MTCO1 Monoclonal Antibody (1D6E1A8)

Product Details	
Size	100 µg
Species Reactivity	Avian, Bovine, C. elegans, Goat, Hamster, Human, Mouse, Pig, Rhesus monkey, Rat, Zebrafish
Published Species	Rat, Zebrafish, Human, Mouse, Guinea pig
Host/Isotype	Mouse / IgG2a, kappa
Class	Monoclonal
Type	Antibody
Clone	1D6E1A8
Conjugate	Unconjugated
Immunogen	Human Mitochondrial Complex IV subunit I
Form	Liquid
Concentration	1 mg/mL
Purification	Ammonium sulfate precipitation
Storage buffer	HEPES buffered saline
Contains	0.02% sodium azide
Storage conditions	4° C, do not freeze
RRID	AB_2532240

Applications	Tested Dilution	Publications
Western Blot (WB)	0.5-1 µg/mL	61 Publications
Immunohistochemistry (IHC)	-	11 Publications
Immunohistochemistry (Paraffin) (IHC (P))	5 µg/mL	3 Publications
Immunohistochemistry (Frozen) (IHC (F))	-	3 Publications
Immunohistochemistry - Free Floating (IHC (Free))	-	1 Publication
Immunocytochemistry (ICC/IF)	5 µg/ml	14 Publications
Flow Cytometry (Flow)	1 µg/1x10^6 cells	-
Miscellaneous PubMed (Misc)	-	10 Publications

Product Specific Information

For best results with this antibody in Western blot, do not boil samples before loading onto the gel. Boiling of the sample will cause a loss of signal. Hydrophobic intrinsic membrane proteins such as the core mtDNA-encoded proteins of the mitochondrial OXPHOS complexes tend to run faster in SDS-PAGE than predicted by their amino acid composition. This is likely due to incomplete unfolding of the protein and a more negative charge:mass ratio. In Western blot applications, this antibody detects a band at approximately 40 kDa (predicted MW: 57 kDa). In mouse liver lysate a specific band below 37 kDa was detected.

Recommended positive controls:

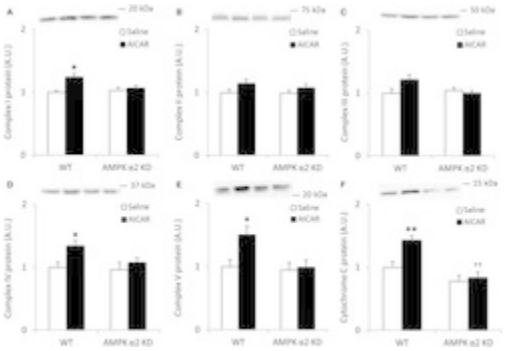
ICC/IF - Pig retinal pigment epithelial cells, rat cerebellum primary cells

IHC (P) - Human skeletal muscle and colon tissue, rat pancreas tissue, pig smooth muscle tissue

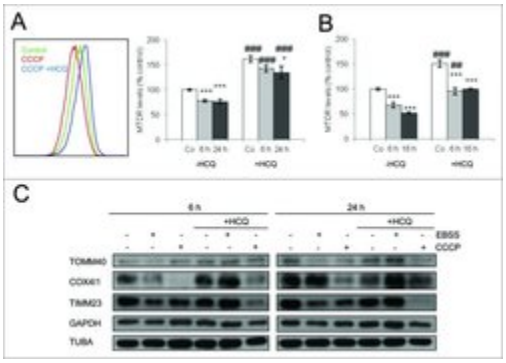
WB - Mouse, human, bovine and rat heart mitochondria lysate

Flow - HEK-293 cells

Advanced Verification Data

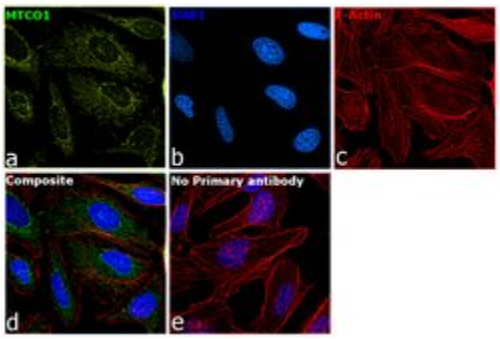


MTCO1 Antibody (459600)
Figure 4 Repeated treatment with AICAR increases abundance of mitochondrial electron transport chain proteins in an AMPK alpha2-dependent manner . WT and AMPK alpha2 KD male mice were given daily subcutaneous injections with AICAR (500 mg/kg body weight) or saline for 4 weeks. (A-E) Protein abundance of oxidative phosphorylation Complexes I-V and (F) Cytochrome C was measured in quadriceps muscle (n = 7-8). A significant interaction effect (treatment x genotype; $p < 0.05$) was observed for Cytochrome C. Values are mean +- SEM. * indicates vs. WT saline ($p < 0.05$) analyzed by t -tests, ** indicates vs. WT saline ($p < 0.01$), and ++ indicates genotype effect within AICAR treated animals ($p < 0.01$). Cell treatment validation info.

