abcam

ab202554

Anti-COX IV antibody [EPR9442(ABC)] - Mitochondrial Loading Control

Anti-COX IV antibody [EPR9442(ABC)] - Mitochondrial Loading Control (ab202554) is a rabbit monoclonal antibody detecting COX IV in **Western Blot, Flow Cytometry (Intra), IP, IHC-P, ICC/IF, mIHC**. Suitable for **Human, Mouse, Rat**.

- Multiplex IHC validated on the Leica BOND® MAX using Opal reagents
- Biophysical QC for unrivalled batch-batch consistency
- Over 30 publications

Lab Essentials | Recombinant | RabMAb | Advanced Validation | 20ul selling size

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	pH: 7.2 - 7.4 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	EPR9442(ABC)
Purification technique	Affinity purification Protein A
Concentration	0.1 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IP

Tested

Species	Human
Dilution info	1/20
Notes	-

Expected

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

WB

Tested

Species	Mouse
Dilution info	1/2000
Notes	-

Species	Rat
Dilution info	1/2000
Notes	-

Species	Human
Dilution info	1/2000
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	1/1000
Notes	-

Expected

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

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1/20
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	Mouse
Dilution info	1/500
Notes	-

Species	Rat
Dilution info	1/500
Notes	-

Species	Human
Dilution info	1/500
Notes	-

mIHC

Tested

Species	Human
Dilution info	1/500
Notes	-

Expected

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

Target data

See full target information COX4I1

Function

Component of the cytochrome c oxidase, the last enzyme in the mitochondrial electron transport chain which drives oxidative phosphorylation. The respiratory chain contains 3 multisubunit complexes succinate dehydrogenase (complex II, CII), ubiquinol-cytochrome c oxidoreductase (cytochrome b-c1 complex, complex III, CIII) and cytochrome c oxidase (complex IV, CIV), that cooperate to transfer electrons derived from NADH and succinate to molecular oxygen, creating an electrochemical gradient over the inner membrane that drives transmembrane transport and the ATP synthase. Cytochrome c oxidase is the component of the respiratory chain that catalyzes the reduction of oxygen to water. Electrons originating from reduced cytochrome c in the intermembrane space (IMS) are transferred via the dinuclear copper A center (CU(A)) of subunit 2 and heme A of subunit 1 to the active site in subunit 1, a binuclear center (BNC) formed by heme A3 and copper B (CU(B)). The BNC reduces molecular oxygen to 2 water molecules using 4 electrons from cytochrome c in the IMS and 4 protons from the mitochondrial matrix.

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

What is this antibody validated in?
Anti-COX IV antibody [EPR9442(ABC)] - Mitochondrial Loading Control (ab202554) is a rabbit recombinant monoclonal antibody and is validated for use in Western Blot (WB), Flow Cytometry (Intra), Immunoprecipitation (IP), Immunohistochemistry (IHC-P), Immunocytochemistry/immunofluorescence (ICC/IF), Multiplex IHC (mIHC) in Human, Mouse, Rat samples.

What is the molecular weight of COX IV?
Anti-COX IV [EPR9442(ABC)] - Mitochondrial Loading Control (ab202554) is often used as a loading control in Western blot. It specifically detects a band for COX IV (UniProt: P13073) at a molecular weight of 20kDa.

Trusted by the scientific community
Anti-COX IV [EPR9442(ABC)] - Mitochondrial Loading Control (ab202554) was first used in a scientific publication in 2015 and has been cited over 30 times in peer-reviewed journals.

Other related products
We have a range of other formats of antibody clone [EPR9442(ABC)] also available for your convenience: ab202554, HRP - ab209958, Alexa Fluor® 405 - ab210180, Alexa Fluor® 594 - ab210674, Alexa Fluor® 555 - ab210675, Carrier free - ab231168

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.

Trial sizes available!
Test your antibody or perform pre-screening before committing to a larger quantity. Sold in 20µl. Discover our selection of trial-size antibodies.

Supplementary info

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

Activity summary	Cytochrome c oxidase subunit IV commonly known as COX IV is a component of the enzyme complex located in the inner mitochondrial membrane. COX IV has a molecular weight of approximately 17 kDa and serves as a subunit of the larger cytochrome c oxidase complex which is essential in cellular respiration. As a mitochondrial marker COX IV is expressed in various tissues where it acts as an important player in the electron transport chain. The presence and function of COX IV are critical in facilitating the last step of the mitochondrial respiratory chain.
Biological function summary	COX IV acts as a significant part of the cytochrome c oxidase complex helping catalyze the reduction of oxygen to water. This process is an important step in the overall mechanism of oxidative phosphorylation. COX IV's role in this complex enables the proton gradient generation across the inner mitochondrial membrane which is necessary for ATP synthesis. Its activity regulates the efficiency of cellular respiration impacting energy production and metabolic activities within cells.
Pathways	COX IV functionally interacts within the oxidative phosphorylation and electron transport chain pathways. Its coordination with other proteins like COX I and COX II in the cytochrome c oxidase complex ensures proper electron transfer to oxygen. Additionally COX IV is implicated in the regulation of reactive oxygen species maintaining cellular homeostasis. These pathways interconnect with broader cellular mechanisms that involve energy metabolism and apoptosis.
Associated diseases and disorders	COX IV has been linked to mitochondrial disorders where defects in the oxidative phosphorylation processes can lead to conditions such as mitochondrial encephalomyopathy. Abnormalities in COX IV function and expression can also contribute to neurodegenerative diseases including Parkinson's disease. Here interactions with proteins like superoxide dismutase (SOD) highlight how oxidative stress and mitochondrial dysfunction relate closely to disease progression. These associations underline the importance of COX IV in maintaining cellular and organismal health.

