abcam

ab251422

Anti-Mitofusin 2 antibody [EPR19796] - BSA and Azide free

Recombinant | RabMAb | KO Validated

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	EPR19796
Purification technique	Affinity purification Protein A
Concentration	1.058 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
Dilution info	1/2000 - 1/5000
Notes	-

Species	Human
Dilution info	1/2000 - 1/5000
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

ab251422 is the carrier-free version of ab205236.

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 2 also known as MFN2 is a protein involved in the regulation of mitochondrial fusion. The MFN2 molecular weight is roughly 86 kDa. It plays an important role in connecting and merging the outer membranes of mitochondria which is vital for maintaining mitochondrial function and integrity. Mitofusin 2 proteins are expressed in many tissues but they are abundantly present in energy-demanding tissues like skeletal muscle heart and the brain.
Biological function summary	Mitofusin 2 ensures the proper distribution of mitochondria within cells and regulates mitochondrial metabolism. It is a critical component of the mitochondrial fusion machinery and works closely with its homolog Mitofusin 1 (MFN1). Together they form a complex that facilitates the physical merging of mitochondrial membranes. This process is essential for mitochondrial dynamics which include not only fusion but also fission and biogenesis.
Pathways	The protein part of the fusion machinery integrates into multiple essential biological pathways including energy metabolism and apoptosis regulation. It participates in the mitochondrial fusion pathway and the PGC-1α pathway for mitochondrial biogenesis. Mitofusin 2 interacts with proteins such as PINK1 and

	Parkin that are known to play roles in mitophagy a process that targets damaged mitochondria for degradation indicating its involvement in maintaining mitochondrial quality control.
Associated diseases and disorders	Mutations in Mitofusin 2 have been linked to Charcot-Marie-Tooth disease type 2A (CMT2A) a neuropathy that affects peripheral nerves. This protein also shows connections to metabolic disorders such as obesity and type 2 diabetes. In these conditions its interaction with other proteins like OPA1 involved in mitochondrial inner membrane fusion influences mitochondrial dysfunction a recognized feature contributing to disease pathogenesis. Understanding MFN2's function and role in disease can help develop targeted therapies for these conditions.

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

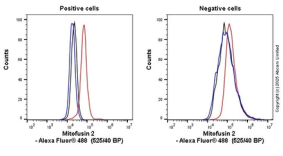
We do not recommend this combination. It is not covered by our product promise.

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.

10 product images



Flow Cytometry (Intracellular) - Anti-Mitofusin 2 antibody [EPR19796] - BSA and Azide free (ab251422)

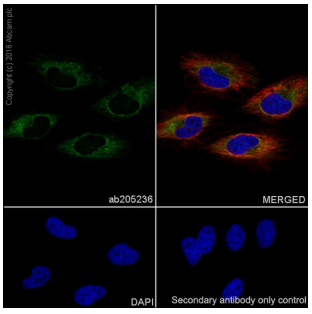
Mitofusin 2 Flow Cytometry (Intracellular) staining using rabbit Anti-Mitofusin 2 antibody

This data was developed using ab205236, the same antibody clone in a different buffer formulation.

Flow cytometry overlay histogram showing left wild-type HEK293 positive cells and right negative MFN2 knockout HEK293 stained with ab205236 (red line). The cells were fixed with 4% formaldehyde (10 min) and then permeabilised with 0.1% PBS-Triton X-100 for 15 min. The cells were then incubated in 1x PBS containing 10% normal goat serum to block non-specific protein-protein interaction followed by the antibody (ab205236) (1x 10^6 in 100µl at 0.04 µg/ml (1/18525)) for 30min at 22°C.
The secondary antibody Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) preadsorbed was incubated at 1/4000 for 30min at 22°C.

Isotype control antibody was Recombinant Rabbit IgG, monoclonal [EPR25A] - Isotype Control (black line) used at the same concentration and conditions as the primary antibody. Unlabelled sample (blue line) was also used as a control.

Acquisition of >5000 events were collected using a 50 mW Blue laser (488nm) and 530/30 bandpass filter.



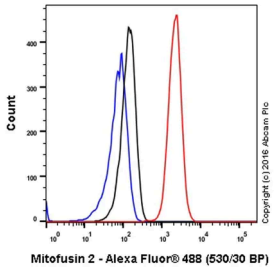
Immunocytochemistry/ Immunofluorescence - Anti-Mitofusin 2 antibody [EPR19796] - BSA and Azide free (ab251422)

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

This data was developed using ab205236, 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 with ab205236 at 1/250 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 cell line.

The nuclear counter stain is DAPI (blue). Tubulin is detected with ab7291 (anti-Tubulin mouse mAb) at 1/200 dilution, followed by secondary detection using ab150120 Alexa Fluor® 594 Goat anti-Mouse (red).

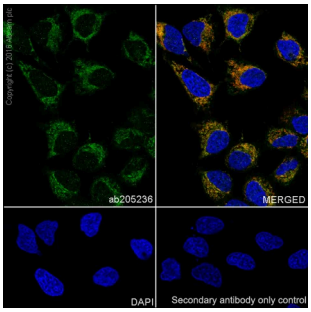
Secondary antibody only control: Used PBS instead of primary antibody, secondary antibody is Goat anti-rabbit IgG (Alexa Fluor® 488) (ab150077) at 1/1000 dilution.



