abcam

ab252432

Anti-mtTFA antibody [EPR23548-120] - Mitochondrial Marker

Recombinant | RabMAb | 20ul selling size

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	pH: 7.2 - 7.4 Preservative: 0.01% Sodium azide Constituents: PBS, 40% Glycerol (glycerin, glycerine), 0.05% BSA
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Clone number	EPR23548-120
Purification technique	Affinity purification Protein A
Concentration	0.555 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IP

Tested

Species	Mouse, Rat
Dilution info	-
Notes	-

Not recommended

Species	Human
Dilution info	-
Notes	-

WB

Tested

Species	Mouse
Dilution info	1/1000
Notes	-

Species	Rat
Dilution info	1/1000
Notes	-

Not recommended

Species	Human
Dilution info	-
Notes	-

IHC-P

Not recommended

Species	Rat, Human, Mouse
Dilution info	-
Notes	-

ICC/IF

Tested

Species	Mouse

Dilution info	1/500
Notes	-

Species	Rat
Dilution info	1/500
Notes	-

Not recommended

Species	Human
Dilution info	-
Notes	-

Flow Cyt (Intra)

Tested

Species	Mouse
Dilution info	1/600
Notes	-

Expected

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

Not recommended

Species	Human
Dilution info	-
Notes	-

Target data

See full target information Tfam

Function	Isoform Mitochondrial. Binds to the mitochondrial light strand promoter and functions in mitochondrial transcription regulation (By similarity). Component of the mitochondrial transcription initiation complex, composed at least of TFB2M, TFAM and POLRMT that is required for basal transcription of mitochondrial DNA (By similarity). In this complex, TFAM recruits POLRMT to a specific promoter whereas TFB2M induces structural changes in POLRMT to enable promoter opening and trapping of the DNA non-template strand (By similarity). Required for accurate and efficient promoter recognition by the mitochondrial RNA polymerase (By similarity). Promotes transcription initiation from the HSP1 and the light strand promoter by binding immediately upstream of transcriptional start sites (By similarity). Is able to unwind DNA (By similarity). Bends the mitochondrial light strand promoter DNA into a U-turn shape via its HMG boxes (By similarity). Required for maintenance of normal levels of mitochondrial DNA (PubMed:9500544). May play a role in organizing and compacting mitochondrial DNA (PubMed:17581862). Isoform Nuclear. May also function as a transcriptional activator or may have a structural role in the compaction of nuclear DNA during spermatogenesis.

Storage

Shipped at conditions	Conditional Ambient
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

Notes

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.

Supplementary info

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

Activity summary	MtTFA also known as mitochondrial transcription factor A or TFAM is an important element in mitochondrial DNA regulation. It plays a pivotal role in maintaining mitochondrial genome integrity and ensuring proper mitochondrial function. This protein weighing approximately 25 kDa is expressed within the mitochondria. It binds to the mitochondrial DNA facilitating the transcription and replication processes ensuring the correct functioning of cellular energy metabolism.
Biological function summary	MtTFA is essential for mitochondrial DNA packaging and transcriptional activation. It acts as a binding factor that organizes the mtDNA into a nucleoid-like structure providing protection and stability. MtTFA functions as part of a larger multi-protein complex that includes mitochondrial RNA polymerase ensuring proper transcription of mitochondrial genes. These activities are critical for normal energy production and mitochondrial biogenesis.
Pathways	The mtTFA protein is integral to the oxidative phosphorylation and mitochondrial biogenesis pathways. It orchestrates the expression of genes critical for these pathways alongside related proteins like NRF2 and PGC-1α. MtTFA ensures effective mitochondrial function by modulating the transcription of key mitochondrial-encoded components necessary for electron transport and ATP synthesis thereby sustaining cellular energy balance.
Associated diseases and disorders	MtTFA dysregulation is associated with mitochondrial diseases and neurodegenerative disorders. Abnormal mtTFA activity disrupts mitochondrial DNA maintenance potentially leading to conditions like mitochondrial myopathy. It is also linked with proteins such as POLG which are involved in mitochondrial DNA replication. Understanding mtTFA's role in these pathologies highlights its importance as a target in therapeutic strategies aimed at restoring mitochondrial function and preventing disease progression.

