abcam

ab154477

Alexa Fluor® 488 Anti-MTCO1 antibody [1D6E1A8]

Anti-MTCO1 antibody [1D6E1A8] conjugated to Alexa Fluor® 488 - suitable for intracellular flow cytometry, ICC/IF, and reacts with mouse, human samples. Clone [1D6E1A8] is a mouse monoclonal antibody cited in 4 publications.

Key facts

Isotype	IgG2a
Host species	Mouse
Conjugation	Alexa Fluor® 488
Excitation/Emission	Ex: 495nm, Em: 519nm
Storage buffer	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	1D6E1A8
Purification technique	Precipitation Ammonium Sulphate
Concentration	0.5 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →
Purification notes	Purity is near homogeneity as judged by SDS-PAGE. ab154477 was produced in vitro using hybridomas grown in serum-free medium, and then purified by biochemical fractionation.

Reactivity data

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1/500
Notes	ab171464 - Mouse monoclonal IgG2a, is suitable for use as an isotype control with this antibody.

Expected

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

Predicted

Species	Rat, Cow, Caenorhabditis elegans, Zebrafish
Dilution info	-
Notes	-

ICC/IF

Tested

Species	Mouse
Dilution info	1/1000
Notes	This product gave a positive signal in HeLa cells fixed 100% methanol (5 min)

Species	Human
Dilution info	1/1000
Notes	This product gave a positive signal in HeLa cells fixed 100% methanol (5 min)

Predicted

Species	Rat, Cow, Caenorhabditis elegans, Zebrafish
Dilution info	-
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 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

ab154477 was previously used as a component in the MitoBiogenesis™ ICC Kit. The protocol for this kit is available here. Alexa Fluor® is a registered trademark of Molecular Probes, Inc, a Thermo Fisher Scientific Company. The Alexa Fluor® dye included in this product is provided under an intellectual property license from Life Technologies Corporation. As this product contains the Alexa Fluor® dye, the purchase of this product conveys to the buyer the non-transferable right to use the purchased product and components of the product only in research conducted by the buyer (whether the buyer is an academic or for-profit entity). As this product contains the Alexa Fluor® dye the sale of this product is expressly conditioned on the buyer not using the product or its components, or any materials made using the product or its components, in any activity to generate revenue, which may include, but is not limited to use of the product or its components: in manufacturing; (ii) to provide a service, information, or data

in return for payment (iii) for therapeutic, diagnostic or prophylactic purposes; or (iv) for resale, regardless of whether they are sold for use in research. For information on purchasing a license to this product for purposes other than research, contact Life Technologies Corporation, 5781 Van Allen Way, Carlsbad, CA 92008 USA or outlicensing@thermofisher.com.

Supplementary info

This supplementary information is collated from multiple sources and compiled automatically.

Activity summary	MTCO1 also known as COX1 or MT-CO1 is an important component of the mitochondrial respiratory chain's complex IV commonly called cytochrome c oxidase. This target is encoded by mitochondrial DNA and contributes to the complex's catalytic core. It is a transmembrane protein with a noted molecular weight of approximately 57 kDa. MTCO1 is predominantly expressed in tissues with high energy demand such as cardiac and skeletal muscles due to their reliance on efficient oxidative phosphorylation.
Biological function summary	MTCO1 is vital for the final step of the electron transport chain catalyzing the transfer of electrons from cytochrome c to oxygen. This process facilitates the reduction of oxygen molecules to water. MTCO1 is an integral part of cytochrome c oxidase a multi-subunit enzyme complex important for cellular energy production. Proper function of MTCO1 supports ATP synthesis by maintaining electrochemical gradients across the mitochondrial inner membrane.
Pathways	Electrons transfer through this protein is essential for effective oxidative phosphorylation and maintaining the proton gradient necessary for ATP synthesis. MTCO1 operates in tandem with proteins like COX2 within the electron transport chain to achieve optimal energy conversion and cellular respiration. The pathway interactions of MTCO1 are critical in efficiently powering cellular activities and upholding metabolic functions throughout the body.
Associated diseases and disorders	Mutations or defects in MTCO1 have associations with various mitochondrial diseases such as Leber's Hereditary Optic Neuropathy (LHON) and mitochondrial complex IV deficiency. MTCO1 anomalies may disrupt normal function leading to impaired oxidative phosphorylation and energy deficits in cells. In LHON affected individuals can also demonstrate deficits linked to mutations in other mitochondrial genes like ND1 which further disrupt cellular energy balance and contribute to the clinical manifestations of these mitochondrial 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

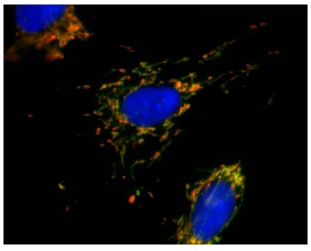
We do not recommend this combination. It is not covered by our product promise.