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

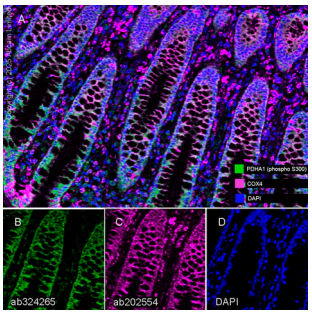
We do not recommend this combination. It is not covered by our product promise.

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.

26 product images



Multiplex immunohistochemistry - Anti-COX IV antibody [EPR9442(ABC)] - Mitochondrial Loading Control (ab202554)

COX IV Multiplex immunohistochemistry staining of Human colon using rabbit Anti-COX IV antibody

Multiplex immunohistochemistry analysis of formalin/PFA-fixed paraffin-embedded human colon tissue staining PDHA1 (phospho S300) with ab324265 at a 1:500 (0.994 ug/ml) dilution, ab202554 anti-COX4 used at 1:500 (0.228 ug/ml) dilution.

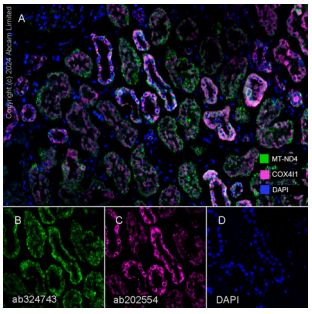
Panel A: merged staining of anti-PDHA1 (phospho S300) (green; Opal™520), anti-COX4 (magenta; Opal™570) on human colon.
Panel B: anti-PDHA1 (phospho S300) showed granular staining in human colon.
Panel C: anti-COX4 showed granular staining in human colon.
Panel D: Nuclear DNA was labeled with DAPI (shown in blue).

The section was incubated in three rounds of staining: in the order of ab324265, ab202554 for 30 mins at room temperature. Each round was followed by a separate fluorescent tyramide signal amplification system.

The immunostaining was performed on a Leica Biosystems BOND® RX instrument with an Opal™ 4-color kit. Image acquisition was performed with Leica SP8 confocal microscope.

Nuclear counter stain with DAPI.

Heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0, epitope retrieval solution2) for 20 mins.



Multiplex immunohistochemistry - Anti-COX IV antibody [EPR9442(ABC)] - Mitochondrial Loading Control (ab202554)

COX IV Multiplex immunohistochemistry staining of Human kidney using rabbit Anti-COX IV antibody

Multiplex immunohistochemistry analysis of formalin/PFA-fixed paraffin-embedded human kidney tissue staining MT-ND4 with ab324743 at a 1:100 (5.2 ug/ml) dilution, ab202554 anti-COX4I1 used at 1:500 (0.228 ug/ml) dilution.

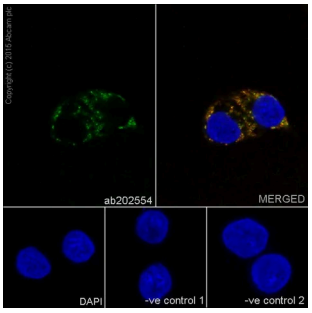
Panel A: merged staining of anti-MT-ND4 (green; Opal™520), anti-COX4I1 (magenta; Opal™570) on human kidney.
Panel B: anti-MT-ND4 showed mitochondrial staining in human kidney.
Panel C: anti-COX4I1 showed mitochondrial staining in human kidney.
Panel D: Nuclear DNA was labeled with DAPI (shown in blue).

The section was incubated in three rounds of staining: in the order of ab324743 and ab202554 for 30 mins at room temperature. Each round was followed by a separate fluorescent tyramide signal amplification system.

The immunostaining was performed on a Leica Biosystems BOND® RX instrument with an Opal™ 4-color kit. Image acquisition was performed with Leica SP8 confocal microscope.

Nuclear counter stain with DAPI.

Heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0, epitope retrieval solution2) for 20 mins.



Immunocytochemistry/ Immunofluorescence - Anti-COX IV antibody [EPR9442(ABC)] - Mitochondrial Loading Control (ab202554)

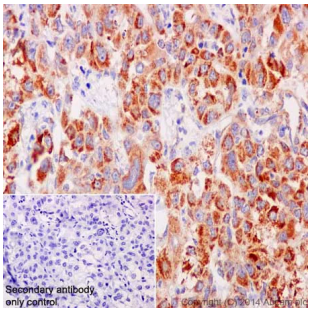
COX IV Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-COX IV antibody

Immunofluorescent analysis of 4% paraformaldehyde-fixed, 0.1% Triton X-100 permeabilized HepG2 (Human liver hepatocellular carcinoma) cells labeling COX IV with ab202554 at 1/1000 dilution, followed by Goat anti-rabbit IgG (Alexa Fluor® 488) (ab150077) secondary antibody at 1/500 dilution (green).
Cytoplasmic staining on HepG2 cells is observed.

