abcam

Product datasheet

# Alexa Fluor® 488 Anti-MTCO1 antibody [1D6E1A8] ab154477

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## Overview

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| **Product name** | Alexa Fluor® 488 Anti-MTCO1 antibody [1D6E1A8] |
| **Description** | Alexa Fluor® 488 Mouse monoclonal [1D6E1A8] to MTCO1 |
| **Conjugation** | Alexa Fluor® 488. Ex: 495nm, Em: 519nm |
| **Tested applications** | **Suitable for:** Flow Cyt (Intra), ICC/IF |
| **Species reactivity** | **Reacts with:** Mouse, Human<br>**Predicted to work with:** Rat, Cow, Caenorhabditis elegans, Zebrafish |
| **Immunogen** | Full length protein corresponding to Human MTCO1. |
| **Positive control** | IF/ICC: HeLa and HDFn cells. Flow Cyt (Intra): HeLa cells. |
| **General notes** | **ab154477 was previously used as a component in the MitoBiogenesis™ ICC Kit. The protocol for this kit is available here.**<br>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**.<br><br>The Life Science industry has been in the grips of a reproducibility crisis for a number of years. Abcam is leading the way in addressing this with our range of recombinant monoclonal antibodies and knockout edited cell lines for gold-standard validation. Please check that this product meets your needs before purchasing.<br><br>If you have any questions, special requirements or concerns, please send us an inquiry and/or contact our Support team ahead of purchase. Recommended alternatives for this product can be found below, along with publications, customer reviews and Q&As |

Product was previously marketed under the MitoSciences sub-brand.

## Properties

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| **Form** | Liquid |
| **Storage instructions** | Shipped at 4°C. Store at +4°C short term (1-2 weeks). Upon delivery aliquot. Store at -20°C. Avoid freeze / thaw cycle. Store In the Dark. |
| **Storage buffer** | Preservative: 0.02% Sodium azide<br>Constituents: 1% BSA, 30% Glycerol (glycerin, glycerine), PBS |
| **Purity** | Ammonium Sulphate Precipitation |
| **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. |
| **Clonality** | Monoclonal |
| **Clone number** | 1D6E1A8 |
| **Isotype** | IgG2a |

## Applications

**The Abpromise guarantee** Our **Abpromise guarantee** covers the use of ab154477 in the following tested applications.

The application notes include recommended starting dilutions; optimal dilutions/concentrations should be determined by the end user.

| Application | Abreviews | Notes |
|---|---|---|
| **Flow Cyt (Intra)** | | 1/500.<br>**ab171464** - Mouse monoclonal IgG2a, is suitable for use as an isotype control with this antibody. |
| **ICC/IF** | | 1/1000.<br>This product gave a positive signal in HeLa cells fixed 100% methanol (5 min) |

## Target

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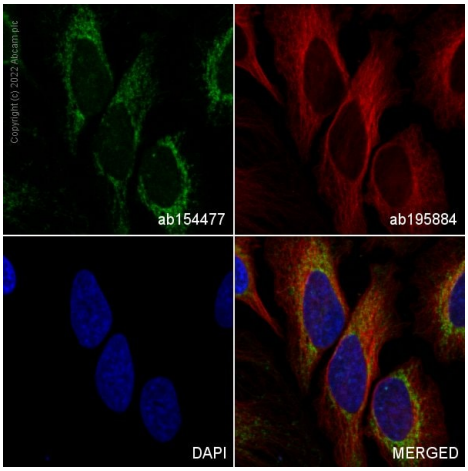
| **Function** | Cytochrome c oxidase is the component of the respiratory chain that catalyzes the reduction of oxygen to water. Subunits 1-3 form the functional core of the enzyme complex. CO I is the catalytic subunit of the enzyme. Electrons originating in cytochrome c are transferred via the copper A center of subunit 2 and heme A of subunit 1 to the bimetallic center formed by heme A3 and copper B. |
| **Pathway** | Energy metabolism; oxidative phosphorylation. |
| **Involvement in disease** | Defects in MT-CO1 are a cause of Leber hereditary optic neuropathy (LHON) [MIM:535000]. LHON is a maternally inherited disease resulting in acute or subacute loss of central vision, due to optic nerve dysfunction. Cardiac conduction defects and neurological defects have also been described in some patients. LHON results from primary mitochondrial DNA mutations affecting the respiratory chain complexes.<br>Defects in MT-CO1 are a cause of anemia sideroblastic acquired idiopathic (AISA) |