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.

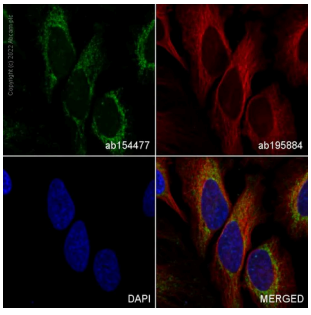
4 product images



Immunocytochemistry/ Immunofluorescence - Alexa Fluor® 488 Anti-MTCO1 antibody [1D6E1A8] (ab154477)

MTCO1 Immunocytochemistry/ Immunofluorescence staining using mouse Anti-MTCO1 antibody

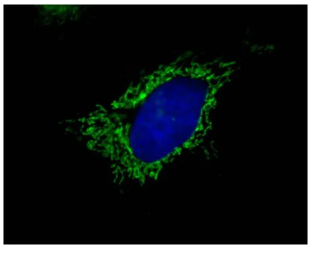
Immunocytochemistry with HDFn (100x) cells were stained with Anti-MTOC1 Alexa-488 antibody (1.0 µg/mL, ab154477) in green, Anti-HSP60 (1/1000, ab46798) as red, and DAPI in blue, as a nuclear stain. Secondary antibody used was goat anti-rabbit dyelight-594 (1/1000, ab96897).



Immunocytochemistry/ Immunofluorescence - Alexa Fluor® 488 Anti-MTCO1 antibody [1D6E1A8] (ab154477)

MTCO1 Immunocytochemistry/ Immunofluorescence staining using mouse Anti-MTCO1 antibody

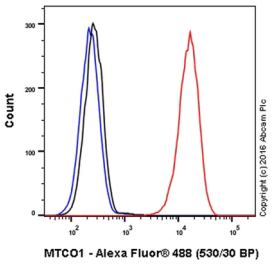
ab154477 staining MTCO1 in HeLa cells. The cells were fixed with 100% methanol (5 min), permeabilized with 0.1% Triton X-100 for 5 minutes and then blocked with 1% BSA/10% normal goat serum/0.3M glycine in 0.1% PBS-Tween for 1 h. The cells were then incubated overnight at 4°C with ab154477 at 1/1000 dilution (shown in green) and ab195884, Rat monoclonal to alpha Tubulin (Alexa Fluor 647), at 1/250 dilution (pseudocolored in red). Nuclear DNA was labeled with DAPI (shown in blue). Image was taken with a confocal microscope (Leica-Microsystems, TCS SP8).



Immunocytochemistry/ Immunofluorescence - Alexa Fluor® 488 Anti-MTCO1 antibody [1D6E1A8] (ab154477)

MTCO1 Immunocytochemistry/ Immunofluorescence staining using mouse Anti-MTCO1 antibody

Immunocytochemistry with HeLa cells (100x) were stained with anti-MTCO1 Alexa-488 antibody (1.0 µg/mL, ab154477) in green and DAPI in blue, as a nuclear stain.



Flow Cytometry (Intracellular) - Alexa Fluor® 488 Anti-MTCO1 antibody [1D6E1A8] (ab154477)

MTCO1 Flow Cytometry (Intracellular) staining using mouse Anti-MTCO1 antibody

Overlay histogram showing HeLa cells stained with ab154477 (red line). The cells were fixed with 80% methanol (5 min) and then permeabilized with 0.1% PBS-Triton X-100 for 15 min. The cells were then incubated in 1x PBS / 10% normal goat serum to block non-specific protein-protein interactions followed by the antibody (ab154477, 1/100 dilution) for 30 min at 22°C.

Isotype control antibody (black line) was mouse IgG2a Alexa Fluor® 488 (ab171464) 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 50 mW Blue laser (488nm) and 530/30 bandpass filter.

This antibody gave a positive signal in HeLa cells fixed with 4% formaldehyde (10 min)/permeabilized with 0.1% PBS-Triton X-100 for 15 min used under the same conditions.

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