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

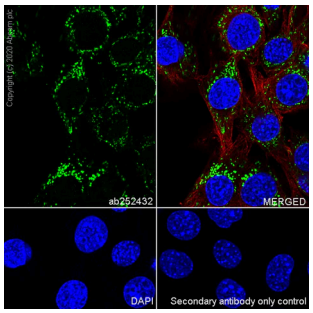
We do not recommend this combination. It is not covered by our product promise.

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.

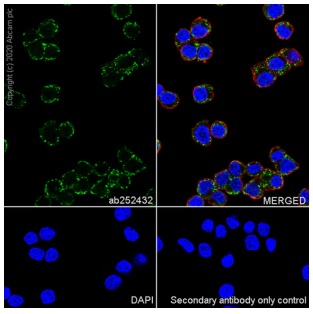
7 product images



Immunocytochemistry/ Immunofluorescence - Anti-mtTFA antibody [EPR23548-120] - Mitochondrial Marker (ab252432)

MtTFA Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-mtTFA antibody

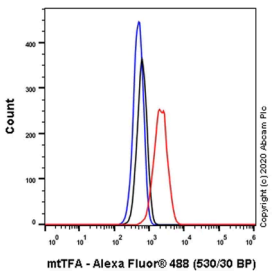
Immunofluorescent analysis of 4% Paraformaldehyde-fixed, 0.1% TritonX-100 permeabilized C2C12 cells labelling mtTFA with ab252432 at 1/500 dilution, followed by ab150077 Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) antibody at 1/1000 2 ug/ml dilution (Green). Confocal image showing cytoplasmic staining in C2C12 cell line is observed. ab195889 Anti-alpha Tubulin mouse monoclonal antibody - Microtubule Marker (Alexa Fluor® 594) was used to counterstain tubulin at 1/200 dilution (Red). The Nuclear counterstain was DAPI (Blue).
Secondary antibody only control: Secondary antibody is ab150077 Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) at 1/1000 2 ug/ml dilution.



Immunocytochemistry/ Immunofluorescence - Anti-mtTFA antibody [EPR23548-120] - Mitochondrial Marker (ab252432)

MtTFA Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-mtTFA antibody

Immunofluorescent analysis of 4% Paraformaldehyde-fixed, 0.1% TritonX-100 permeabilized PC-12 cells labelling mtTFA with ab252432 at 1/500 dilution, followed by ab150077 Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) antibody at 1/1000 2 ug/ml dilution (Green). Confocal image showing cytoplasmic staining in PC-12 cell line is observed. ab195889 Anti-alpha Tubulin mouse monoclonal antibody - Microtubule Marker (Alexa Fluor® 594) was used to counterstain tubulin at 1/200 dilution (Red). The Nuclear counterstain was DAPI (Blue).
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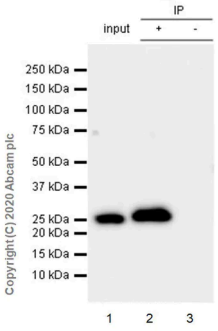


Flow Cytometry (Intracellular) - Anti-mtTFA antibody [EPR23548-120] - Mitochondrial Marker (ab252432)

MtTFA Flow Cytometry (Intracellular) staining using rabbit Anti-mtTFA antibody

Intracellular flow cytometric analysis of 4% paraformaldehyde fixed 90% methanol permeabilized C2C12 (Mouse myoblasts myoblast) cells labelling mtTFA with ab252432 at 1/600 dilution (0.1ug) (Red) compared with a Rabbit monoclonal IgG (ab172730) (Black) isotype control and an unlabelled control (cells without incubation with primary antibody and secondary antibody)

(Blue). A Goat anti rabbit IgG (Alexa Fluor® 488, ab150077) at 1/2000 dilution was used as the secondary antibody.



Immunoprecipitation - Anti-mtTFA antibody [EPR23548-120] - Mitochondrial Marker (ab252432)

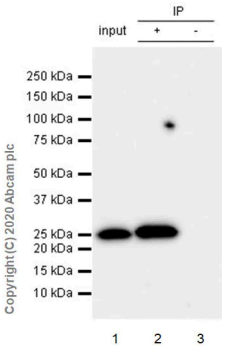
mtTFA was immunoprecipitated from 0.35 mg PC-12 (rat adrenal gland pheochromocytoma) whole cell lysate using ab252432 at 1/30 dilution. Western blot was performed on the immunoprecipitate using ab252432 at 1/500 dilution, followed by VeriBlot for IP Detection Reagent (HRP)(ab131366) at 1/1000 dilution.
Lane 1: PC-12 whole cell lysate (Input)
Lane 2: ab252432 IP in PC-12 cell lysate
Lane 3: Rabbit monoclonal IgG (ab172730) instead of ab252432 in PC-12 whole cell lysate

