abcam

ab33985

Anti-COX IV antibody [mAbcam33985] - Mitochondrial Marker

Anti-COX IV antibody [mAbcam33985] - Mitochondrial Marker (ab33985) is a mouse monoclonal antibody detecting COX IV in **Western Blot, Flow Cytometry (Intra), ICC/IF**. Suitable for **Cow, Human, Mouse, Xenopus laevis**.

- Over 120 publications
- Trusted since 2007

Lab Essentials

Key facts

Isotype	IgG1
Host species	Mouse
Storage buffer	pH: 7.4 Preservative: 0.02% Sodium azide Constituents: PBS, 6.97% L-Arginine
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Clone number	mAbcam33985
Purification technique	Affinity purification
Concentration	1 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1 µg for 10^6 Cells
Notes	ab170190 - Mouse monoclonal IgG1, is suitable for use as an isotype control with this antibody.

Expected

Species	Mouse, Xenopus laevis, Cow
Dilution info	Use at an assay dependent concentration.
Notes	-

Predicted

Species	Rat, Sheep, Chimpanzee, Monkey, Zebrafish, African green monkey, Chinese hamster, Drosophila C virus
Dilution info	-
Notes	-

WB

Tested

Species	Human
Dilution info	1 µg/mL
Notes	-

Species	Mouse
Dilution info	1 µg/mL
Notes	-

Species	Xenopus laevis
Dilution info	1 µg/mL
Notes	-

Species	Cow
Dilution info	1 µg/mL

Notes	-

Predicted

Species	Rat, Sheep, Chimpanzee, Monkey, Zebrafish, African green monkey, Chinese hamster, Drosophila C virus
Dilution info	-
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	1 µg/mL
Notes	-

Expected

Species	Mouse, Xenopus laevis, Cow
Dilution info	Use at an assay dependent concentration.
Notes	-

Predicted

Species	Rat, Sheep, Chimpanzee, Monkey, Zebrafish, African green monkey, Chinese hamster, Drosophila C virus
Dilution info	-
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	Blue Ice
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 [mAbcam33985] - Mitochondrial Marker (ab33985) is a mouse monoclonal antibody and is validated for use in Western Blot (WB), Flow Cytometry (Intra), Immunocytochemistry/immunofluorescence (ICC/IF) in Cow, Human, Mouse, Xenopus laevis samples.

What is the molecular weight of COX IV?
Anti-COX IV [mAbcam33985] - Mitochondrial Marker (ab33985) specifically detects a band for COX IV (UniProt: P13073) at a molecular weight of 15kDa.

Trusted by the scientific community
Anti-COX IV [mAbcam33985] - Mitochondrial Marker (ab33985) was first used in a scientific publication in 2007 and has been cited over 120 times in peer-reviewed journals.

Reviewed by scientists
Anti-COX IV [mAbcam33985] - Mitochondrial Marker (ab33985) has over 25 independent reviews from customers.

Other related products
We have a range of other formats of antibody clone [mAbcam33985] also available for your convenience: ab33985,

HRP - ab62164, Alexa Fluor® 647 - ab197491

Want a custom formulation?
This antibody clone is manufactured by Abcam. If you require a custom buffer formulation or conjugation for your experiments, please contact orders@abcam.com

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.

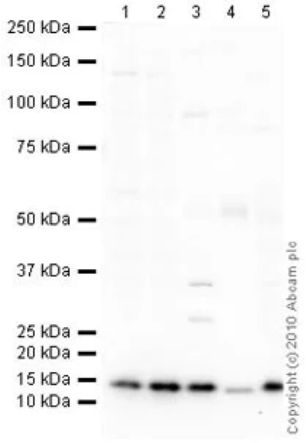
We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

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.

---

9 product images



Western blot - Anti-COX IV antibody [mAbcam33985] - Mitochondrial Marker (ab33985)

All lanes:
Western blot - Anti-COX IV antibody [mAbcam33985] - Mitochondrial Marker (ab33985) at 1 µg/mL

Lane 1:
Jurkat (Human T cell lymphoblast-like cell line) Whole Cell Lysate at 10 µg

Lane 2:
HepG2 (Human hepatocellular liver carcinoma cell line) Whole Cell Lysate at 10 µg

Lane 3:
Human skeletal muscle tissue lysate - total protein (ab29330) at 10 µg

Lane 4:
Skeletal Muscle (Mouse) Tissue Lysate at 10 µg

Lane 5:
Kidney (Cow) Tissue Lysate (ab29073) at 10 µg

Secondary

All lanes:
Goat polyclonal to Mouse IgG - H&L - Pre-Adsorbed (HRP) at 1/3000 dilution

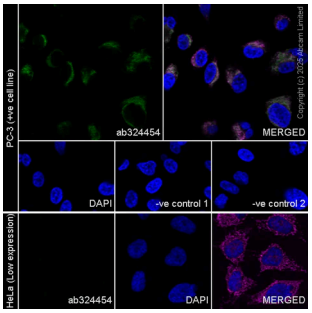
Developed using the ECL technique.

Performed under reducing conditions.