The nuclear counter stain is DAPI (blue).

Tubulin is detected with ab7291 (anti-Tubulin mouse mAb) at 1/1000 dilution and ab150120 (AlexaFluor®594 Goat anti-Mouse secondary) at 1/500 dilution (red).

The negative controls are as follows:
-ve control 1: ab202554 at 1/1000 dilution followed by ab150120 (AlexaFluor®594 Goat anti-Mouse secondary) at 1/500 dilution.
-ve control 2: ab7291 (anti-Tubulin mouse mAb) at 1/1000 dilution followed by ab150077 (Alexa Fluor®488 Goat Anti-Rabbit IgG H&L) at 1/500 dilution.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-COX IV antibody [EPR9442(ABC)] - Mitochondrial Loading Control (ab202554)

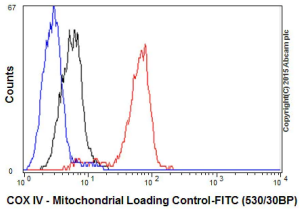
COX IV Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-COX IV antibody

Immunohistochemical analysis of paraffin-embedded Human hepatocellular carcinoma tissue labeling COX IV with ab202554 at 1/500 dilution, followed by Goat Anti-Rabbit IgG H&L (HRP) (ab97051) secondary antibody at 1/500 dilution.
Cytoplasmic staining on Human hepatocellular carcinoma tissue is observed.

Counter stained with Hematoxylin.

Secondary antibody only control: Used PBS instead of primary antibody, secondary antibody is Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/500 dilution.

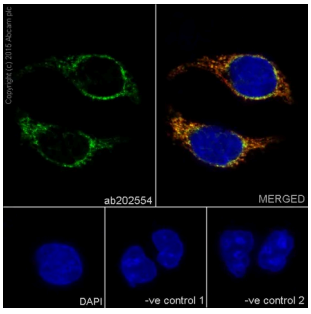
Perform heat mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.



Flow Cytometry (Intracellular) - Anti-COX IV antibody [EPR9442(ABC)] - Mitochondrial Loading Control (ab202554)

COX IV Flow Cytometry (Intracellular) staining using rabbit Anti-COX IV antibody

Intracellular flow cytometric analysis of 2% paraformaldehyde-fixed MCF7 (Human breast adenocarcinoma cell line) cells labeling COX IVwith ab202554 at 1/20 dilution (red) compared with a rabbit monoclonal IgG isotype control (ab172730;black) and an unlabelled control (cells without incubation with primary antibody and secondary antibody; blue). Goat anti rabbit IgG (FITC) at 1/150 dilution was used as the secondary antibody.



Immunocytochemistry/ Immunofluorescence - Anti-COX IV antibody [EPR9442(ABC)] - Mitochondrial Loading Control (ab202554)

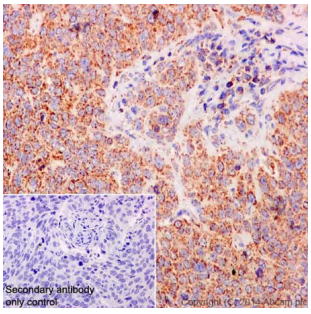
COX IV Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-COX IV antibody

Immunofluorescent analysis of 4% paraformaldehyde-fixed, 0.1% Triton X-100 permeabilized HeLa (Human epithelial cells from cervix adenocarcinoma) cells labeling COX IV with ab202554 at 1/1000 dilution, followed by Goat anti-rabbit IgG (Alexa Fluor® 488) (ab150077) secondary antibody at 1/500 dilution (green).
Cytoplasmic staining on HeLa cells is observed.

The nuclear counter stain is DAPI (blue).

Tubulin is detected with ab7291 (anti-Tubulin mouse mAb) at 1/1000 dilution and ab150120 (AlexaFluor®594 Goat anti-Mouse secondary) at 1/500 dilution (red).

The negative controls are as follows:
-ve control 1: ab202554 at 1/1000 dilution followed by ab150120 (AlexaFluor®594 Goat anti-Mouse secondary) at 1/500 dilution.
-ve control 2: ab7291 (anti-Tubulin mouse mAb) at 1/1000 dilution followed by ab150077 (Alexa Fluor®488 Goat Anti-Rabbit IgG H&L) at 1/500 dilution.



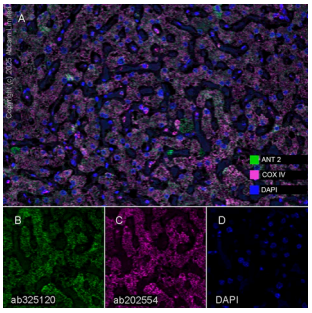
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-COX IV antibody [EPR9442(ABC)] - Mitochondrial Loading Control (ab202554)

COX IV Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-COX IV antibody

Immunohistochemical analysis of paraffin-embedded Human cervix carcinoma tissue labeling COX IV with ab202554 at 1/500 dilution, followed by Goat Anti-Rabbit IgG H&L (HRP) (ab97051) secondary antibody at 1/500 dilution.
Cytoplasmic staining on Human cervix carcinoma tissue is observed. Counter stained with Hematoxylin.

Secondary antibody only control: Used PBS instead of primary antibody, secondary antibody is Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/500 dilution.

Perform heat mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.



