abcam

ab210180

Alexa Fluor® 405 Anti-COX IV antibody [EPR9442(ABC)] - Mitochondrial Marker

Recombinant | RabMAb

Key facts

Isotype	IgG
Host species	Rabbit
Conjugation	Alexa Fluor® 405
Excitation/Emission	Ex: 401nm, Em: 421nm
Storage buffer	pH: 7.4 Preservative: 0.02% Sodium azide Constituents: PBS, 30% Glycerol (glycerin, glycerine), 1% 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	0.5 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1/50
Notes	The cellular localisation of this product has been verified in ICC/IF.

Expected

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

ICC/IF

Expected

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

IHC-P

Expected

Species	Human, 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	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, Store in the dark

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.

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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

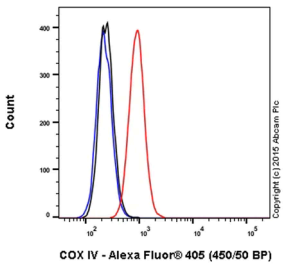
We do not recommend this combination. It is not covered by our product promise.

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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1 product image



Flow Cytometry (Intracellular) - Alexa Fluor® 405 Anti-COX IV antibody [EPR9442(ABC)] - Mitochondrial Marker (ab210180)

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

Overlay histogram showing HeLa cells stained with ab210180 (red line). The cells were fixed with 80% methanol (5 min) and then permeabilized with 0.1% PBS-Triton X-100 for 15 min, blocked with Image-iT® FX Signal Enhancer for 30 min at 22°C and then blocked with 1x PBS / 10% normal goat serum for 1 hr at 22°C. Cells were then incubated with the antibody (ab210180, 1/500 dilution) for 30 min at 22°C.
Isotype control antibody (black line) was rabbit IgG (monoclonal) Alexa Fluor® 405 (ab208150) used at the same concentration and conditions as the primary antibody. Unlabelled sample (blue line) was also used as a control.

Acquisition of >5,000 events were collected using a 50mW violet laser (405nm) and 450/50 bandpass filter.

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