abcam

ab156031

Anti-MTCO2 antibody [MM7D-5A11CA9]

Key facts

Isotype	IgG1
Host species	Mouse
Storage buffer	pH: 7.5 Preservative: 0.02% Sodium azide Constituents: 99% HEPES buffered saline
Form	Liquid
Clonality	Monoclonal
Clone number	MM7D-5A11CA9
Concentration	1 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →
Purification notes	Near homogeneity as judged by SDS-PAGE. ab156031 was produced in vitro using hybridomas grown in serum-free medium, and then purified by biochemical fractionation.

Reactivity data

ICC/IF

Tested

Species	African green monkey
Dilution info	1 µg/mL
Notes	-

Species	Human
Dilution info	1 µg/mL

Notes	-

Not recommended

Species	Mouse, Rat
Dilution info	-
Notes	-

IP

Tested

Species	Human
Dilution info	-
Notes	-

Expected

Species	African green monkey
Dilution info	Use at an assay dependent concentration.
Notes	-

Not recommended

Species	Mouse, Rat
Dilution info	-
Notes	-

Flow Cyt

Tested

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

Expected

Species	African green monkey
Dilution info	Use at an assay dependent concentration.
Notes	-

Not recommended

Species	Mouse
Dilution info	-
Notes	ab170190 - Mouse monoclonal IgG1, is suitable for use as an isotype control with this antibody.

Species	Rat
Dilution info	-
Notes	ab170190 - Mouse monoclonal IgG1, is suitable for use as an isotype control with this antibody.

WB

Tested

Species	Human
Dilution info	5 µg/mL
Notes	-

Expected

Species	African green monkey
Dilution info	Use at an assay dependent concentration.
Notes	-

Not recommended

Species	Mouse, Rat
Dilution info	-

Notes	-

Target data

See full target information MT-CO2

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

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	'MTCO2' also known as 'mt-co2' or 'mtco2e' is a mitochondrial gene that encodes for a component of the cytochrome c oxidase complex referred to as Complex IV in the electron transport chain. The protein plays a mechanical role in facilitating

	electron transfer within mitochondria an essential process in cellular respiration. MTCO2 is predominantly expressed in tissues with high energy demands such as muscle and neurons. The known mass of the MTCO2 protein is approximately 25 kDa. It sits in the mitochondrial inner membrane where it contributes to creating the proton gradient driving ATP synthesis.
Biological function summary	MTCO2 (or cytochrome c oxidase subunit II) serves as an important player in aerobic respiration. It is part of the cytochrome c oxidase complex which forms the last enzyme complex of the electron transport chain. As part of this complex MTCO2 facilitates the transfer of electrons from cytochrome c to oxygen resulting in the reduction of oxygen to water. This electron transfer is paired with proton translocation across the mitochondrial membrane which is critical for ATP production.
Pathways	MTCO2 contributes significantly to the oxidative phosphorylation pathway which is essential for ATP production in eukaryotic cells. It directly interacts with other components of the mitochondrial electron transport chain like cytochrome c and NADH dehydrogenase which are critical for maintaining the flow of electrons and the integrity of the energy production process. Another pathway it is part of is the apoptosis pathway regulated by non-lethal stress conditions where controlled release of cytochrome c can trigger programmed cell death.
Associated diseases and disorders	MTCO2 mutations and dysfunctions have been linked with mitochondrial disorders especially those affecting energy-demanding tissues leading to conditions such as mitochondrial myopathy and Leber's hereditary optic neuropathy. These disorders result from compromised oxidative phosphorylation leading to inadequate energy supply. The dysfunction of cytochrome c oxidase which contains the MTCO2 subunit is a central aspect of these diseases often tying this protein to other complexes within the electron transport chain that also underpin mitochondrial diseases.

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

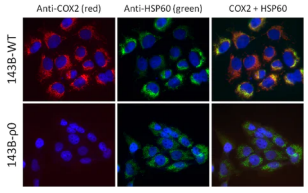
We do not recommend this combination. It is not covered by our product promise.

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.

