

## Anti-mtTFA/TFAM Antibody Picoband™

Catalog Number: PB9447

### About TFAM

TFAM (Transcription factor A, mitochondrial), also known as TCF6 or TCF6L2, is a 162-amino acid protein that activates transcription of each mitochondrial DNA (mtDNA) strand by binding to an element of approximately 30 nucleotides present in both the light-strand and the heavy-strand promoters. By Southern blot analysis of restriction enzyme digests of human/Chinese hamster somatic cell hybrid lines, Milatovich et al. (1992) mapped TFAM sequences, which they called MTTF1, to 3 different chromosomes: chromosomes 10, 7p, and 11q. By PCR-based screening of a somatic cell hybrid panel and by fluorescence in situ hybridization, Scott (2007) stated that the sequences mapped to chromosomes 7p (TCF6L1) and 11q (MTTF1, or TCF6L3) are pseudogenes. Larsson et al. (1997) mapped the mouse mitochondrial transcription factor A gene (Tfam) to the central part of mouse chromosome 10. This region exhibits syntenic homology with human 10q21. Mitochondrial transcription factor A is a key activator of mitochondrial transcription in mammals. It also has a role in mitochondrial DNA replication, since transcription generates an RNA primer necessary for initiation of mtDNA replication.

### Overview

|                      |                                                                                                                                                                                                       |
|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Product Name         | Anti-mtTFA/TFAM Antibody Picoband™                                                                                                                                                                    |
| Reactive Species     | Human, Mouse, Rat                                                                                                                                                                                     |
| Description          | Boster Bio Anti-mtTFA/TFAM Antibody Picoband™ catalog # PB9447. Tested in IF, IHC, ICC, WB applications. This antibody reacts with Human, Mouse, Rat.                                                 |
| Application          | IF, IHC, ICC, WB                                                                                                                                                                                      |
| Clonality            | Polyclonal                                                                                                                                                                                            |
| Formulation          | Each vial contains 4mg Trehalose, 0.9mg NaCl and 0.2mg Na <sub>2</sub> HPO <sub>4</sub> .                                                                                                             |
| Storage Instructions | Store at -20°C for one year from date of receipt. After reconstitution, at 4°C for one month. It can also be aliquotted and stored frozen at -20°C for six months. Avoid repeated freeze-thaw cycles. |
| Host                 | Rabbit                                                                                                                                                                                                |
| Uniprot ID           | Q00059                                                                                                                                                                                                |

### Technical Details

|                               |                                                                                                                                                                                          |
|-------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Immunogen                     | A synthetic peptide corresponding to a sequence at the N-terminus of human mtTFA, different from the related mouse and rat sequences by five amino acids.                                |
| Predicted Reactive Species    | Hamster                                                                                                                                                                                  |
| Recommended Detection Systems | Boster recommends Enhanced Chemiluminescent Kit with anti-Rabbit IgG (EK1002) for Western blot, and HRP Conjugated anti-Rabbit IgG Super Vision Assay Kit (SV0002-1) for IHC(P) and ICC. |
| Cross Reactivity              | No cross-reactivity with other proteins                                                                                                                                                  |

|                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|---------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Isotype             | Rabbit IgG                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Form                | Lyophilized                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Concentration       | Adding 0.2 ml of distilled water will yield a concentration of 500 ug/ml.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Purification        | Immunogen affinity purified.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Suggested Dilutions | <p>Dilute the sample so that the expected range of concentrations fall within the detection range of this kit.</p> <p>If the expected range of concentration is unknown, a pilot test should be conducted to decide the optimal dilution ratio for your samples.</p> <p>Some PubMed article(s) citing the expression level of this target are as follows:</p> <p>Boster Bio's internal QC testing used:</p> <p>Western blot, 0.1-0.5ug/ml, Human, Mouse, Rat</p> <p>Immunohistochemistry (Paraffin-embedded Section), 0.5-1ug/ml, Human, By Heat</p> <p>Immunocytochemistry/Immunofluorescence, 2ug/ml, Human</p> |

## Anti-mtTFA/TFAM Antibody Picoband™ (PB9447) Images

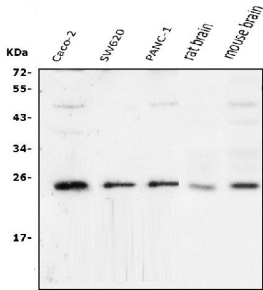


Figure 1. Western blot analysis of mtTFA using anti-mtTFA antibody (PB9447).

Electrophoresis was performed on a 5-20% SDS-PAGE gel at 70V (Stacking gel) / 90V (Resolving gel) for 2-3 hours. The sample well of each lane was loaded with 50ug of sample under reducing conditions.

Lane 1: Caco-2 whole cell lysates,  
Lane 2: SW620 whole cell lysates,  
Lane 3: PANC-1 whole cell lysates,  
Lane 4: rat brain tissue lysates,  
Lane 5: mouse brain tissue lysates.

After Electrophoresis, proteins were transferred to a Nitrocellulose membrane at 150mA for 50-90 minutes. Blocked the membrane with 5% Non-fat Milk/ TBS for 1.5 hour at RT. The membrane was incubated with rabbit anti-mtTFA antigen affinity purified polyclonal antibody (Catalog # PB9447) at 0.5 ug/mL overnight at 4°C, then washed with TBS-0.1%Tween 3 times with 5 minutes each and probed with a goat anti-rabbit IgG-HRP secondary antibody at a dilution of 1:10000 for 1.5 hour at RT. The signal is developed using an Enhanced Chemiluminescent detection (ECL) kit (Catalog # EK1002) with Tanon 5200 system. A specific band was detected for mtTFA at approximately 24KD. The expected band size for mtTFA is at 24KD.

