abcam

ab251421

Anti-Mitofusin 2 + Mitofusin 1 antibody [EPR19792] - BSA and Azide free

Recombinant | RabMAb

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	pH: 7.2 - 7.4 Constituents: PBS
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Carrier free	Yes
Clone number	EPR19792
Purification technique	Affinity purification Protein A
Concentration	1.021 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

ICC/IF

Tested

Species	Human
Dilution info	-

Notes	-

Not recommended

Species	Recombinant fragment - Human
Dilution info	-
Notes	-

IP

Tested

Species	Human
Dilution info	-
Notes	-

Not recommended

Species	Recombinant fragment - Human
Dilution info	-
Notes	-

WB

Tested

Species	Recombinant fragment - Human, Human
Dilution info	-
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	-
Notes	-

Not recommended

Species	Recombinant fragment - Human
Dilution info	-
Notes	-

Target data

See full target information MFN2

Function	Mitochondrial outer membrane GTPase that mediates mitochondrial clustering and fusion (PubMed:11181170, PubMed:11950885, PubMed:19889647, PubMed:26214738, PubMed:28114303). Mitochondria are highly dynamic organelles, and their morphology is determined by the equilibrium between mitochondrial fusion and fission events (PubMed:28114303). Overexpression induces the formation of mitochondrial networks (PubMed:28114303). Membrane clustering requires GTPase activity and may involve a major rearrangement of the coiled coil domains (Probable). Plays a central role in mitochondrial metabolism and may be associated with obesity and/or apoptosis processes (By similarity). Plays an important role in the regulation of vascular smooth muscle cell proliferation (By similarity). Involved in the clearance of damaged mitochondria via selective autophagy (mitophagy) (PubMed:23620051). Is required for PRKN recruitment to dysfunctional mitochondria (PubMed:23620051). Involved in the control of unfolded protein response (UPR) upon ER stress including activation of apoptosis and autophagy during ER stress (By similarity). Acts as an upstream regulator of EIF2AK3 and suppresses EIF2AK3 activation under basal conditions (By similarity).

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

ab251421 is the carrier-free version of ab205235.

Patented technology
Our RabMAb® technology is a patented hybridoma-based technology for making rabbit monoclonal antibodies. For details on our patents, please refer to RabMAb® patents.

What are the advantages of a recombinant monoclonal antibody?
This product is a recombinant monoclonal antibody, which offers several advantages including:

- High batch-to-batch consistency and reproducibility
- Improved sensitivity and specificity
- Long-term security of supply
- Animal-free batch production

For more information, read more on recombinant antibodies.

Conjugation ready
Our carrier-free antibodies are typically supplied in a PBS-only formulation, purified and free of BSA, sodium azide and glycerol. This conjugation-ready format is designed for use with fluorochromes, metal isotopes, oligonucleotides, and enzymes, which makes them ideal for antibody labelling, functional and cell-based assays, flow-based assays (e.g. mass cytometry) and Multiplex Imaging applications.

Use our conjugation kits for antibody conjugates that are ready-to-use in as little as 20 minutes with 1 minute hands-on-time and 100% antibody recovery: available for fluorescent dyes, HRP, biotin and gold.

Compatibility
This product is compatible with the Maxpar® Antibody Labeling Kit from Fluidigm, without the need for antibody preparation. Maxpar® is a trademark of Fluidigm Canada Inc.

Supplementary info

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

Activity summary	Mitofusin 1 (Mfn1) and Mitofusin 2 (Mfn2) are key components involved in mitochondrial dynamics. These proteins often referred to as mitofusins facilitate the fusion of mitochondrial membranes. The molecular weight of Mfn1 is approximately 84 kDa while Mfn2 is around 86 kDa. Both mitofusins are ubiquitous with expression in diverse tissues particularly in metabolically active cells such as in the heart muscle and brain. Mfn2 is sometimes called 2c-10<3c-9 highlighting its genetic coding. Mitofusin 2 also plays a unique role in interactions beyond membrane fusion.
Biological function summary	The mitofusins coordinate mitochondrial network maintenance contributing to the stabilization of cellular energy supply. Mitofusins 1 and 2 participate in forming a complex that ensures mitochondrial integrity and function. By facilitating the fusion of mitochondria these proteins help maintain mitochondrial DNA stability and bioenergetics which are vital for efficient cellular metabolism. These tasks are important for cells that undergo high energy demand thereby ensuring proper ATP production.
Pathways	The mitofusins participate in mitochondrial fusion pathways which are essential for cellular energy metabolism and apoptosis regulation. Mfn1 and Mfn2 along with other proteins like OPA1 ensure mitochondrial structure and function are maintained during these processes. This activity impacts pathways such as the

PINK1/Parkin-mediated mitophagy pathway which is important for maintaining healthy mitochondria by eliminating damaged ones.