Multiplex immunohistochemistry - Anti-COX IV antibody [EPR9442(ABC)] - Mitochondrial Loading Control (ab202554)

COX IV Multiplex immunohistochemistry staining of Human liver using rabbit Anti-COX IV antibody

Multiplex immunohistochemistry analysis of formalin/PFA-fixed paraffin-embedded human liver tissue staining Adenine Nucleotide Translocator 2/ANT 2 with ab325120 at a 1:100 (5.04 ug/ml) dilution, ab202554 anti-COX IV used at 1:500 (0.23 ug/ml) dilution.

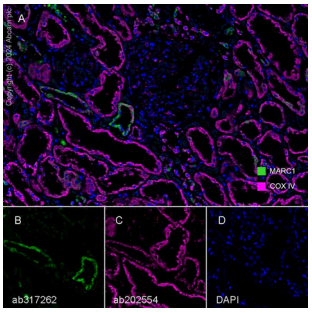
Panel A: merged staining of anti-ANT 2 (green; Opal™520) and anti-COX IV (magenta; Opal™570) on human liver.
Panel B: anti-ANT 2 showed mitochondrial staining in human liver.
Panel C: anti-COX IV showed mitochondrial staining in human liver.
Panel D: Nuclear DNA was labeled with DAPI (shown in blue).

The section was incubated in three rounds of staining: in the order of ab325120 and ab202554 for 30 mins at room temperature. Each round was followed by a separate fluorescent tyramide signal amplification system.

The immunostaining was performed on a Leica Biosystems BOND® RX instrument with an Opal™ 4-color kit. Image acquisition was performed with Leica SP8 confocal microscope.

Nuclear counter stain with DAPI.

Heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0, epitope retrieval solution2) for 20 mins.



Multiplex immunohistochemistry - Anti-COX IV antibody [EPR9442(ABC)] - Mitochondrial Loading Control (ab202554)

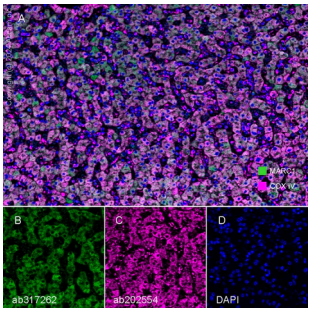
Multiplex immunohistochemistry analysis of formalin/PFA-fixed paraffin-embedded human kidney tissue staining MARC1 with ab317262 at a 1:1000 (0.503 ug/ml) dilution, ab202554 anti-COX IV used at 1:500 (0.23 ug/ml) dilution.

Panel A: merged staining of anti-MARC1 (green; Opal™520), anti-COX IV (magenta; Opal™570) on human kidney.
Panel B: anti-MARC1 staining on several kidney tubules of human kidney.
Panel C: anti-COX IV staining on kidney tubules of human kidney.
Panel D: nuclear DNA was labeled with DAPI (shown in blue).
Co-staining of MARC1 and COX IV (mitochondrial marker) can be observed.
The section was incubated in two rounds of staining: in the order of ab317262, ab202554 for 30 mins at room temperature. Each round was followed by a separate fluorescent tyramide signal amplification system.

The immunostaining was performed on a Leica Biosystems BOND® RX instrument with an Opal™ 4-color kit. Image acquisition was performed with Leica SP8 confocal microscope.

Nuclear counter stain with DAPI.

Heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0, epitope retrieval solution2) for 20 mins.



Multiplex immunohistochemistry - Anti-COX IV antibody [EPR9442(ABC)] - Mitochondrial Loading Control (ab202554)

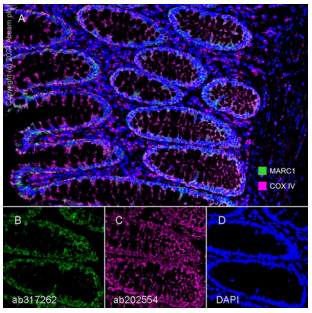
Multiplex immunohistochemistry analysis of formalin/PFA-fixed paraffin-embedded human liver tissue staining MARC1 with ab317262 at a 1:1000 (0.503 ug/ml) dilution, ab202554 anti-COX IV used at 1:500 (0.23 ug/ml) dilution.

Panel A: merged staining of anti-MARC1 (green; Opal™520), anti-COX IV (magenta; Opal™570) on human liver.
Panel B: anti-MARC1 staining in hepatocyte of human liver.
Panel C: anti-COX IV staining in hepatocyte of human liver.
Panel D: nuclear DNA was labeled with DAPI (shown in blue).
Co-staining of MARC1 and COX IV (mitochondrial marker) can be observed.
The section was incubated in two rounds of staining: in the order of ab317262, ab202554 for 30 mins at room temperature. Each round was followed by a separate fluorescent tyramide signal amplification system.

The immunostaining was performed on a Leica Biosystems BOND® RX instrument with an Opal™ 4-color kit. Image acquisition was performed with Leica SP8 confocal microscope.

Nuclear counter stain with DAPI.

Heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0, epitope retrieval solution2) for 20 mins.