Flow Cytometry (Intracellular) - Anti-Mitofusin 2 antibody [EPR19796] - BSA and Azide free (ab251422)

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

This data was developed using ab205236, 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 with ab205236 at 1/700 dilution (red) compared with a rabbit monoclonal IgG 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.



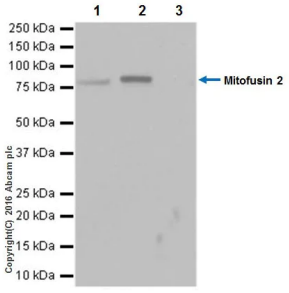
Immunocytochemistry/ Immunofluorescence - Anti-Mitofusin 2 antibody [EPR19796] - BSA and Azide free (ab251422)

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

This data was developed using ab205236, 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 with ab205236 at 1/250 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 cell line.

The nuclear counter stain is DAPI (blue). COX IV is detected with ab33985 (Anti-COX IV antibody [mAbcam33985] - Mitochondrial Marker), at 1/200 dilution, followed by secondary detection using ab150120 Alexa Fluor® 594 Goat anti-Mouse (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.



Immunoprecipitation - Anti-Mitofusin 2 antibody [EPR19796] - BSA and Azide free (ab251422)

This data was developed using ab205236, the same antibody clone in a different buffer formulation.
Mitofusin 2 was immunoprecipitated from 0.35 mg of HeLa (Human epithelial cell line from cervix adenocarcinoma) whole cell lysate with ab205236 at 1/30 dilution. Western blot was performed from the immunoprecipitate using ab205236 at 1/1000 dilution. VeriBlot for IP Detection Reagent (HRP) (ab131366), was used for detection at 1/10000 dilution.

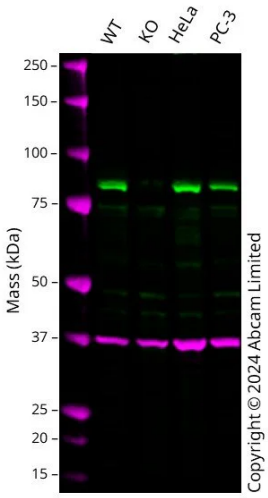
Lane 1: HeLa whole cell lysate, 10 µg (Input).
Lane 2: ab205236 IP in HeLa whole cell lysate.
Lane 3: Rabbit monoclonal IgG (ab172730) instead of ab205236 in HeLa whole cell lysate.

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

Exposure time: 3 seconds.

All lanes:
Immunoprecipitation - Anti-Mitofusin 2 antibody [EPR19796] (ab205236)

Predicted band size: 86 kDa



Western blot - Anti-Mitofusin 2 antibody [EPR19796] - BSA and Azide free (ab251422)

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

This data was developed using the same antibody clone in a different buffer formulation (ab205236).

Western blot: Anti-MFN2 antibody [EPR19796] (ab205236) staining at 1/2000 dilution, shown in green; Mouse anti-GAPDH antibody [6C5] (ab8245) loading control staining at 1/20000 dilution, shown in magenta. In Western blot, ab205236 was shown to bind specifically to MFN2. A band was observed at 80 kDa in wild-type HEK-293 cell lysates with no signal observed at this size in MFN2 knockout cell line. To generate this image, wild-type and MFN2 knockout HEK-293 cell lysates were analysed. First, samples were run on an SDS-PAGE gel then transferred onto a nitrocellulose membrane. Membranes were blocked in 3 % milk in TBS-0.1 % Tween® 20 (TBS-T) before incubation with primary antibodies overnight at 4 °C. Blots were washed four times in TBS-T, incubated with secondary antibodies for 1 h at room temperature, washed again four times then imaged. Secondary antibodies used were Goat anti-Rabbit IgG H&L 800CW and Goat anti-Mouse IgG H&L 680RD at 1/20000 dilution.

All lanes:
Western blot - Anti-Mitofusin 2 antibody [EPR19796] (ab205236) at 1/2000 dilution

Lane 1:
Wild-type HEK-293 cell lysate at 20 µg

Lane 2:
MFN2 knockout HEK-293 cell lysate at 20 µg

Lane 3:
HeLa cell lysate at 20 µg

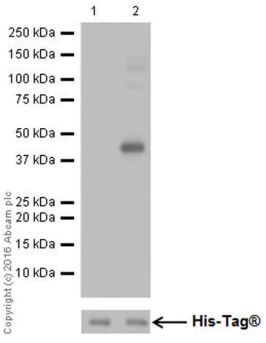
Lane 4:
PC-3 cell lysate at 20 µg

Secondary

All lanes:
Goat anti-Rabbit IgG H&L 800CW and Goat anti-Mouse IgG H&L 680RD at 1/20000 dilution

Performed under reducing conditions.

Observed band size: 80 kDa



Western blot - Anti-Mitofusin 2 antibody [EPR19796] - BSA and Azide free (ab251422)

This data was developed using ab205236, the same antibody clone in a different buffer formulation.
Blocking and dilution buffer: 5% NFDM/TBST.

