abcam

ab119684

Anti-mtTFA antibody [18G102B2E11] - Mitochondrial Marker

Lab Essentials

Key facts

Isotype	IgG2b
Host species	Mouse
Storage buffer	pH: 7.5 Preservative: 0.02% Sodium azide Constituents: HEPES buffered saline
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Clone number	18G102B2E11
Purification technique	Precipitation Ammonium Sulphate
Light chain type	kappa
Concentration	1 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →
Purification notes	Purity is near homogeneity as judged by SDS-PAGE. ab119684 was produced in vitro using hybridomas grown in serum-free medium, and then concentrated by ammonium sulfate precipitation.

Reactivity data

IHC-P

Tested

Species	Human
Dilution info	5 µg/mL
Notes	-

Not recommended

Species	Mouse, Rat, Recombinant full length protein
Dilution info	-
Notes	-

Flow Cyt

Tested

Species	Human
Dilution info	1 µg/mL
Notes	ab170192 - Mouse monoclonal IgG2b, is suitable for use as an isotype control with this antibody.

Not recommended

Species	Mouse
Dilution info	-
Notes	ab170192 - Mouse monoclonal IgG2b, is suitable for use as an isotype control with this antibody.

Species	Rat
Dilution info	-
Notes	ab170192 - Mouse monoclonal IgG2b, is suitable for use as an isotype control with this antibody.

Species	Recombinant full length protein
Dilution info	-
Notes	-

WB

Tested

Species	Recombinant full length protein
Dilution info	1 µg/mL
Notes	-

Species	Human
Dilution info	1 µg/mL
Notes	-

Not recommended

Species	Mouse, Rat
Dilution info	-
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	1 µg/mL
Notes	-

Not recommended

Species	Mouse, Rat, Recombinant full length protein
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
Storage information	Do Not Freeze

Notes

Want a custom formulation?
This antibody clone is manufactured by Abcam. If you require a custom buffer formulation or conjugation for your experiments, please contact orders@abcam.com

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

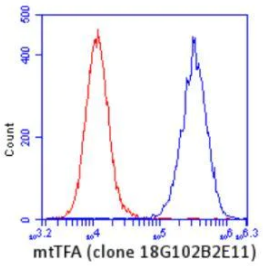
We do not recommend this combination. It is not covered by our product promise.

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.

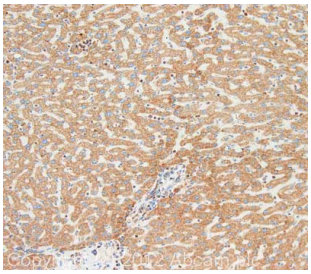
4 product images



Flow Cytometry - Anti-mtTFA antibody [18G102B2E11] - Mitochondrial Marker (ab119684)

MtTFA Flow Cytometry staining using mouse Anti-mtTFA antibody

HeLa cells were stained with 2 µg/mL mtTFA antibody (ab119684) (blue) or an equal amount of an isotype control antibody (red) and analyzed by flow cytometry.

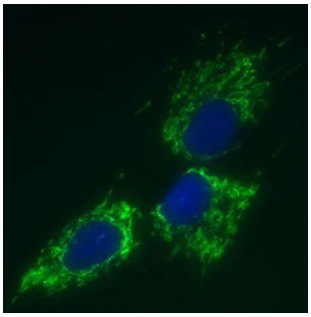


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-mtTFA antibody [18G102B2E11] - Mitochondrial Marker (ab119684)

MtTFA Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using mouse Anti-mtTFA antibody

IHC image of mtTFA staining in human liver HCC formalin fixed paraffin embedded tissue section, performed on a Leica Bond™ system using the standard protocol F. The section was pre-treated using heat mediated antigen retrieval with sodium citrate buffer (pH6, epitope retrieval solution 1) for 20 mins. The section was then incubated with ab119684, 5µg/ml, for 15 mins at room temperature and detected using an HRP conjugated compact polymer system. DAB was used as the chromogen. The section was then counterstained with haematoxylin and mounted with DPX.

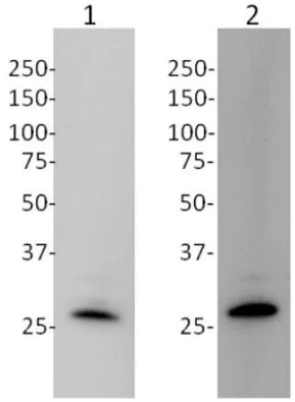
For other IHC staining systems (automated and non-automated) customers should optimize variable parameters such as antigen retrieval conditions, primary antibody concentration and antibody incubation times.



Immunocytochemistry/ Immunofluorescence - Anti-mtTFA antibody [18G102B2E11] - Mitochondrial Marker (ab119684)

MtTFA Immunocytochemistry/ Immunofluorescence staining using mouse Anti-mtTFA antibody

Immunocytochemistry image of ab119684 stained human HDFn cells. The cells were paraformaldehyde fixed (4%, 20 min) and Triton X-100 permeabilized (0.1%, 15min). The cells were incubated with the antibody (18G102B2E11, 1µg/ml) for 2h at room temperature. The secondary antibody was (green) 488 goat anti-mouse IgG (H+L) used at a 1/1000 dilution for 1h. 10% Goat serum was used as the blocking agent for all blocking steps. DAPI was used to stain the cell nuclei (blue). mtTFA localizes to the mitochondria.



Western blot - Anti-mtTFA antibody [18G102B2E11] - Mitochondrial Marker (ab119684)

All lanes:
Western blot - Anti-mtTFA antibody [18G102B2E11] - Mitochondrial Marker (ab119684) at 1 µg/mL

Lane 1:
recombinant mtTFA (ab103784) at 0.025 µg

Lane 2:
HeLa whole cell lysate at 30 µg

Secondary

All lanes:
HRP-conjugated Goat polyclonal to mouse IgG at 1/5000 dilution

Predicted band size: 29 kDa

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