Predicted band size: 19 kDa

Observed band size: 15 kDa

Exposure time: 1min



Immunocytochemistry/ Immunofluorescence - Anti-COX IV antibody [mAbcam33985] - Mitochondrial Marker (ab33985)

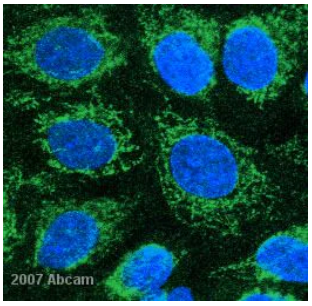
COX IV Immunocytochemistry/ Immunofluorescence staining using mouse Anti-COX IV antibody

Immunofluorescent analysis of 4% Paraformaldehyde-fixed, 0.1% TritonX-100 permeabilized PC-3 (human prostate adenocarcinoma epithelial cell) cells labelling EXD2 with ab324454 at 1/50 (9.64 ug/ml) dilution, followed by ab150081 Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) preadsorbed antibody at 1/1000 (2 ug/ml) dilution (Green).

Confocal image showing mitochondrial staining in PC-3 cell line (shown in green). The counterstain was observed in magenta. Nuclear DNA was labelled with DAPI (shown in blue). Low expression: HeLa.
Image was taken with a confocal microscope (Leica-Microsystems, TCS SP8).

ab33985 Anti-COX IV mouse monoclonal antibody - Mitochondrial Marker was used to counterstain tubulin at 1/1000 (1 ug/ml) dilution, followed by ab150120 Goat Anti-Mouse IgG H&L (Alexa Fluor® 594) antibody at 1/1000 (2 ug/ml) dilution (Magenta).

-ve control 1: ab324454 at 1/50 dilution, followed by ab150120 Goat Anti-Mouse IgG H&L (Alexa Fluor® 594) antibody at 1/1000 dilution. -ve control 2: ab33985 at 1/1000 dilution, followed by ab150081 Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) antibody at 1/1000 dilution.

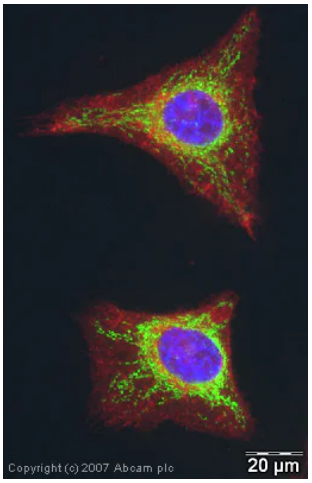


This image is courtesy of an anonymous customer review

Immunocytochemistry/ Immunofluorescence - Anti-COX IV antibody [mAbcam33985] - Mitochondrial Marker (ab33985)

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

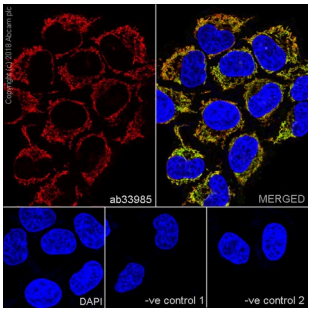
ab33985 staining COX IV in human proximal tubular epithelial cells by ICC/IF (Immunocytochemistry/immunofluorescence). Cells were fixed with paraformaldehyde, permeabilized with 0.5% Triton X-100 in PBS and blocked with 3% BSA for 15 minutes at 20°C. Samples were incubated with primary antibody (1/200 in PBS) for 45 minutes at 20°C. ab6785, a FITC-conjugated goat anti-mouse IgG (H+L) polyclonal was used as the secondary antibody (1/1000).



Immunocytochemistry/ Immunofluorescence - Anti-COX IV antibody [mAbcam33985] - Mitochondrial Marker (ab33985)

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

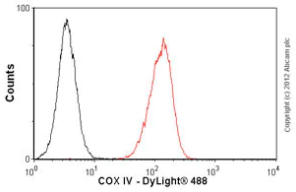
ICC/IF image of ab33985 stained human HeLa cells. The cells were PFA fixed (10 min), permabilised in TBS-T (20 min) and incubated with the antibody (ab33985, 1µg/ml) for 1h at room temperature. 1%BSA / 10% normal serum / 0.3M glycine was used to quench autofluorescence and block non-specific protein-protein interactions. The secondary antibody (green) was Alexa Fluor® 488 goat anti-mouse IgG (H+L) used at a 1/1000 dilution for 1h. Alexa Fluor® 594 WGA was used to label plasma membranes (red). DAPI was used to stain the cell nuclei (blue).



