

PRODUCT INFORMATION



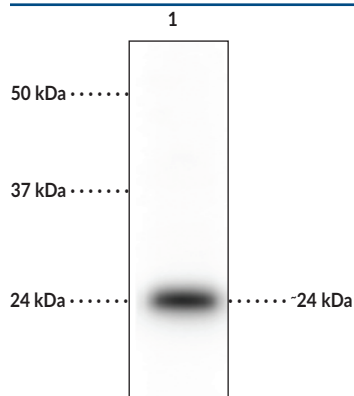
TFAM Polyclonal Antibody

Item No. 29297

Overview and Properties

Contents: This vial contains 100 µl of polyclonal antibody.
Synonyms: Mitochondrial Transcription Factor 1, Transcription Factor A, Mitochondrial
Immunogen: Native recombinant human TFAM protein with a C-terminal 6-His tag
Molecular Weight: ~24 kDa
Species Reactivity: (+) Human
Form: Liquid
Storage: -20°C (as supplied)
Stability: ≥1 year
Host: Rabbit
Applications: Western blot (WB); the recommended starting dilution is 1:2,000. Other applications were not tested, therefore optimal working concentration/dilution should be determined empirically.

Image



Lane 1: HeLa lysate

WB of HeLa lysate showing specific immunolabeling of the ~24 kDa TFAM protein.

WARNING
THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA
This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the [complete](#) Safety Data Sheet, which has been sent via email to your institution.

WARRANTY AND LIMITATION OF REMEDY
Buyer agrees to purchase the material subject to Cayman's Terms and Conditions. Complete Terms and Conditions including Warranty and Limitation of Liability information can be found on our website.

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Description

Mitochondrial transcription factor A (TFAM) is a mitochondrial DNA (mtDNA) binding protein that maintains the mitochondrial genome by regulating replication, transcription, and packaging of mtDNA.¹ It contains two high mobility group (HMG) box domains that bind mtDNA and induce a conformational change that permits binding of mitochondrial RNA polymerase (mtRNAP) to the promoter start site. TFAM binds to mtRNAP, recruiting mitochondrial transcription factor 2 (TFB2M) and initiating transcription. TFAM also maintains mitochondrial genome stability by non-specifically binding to mtDNA, packaging it into nucleoid-like structures. Homozygous knockout of *Tfam* in mice is embryonic lethal whereas heterozygous *Tfam* knockdown mice are viable but have reduced mtDNA copy numbers and decreased activity of the mitochondrial respiratory chain complexes I, III, IV, and V in the heart.² Genetic overexpression of *Tfam* reduces age-induced accumulation of lipid peroxidation products in the brain and memory impairments in mice.³ Increased tumor TFAM protein levels are associated with increased tumor size in patients with breast cancer.⁴ SNPs in *TFAM* have been identified in patients with a variety of neurodegenerative disorders, including Parkinson's disease, Alzheimer's disease, and Huntington's disease.¹ Cayman's TFAM Polyclonal Antibody can be used for Western blot (WB) applications. The antibody recognizes TFAM at approximately 24 kDa from human samples.

References

1. Kang, I., Chu, C.T., and Kaufman, B.A. The mitochondrial transcription factor TFAM in neurodegeneration: Emerging evidence and mechanisms. *FEBS Lett.* **592(5)**, 793-811 (2018).
2. Larsson, N.-G., Wang, J., Wilhelmsson, H., *et al.* Mitochondrial transcription factor A is necessary for mtDNA maintenance and embryogenesis in mice. *Nat. Genet.* **18(3)**, 231-236 (1998).
3. Hayashi, Y., Yoshida, M., Yamato, M., *et al.* Reverse of age-dependent memory impairment and mitochondrial DNA damage in microglia by an overexpression of human mitochondrial transcription factor A in mice. *J. Neurosci.* **28(34)**, 8624-8634 (2008).
4. Gao, W., Wu, M., Wang, N., *et al.* Increased expression of mitochondrial transcription factor A and nuclear respiratory factor-1 predicts a poor clinical outcome of breast cancer. *Oncol. Lett.* **15(2)**, 1449-1458 (2018).

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