehyde) labeling Cytochrome P450 Reductase with ab180597 at a 1/100 dilution (green), and counterstained with Dapi (blue). Goat anti rabbit IgG (Dylight 555) secondary used at a 1/200 diution.



Flow Cytometry (Intracellular) - Anti-Cytochrome P450 Reductase antibody [EPR14479(B)] (ab180597)

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

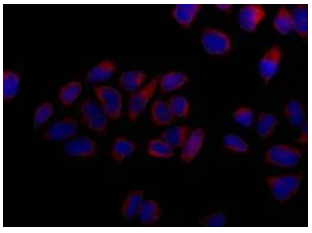
Intracellular Flow Cytometry analysis of HeLa cells using ab180597 at a 1/10 dilution (red) and a rabbit IgG as negative control (green). Goat anti rabbit IgG (FITC) secondary usedat a 1/150 dilution.



Immunocytochemistry/ Immunofluorescence - Anti-Cytochrome P450 Reductase antibody [EPR14479(B)] (ab180597)

Cytochrome P450 Reductase Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Cytochrome P450 Reductase antibody

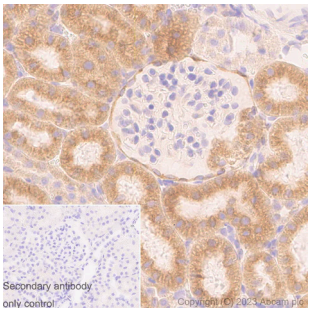
Immunocytochemistry/Immunofluorescence analysis of HeLa (Human epithelial cell line from cervix adenocarcinoma) labeling Cytochrome P450 Reductase with purified ab180597 at 1/500 dilution. Cells were fixed with 100% methanol. ab150077 Goat anti rabbit IgG (Alexa Fluor® 488) at 1/1000 was used as the secondary antibody. Nuclei were counterstained with DAPI. PBS was used instead of the primary antibody as the negative control.



Immunocytochemistry/ Immunofluorescence - Anti-Cytochrome P450 Reductase antibody [EPR14479(B)] (ab180597)

Cytochrome P450 Reductase Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Cytochrome P450 Reductase antibody

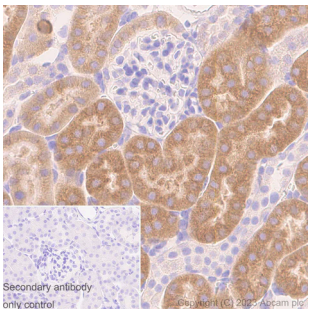
Immunofluorescence analysis of Hela cells (fixative 4% paraformaldehyde) labeling Cytochrome P450 Reductase with ab180597 at a 1/100 dilution (red), and counterstained with Dapi (blue). Goat anti rabbit IgG (Dylight 555) secondary used at a 1/200 diution.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Cytochrome P450 Reductase antibody [EPR14479(B)] (ab180597)

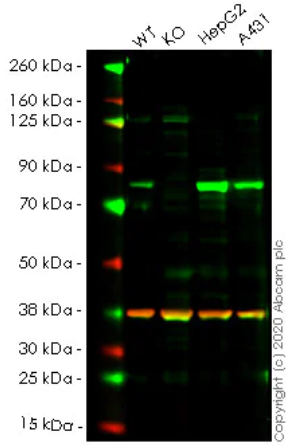
Immunohistochemical analysis of paraffin-embedded Rat kidney tissue labelling Cytochrome P450 Reductase with ab180597 at 1/1000 (0.1 µg/ml) followed by a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection).The section was counterstained with Hematoxylin. Secondary antibody only control: Secondary antibody is a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection). Heat mediated antigen retrieval was performed with Tris-EDTA buffer (pH 9.0, Epitope Retrieval

Solution2) for 20 mins. Postive staining on rat kidney. The section was incubated with ab180597 for 30 mins at room temperature. The immunostaining was performed on a Leica Biosystems BOND® RX instrument



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Cytochrome P450 Reductase antibody [EPR14479(B)] (ab180597)

Immunohistochemical analysis of paraffin-embedded Mouse kidney tissue labelling Cytochrome P450 Reductase with ab180597 at 1/1000 (0.1 µg/ml) followed by a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection).The section was counterstained with Hematoxylin. Secondary antibody only control: Secondary antibody is a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection). Heat mediated antigen retrieval was performed with Tris-EDTA buffer (pH 9.0, Epitope Retrieval Solution2) for 20 mins. Postive staining on mouse kidney. The section was incubated with ab180597 for 30 mins at room temperature. The immunostaining was performed on a Leica Biosystems BOND® RX instrument.



