abcam

ab110263

Anti-COX5B antibody [16H12H9]

Key facts

Isotype	IgG2b
Host species	Mouse
Storage buffer	pH: 7.5 Preservative: 0.02% Sodium azide Constituents: HEPES buffered saline
Form	Liquid
Clonality	Monoclonal
Clone number	16H12H9
Light chain type	kappa
Concentration	1 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →
Purification notes	ab110263 was produced in vitro using hybridomas grown in serum-free medium, and then purified by biochemical fractionation.

Reactivity data

Flow Cyt

Tested

Species	Human
Dilution info	1 µg for 10^6 Cells
Notes	ab170192 - Mouse monoclonal IgG2b, 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	-

WB

Tested

Species	Mouse
Dilution info	1 µg/mL
Notes	-

Species	Rat
Dilution info	1 µg/mL
Notes	-

Species	Cow
Dilution info	1 µg/mL
Notes	-

Species	Human
Dilution info	1 µg/mL
Notes	-

Target data

See full target information Cytochrome c oxidase subunit 5B, mitochondrial

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
Storage information	Do Not Freeze

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	The target COX5B also known as cytochrome c oxidase subunit 5B is a subunit of the cytochrome c oxidase (complex IV) in mitochondria. This protein has a mass of approximately 13.2 kDa and plays an essential role in the electron transport chain. COX5B aids in the terminal step of the mitochondrial respiratory chain by facilitating electron transfer from reduced cytochrome c to oxygen. This process occurs mainly in mitochondria-rich tissues such as muscles neurons and cardiac muscle where high energy demand exists.
Biological function summary	COX5B acts within the larger cytochrome c oxidase complex which consists of multiple subunits that work together to promote efficient oxidative phosphorylation. This subunit contributes to the enzymatic activity that pumps protons across the inner mitochondrial membrane a critical step for ATP synthesis. The operation of COX5B is important for cellular respiration and energy production impacting metabolic functions across various cell types. It maintains cellular energy homeostasis by regulating how efficiently cells convert nutrients into energy.
Pathways	COX5B plays an important role in the oxidative phosphorylation pathway and is a part of the electron transport chain (ETC). It interacts with other ETC proteins such as COX2 and COX3 to ensure the proper function of the chain. Furthermore COX5B's involvement in oxidative phosphorylation links it to pathways like ATP

	synthesis where it indirectly influences essential cellular processes such as apoptosis and cellular metabolism due to its role in energy production.
Associated diseases and disorders	COX5B has associations with conditions involving mitochondrial dysfunction such as mitochondrial myopathy and mitochondrial encephalomyopathy. Alterations in COX5B expression or function might disrupt the electron transport chain compromising ATP production. These conditions often coexist with mutations or dysregulation in other mitochondrial proteins such as COX6A1 which indicate a broader spectrum of mitochondrial disorders. Understanding COX5B's role in such diseases could lead to insights into potential therapeutic targets for mitochondrial-related disorders.

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

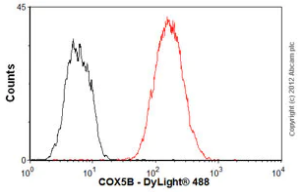
We do not recommend this combination. It is not covered by our product promise.

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.

3 product images



Flow Cytometry - Anti-COX5B antibody [16H12H9] (ab110263)

COX5B Flow Cytometry staining using mouse Anti-COX5B antibody

Overlay histogram showing HepG2 cells stained with ab110263 (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. The cells were then incubated with the antibody (ab110263, 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 IgG2b [PLPV219] (ab91366, 2µg/1x10^6 cells) used under the same conditions. Acquisition of >5,000 events was performed. This antibody gave a positive signal in HepG2 cells fixed with 4% paraformaldehyde (10 min)/permeabilized with 0.1% PBS-Tween for 20 min used under the same conditions.



Western blot - Anti-COX5B antibody [16H12H9] (ab110263)

All lanes:
Western blot - Anti-COX5B antibody [16H12H9] (ab110263) at 1 µg/mL

Lane 1:
Human heart mitochondria at 5 µg

Lane 2:
Bovine heart mitochondria at 1 µg

Lane 3:
Rat heart mitochondria at 10 µg

Lane 4:
Mouse heart mitochondria at 10 µg

Predicted band size: 14 kDa

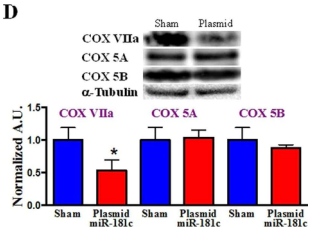


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Western blot - Anti-COX5B antibody [16H12H9] (ab110263)

COX5B Western blot staining using mouse Anti-COX5B antibody

COX5B western blot using anti-COX5B antibody [16H12H9] ab110263. Publication image and figure legend from Das, S., Bedja, D., et al., 2014, PLoS One, PubMed 24810628.

ab110263 was used in this publication in western blot. This may not be the same as the application(s) guaranteed by Abcam. For a full list of applications guaranteed by Abcam for ab110263 please see the product overview.

Mitochondrial Complex IV Remodeling after miR-181c Treatment.(A) qPCR data show that overexpression of miR-181c significantly reduces the mRNA levels of all mitochondrial complex IV genes with 3 weeks treatment. The treatment protocol has no effect on other mitochondrial genes, such as ND2 (complex I) and ATPase 8 (complex V). Content of mRNA was first normalized to 12S rRNA, a mitochondrial gene, as 12S rRNA expression did not change with miR-181c overexpresssion. Then we normalized the data to the sham group. *p<0.05 vs. sham (n = 6). (B) Western blot shows that miR-181c overexpression significantly reduces the protein content of both mt-COX1 and mt-COX2. VDAC was used as a loading control. The data were normalized to the sham group. *p<0.05 vs. sham (n = 6). (C) Western blot shows that miR-181c overexpression has no effect on Transcription Factor A, Mitochondria (TFAM), either in the total heart homogenate (left panel) or the heart-derived mitochondrial fraction (right panel). TFAM plays an important role in mitochondrial gene transcription, by activating 3 different promoter regions in the D-loop area of the mitochondrial genome. TFAM also translocates from the cytosol to the mitochondria as part of the mitochondrial gene transcription process. α-tubulin (for total heart homogenate) and VDAC (mitochondrial fraction) were used as loading controls. The data were normalized to the sham group (n = 3). (D) Western blot shows the changes of other isoforms of mitochondrial respiratory chain complex IV. We have observed a significant decrease in the protein content of COX VIIa in the

miR-181c overexpression groups, but no effect on COX 5A and COX 5B. α-tubulin was used as the loading control. The data were normalized to the sham group (n = 3).

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