

mtTFA (A-17): sc-23588

BACKGROUND

mtTFA (mitochondrial transcription factor A), also known as mtTF1, TFAM, TCF6 (for transcription factor 6-like1), TCF6L2 and tsHMG, is a nuclear-encoded gene product that is imported into the mitochondria. mtTFA is required for many aspects of mitochondrial biogenesis including the replication and transcription of mitochondrial DNA (mtDNA). In mice, testis-specific mtTFA is missing the mitochondria targeting sequence and is present in the nucleus rather than the mitochondria. This form of mtTFA is located primarily in the nuclei of elongated spermatids and may be involved in the regulation of gene expression of the haploid male genome. During mouse and human spermatogenesis there is a reduction of mtTFA protein levels and a reduction in mtDNA copy number. These features may provide one of the mechanisms by which paternal mtDNA transmission is prevented. mtTFA has been associated with mitochondrial disorder in humans characterized by ocular myopathy, exercise intolerance and muscle wasting.

CHROMOSOMAL LOCATION

Genetic locus: Tfam (mouse) mapping to 10 B5.3.

SOURCE

mtTFA (A-17) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of mtTFA of mouse origin.

PRODUCT

Each vial contains 100 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin. Also available as TransCruz reagent for Gel Supershift and ChIP applications, sc-23588 X, 200 µg/0.1 ml.

Blocking peptide available for competition studies, sc-23588 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

mtTFA (A-17) is recommended for detection of mtTFA of mouse and rat origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for mtTFA siRNA (m): sc-45912, mtTFA siRNA (r): sc-156067, mtTFA shRNA Plasmid (m): sc-45912-SH, mtTFA shRNA Plasmid (r): sc-156067-SH, mtTFA shRNA (m) Lentiviral Particles: sc-45912-V and mtTFA shRNA (r) Lentiviral Particles: sc-156067-V.

mtTFA (A-17) X TransCruz antibody is recommended for Gel Supershift and ChIP applications.

Molecular Weight of mtTFA: 25 kDa.

Positive Controls: mtTFA (m): 293T Lysate: sc-121850.

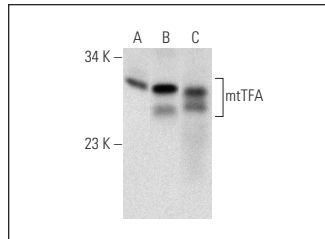
STORAGE

Store at 4° C, ****DO NOT FREEZE****. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

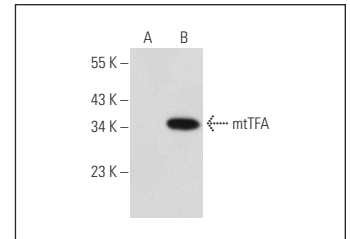
RESEARCH USE

For research use only, not for use in diagnostic procedures.

DATA



mtTFA (A-17): sc-23588. Western blot analysis of mtTFA expression in F9 (A) and RAW 264.7 (B) whole cell lysates and rat testis tissue extract (C).



mtTFA (A-17): sc-23588. Western blot analysis of mtTFA expression in non-transfected: sc-117752 (A) and mouse mtTFA transfected: sc-121850 (B) 293T whole cell lysates.

SELECT PRODUCT CITATIONS

- Lee, H.M., et al. 2008. Sustained hypoxia modulates mitochondrial DNA content in the neonatal rat brain. *Free Radic. Biol. Med.* 44: 807-814.
- Tiao, M.M., et al. 2011. Dexamethasone decreases cholestatic liver injury via inhibition of intrinsic pathway with simultaneous enhancement of mitochondrial biogenesis. *Steroids* 76: 660-666.
- Lin, T.K., et al. 2012. The effect of the red wine polyphenol resveratrol on a rat model of biliary obstructed cholestasis: involvement of anti-apoptotic signalling, mitochondrial biogenesis and the induction of autophagy. *Apoptosis* 17: 871-879.
- Pohjoismäki, J.L., et al. 2012. Oxidative stress during mitochondrial biogenesis compromises mtDNA integrity in growing hearts and induces a global DNA repair response. *Nucleic Acids Res.* 40: 6595-6607.
- Douarre, C., et al. 2012. Mitochondrial topoisomerase I is critical for mitochondrial integrity and cellular energy metabolism. *PLoS ONE* 7: e41094.
- Feng, H., et al. 2013. Training-induced mitochondrial adaptation: role of peroxisome proliferator-activated receptor γ coactivator-1 α , nuclear factor- κ B and β -blockade. *Exp. Physiol.* 98: 784-795.
- Baldelli, S., et al. 2014. PGC-1 α buffers ROS-mediated removal of mitochondria during myogenesis. *Cell Death Dis.* 5: e1515.
- Yao, X., et al. 2015. Mitochondrial ROS induces cardiac inflammation via a pathway through mtDNA damage in a pneumonia-related sepsis model. *PLoS ONE* 10: e0139416.



Try **mtTFA (F-6): sc-166965**, our highly recommended monoclonal alternative to mtTFA (A-17). Also, for AC, HRP, FITC, PE, Alexa Fluor® 488 and Alexa Fluor® 647 conjugates, see **mtTFA (F-6): sc-166965**.