Western blot - Anti-Cytochrome P450 Reductase antibody [EPR14479(B)] (ab180597)

Cytochrome P450 Reductase Western blot staining using rabbit Anti-Cytochrome P450 Reductase antibody

ab180597 Anti-Cytochrome P450 Reductase antibody [EPR14479(B)] was shown to specifically react with Cytochrome P450 Reductase in HeLa wild-type cells (ab255448). Loss of signal was observed when knockout cell line ab264996 (knockout cell lysate ab257595) was used. Wild-type and Cytochrome P450 Reductase knockout samples were subjected to SDS-PAGE. ab180597 and Anti-GAPDH antibody [6C5] - Loading Control (ab8245) were incubated overnight at 4°C at 1 in 10000 dilution and 1 in 20000 dilution respectively. Blots were developed with Goat anti-Rabbit IgG H&L (IRDye® 800CW) preadsorbed (ab216773) and Goat anti-Mouse IgG H&L (IRDye® 680RD) preadsorbed (ab216776) secondary antibodies at 1 in 20000 dilution for 1 hour at room temperature before imaging.
All lanes:
Western blot - Anti-Cytochrome P450 Reductase antibody [EPR14479(B)] (ab180597) at 1/10000 dilution

Lane 1:
Wild-type HeLa lysate at 20 µg

Lane 2:
Cytochrome P450 Reductase knockout HeLa lysate at 20 µg

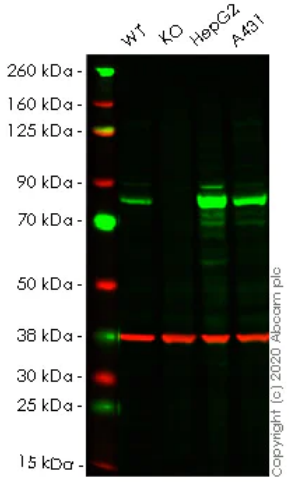
Lane 2:
Western blot - Human POR (Cytochrome P450 Reductase) knockout HeLa cell line (ab264996)

Lane 3:
HepG2 lysate at 20 µg

Lane 4:
A431 lysate at 20 µg

Performed under reducing conditions.

Predicted band size: 76 kDa



Western blot - Anti-Cytochrome P450 Reductase antibody [EPR14479(B)] (ab180597)

Cytochrome P450 Reductase Western blot staining using rabbit Anti-Cytochrome P450 Reductase antibody

Lanes 1- 4: Merged signal (red and green). Green - ab180597 observed at 80 kDa. Red - Anti-GAPDH antibody [6C5] - Loading Control (ab8245) observed at 37 kDa.
ab180597 was shown to react with Cytochrome P450 Reductase in wild-type HCT116 cells in western blot. Loss of signal was observed when knockout cell line ab266889 (knockout cell lysate ab257596) was used. Wild-type HCT116 and POR knockout HCT116 cell lysates were subjected to SDS-PAGE. Membrane was blocked for 1 hour at room temperature in 0.1% TBST with 3% non-fat dried milk. ab180597 and Anti-GAPDH antibody [6C5] - Loading Control (ab8245) overnight at 4°C at a 1 in 1000 dilution and a 1 in 20000 dilution respectively. Blots were developed with Goat anti-Rabbit IgG H&L (IRDye®800CW) preadsorbed (ab216773) and Goat anti-Mouse IgG H&L (IRDye®680RD) preadsorbed (ab216776) secondary antibodies at 1 in 20000 dilution for 1 hour at room temperature before imaging.

