abcam

ab307303

Anti-mtTFA antibody [RM1035] - 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	Multiclonal
Immunogens	The exact immunogen used to generate this antibody is proprietary information.
Carrier free	Yes
Clone number	RM1035
Purification technique	Affinity purification Protein A
Specificity	IHC-P is not suitable for testing mouse and rat samples.

Reactivity data

IP

Tested

Species	Mouse, Human
Dilution info	-
Notes	-

Expected

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

Flow Cyt

Tested

Species	Mouse, Human
Dilution info	-
Notes	-

Expected

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

ICC/IF

Tested

Species	Mouse, Human
Dilution info	-
Notes	-

Expected

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

IHC-P

Tested

Species	Human
Dilution info	-
Notes	IHC-P is not suitable for testing mouse and rat samples.

Not recommended

Species	Rat
Dilution info	-
Notes	IHC-P is not suitable for testing mouse and rat samples.

Species	Mouse
Dilution info	-
Notes	IHC-P is not suitable for testing mouse and rat samples.

WB

Tested

Species	Rat, Mouse, Human
Dilution info	-
Notes	-

Target data

See full target information TFAM

Function Binds to the mitochondrial light strand promoter and functions in mitochondrial transcription regulation (PubMed:29445193, PubMed:32183942). Component of the mitochondrial transcription initiation complex, composed at least of TFB2M, TFAM and POLRMT that is required for basal transcription of mitochondrial DNA (PubMed:29149603). 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 (PubMed:20410300). Required for accurate and efficient promoter recognition by the mitochondrial RNA polymerase (PubMed:22037172). Promotes transcription initiation from the HSP1 and the light strand promoter by binding immediately upstream of transcriptional start sites (PubMed:22037172). Is able to unwind DNA (PubMed:22037172). Bends the mitochondrial light strand promoter DNA into a U-turn shape via its HMG boxes (PubMed:1737790). Required for maintenance of normal levels of mitochondrial DNA (PubMed:19304746, PubMed:22841477). May play a role in organizing and compacting mitochondrial DNA (PubMed:22037171).

Storage

Shipped at conditions	Blue Ice
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	+4°C

Notes

What are recombinant multiclonals?
Recombinant multiclonals are a mixture of recombinant antibodies co-expressed from a library of heavy and light chains. They offer several advantages including:

- The sensitivity of polyclonal antibodies by recognising multiple epitopes
- High batch-to-batch consistency and reproducibility
- Improved sensitivity and specificity
- Long-term security of supply
- Animal-free batch production

View our range of recombinant multiclonal antibodies.

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.

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	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

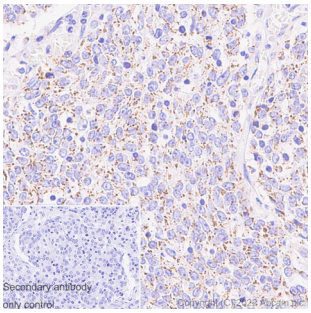
We do not recommend this combination. It is not covered by our product promise.

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:

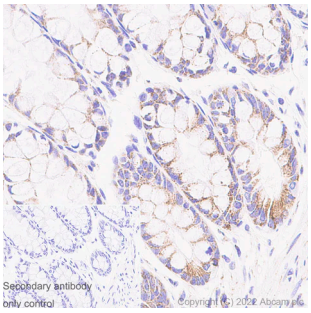
9 product images



Immunohistochemistry - Anti-mtTFA antibody [RM1035] - BSA and Azide free (ab307303)

MtTFA Immunohistochemistry staining of Human lung carcinoma using rabbit Anti-mtTFA antibody

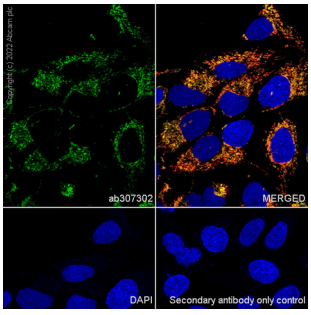
This data was developed using ab307302, the same antibody clone in a different buffer formulation. Immunohistochemical analysis of paraffin-embedded Human lung carcinoma tissue labeling mtTFA with ab307302 at 1/1000 (0.54 ug/ml) followed by a ready to use LeicaDS9800 (Bond® Polymer Refine Detection). Positive staining on mitochondria in human lung carcinoma. The section was incubated with ab307302 for 30 mins at room temperature. The immunostaining was performed on a Leica Biosystems BOND® RX instrument. Counterstained with Hematoxylin. Secondary antibody only control: Secondary antibody is a ready to use LeicaDS9800 (Bond® Polymer Refine Detection). Heat mediated antigen retrieval with Citrate buffer (pH 6.0, epitope retrieval solution 1) for 20 mins



Immunohistochemistry - Anti-mtTFA antibody [RM1035] - BSA and Azide free (ab307303)

MtTFA Immunohistochemistry staining of Human colon using rabbit Anti-mtTFA antibody