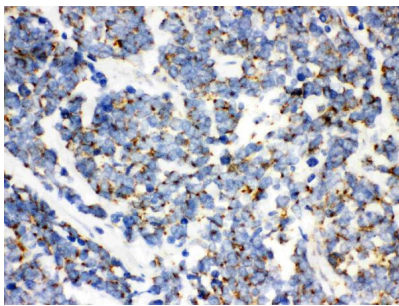


Figure 2. IHC analysis of mtTFA using anti-mtTFA antibody (PB9447). mtTFA was detected in paraffin-embedded section of human lung cancer tissue. Heat mediated antigen retrieval was performed in citrate buffer (pH6, epitope retrieval solution) for 20 mins. The tissue section was blocked with 10% goat serum. The tissue section was then incubated with 1ug/ml rabbit anti-mtTFA Antibody (PB9447) overnight at 4°C. Biotinylated goat anti-rabbit IgG was used as secondary antibody and incubated for 30 minutes at 37°C. The tissue section was developed using Streptavidin-Biotin-Complex (SABC)(Catalog # SA1022) with DAB as the chromogen.

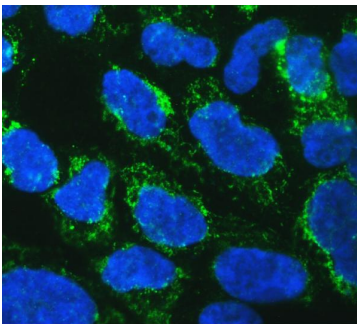
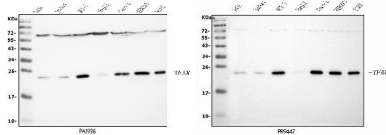


Figure 3. IF analysis of mtTFA using anti-mtTFA antibody (PB9447).

mtTFA was detected in immunocytochemical section of A431 cell. Enzyme antigen retrieval was performed using IHC enzyme antigen retrieval reagent (AR0022) for 15 mins. The cells were blocked with 10% goat serum. And then incubated with 2ug/mL rabbit anti-mtTFA Antibody (PB9447) overnight at 4°C. DyLight®488 Conjugated Goat Anti-Rabbit IgG (BA1127) was used as secondary antibody at 1:100 dilution and incubated for 30 minutes at 37°C. The section was counterstained with DAPI. Visualize using a fluorescence microscope and filter sets appropriate for the label used.

Figure 4. Western blot analysis of mtTFA using anti-mtTFA



antibody (PA1936, Left) and anti-mtTFA antibody (PB9447, Right).

Electrophoresis was performed on a 5-20% SDS-PAGE gel at 70V (Stacking gel) / 90V (Resolving gel) for 2-3 hours. The sample well of each lane was loaded with 50ug of sample under reducing conditions.

Lane 1: human A431 whole cell lysates,  
Lane 2: human Jurkat whole cell lysates,  
Lane 3: human MCF-7 whole cell lysates,  
Lane 4: human HepG2 whole cell lysates,  
Lane 5: human CACO-2 whole cell lysates,  
Lane 6: human HEK293 whole cell lysates,  
Lane 7: human K562 whole cell lysates.

After Electrophoresis, proteins were transferred to a Nitrocellulose membrane at 150mA for 50-90 minutes.

Blocked the membrane with 5% Non-fat Milk/ TBS for 1.5 hour at RT. The membrane was incubated with rabbit anti-mtTFA antigen affinity purified polyclonal antibody (Catalog # PA1936) and rabbit anti- mtTFA antigen affinity purified polyclonal antibody (Catalog # PB9447) at 0.5 ug/mL overnight at 4°C, then washed with TBS-0.1%Tween 3 times with 5 minutes each and probed with a goat anti-rabbit IgG-HRP secondary antibody at a dilution of 1:10000 for 1.5 hour at RT. The signal is developed using an Enhanced Chemiluminescent detection (ECL) kit (Catalog # EK1002) with Tanon 5200 system. A specific band was detected for mtTFA at approximately 24KD. The expected band size for mtTFA is at 24KD.

### 3 Publications Citing This Product

1. PubMed ID: -, Shen W, Jia N, Miao J, Chen S, Zhou S, Meng P, Zhou X, Tang L, Zhou L: Penicillium B Protects against Cisplatin-Induced Renal Tubular Cell Apoptosis through Activation of AMPK-Induced Autophagy and Mitochondrial Biogenesis. *Kidney Dis* 2021. doi:10.1159/000514657
2. PubMed ID: 24137381, KAIMING WU, ZHENXIAN ZHAO, YINGLIAN XIAO, JIANJUN PENG, JIANHUI CHEN and YULONG HE MOLECULAR MEDICINE REPORTS 14: 5475-5480, 2016 DOI: 10.3892/mmr.2016.5955 Roles of mitochondrial transcription factor A and microRNA-590-3p in the development of...
3. PubMed ID: 27878255, Roles of mitochondrial transcription factor A and microRNA-590-3p in the development of colon cancer

Visit [bosterbio.com/anti-mttfa-picoband-trade-antibody-pb9447-boster.html](http://bosterbio.com/anti-mttfa-picoband-trade-antibody-pb9447-boster.html) to see all 3 publications.

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