Multiplex immunohistochemistry - Anti-COX IV antibody [EPR9442(ABC)] - Mitochondrial Loading Control (ab202554)

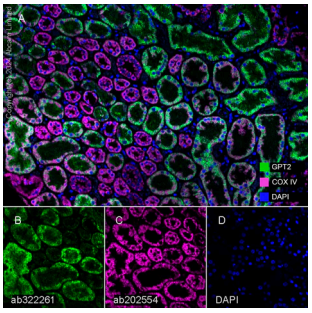
Multiplex immunohistochemistry analysis of formalin/PFA-fixed paraffin-embedded human colon tissue staining MARC1 with ab317262 at a 1:1000 (0.503 ug/ml) dilution, ab202554 anti-COX IV used at 1:500 (0.23 ug/ml) dilution.

Panel A: merged staining of anti-MARC1 (green; Opal™520), anti-COX IV (magenta; Opal™570) on human colon.
Panel B: anti-MARC1 staining on human colon.
Panel C: anti-COX IV staining on human colon.
Panel D: nuclear DNA was labeled with DAPI (shown in blue).
Co-staining of MARC1 and COX IV (mitochondrial marker) can be observed.
The section was incubated in two rounds of staining: in the order of ab317262, ab202554 for 30 mins at room temperature. Each round was followed by a separate fluorescent tyramide signal amplification system.

The immunostaining was performed on a Leica Biosystems BOND® RX instrument with an Opal™ 4-color kit. Image acquisition was performed with Leica SP8 confocal microscope.

Nuclear counter stain with DAPI.

Heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0, epitope retrieval solution2) for 20 mins.



Multiplex immunohistochemistry - Anti-COX IV antibody [EPR9442(ABC)] - Mitochondrial Loading Control (ab202554)

COX IV Multiplex immunohistochemistry staining of Human cardiac muscle tissue using rabbit Anti-COX IV antibody

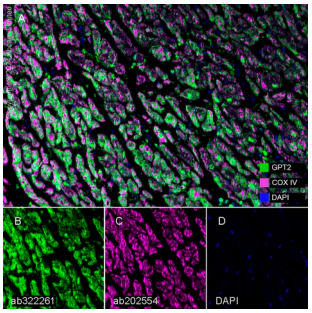
Multiplex immunohistochemistry analysis of formalin/PFA-fixed paraffin-embedded Human cardiac muscle staining of GPT2 with ab322261 at a 1/2000 (0.261 µg/ml) dilution and COX IV with ab202554 at 1/500 (0.228 µg/ml) dilution followed by a ready to use secondary antibody Opal Polymer HRP Ms + Rb.

Panel A: merged staining of anti-GPT2 (green; Opal™570) and anti-COX IV (magenta; Opal™520) on human cardiac muscle.
Panel B: anti-GPT2 showed granular staining in human cardiac muscle.
Panel C: ant-COX IV showed granular staining in human cardiac muscle.
Panel D: Nuclear DNA was labeled with DAPI (shown in blue).

The section was incubated in three rounds of staining: in the order of ab322261 and ab202554 for 30 mins at room temperature. Each round was followed by a separate fluorescent tyramide signal amplification system.

Heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0, epitope retrieval solution2) for 20 mins

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Multiplex immunohistochemistry - Anti-COX IV antibody [EPR9442(ABC)] - Mitochondrial Loading Control (ab202554)

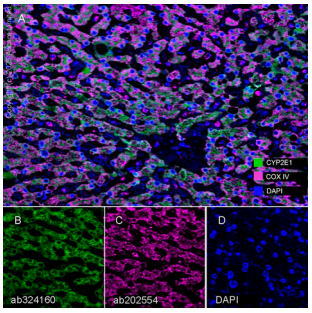
COX IV Multiplex immunohistochemistry staining of Human kidney tissue using rabbit Anti-COX IV antibody

Multiplex immunohistochemistry analysis of formalin/PFA-fixed paraffin-embedded Human kidney staining of GPT2 with ab322261 at a 1/2000 (0.261 µg/ml) dilution and COX IV with ab202554 at 1/500 (0.228 µg/ml) dilution followed by a ready to use secondary antibody Opal Polymer HRP Ms + Rb.

Panel A: merged staining of anti-GPT2 (green; Opal™570) and anti-COX IV (magenta; Opal™520) on human kidney.
Panel B: anti-GPT2 showed granular staining in human kidney.
Panel C: ant-COX IV showed granular staining in human kidney.
Panel D: Nuclear DNA was labeled with DAPI (shown in blue).

The section was incubated in three rounds of staining: in the order of ab322261 and ab202554 for 30 mins at room temperature. Each round was followed by a separate fluorescent tyramide signal amplification system.

Heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0, epitope retrieval solution2) for 20 mins



Multiplex immunohistochemistry - Anti-COX IV antibody [EPR9442(ABC)] - Mitochondrial Loading Control (ab202554)

COX IV Multiplex immunohistochemistry staining of Human liver using rabbit Anti-COX IV antibody

Multiplex immunohistochemistry analysis of formalin/PFA-fixed paraffin-embedded human liver tissue staining Cytochrome P450 2E1 with ab324160 at a 1:2000 (0.262 ug/ml) dilution, ab202554 anti-COX IV used at 1:500 (0.228 ug/ml) dilution.