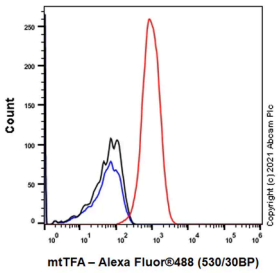
This data was developed using ab307302, the same antibody clone in a different buffer formulation. Immunohistochemical analysis of paraffin-embedded Human colon tissue labeling mtTFA with ab307302 at 1/1000 (0.54 ug/ml) followed by a ready to use LeicaDS9800 (Bond® Polymer Refine Detection). Positive staining on mitochondria in human colon. The section was incubated with ab307302 for 30 mins at room temperature. The immunostaining was performed on a Leica Biosystems BOND® RX instrument. Counterstained with Hematoxylin. Secondary antibody only control: Secondary antibody is a ready to use LeicaDS9800 (Bond® Polymer Refine Detection). Heat mediated antigen retrieval with Citrate buffer (pH 6.0, epitope retrieval solution 1) for 20 mins



Immunocytochemistry/ Immunofluorescence - Anti-mtTFA antibody [RM1035] - BSA and Azide free (ab307303)

MtTFA Immunocytochemistry/ Immunofluorescence staining of U-2 OS (human bone osteosarcoma epithelial cell) using rabbit Anti-mtTFA antibody

This data was developed using ab307302, the same antibody clone in a different buffer formulation. Immunofluorescent analysis of 4% Paraformaldehyde-fixed, 0.1% Triton X-100 permeabilized U-2 OS (human bone osteosarcoma epithelial cell) cells labeling mtTFA with ab307302 at 1/100 (5.4 ug/ml) dilution, followed by ab150081 Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) preadsorbed antibody at 1/1000 (2 ug/ml) dilution (Green). Confocal image showing mitochondrial staining in U-2 OS cell line. Image was taken with a confocal microscope(Leica-Microsystems, TCS SP8). ab197491 Anti-COX IV Mouse monoclonal antibody (Alexa Fluor® 647) - Mitochondrial Marker was used to counterstain tubulin at 1/200 dilution (2.5 ug/ml) dilution (Red). The nuclear counterstain was DAPI (Blue). Secondary antibody only control: Secondary antibody is ab150081 Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) preadsorbed at 1/1000 (2 ug/ml) dilution.

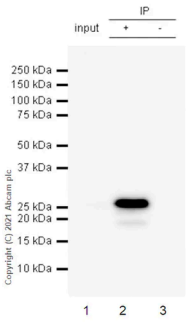


Flow Cytometry (Intracellular) - Anti-mtTFA antibody [RM1035] - BSA and Azide free (ab307303)

MtTFA Flow Cytometry (Intracellular) staining of MCF7 (human breast adenocarcinoma epithelial cell) using rabbit Anti-mtTFA antibody

This data was developed using ab307302, the same antibody clone in a different buffer formulation.

Flow cytometric analysis of 4% paraformaldehyde fixed 90% methanol permeabilized MCF7 (human breast adenocarcinoma epithelial cell) cells labelling mtTFA with ab307302 at 1/500 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, ab150081) at 1/2000 dilution was used as the secondary antibody.



Immunoprecipitation - Anti-mtTFA antibody [RM1035] - BSA and Azide free (ab307303)

This data was developed using ab307302, the same antibody clone in a different buffer formulation.
mtTFA was immunoprecipitated from 0.35 mg MCF7 (human breast adenocarcinoma epithelial cell) whole cell lysate 10µg with ab307302 at 1/30 dilution (2ug in 0.35mg lysates). Western blot was performed on the immunoprecipitate using ab307302 at 1/1000 dilution. VeriBlot for IP secondary antibody (HRP) (ab131366) was used at 1/5000 dilution.

Lane 1: MCF7 (human breast adenocarcinoma epithelial cell) whole cell lysate 10µg
Lane 2: ab307302 IP in MCF7 whole cell lysate
Lane 3: Rabbit monoclonal IgG (ab172730) instead of ab307302 in MCF7 whole cell lysate

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

Exposure time: 8 seconds

All lanes:
Immunoprecipitation - Anti-mtTFA antibody [RM1035] - Mitochondrial Marker (ab307302) at 1/1000 dilution

Lane 1:
MCF7 (human breast adenocarcinoma epithelial cell) whole cell lysate 10 µg

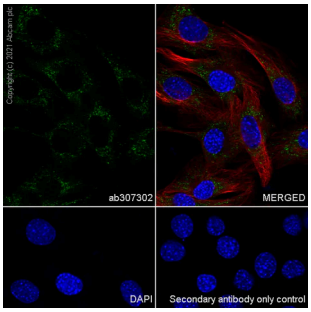
Lane 2:
MCF7 whole cell lysate

Secondary

All lanes:
Immunoprecipitation - VeriBlot for IP Detection Reagent (HRP) (ab131366) at 1/5000 dilution

Observed band size: 25 kDa

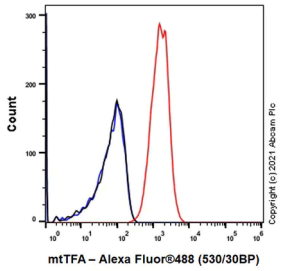
Exposure time: 8s



Immunocytochemistry/ Immunofluorescence - Anti-mtTFA antibody [RM1035] - BSA and Azide free (ab307303)