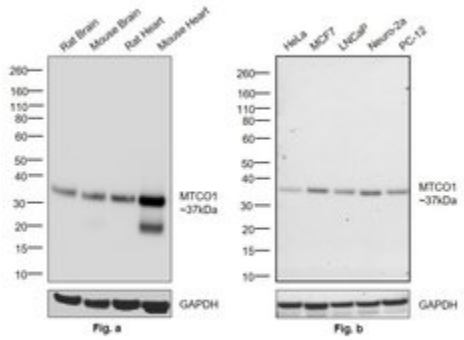


MTCO1 Antibody (459600)
Figure 1. Mitophagy induced by amino acid starvation and CCCP treatment in SH-SY5Y cells is blocked by lysosomal inhibition. SH-SY5Y cells were treated with CCCP (A) or EBSS (B) for the indicated times and also treated with the lysosomal inhibitor HCQ 3 h before analysis to block lysosomal degradation. MTDR was used to determine mitochondrial staining by flow cytometry. * Indicates comparisons between control (Co) and treatments (CCCP and EBSS). # Indicates differences between presence and absence of HCQ within treatments. * or # $P < 0.05$, ** or ## $P < 0.01$, *** or ### $P < 0.001$ (C) Western blot analysis for the indicated mitochondrial proteins in SH-SY5Y cells treated as above for the indicated times. Cell treatment validation info.

Product Images For MTCO1 Monoclonal Antibody (1D6E1A8)



MTCO1 Antibody (459600) in ICC/IF
Immunofluorescence analysis of MTCO1 was performed using 70% confluent log phase HeLa cells. The cells were fixed with 4% paraformaldehyde for 10 minutes, permeabilized with 0.1% Triton™ X-100 for 15 minutes, and blocked with 2% BSA for 45 minutes at room temperature. The cells were labeled with MTCO1 Monoclonal Antibody (1D6E1A8) (Product # 459600) at 5 µg/mL dilution in 0.1% BSA, incubated at 4 degree celsius overnight and then labeled with Donkey anti-Mouse IgG (H+L) Highly Cross-Adsorbed Secondary Antibody, Alexa Fluor Plus 488 (Product # A32766), (1:2000 dilution), for 45 minutes at room temperature (Panel a: Green). Nuclei (Panel b:Blue) were stained with ProLong™ Diamond Antifade Mountant with DAPI (Product # P36962). F-actin (Panel c: Red) was stained with Rhodamine Phalloidin (Product # R415, 1:300). Panel d represents the merged image showing mitochondrial localization. Panel e represents control cells with no primary antibody to assess background. The images were captured at 60x magnification.



MTCO1 Antibody (459600) in WB
Western blot was performed using Anti-MTCO1 Monoclonal Antibody (1D6E1A8) (Product # 459600) and a 37 kDa band corresponding to MTCO1 was observed across all cell lines and tissues tested. Tissue extracts (30 µg lysate) of Rat Brain (Lane 1), Mouse Brain (Lane 2), Rat Heart (Lane 3), Mouse Heart (Lane 4), and, whole cell extracts of HeLa (Lane 1), MCF7 (Lane 2), LNCaP (Lane 3), Neuro-2a (Lane 4) and PC-12 (Lane 5) were electrophoresed using NuPAGE™ 4-12% Bis-Tris Protein Gel (Product # NP0321BOX). Resolved proteins were then transferred onto a Nitrocellulose membrane (Product # IB23001) by iBlot® 2 Dry Blotting System (Product # IB21001). The blot was probed with the primary antibody (1 µg/mL dilution) and detected by chemiluminescence with Goat anti-Mouse IgG (H+L) Superclonal™ Recombinant Secondary Antibody, HRP (Product # A28177,1:4000 dilution) using the iBright FL 1000 (Product # A32752). Chemiluminescent detection was performed using Novex® ECL Chemiluminescent Substrate Reagent Kit (Product # WP20005).

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103 References

Western Blot (61)

Genes

Leigh Syndrome Due to *NDUFV1* Mutations Initially Presenting as LBSL.

"459600 was used in Western Blotting to describe a case with infantile-onset neurodegeneration, psychomotor retardation, irritability, hypotonia, and nystagmus."

Authors: Borna NN,Kishita Y,Sakai N,Hamada Y,Kamagata K,Kohda M,Ohtake A,Murayama K,Okazaki Y

Species
Human

Dilution
Not Cited

Year
2020

Molecular genetics & genomic medicine

A novel homozygous variant in MICOS13/QIL1 causes hepato-encephalopathy with mitochondrial DNA depletion syndrome.

"459600 was used in Western Blotting to determine the clinical significance of the identified variant."

Authors: Kishita Y,Shimura M,Kohda M,Akita M,Imai-Okazaki A,Yatsuka Y,Nakajima Y,Ito T,Ohtake A,Murayama K, Okazaki Y

Species
Human

Dilution
Not Cited

Year
2020

View more WB references on thermofisher.com

Immunohistochemistry (11)

BMC biology

Exacerbated age-related hearing loss in mice lacking the p43 mitochondrial T3 receptor.

"Published figure using MTCO1 monoclonal antibody (Product # 459600) in Immunohistochemistry"

Authors: Affortit C,Casas F,Ladrech S,Ceccato JC,Bourien J,Coyat C,Puel JL,Lenoir M,Wang J

Species
Not Applicable

Dilution
Not Cited

Year
2021

PloS one

Epilepsy in a melanocyte-lineage mTOR hyperactivation mouse model: A novel epilepsy model.

"459600 was used in Immunohistochemistry to suggest that a melanocyte-lineage mTOR hyperactivation mouse is a novel animal model of epilepsy."

Authors: Yang F,Yang L,Wataya-Kaneda M,Teng L,Katayama I

Species
Mouse

Dilution
1:200

Year
2020

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IHC (P) (3) IHC (F) (3) IHC (Free) (1) ICC/IF (14) Misc (10)