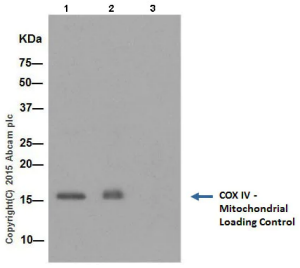
Panel A: merged staining of anti-CYP2E1 (green; Opal™520) and anti-COX IV (magenta; Opal™690) on human liver.
Panel B: anti-CYP2E1 staining hepatocytes in human liver.
Panel C: ant-COX IV staining hepatocytes in human liver.
Panel D: Nuclear DNA was labeled with DAPI (shown in blue).

The section was incubated in three rounds of staining: in the order of ab324160 and ab202554 for 30 mins at room temperature. Each round was followed by a separate fluorescent tyramide signal amplification system.

The immunostaining was performed on a Leica Biosystems BOND® RX instrument with an Opal™ 4-color kit. Image acquisition was performed with Leica SP8 confocal microscope.

Nuclear counter stain with DAPI.

Heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0, epitope retrieval solution2) for 20 mins.



Immunoprecipitation - Anti-COX IV antibody [EPR9442(ABC)] - Mitochondrial Loading Control (ab202554)

COX IV was immunoprecipitated from 1mg of Human fetal heart whole cell lysate with ab202554 at 1/20 dilution.
Western blot was performed from the immunoprecipitate using ab202554 at 1/1000 dilution.

VeriBlot for IP Detection Reagent (HRP) (ab131366) was used for detection at 1/1500 dilution.

Lane 1: Human fetal heart whole cell lysate 10 µg (Input).

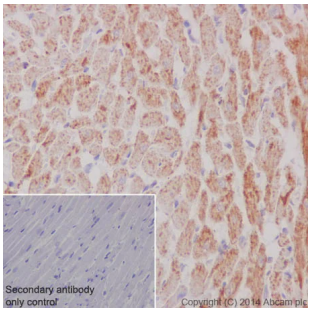
Lane 2: ab202554 IP in Human fetal heart whole cell lysate.

Lane 3: Rabbit monoclonal IgG (ab172730) instead of ab202554 in Human fetal heart whole cell lysate.
Blocking and dilution buffer and concentration: 5% NFDM/TBST.

Exposure time: 3 seconds.

All lanes:
Immunoprecipitation - Anti-COX IV antibody [EPR9442(ABC)] - Mitochondrial Loading Control (ab202554)

Predicted band size: 19 kDa, 22 kDa



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-COX IV antibody [EPR9442(ABC)] - Mitochondrial Loading Control (ab202554)

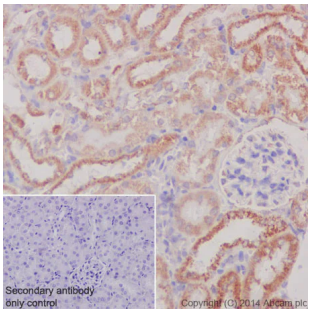
COX IV Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-COX IV antibody

Immunohistochemical analysis of paraffin-embedded Rat cardiac muscle tissue labeling COX IV with ab202554 at 1/500 dilution, followed by Goat Anti-Rabbit IgG H&L (HRP) (ab97051) secondary antibody at 1/500 dilution.
Cytoplasmic staining on Rat cardiac muscle tissue is observed.

Counter stained with Hematoxylin.

Secondary antibody only control: Used PBS instead of primary antibody, secondary antibody is Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/500 dilution.

Perform heat mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.



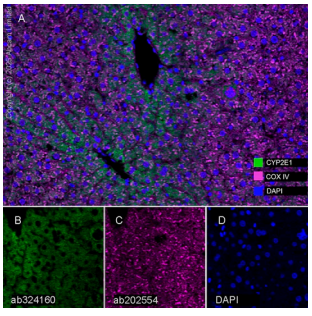
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-COX IV antibody [EPR9442(ABC)] - Mitochondrial Loading Control (ab202554)

COX IV Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-COX IV antibody

Immunohistochemical analysis of paraffin-embedded Mouse kidney tissue labeling COX IV with ab202554 at 1/500 dilution, followed by Goat Anti-Rabbit IgG H&L (HRP) (ab97051) secondary antibody at 1/500 dilution.
Cytoplasmic staining on mouse kidney tissue is observed. Counter stained with Hematoxylin.

Secondary antibody only control: Used PBS instead of primary antibody, secondary antibody is Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/500 dilution.

Perform heat mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.



Multiplex immunohistochemistry - Anti-COX IV antibody [EPR9442(ABC)] - Mitochondrial Loading Control (ab202554)

COX IV Multiplex immunohistochemistry staining of Rat liver using rabbit Anti-COX IV antibody

Multiplex immunohistochemistry analysis of formalin/PFA-fixed paraffin-embedded rat liver tissue staining Cytochrome P450 2E1 with ab324160 at a 1:2000 (0.262 ug/ml) dilution, ab202554 anti-COX IV used at 1:500 (0.228 ug/ml) dilution.

Panel A: merged staining of anti-CYP2E1 (green; Opal™520) and anti-COX IV (magenta; Opal™690) on rat liver.
Panel B: anti-CYP2E1 staining hepatocytes in rat liver.
Panel C: ant-COX IV staining hepatocytes in rat liver.
Panel D: Nuclear DNA was labeled with DAPI (shown in blue).