[MIM:516030]; a disease characterized by inadequate formation of heme and excessive accumulation of iron in mitochondria.
Defects in MT-CO1 are a cause of mitochondrial complex IV deficiency (MT-C4D) [MIM:220110]; also known as cytochrome c oxidase deficiency. A disorder of the mitochondrial respiratory chain with heterogeneous clinical manifestations, ranging from isolated myopathy to severe multisystem disease affecting several tissues and organs. Features include hypertrophic cardiomyopathy, hepatomegaly and liver dysfunction, hypotonia, muscle weakness, excercise intolerance, developmental delay, delayed motor development and mental retardation. A subset of patients manifest Leigh syndrome.
Defects in MT-CO1 are associated with recurrent myoglobinuria mitochondrial (RM-MT) [MIM:550500]. Recurrent myoglobinuria is characterized by recurrent attacks of rhabdomyolysis (necrosis or disintegration of skeletal muscle) associated with muscle pain and weakness, and followed by excretion of myoglobin in the urine.
Defects in MT-CO1 are a cause of deafness sensorineural mitochondrial (DFNM) [MIM:500008]. DFNM is a form of non-syndromic deafness with maternal inheritance. Affected individuals manifest progressive, postlingual, sensorineural hearing loss involving high frequencies.
Defects in MT-CO1 are a cause of colorectal cancer (CRC) [MIM:114500].

**Sequence similarities** Belongs to the heme-copper respiratory oxidase family.

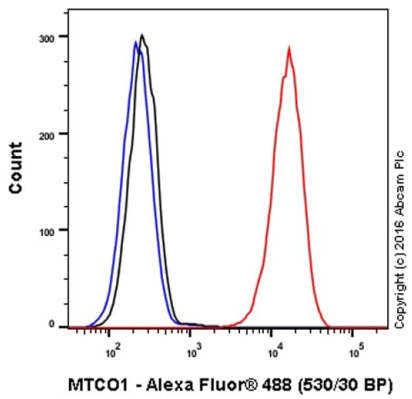
**Cellular localization** Mitochondrion inner membrane.

## Images




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

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).



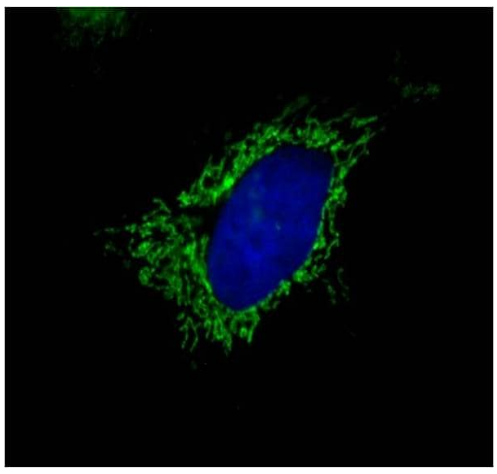

Flow Cytometry (Intracellular) - Alexa Fluor® 488 Anti-MTCO1 antibody [1D6E1A8] (ab154477)

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.

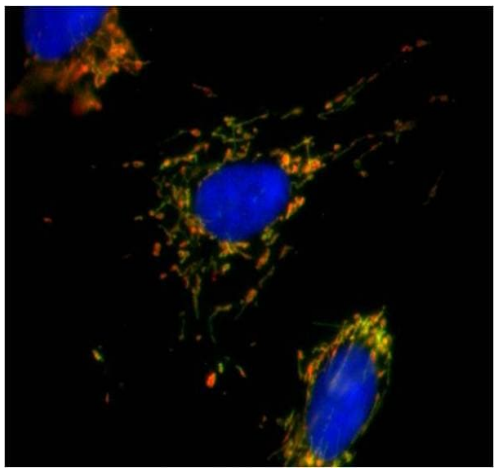
Acquisition of >5,000 events were collected using a 50 mW Blue laser (488nm) and 530/30 bandpass filter.

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.



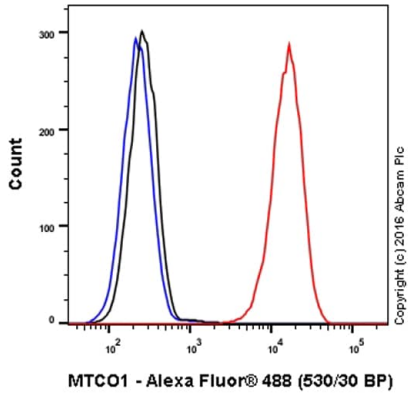
Immunocytochemistry/ Immunofluorescence - Alexa Fluor® 488 Anti-MTCO1 antibody [1D6E1A8] (ab154477)

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.



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

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**).




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

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, 1/500 dilution) for 30 min at 22°C.

Isotype control antibody (black line) was rabbit IgG (monoclonal) Alexa Fluor® 488 (**ab199091**) 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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