abcam

ab109863

Anti-Complex IV Immunocapture antibody [31E91B82G9]

Key facts

Isotype	IgG1
Host species	Mouse
Storage buffer	pH: 7.5 Preservative: 0.02% Sodium azide Constituents: HEPES buffered saline
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Clone number	31E91B82G9
Specificity	100 µg ab109863 can capture at least 10 µg Complex IV (COX) from 1 mg solubilized Bovine heart mitochondria.
Light chain type	kappa
Concentration	1 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →
Purification notes	ab109863 was produced in vitro using hybridomas grown in serum-free medium, and then purified by biochemical fractionation.

Reactivity data

IP

Tested

Species	Human

Dilution info	100 µg/mg of lysate
Notes	-

Species	Cow
Dilution info	100 µg/mg of lysate
Notes	-

Flow Cyt

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	Cow
Dilution info	Use at an assay dependent concentration.
Notes	-

WB

Not recommended

Species	Human, Cow
Dilution info	-
Notes	-

IHC-P

Not recommended

Species	Human, Cow
Dilution info	-
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	5 µg/mL
Notes	-

Expected

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

Target data

See full target information MT-CO1

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	Complex IV also known as cytochrome c oxidase is a multi-subunit enzyme complex important for the electron transport chain (ETC) in mitochondria. It consists of 13 protein subunits and has an approximate mass of 204 kDa. Complex IV is located in the inner mitochondrial membrane where it facilitates the transfer of electrons from cytochrome c to molecular oxygen reducing it to water. This process helps create a proton gradient across the inner membrane which is essential for ATP production. In high-energy demand tissues like heart and skeletal muscle expression levels of Complex IV are notably higher.
Biological function summary	Complex IV plays a critical role in cellular respiration by being the terminal enzyme of the ETC. It is part of a larger complex and its primary function is to aid in oxidative phosphorylation. This complex facilitates oxygen consumption in cells aiding ATP synthesis and influencing metabolic rate. Complex IV is involved in maintaining cellular energy homeostasis and regulation of reactive oxygen species which also contributes to cell signaling and apoptosis.
Pathways	Complex IV takes a vital role in the oxidative phosphorylation and apoptosis pathways. In oxidative phosphorylation it interacts with other ETC complexes including Complex I and II to assure efficient ATP production. The role of Complex IV in apoptosis pathways involves interactions with cytochrome c which upon release into the cytosol can trigger the apoptotic machinery. These pathways are fundamental for cellular energy production and programmed cell death ensuring proper cell function and turnover.
Associated diseases and disorders	Complex IV dysfunction is associated with mitochondrial diseases and neurodegenerative disorders. Mitochondrial diseases such as Leigh syndrome can occur due to mutations affecting Complex IV subunits leading to impaired energy production and metabolic acidosis. In neurodegenerative disorders like Alzheimer's disease altered Complex IV activity contributes to energy deficits and increased oxidative stress. Proteins like amyloid-beta have shown connections with Complex IV alterations in Alzheimer's disease hinting at a link between mitochondrial dysfunction and the pathogenesis of such 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.

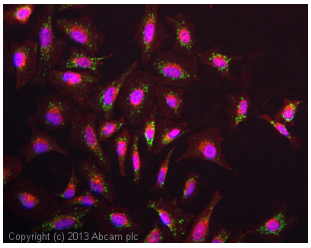
We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

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

Full details and terms and conditions can be found here:
Terms & Conditions.

---

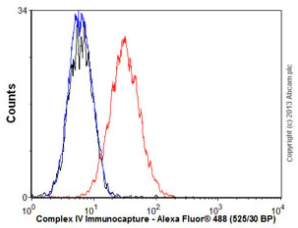
3 product images



Immunocytochemistry/ Immunofluorescence - Anti-Complex IV Immunocapture antibody [31E91B82G9] (ab109863)

Complex IV Immunocapture Immunocytochemistry/ Immunofluorescence staining using mouse Anti-Complex IV Immunocapture antibody

ICC/IF image of ab109863 stained HeLa cells. The cells were 4% formaldehyde fixed (10 min) and then incubated in 1%BSA / 10% normal goat serum / 0.3M glycine in 0.1% PBS-Tween for 1h to permeabilise the cells and block non-specific protein-protein interactions. The cells were then incubated with the antibody (ab109863, 5µg/ml) overnight at +4°C. The secondary antibody (green) was ab96879, DyLight® 488 goat anti-mouse IgG (H+L) used at a 1/250 dilution for 1h. Alexa Fluor® 594 WGA was used to label plasma membranes (red) at a 1/200 dilution for 1h. DAPI was used to stain the cell nuclei (blue) at a concentration of 1.43µM.

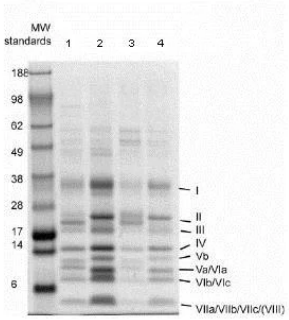


Flow Cytometry - Anti-Complex IV Immunocapture antibody [31E91B82G9] (ab109863)

Complex IV Immunocapture Flow Cytometry staining using mouse Anti-Complex IV Immunocapture antibody

Overlay histogram showing HepG2 cells stained with ab109863 (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 (ab109863, 1µg/1x10^6 cells) for 30 min at 22°C. The secondary antibody used was Alexa Fluor® 488 goat anti-mouse IgG (H+L) (ab150113) at 1/2000 dilution for 30 min at 22°C. Isotype control antibody (black line) was mouse IgG1 [ICIGG1]

(ab91353, 1µg/1x10^6 cells) used under the same conditions. Unlabelled sample (blue line) was also used as a control. Acquisition of >5,000 events were collected using a 20mW Argon ion laser (488nm) and 525/30 bandpass filter.



Immunoprecipitation - Anti-Complex IV Immunocapture antibody [31E91B82G9] (ab109863)

Staining of Complex IV Lane 1: 0.1 mg Human mitochondrial lysate Lane 2: 0.1 mg Bovine mitochondrial lysate Lane 3: 0.025 mg Human mitochondrial lysate Lane 4: 0.025 mg Bovine mitochondrial lysate Immunoprecipitated using ab109863 at 100 µg/mg lysate
All lanes:
Immunoprecipitation - Anti-Complex IV Immunocapture antibody [31E91B82G9] (ab109863)

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