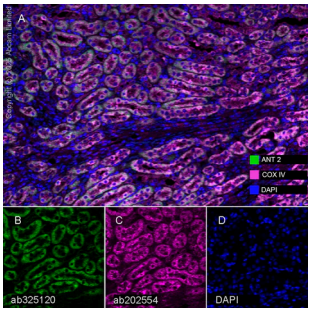
The section was incubated in three rounds of staining: in the order of ab324160 and ab202554 for 30 mins at room temperature. Each round was followed by a separate fluorescent tyramide signal

amplification system.

The immunostaining was performed on a Leica Biosystems BOND® RX instrument with an Opal™ 4-color kit. Image acquisition was performed with Leica SP8 confocal microscope.

Nuclear counter stain with DAPI.

Heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0, epitope retrieval solution2) for 20 mins.



Multiplex immunohistochemistry - Anti-COX IV antibody [EPR9442(ABC)] - Mitochondrial Loading Control (ab202554)

COX IV Multiplex immunohistochemistry staining of Mouse kidney using rabbit Anti-COX IV antibody

Multiplex immunohistochemistry analysis of formalin/PFA-fixed paraffin-embedded mouse kidney tissue staining Adenine Nucleotide Translocator 2/ANT 2 with ab325120 at a 1:100 (5.04 ug/ml) dilution, ab202554 anti-COX IV used at 1:500 (0.23 ug/ml) dilution.

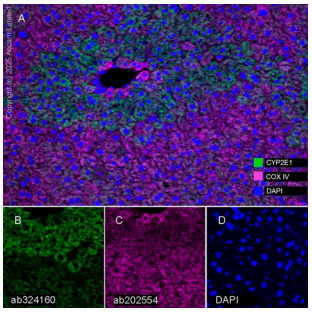
Panel A: merged staining of anti-ANT 2 (green; Opal™520) and anti-COX IV (magenta; Opal™570) on mouse kidney.
Panel B: anti-ANT 2 showed mitochondrial staining in mouse kidney.
Panel C: anti-COX IV showed mitochondrial staining in mouse kidney.
Panel D: Nuclear DNA was labeled with DAPI (shown in blue).

The section was incubated in three rounds of staining: in the order of ab325120 and ab202554 for 30 mins at room temperature. Each round was followed by a separate fluorescent tyramide signal amplification system.

The immunostaining was performed on a Leica Biosystems BOND® RX instrument with an Opal™ 4-color kit. Image acquisition was performed with Leica SP8 confocal microscope.

Nuclear counter stain with DAPI.

Heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0, epitope retrieval solution2) for 20 mins.



Multiplex immunohistochemistry - Anti-COX IV antibody [EPR9442(ABC)] - Mitochondrial Loading Control (ab202554)

COX IV Multiplex immunohistochemistry staining of Mouse liver using rabbit Anti-COX IV antibody

Multiplex immunohistochemistry analysis of formalin/PFA-fixed paraffin-embedded mouse liver tissue staining Cytochrome P450 2E1 with ab324160 at a 1:2000 (0.262 ug/ml) dilution, ab202554 anti-COX IV used at 1:500 (0.228 ug/ml) dilution.

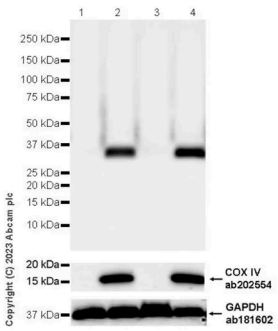
Panel A: merged staining of anti-CYP2E1 (green; Opal™520) and anti-COX IV (magenta; Opal™690) on mouse liver.
Panel B: anti-CYP2E1 staining hepatocytes in mouse liver.
Panel C: ant-COX IV staining hepatocytes in mouse liver.
Panel D: Nuclear DNA was labeled with DAPI (shown in blue).

The section was incubated in three rounds of staining: in the order of ab324160 and ab202554 for 30 mins at room temperature. Each round was followed by a separate fluorescent tyramide signal amplification system.

The immunostaining was performed on a Leica Biosystems BOND® RX instrument with an Opal™ 4-color kit. Image acquisition was performed with Leica SP8 confocal microscope.

Nuclear counter stain with DAPI.

Heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0, epitope retrieval solution2) for 20 mins.



Western blot - Anti-COX IV antibody [EPR9442(ABC)] - Mitochondrial Loading Control (ab202554)

COX IV Western blot staining using rabbit Anti-COX IV antibody

Blocking and diluting buffer: 5% NFDM/TBST.
In Western blot, anti-GAPDH antibody (ab181602) loading control staining at 1/200000 dilution.
Anti-COX IV antibody [EPR9442(ABC)] - Mitochondrial Loading Control (ab202554) staining at 1/1000 dilution.

Samples are non-boiled as boiling may cause protein aggregation.

All lanes:
Western blot - Anti-MTCO1 antibody [1D6E1A8] (ab14705) at 1/1000 dilution

Lane 1:
HeLa (human cervical adenocarcinoma epithelial cell) non-mitochondrial fraction at 20 µg

Lane 2:
HeLa mitochondrial fraction at 20 µg

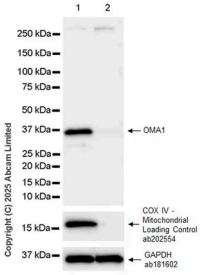
Lane 3:
MCF7 (human breast adenocarcinoma epithelial cell) non-mitochondrial fraction at 20 µg

Lane 4:
MCF7 mitochondrial fraction at 20 µg

Secondary

All lanes:
Peroxidase-Conjugated Goat anti-Mouse IgG (H+L) at 1/10000 dilution

Observed band size: 35 kDa



Western blot - Anti-COX IV antibody [EPR9442(ABC)] - Mitochondrial Loading Control (ab202554)

COX IV Western blot staining using rabbit Anti-COX IV antibody

Blocking and diluting buffer and concentration: 5% NFDM/TBST.