All lanes:
Western blot - Anti-Cytochrome P450 Reductase antibody [EPR14479(B)] (ab180597) at 1/1000 dilution

Lane 1:
Wild-type HCT116 cell lysate at 40 µg

Lane 2:
POR knockout HCT116 cell lysate at 40 µg

Lane 2:
Western blot - Human POR (Cytochrome P450 Reductase) knockout HCT116 cell line (ab266889)

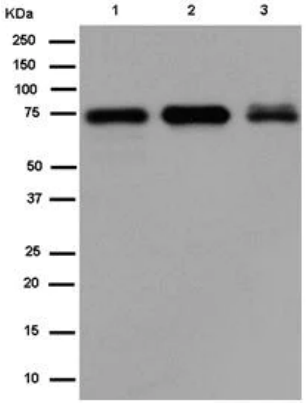
Lane 3:
HepG2 cell lysate at 40 µg

Lane 4:
A431 cell lysate at 40 µg

Performed under reducing conditions.

Predicted band size: 76 kDa

Observed band size: 80 kDa



Western blot - Anti-Cytochrome P450 Reductase antibody [EPR14479(B)] (ab180597)

All lanes:
Western blot - Anti-Cytochrome P450 Reductase antibody [EPR14479(B)] (ab180597) at 1/10000 dilution

Lane 1:
HeLa lysate at 20 µg

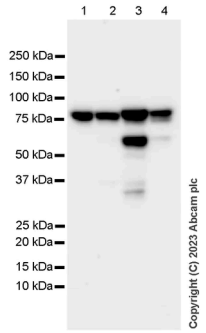
Lane 2:
MCF7 lysate at 20 µg

Lane 3:
A431 lysate at 20 µg

Secondary

All lanes:
Goat Anti-Rabbit IgG (H+L) Peroxidase conjugated at 1/1000 dilution

Predicted band size: 76 kDa



Western blot - Anti-Cytochrome P450 Reductase antibody [EPR14479(B)] (ab180597)

Blocking and diluting buffer and concentration: 5% NFDM/TBST. Exposure time: Lane 1-3: 26 seconds; Lane 4-7: 75 seconds. The identities of the lower MW bands between 37 and 60kDa are unknown.
All lanes:
Western blot - Anti-Cytochrome P450 Reductase antibody [EPR14479(B)] (ab180597) at 1/1000 dilution

Lane 1:
Mouse brain tissue lysate at 20 µg

Lane 2:
Mouse heart tissue lysate at 20 µg

Lane 3:
Mouse spleen tissue lysate at 20 µg

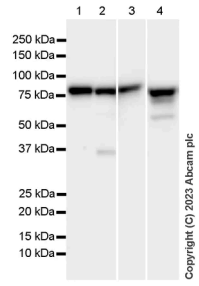
Lane 4:
Mouse kidney tissue lysate at 20 µg

Secondary

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

Predicted band size: 76 kDa

Observed band size: 75 kDa



Western blot - Anti-Cytochrome P450 Reductase antibody [EPR14479(B)] (ab180597)

Blocking and diluting buffer and concentration: 5% NFDM/TBST. Exposure time: Lane 1-3: 26 seconds; Lane 4-7: 75 seconds. The identities of the lower MW bands between 37 and 60kDa are unknown.
All lanes:
Western blot - Anti-Cytochrome P450 Reductase antibody [EPR14479(B)] (ab180597) at 1/1000 dilution

Lane 1:
Rat brain tissue lysate at 20 µg

Lane 2:
Rat heart tissue lysate at 20 µg

Lane 3:
Rat spleen tissue lysate at 20 µg

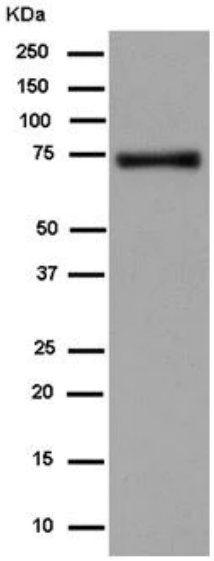
Lane 4:
Rat kidney tissue lysate at 20 µg

Secondary

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

Predicted band size: 76 kDa

Observed band size: 75 kDa



Western blot - Anti-Cytochrome P450 Reductase antibody [EPR14479(B)] (ab180597)

All lanes:
Western blot - Anti-Cytochrome P450 Reductase antibody [EPR14479(B)] (ab180597) at 1/50000 dilution

All lanes:
HepG2 lysate at 20 µg

Secondary

All lanes:
Goat Anti-Rabbit IgG (H+L) Peroxidase conjugated at 1/1000 dilution

Predicted band size: 76 kDa

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