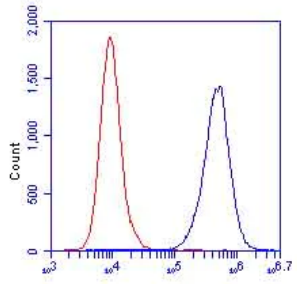
5 product images



Immunocytochemistry/ Immunofluorescence - Anti-MTCO2 antibody [MM7D-5A11CA9] (ab156031)

MTCO2 Immunocytochemistry/ Immunofluorescence staining using mouse Anti-MTCO2 antibody

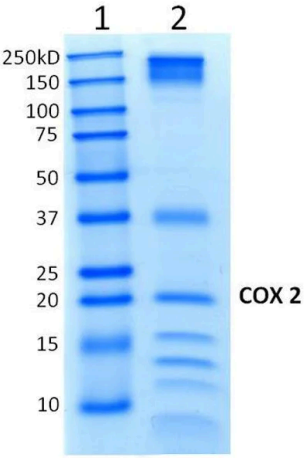
Immunocytochemical analysis of 143B (Human osteosarcoma) wild type (WT) and mtDNA lacking (p0) cells (paraformaldehyde fixed (4%, 20 min) and Triton X-100 permeabilized (0.1%, 15 min)) labeling COXII with ab156031 at 1µg/ml (red) and anti-HSP60 (ab46798) at 1/1000 (green) as a counter stain. Secondary: Alexa 594 goat anti-mouse IgG at 1/1000 and Alexa 488 goat anti-rat IgG at 1/1000. ab156031 shows good reactivity with the wild type (143B-WT) cell line, but shows no signal with the mtDNA lacking (143B-p0) cell line. Cytochrome c oxidase 2 is exclusively encoded by mitochondrial DNA. The anti-HSP60 counter stain antibody identified mitochondria in both cell lines.



Flow Cytometry - Anti-MTCO2 antibody [MM7D-5A11CA9] (ab156031)

MTCO2 Flow Cytometry staining using mouse Anti-MTCO2 antibody

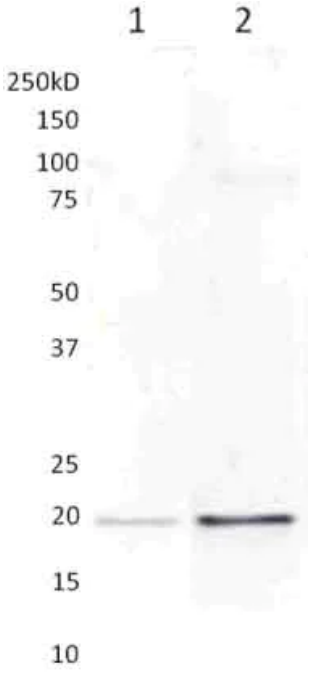
Flow cytometric analysis of HeLa cells (fixed and permeabilized with methanol) labeling COXII with ab156031 (blue) at 1µg/ml and an equal amount of an isotype control antibody (red).



Immunoprecipitation - Anti-MTCO2 antibody [MM7D-5A11CA9] (ab156031)

Immunoprecipitation Coomassie stained gel for Anti-COXII antibody (ab156031).
Lane 1: Ladder
Lane 2: COXII Immunoprecipitated from 1mg Human Heart Homogenate (HHH) Extract. ab156031 anti-COXII captures the entire Cytochrome c oxidase complex in immunoprecipitation.
All lanes:
Immunoprecipitation - Anti-MTCO2 antibody [MM7D-5A11CA9] (ab156031)

Predicted band size: 25 kDa



Western blot - Anti-MTCO2 antibody [MM7D-5A11CA9] (ab156031)

MTCO2 Western blot staining using mouse Anti-MTCO2 antibody

1X Blocking Buffer (ab126587) in H_2O was used for blocking and incubation steps.
All lanes:
Western blot - Anti-MTCO2 antibody [MM7D-5A11CA9] (ab156031) at 5 µg/mL

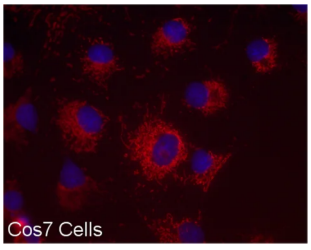
Lane 1:
Human Liver Mitochondria Extract at 40 µg

Lane 2:
Human Heart Mitochondria Extrac at 40 µg

Secondary

All lanes:
Goat polyclonal to Mouse IgG - AP at 1/3000 dilution

Predicted band size: 25 kDa



Immunocytochemistry/ Immunofluorescence - Anti-MTCO2 antibody [MM7D-5A11CA9] (ab156031)

MTCO2 Immunocytochemistry/ Immunofluorescence staining using mouse Anti-MTCO2 antibody

Immunocytochemical analysis of COS7 (monkey kidney fibroblast) cells (paraformaldehyde fixed (4%, 20 min) and Triton X-100 permeabilized (0.1%, 15 min)) labeling COXII with ab156031 at 1µg/ml (red). Secondary: Alexa 594 goat anti-mouse IgG at 1/1000. ab156031 shows good reactivity with the COS7 cell type indicating cross reactivity with monkey cytochrome c oxidase.

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