abcam

ab14744

Anti-COX IV antibody [20E8C12] - Mitochondrial Marker

Anti-COX IV antibody [20E8C12] (ab14744) is a mouse monoclonal antibody detecting COX IV in **Western Blot, Flow Cytometry**. Suitable for **Cow, Human, Mouse, Rat**.

- Over 330 publications
- Trusted since 2004

Lab Essentials

Key facts

Isotype	IgG2a
Host species	Mouse
Storage buffer	pH: 7.4 - 7.5 Preservative: 0.02% Sodium azide Constituents: HEPES buffered saline
Form	Liquid
Clonality	Monoclonal
Clone number	20E8C12
Purity	IgG fraction
Light chain type	kappa
Concentration	1 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

Flow Cyt

Tested

Species	Human
Dilution info	0.5 µg for 10^6 Cells
Notes	ab170191 - Mouse monoclonal IgG2a, is suitable for use as an isotype control with this antibody.

Expected

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

Predicted

Species	Pig
Dilution info	-
Notes	-

WB

Tested

Species	Mouse
Dilution info	1 µg/mL
Notes	-

Species	Rat
Dilution info	1 µg/mL
Notes	-

Species	Human
Dilution info	1 µg/mL
Notes	-

Species	Cow
Dilution info	1 µg/mL
Notes	-

Predicted

Species	Pig
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 conditions	+4°C
Appropriate long-term storage conditions	+4°C

Notes

What is this antibody validated in?

Anti-COX IV antibody [20E8C12] (ab14744) is a mouse monoclonal antibody and is validated for use in Western Blot (WB), Flow Cytometry (Flow Cyt) in Cow, Human, Mouse, Rat samples.

Trusted by the scientific community

Anti-COX IV [20E8C12] (ab14744) was first used in a scientific publication in 2004 and has been cited over 330 times in peer-reviewed journals.

Reviewed by scientists
Anti-COX IV [20E8C12] (ab14744) has over 20 independent reviews from customers.

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.

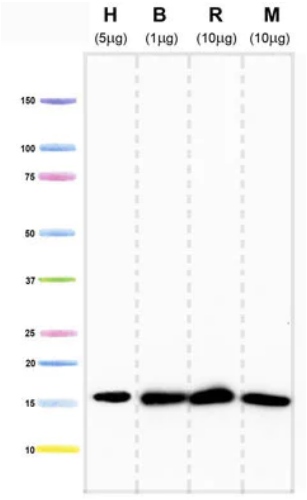
We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

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

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Terms & Conditions.

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3 product images



Western blot - Anti-COX IV antibody [20E8C12] - Mitochondrial Marker (ab14744)

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

All lanes:
Western blot - Anti-COX IV antibody [20E8C12] - Mitochondrial Marker (ab14744) at 1 µg/mL

Lane 1:
Isolated mitochondria from human heart at 5 µg

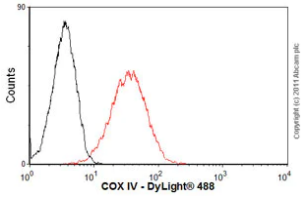
Lane 2:
Isolated mitochondria from bovine heart at 1 µg

Lane 3:
Isolated mitochondria from rat heart at 10 µg

Lane 4:
Isolated mitochondria from murine heart at 10 µg

Predicted band size: 19 kDa

Observed band size: 16 kDa

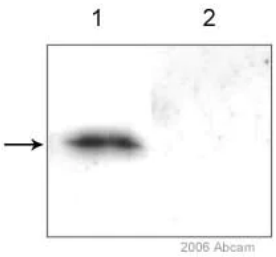


Flow Cytometry - Anti-COX IV antibody [20E8C12] - Mitochondrial Marker (ab14744)

COX IV Flow Cytometry staining using mouse Anti-COX IV antibody

Overlay histogram showing HeLa cells stained with ab14744 (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 (ab14744, 0.5µg/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.



Western blot - Anti-COX IV antibody [20E8C12] - Mitochondrial Marker (ab14744)

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

This image is courtesy of an Abreview submitted by **Camilla Skjerpen** on **4 July 2005.**
All lanes:
Western blot - Anti-COX IV antibody [20E8C12] - Mitochondrial Marker (ab14744) at 1/5000 dilution

Lane 1:
Cytoplasmic fraction mouse NIH/3T3 cell lysate

Lane 2:
Nuclear fraction mouse NIH/3T3 cell lysate

Secondary

All lanes:
HRP conjugated goat anti-mouse antibody

Developed using the ECL technique.

Performed under reducing conditions.

Predicted band size: 19 kDa

Observed band size: 16 kDa

Exposure time: 3min

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