Human Mitofusin 1 recombinant protein fragment contains aa130-485 with a His-Tag®. Human Mitofusin 2 recombinant protein fragment contains aa151-506 with a His-Tag®.

All lanes:
Western blot - Anti-Mitofusin 2 antibody [EPR19796] (ab205236) at 1/5000 dilution

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

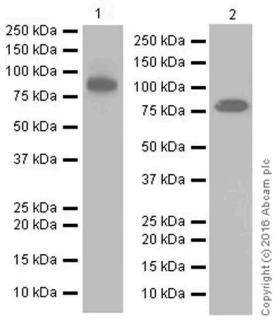
Lane 2:
Human Mitofusin 2 recombinant protein fragment at 0.01 µg

Secondary

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

Predicted band size: 86 kDa

Exposure time: 1s



Western blot - Anti-Mitofusin 2 antibody [EPR19796] - BSA and Azide free (ab251422)

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

This data was developed using ab205236, the same antibody clone in a different buffer formulation.
Blocking and dilution buffer: 5% NFDM/TBST.

All lanes:
Western blot - Anti-Mitofusin 2 antibody [EPR19796] (ab205236) at 1/2000 dilution

Lane 1:
HeLa (Human epithelial cell line from cervix adenocarcinoma) whole cell lysate at 20 µg

Lane 2:
HEK-293 (Human epithelial cell line from embryonic kidney) whole cell lysate at 20 µg

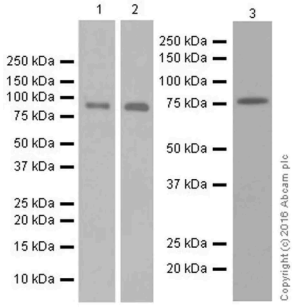
Secondary

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

Predicted band size: 86 kDa

Observed band size: 86 kDa

Exposure time: 10s



Western blot - Anti-Mitofusin 2 antibody [EPR19796] - BSA and Azide free (ab251422)

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

This data was developed using ab205236, the same antibody clone in a different buffer formulation.
Blocking and dilution buffer: 5% NFDM/TBST.

Exposure times: Lane 1: 15 seconds; Lanes 2-3: 30 seconds.

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

All lanes:
Western blot - Anti-Mitofusin 2 antibody [EPR19796] (ab205236) at 1/5000 dilution

Lane 1:

Human fetal heart lysate at 10 µg

Lane 2:
Human fetal kidney lysate at 10 µg

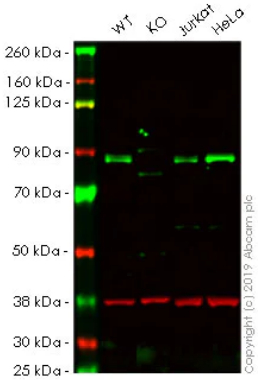
Lane 3:
Human fetal liver lysate at 10 µg

Secondary

All lanes:
Goat Anti-Rabbit IgG Peroxidase Conjugate, specific to the non-reduced form of IgG at 1/100000 dilution

Predicted band size: 86 kDa

Observed band size: 86 kDa



Western blot - Anti-Mitofusin 2 antibody [EPR19796] - BSA and Azide free (ab251422)

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

This data was developed using ab205236, the same antibody clone in a different buffer formulation.
Lanes 1 - 4: Merged signal (red and green). Green - ab205236 observed at 86 kDa. Red - loading control, ab8245, observed at 37 kDa.

ab205236 was shown to recognize MFN2 (Mitofusin 2) in wild-type HEK-293 cells as signal was lost at the expected MW in MFN2 knockout cells. Additional cross-reactive bands were observed in the wild-type and knockout cells. Wild-type and MFN2 knockout samples were subjected to SDS-PAGE. The membrane was blocked with 3% Milk. ab205236 and ab8245 (Mouse anti-GAPDH loading control) were incubated overnight at 4°C at 1/2000 dilution and 1/20000 dilution respectively. Blots were developed with Goat anti-Rabbit IgG H&L (IRDye® 800CW) preabsorbed ab216773 and Goat anti-Mouse IgG H&L (IRDye® 680RD) preabsorbed ab216776 secondary antibodies at 1/20000 dilution for 1 hour at room temperature before imaging.

All lanes:
Western blot - Anti-Mitofusin 2 antibody [EPR19796] (ab205236) at 1/2000 dilution

Lane 1:
Wild-type HEK-293 (Human epithelial cell line from embryonic kidney) whole cell lysate at 20 µg

Lane 2:
MFN2 knockout HEK-293 (Human epithelial cell line from embryonic kidney) whole cell lysate at 20 µg

Lane 2:
Western blot - Human MFN2 (Mitofusin 2) knockout HEK-293 cell line (ab260861)

Lane 3:
Jurkat (Human T cell leukemia cell line from peripheral blood) whole cell lysate at 20 µg

Lane 4:
HeLa (Human epithelial cell line from cervix adenocarcinoma) whole cell lysate at 20 µg

Predicted band size: 86 kDa

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