MtTFA Immunocytochemistry/ Immunofluorescence staining of C2C12 (mouse myoblasts myoblast) using rabbit Anti-mtTFA antibody

This data was developed using ab307302, the same antibody clone in a different buffer formulation. Immunofluorescent analysis of 4% Paraformaldehyde-fixed, 0.1% Triton X-100 permeabilized C2C12 (mouse myoblasts myoblast) cells labeling mtTFA with ab307302 at 1/100 (5.4 ug/ml) dilution, followed by ab150081 Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) preadsorbed antibody at 1/1000 (2 ug/ml) dilution (Green). Confocal image showing cytoplasmic staining in C2C12 cell line. Image was taken with a confocal microscope (Leica-Microsystems, TCS SP8). ab195889 Anti-alpha Tubulin mouse monoclonal antibody - Microtubule Marker (Alexa Fluor® 594) was used to counterstain tubulin at 1/200 dilution (2.5 ug/ml) dilution (Red). The nuclear counterstain was DAPI (Blue). Secondary antibody only control: Secondary antibody is ab150081 Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) preadsorbed at 1/1000 (2 ug/ml) dilution.

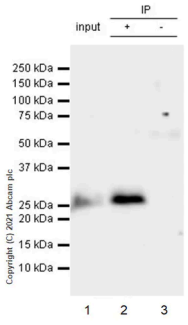


Flow Cytometry (Intracellular) - Anti-mtTFA antibody [RM1035] - BSA and Azide free (ab307303)

MtTFA Flow Cytometry (Intracellular) staining of C2C12 (mouse myoblast) using rabbit Anti-mtTFA antibody

This data was developed using ab307302, the same antibody clone in a different buffer formulation.

Flow cytometric analysis of 4% paraformaldehyde fixed 90% methanol permeabilized C2C12 (mouse myoblast) cells labelling mtTFA with ab307302 at 1/500 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, ab150081) at 1/2000 dilution was used as the secondary antibody.



Immunoprecipitation - Anti-mtTFA antibody [RM1035] - BSA and Azide free (ab307303)

This data was developed using ab307302, the same antibody clone in a different buffer formulation.
mtTFA was immunoprecipitated from 0.35 mg C2C12 (mouse myoblast) whole cell lysate 10µg with ab307302 at 1/30 dilution (2ug in 0.35mg lysates). Western blot was performed on the immunoprecipitate using ab307302 at 1/1000 dilution. VeriBlot for IP secondary antibody (HRP) (ab131366) was used at 1/5000 dilution.

Lane 1: C2C12 (mouse myoblast) whole cell lysate 10µg
Lane 2: ab307302 IP in C2C12 whole cell lysate
Lane 3: Rabbit monoclonal IgG (ab172730) instead of ab307302 in C2C12 whole cell lysate

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

Exposure time: 24 seconds

All lanes:
Immunoprecipitation - Anti-mtTFA antibody [RM1035] - Mitochondrial Marker (ab307302) at 1/1000 dilution

Lane 1:
C2C12 (mouse myoblast) whole cell lysate 10 µg

Lane 2:
C2C12 whole cell lysate

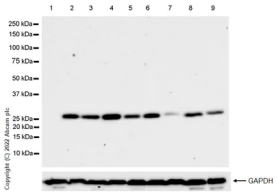
Lane 3:
Rabbit monoclonal IgG (ab172730) instead of ab307302 in C2C12 whole cell lysate

Secondary

All lanes:
Immunoprecipitation - VeriBlot for IP Detection Reagent (HRP) (ab131366) at 1/5000 dilution

Observed band size: 25 kDa

Exposure time: 24s



Western blot - Anti-mtTFA antibody [RM1035] - BSA and Azide free (ab307303)

MtTFA Western blot staining using rabbit Anti-mtTFA antibody

This data was developed using ab307302, the same antibody clone in a different buffer formulation. Blocking and diluting buffer and concentration: 70 seconds Exposure time:
All lanes:
Western blot - Anti-mtTFA antibody [RM1035] - Mitochondrial Marker (ab307302) at 1/1000 dilution

Lane 1:
HepG2 (human hepatocellar carcinoma epithelial cell) non-mitochondrial fraction 20 µg

Lane 2:
HepG2 mitochondria fraction 20 µg

Lane 3:
MCF7 (human breast adenocarcinoma epithelial cell) whole cell lysate 20 µg

Lane 4:
HEK-293 (human embryonic kidney epithelial cell) whole cell lysate 20 µg

Lane 5:
C2C12 (mouse myoblast) whole cell lysate 20 µg

Lane 6:
NIH/3T3 (mouse embryonic fibroblast) whole cell lysate 20 µg

Lane 7:
C6 (rat glial tumor glial cell) whole cell lysate 20 µg

Lane 8:
Mouse heart lysate 20 µg

Lane 9:
Rat heart lysate 20 µg

Secondary

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

Observed band size: 25 kDa

Exposure time: 70s

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