Associated diseases and disorders

Mitofusins demonstrate significance in conditions like Charcot-Marie-Tooth disease and mitochondrial dysfunction syndromes. Mutations in Mfn2 link directly to Charcot-Marie-Tooth disease type 2A leading to neuropathy. Additionally impaired mitofusins' function associates with metabolic disorders as mitochondrial dynamics play a role in regulating glucose homeostasis. Understanding their roles further clarifies the interactions with other proteins such as Drp1 contributing to metabolic flexibility and neurodegeneration pathways.

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

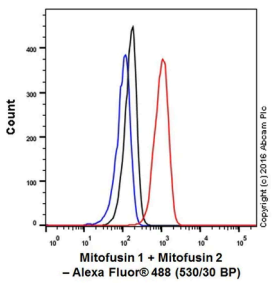
We do not recommend this combination. It is not covered by our product promise.

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.

6 product images

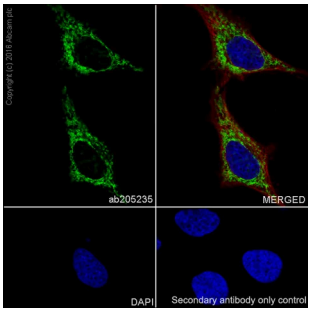


Flow Cytometry (Intracellular) - Anti-Mitofusin 2 + Mitofusin 1 antibody [EPR19792] - BSA and Azide free (ab251421)

Mitofusin 2 + Mitofusin 1 Flow Cytometry (Intracellular) staining using rabbit Anti-Mitofusin 2 + Mitofusin 1 antibody

This data was developed using ab205235, the same antibody clone in a different buffer formulation.

Intracellular flow cytometric analysis of 4% paraformaldehyde-fixed HeLa (Human epithelial cell line from cervix adenocarcinoma) cells labeling Mitofusin 2 + Mitofusin 1 with ab205235 at 1/50 dilution (red) compared with a Rabbit IgG,monoclonal [EPR25A]-Isotype control (ab172730; black) and an unlabelled control (cells without incubation with primary antibody and secondary antibody; blue). Goat anti rabbit IgG (Alexa Fluor® 488) at 1/2000 dilution was used as the secondary antibody.



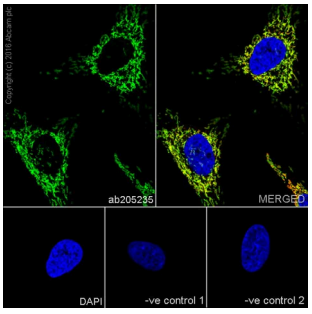
Immunocytochemistry/ Immunofluorescence - Anti-Mitofusin 2 + Mitofusin 1 antibody [EPR19792] - BSA and Azide free (ab251421)

Mitofusin 2 + Mitofusin 1 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Mitofusin 2 + Mitofusin 1 antibody

This data was developed using ab205235, the same antibody clone in a different buffer formulation.
Immunofluorescent analysis of 4% paraformaldehyde-fixed, 0.1% Triton X-100 permeabilized HeLa (Human epithelial cell line from cervix adenocarcinoma) cells labeling Mitofusin 2 + Mitofusin 1 with ab205235 at 1/500 dilution, followed by Goat Anti-Rabbit IgG (Alexa Fluor® 488) (ab150077) secondary antibody at 1/1000 dilution (green). Confocal image showing cytoplasmic staining on HeLa cells.

The nuclear counter stain is DAPI (blue). Tubulin is detected with ab195889 (Anti-alpha Tubulin antibody [DM1A] - Microtubule Marker (Alexa Fluor® 594)) at 1/200 dilution (red).

Secondary antibody only control: Used PBS instead of primary antibody, secondary antibody is Goat anti-rabbit IgG (Alexa Fluor® 488) (ab150077) at 1/1000 dilution.



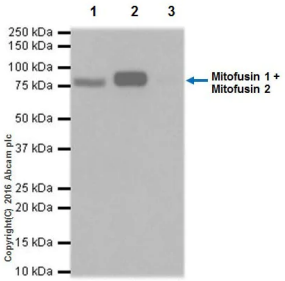
Immunocytochemistry/ Immunofluorescence - Anti-Mitofusin 2 + Mitofusin 1 antibody [EPR19792] - BSA and Azide free (ab251421)

Mitofusin 2 + Mitofusin 1 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Mitofusin 2 + Mitofusin 1 antibody

This data was developed using ab205235, the same antibody clone in a different buffer formulation.
Immunofluorescent analysis of 4% paraformaldehyde-fixed, 0.1% Triton X-100 permeabilized HeLa (Human epithelial cell line from cervix adenocarcinoma) cells labeling Mitofusin 2 + Mitofusin 1 with ab205235 at 1/500 dilution, followed by Goat Anti-Rabbit IgG (Alexa Fluor® 488) (ab150077) secondary antibody at 1/1000 dilution (green). Confocal image showing mitochondrial staining on HeLa cells.