Blocking /Diluting buffer and concentration: 5% NFDM/TBST

Exposure time: 32 seconds

All lanes:
Immunoprecipitation - Anti-mtTFA antibody [EPR23548-120] - Mitochondrial Marker (ab252432)

Predicted band size: 29 kDa



Immunoprecipitation - Anti-mtTFA antibody [EPR23548-120] - Mitochondrial Marker (ab252432)

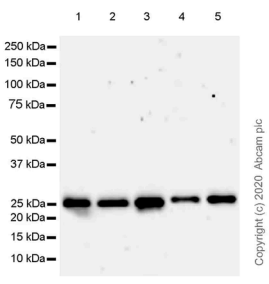
mtTFA was immunoprecipitated from 0.35 mg C2C12 (mouse myoblasts myoblast) whole cell lysate using ab252432 at 1/30 dilution. Western blot was performed on the immunoprecipitate using ab252432 at 1/500 dilution, followed by VeriBlot for IP Detection Reagent (HRP)(ab131366) at 1/1000 dilution.
Lane 1: C2C12 whole cell lysate (Input)
Lane 2: ab252432 IP in C2C12 cell lysate
Lane 3: Rabbit monoclonal IgG (ab172730) instead of ab252432 in C2C12 whole cell lysate

Blocking /Diluting buffer and concentration: 5% NFDM/TBST

Exposure time: 32 seconds

All lanes:
Immunoprecipitation - Anti-mtTFA antibody [EPR23548-120] - Mitochondrial Marker (ab252432)

Predicted band size: 29 kDa



Western blot - Anti-mtTFA antibody [EPR23548-120] - Mitochondrial Marker (ab252432)

MtTFA Western blot staining using rabbit Anti-mtTFA antibody

Blocking and diluting buffer and concentration: 5% NFDM/TBST.
Exposure time: 3 minutes.

All lanes:
Western blot - Anti-mtTFA antibody [EPR23548-120] - Mitochondrial Marker (ab252432) at 1/1000 dilution

Lane 1:
Mouse cerebellum tissue lysate at 20 µg

Lane 2:
Mouse heart tissue lysate at 20 µg

Lane 3:
Mouse kidney tissue lysate at 20 µg

Lane 4:
Rat cerebellum tissue lysate at 20 µg

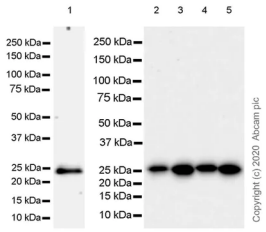
Lane 5:
Rat heart tissue lysate at 20 µg

Secondary

All lanes:
Goat Anti-Rabbit IgG, (H+L), Peroxidase conjugated (ab97051) at 1/50000 dilution

Predicted band size: 29 kDa

Observed band size: 25 kDa



Western blot - Anti-mtTFA antibody [EPR23548-120] - Mitochondrial Marker (ab252432)

MtTFA Western blot staining using rabbit Anti-mtTFA antibody

Blocking and diluting buffer and concentration: 5% NFDM/TBST.
The molecular weight observed is consistent with what has been described in the literature (PMID: 25375380)

Exposure times: Lane 1: 3 minutes; Lanes 2-5: 70 seconds.

All lanes:
Western blot - Anti-mtTFA antibody [EPR23548-120] - Mitochondrial Marker (ab252432) at 1/1000 dilution

Lane 1:
C2C12 (mouse myoblasts myoblast) whole cell lysate at 20 µg

Lane 2:
C6 (rat glial tumor glial cell) whole cell lysate at 20 µg

Lane 3:
RAW 264.7 (mouse abelson murine leukemia virus-induced tumor macrophage) whole cell lysate at 20 µg

Lane 4:
PC-12 (rat adrenal gland pheochromocytoma) whole cell lysate at 20 µg

Lane 5:
NIH/3T3 (mouse embryonic fibroblast) whole cell lysate at 20 µg

Secondary

All lanes:
Goat Anti-Rabbit IgG, (H+L), Peroxidase conjugated (ab97051) at 1/50000 dilution

Predicted band size: 29 kDa

Observed band size: 25 kDa

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