

mtTFA (E-16): sc-30963



The Power to Question

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 mouse, 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 (human) mapping to 10q21.1; Tfam (mouse) mapping to 10 B5.3.

SOURCE

mtTFA (E-16) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the C-terminus of mtTFA of human origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-30963 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

mtTFA (E-16) is recommended for detection of mtTFA of human and, to a lesser extent, 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).

mtTFA (E-16) is also recommended for detection of mtTFA in additional species, including equine and canine.

Suitable for use as control antibody for mtTFA siRNA (h): sc-38053, mtTFA siRNA (m): sc-45912, mtTFA siRNA (r): sc-156067, mtTFA shRNA Plasmid (h): sc-38053-SH, mtTFA shRNA Plasmid (m): sc-45912-SH, mtTFA shRNA Plasmid (r): sc-156067-SH, mtTFA shRNA (h) Lentiviral Particles: sc-38053-V, mtTFA shRNA (m) Lentiviral Particles: sc-45912-V and mtTFA shRNA (r) Lentiviral Particles: sc-156067-V.

Molecular Weight of mtTFA: 25 kDa.

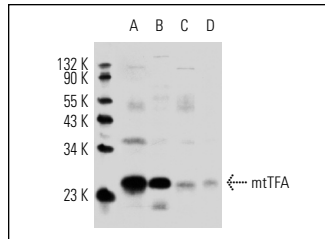
STORAGE

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

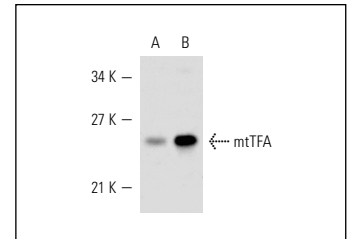
RESEARCH USE

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

DATA



mtTFA (E-16): sc-30963. Western blot analysis of mtTFA expression in A-431 (A), CCRF-CEM (B), HeLa (C) and NTERA-2 cl.D1 (D) whole cell lysates.



mtTFA (E-16): sc-30963. Western blot analysis of mtTFA expression in NTERA-2 cl.D1 (A) and A-431 (B) whole cell lysates.

SELECT PRODUCT CITATIONS

- Lin, P.C., et al. 2008. Expression of β -F1-ATPase and mitochondrial transcription factor A and the change in mitochondrial DNA content in colorectal cancer: clinical data analysis and evidence from an *in vitro* study. *Int. J. Colorectal Dis.* 23: 1223-1232.
- Aquilano, K., et al. 2010. Peroxisome proliferator-activated receptor γ co-activator 1 α (PGC-1 α) and sirtuin 1 (SIRT1) reside in mitochondria: possible direct function in mitochondrial biogenesis. *J. Biol. Chem.* 285: 21590-21599.
- Koltai, E., et al. 2012. Age-associated declines in mitochondrial biogenesis and protein quality control factors are minimized by exercise training. *Am. J. Physiol. Regul. Integr. Comp. Physiol.* 303: R127-R134.
- Bauerfeld, C.P., et al. 2012. TLR4-mediated AKT activation is MyD88/TRIF dependent and critical for induction of oxidative phosphorylation and mitochondrial transcription factor A in murine macrophages. *J. Immunol.* 188: 2847-2857.
- Hart, N., et al. 2013. Resveratrol enhances exercise training responses in rats selectively bred for high running performance. *Food Chem. Toxicol.* 61: 53-59.

PROTOCOLS

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