The nuclear counter stain is DAPI (blue). Cox IV is detected with ab33985 (anti-Cox IV mouse mAb) at 1/1000 dilution followed by ab150120 (Alexa Fluor® 594 Goat anti-Mouse secondary) at 1/1000 dilution (red).

The negative controls are as follows:
-ve control 1: ab205235 at 1/500 dilution followed by ab150120 at 1/1000 dilution.
-ve control 2: ab33985 at 1/1000 dilution followed by ab150077 at 1/1000 dilution.



Immunoprecipitation - Anti-Mitofusin 2 + Mitofusin 1 antibody [EPR19792] - BSA and Azide free (ab251421)

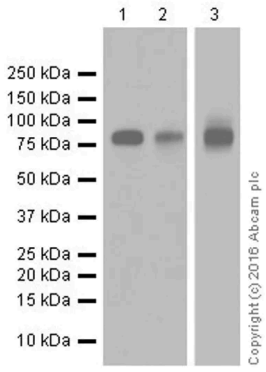
This data was developed using ab205235, the same antibody clone in a different buffer formulation.
Mitofusin 2 + Mitofusin 1 was immunoprecipitated from 0.35 mg of HeLa (Human epithelial cell line from cervix adenocarcinoma) whole cell lysate with ab205235 at 1/40 dilution. Western blot was performed from the immunoprecipitate using ab205235 at 1/1000 dilution. VeriBlot for IP Detection Reagent (HRP) (ab131366), was used for detection at 1/10000 dilution.

Lane 1: HeLa whole cell lysate, 10 µg (Input).
Lane 2: ab205235 IP in HeLa whole cell lysate.
Lane 3: Rabbit IgG,monoclonal [EPR25A]-Isotype Control (ab172730) instead of ab205235 in HeLa whole cell lysate.

Blocking and dilution buffer and concentration: 5% NFDM/TBST.

Exposure time: 5 seconds.

All lanes:
Immunoprecipitation - Anti-Mitofusin 2 + Mitofusin 1 antibody [EPR19792] (ab205235)



Western blot - Anti-Mitofusin 2 + Mitofusin 1 antibody [EPR19792] - BSA and Azide free (ab251421)

Mitofusin 2 + Mitofusin 1 Western blot staining using rabbit Anti-Mitofusin 2 + Mitofusin 1 antibody

This data was developed using ab205235, the same antibody clone in a different buffer formulation.
Blocking and dilution buffer: 5% NFDM/TBST.

Exposure times: Lanes 1-2: 15 seconds; Lane 3: 3 seconds.

The expression profile is consistent with the literature (PMID: 14561718; 25574749).

All lanes:
Western blot - Anti-Mitofusin 2 + Mitofusin 1 antibody [EPR19792] (ab205235) at 1/1000 dilution

Lane 1:
Human fetal kidney tissue lysate at 20 µg

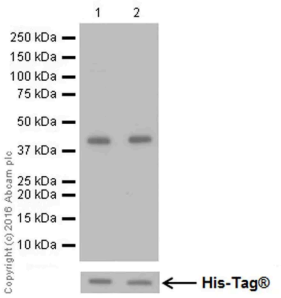
Lane 2:
Human fetal liver tissue lysate at 20 µg

Lane 3:
HeLa (Human epithelial cell line from cervix adenocarcinoma) whole cell lysate at 20 µg

Secondary

All lanes:
Goat Anti-Rabbit IgG Peroxidase Conjugate, specific to the non-reduced form of IgG at 1/10000 dilution

Observed band size: 80 kDa



Western blot - Anti-Mitofusin 2 + Mitofusin 1 antibody [EPR19792] - BSA and Azide free (ab251421)

Mitofusin 2 + Mitofusin 1 Western blot staining using rabbit Anti-Mitofusin 2 + Mitofusin 1 antibody

This data was developed using ab205235, the same antibody clone in a different buffer formulation.
Blocking and dilution buffer: 5% NFDM/TBST.

Human Mitofusin 2 recombinant protein fragment contains aa151-506 with a His-Tag$^{Â®}$. Human Mitofusin 1 recombinant protein fragment contains aa130-485 with a His-Tag$^{Â®}$.

All lanes:
Western blot - Anti-Mitofusin 2 + Mitofusin 1 antibody [EPR19792] (ab205235) at 1/2000 dilution

Lane 1:
Human Mitofusin 2 recombinant protein fragment at 0.01 µg

Lane 2:
Human Mitofusin 1 recombinant protein fragment at 0.01 µg

Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/100000 dilution

Exposure time: 1s

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