In Western blot, Anti-COX IV antibody [EPR9442 (ABC)] - Mitochondrial Loading Control (ab202554) staining at 1/1000 dilution.

All lanes:
Western blot - Anti-OMA1 antibody [EPR29198-78] (ab324586) at 1/1000 dilution

Lane 1:
HeLa (human cervical adenocarcinoma epithelial cell) mitochondria fraction at 20 µg

Lane 2:

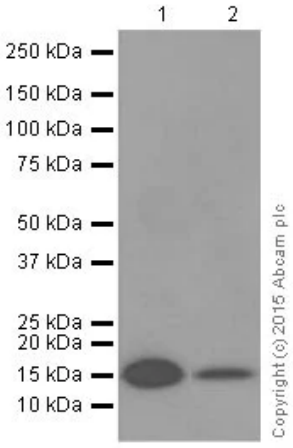
HeLa non-mitochondrial fraction at 20 µg

Secondary

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

Observed band size: 36 kDa, 16 kDa

Exposure time: 180s



Western blot - Anti-COX IV antibody [EPR9442(ABC)] - Mitochondrial Loading Control (ab202554)

Blocking/Dilution buffer: 5% NFDM/TBST.
All lanes:
Western blot - Anti-COX IV antibody [EPR9442(ABC)] - Mitochondrial Loading Control (ab202554) at 1/2000 dilution

Lane 1:
Human fetal heart lysate at 20 µg

Lane 2:
HepG2 (Human liver hepatocellular carcinoma) whole cell lysate at 20 µg

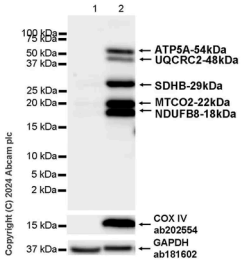
Secondary

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

Predicted band size: 19 kDa

Observed band size: 17 kDa

Exposure time: 3min



Western blot - Anti-COX IV antibody [EPR9442(ABC)] - Mitochondrial Loading Control (ab202554)

COX IV Western blot staining using rabbit Anti-COX IV antibody

In Western blot, Anti-Alpha-synuclein antibody [EPR20535] (ab212184) staining at 1/1000 dilution.

All lanes:
Western blot - Anti-Total OXPHOS Antibody Cocktail antibody [RM1134] (ab317270) at 1/1000 dilution

Lane 1:
MCF7 non-mitochondrial fraction at 20 µg

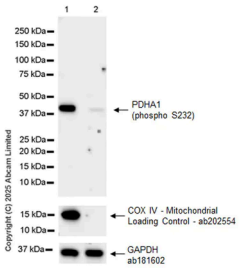
Lane 2:
MCF7 mitochondria fraction at 20 µg

Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/100000 dilution

Observed band size: 18 kDa, 22 kDa, 29 kDa, 48 kDa, 54 kDa, 36 kDa, 17 kDa

Exposure time: 8s



Western blot - Anti-COX IV antibody [EPR9442(ABC)] - Mitochondrial Loading Control (ab202554)

COX IV Western blot staining using rabbit Anti-COX IV antibody

Blocking and diluting buffer and concentration: 5% NFDM/TBST.

In Western blot, Anti-COX IV antibody [EPR9442 (ABC)] - Mitochondrial Loading Control - (ab202554) staining at 1/1000 dilution.

All lanes:
Western blot - Anti-PDHA1 (phospho S232) antibody [EPR29825-102] (ab325169) at 1/1000 dilution

Lane 1:
HeLa (human cervical adenocarcinoma epithelial cell) mitochondria fraction at 20 µg

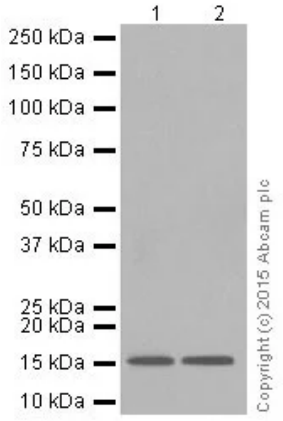
Lane 2:
HeLa non-mitochondrial fraction at 20 µg

Secondary

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

Observed band size: 43 kDa, 17 kDa, 36 kDa

Exposure time: 26s



Western blot - Anti-COX IV antibody [EPR9442(ABC)] - Mitochondrial Loading Control (ab202554)

COX IV Western blot staining using rabbit Anti-COX IV antibody

Blocking/Dilution buffer: 5% NFDM/TBST.
All lanes:
Western blot - Anti-COX IV antibody [EPR9442(ABC)] - Mitochondrial Loading Control (ab202554) at 1/10000 dilution

Lane 1:
Mouse heart lysate at 10 µg

Lane 2:
Rat heart lysate at 10 µg

Secondary

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

Predicted band size: 19 kDa

Observed band size: 17 kDa

Exposure time: 3min

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