Immunocytochemistry/ Immunofluorescence - Anti-COX IV antibody [mAbcam33985] - Mitochondrial Marker (ab33985)

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

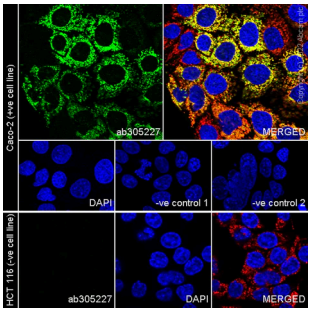
ab33985 staining COX IV in HeLa (Human cervix adenocarcinoma epithelial cell) cells by ICC/IF (Immunocytochemistry/Immunofluorescence). Cells were fixed with 4% paraformaldehyde and permeabilized with 0.1% TritonX-100. Samples were incubated with primary antibody at 1:1000 dilution (1µg/ml). An Alexa Fluor®594 Goat anti-mouse (ab150120) was used as a secondary antibody at 1:1000 dilution (2 µg/ml). Cells were counterstained with anti-Cyclophilin F (ab231155, 5.5µg/ml) and AlexaFluor®488 Goat anti-Rabbit (ab150077, 2µg/ml). DAPI was used as a nuclear counterstain. ab33985 was used for negative control 1 at 1:1000 dilution (1µg/ml). For negative control 2, ab231155 was used at a 1:100 dilution (5.5µg/ml) and ab150129 was used as a secondary antibody at 1:1000 dilution (2µg/ml). Confocal image showing mitochondrial staining in HeLa cell line.



Flow Cytometry (Intracellular) - Anti-COX IV antibody [mAbcam33985] - Mitochondrial Marker (ab33985)

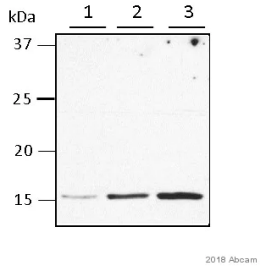
COX IV Flow Cytometry (Intracellular) staining using mouse Anti-COX IV antibody

Overlay histogram showing HeLa cells stained with ab33985 (red line). The cells were fixed with 80% methanol (5 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 (ab33985, 1µg/1x10^6 cells) for 30 min at 22°C. The secondary antibody used was DyLight® 488 goat anti-mouse IgG (H+L) (ab96879) at 1/500 dilution for 30 min at 22°C. Isotype control antibody (black line) was mouse IgG1 [ICIGG1] (ab91353, 2µg/1x10^6 cells) used under the same conditions. Acquisition of >5,000 events was performed.



Immunocytochemistry/ Immunofluorescence - Anti-COX IV antibody [mAbcam33985] - Mitochondrial Marker (ab33985)

Immunofluorescent analysis of 4% Paraformaldehyde-fixed, 0.1% TritonX-100 permeabilized Caco-2 (human colorectal adenocarcinoma epithelial cell) cells labelling HMGCS2 with ab305227 at 1/500 dilution, followed by ab150081 Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) preadsorbed antibody at 1/1000 dilution (Green). Confocal image showing mitochondrial staining in Caco-2 cells.Negative control: HCT 116 (PMID: 28468827).The image was taken with a confocal microscope (Leica-Microsystems, TCS SP8). is observed. ab33985 Anti-COX IV mouse monoclonal antibody - Mitochondrial Marker was used to counterstain tubulin at 1/1000 dilution (Red). The Nuclear counterstain was DAPI (Blue). Secondary antibody only control: Secondary antibody is ab150081 Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) preadsorbed at 1/1000 dilution.



This image is courtesy of an anonymous customer review

Western blot - Anti-COX IV antibody [mAbcam33985] - Mitochondrial Marker (ab33985)

COX IV Western blot staining of cow liver membrane using mouse Anti-COX IV antibody

All lanes:
Western blot - Anti-COX IV antibody [mAbcam33985] - Mitochondrial Marker (ab33985) at 1/1000 dilution

All lanes:
cow liver membrane at 15 µg

Secondary

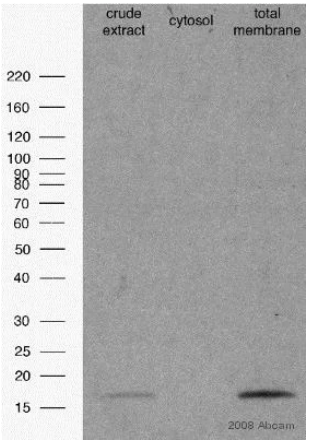
All lanes:
Goat Anti-mouse IgG HRP at 1/5000 dilution

Developed using the ECL technique.

Performed under reducing conditions.

Predicted band size: 19 kDa

Exposure time: 17hr



This image is courtesy of a customer review submitted by Dr Anne-Lore Schlaitz

Western blot - Anti-COX IV antibody [mAbcam33985] - Mitochondrial Marker (ab33985)

All lanes:
Western blot - Anti-COX IV antibody [mAbcam33985] - Mitochondrial Marker (ab33985) at 1/1000 dilution

Lane 1:
Crude extract prepared from Xenopus laevis egg at 15 µg

Lane 2:
Cytosol lysate prepared from Xenopus laevis egg extract at 15 µg

Lane 3:
Total membrane lysate prepared from Xenopus laevis egg extract at 15 µg

Secondary

All lanes:
HRP conjugated donkey anti-mouse IgG at 1/4000 dilution

Developed using the ECL technique.

Performed under reducing conditions.

Predicted band size: 19 kDa

Observed band size: 15 kDa

Exposure time: 90min

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