

# mtTFA (m): 293T Lysate: sc-121850

## 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.

## REFERENCES

1. Boissonneault, G., et al. 1993. A testis-specific gene encoding a nuclear high-mobility-group box protein located in elongating spermatids. *Mol. Cell. Biol.* 13: 4323-4330.
2. Tiranti, V., et al. 1995. Chromosomal localization of mitochondrial transcription factor A (TCF6), single-stranded DNA-binding protein (SSBP), and endonuclease G (ENDOG), three human housekeeping genes involved in mitochondrial biogenesis. *Genomics* 25: 559-564.
3. Larsson, N., et al. 1996. A single mouse gene encodes the mitochondrial transcription factor A and a testis-specific nuclear HMG-box protein. *Nat. Genet.* 13: 296-302.
4. Siciliano, G., et al. 2000. Abnormal levels of human mitochondrial transcription factor A in skeletal muscle in mitochondrial encephalomyopathies. *Neurol. Sci.* 21: 985-987.
5. Tessa, A., et al. 2000. Abnormal H-Tfam in a patient harboring a single mtDNA deletion. *Funct. Neurol.* 15: 211-214.
6. Online Mendelian Inheritance in Man, OMIM™. 2000. Johns Hopkins University, Baltimore, MD. MIM Number: 600438. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>

## CHROMOSOMAL LOCATION

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

## PRODUCT

mtTFA (m): 293T Lysate represents a lysate of mouse mtTFA transfected 293T cells and is provided as 100 µg protein in 200 µl SDS-PAGE buffer.

## STORAGE

Store at -20° C. Repeated freezing and thawing should be minimized. Sample vial should be boiled once prior to use. Non-hazardous. No MSDS required.

## RESEARCH USE

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

## APPLICATIONS

mtTFA (m): 293T Lysate is suitable as a Western Blotting positive control for mouse reactive mtTFA antibodies. Recommended use: 10-20 µl per lane.

Control 293T Lysate: sc-117752 is available as a Western Blotting negative control lysate derived from non-transfected 293T cells.

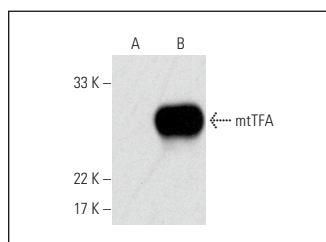
mtTFA (F-6) HRP: sc-166965 is recommended as a positive control antibody for Western Blot analysis of enhanced mouse mtTFA expression in mtTFA transfected 293T cells (starting dilution 1:100, dilution range 1:100-1:1,000).

## RECOMMENDED SUPPORT REAGENTS

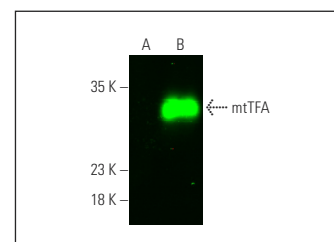
To ensure optimal results, the following support reagents are recommended:

1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048.

## DATA



mtTFA (F-6) HRP: sc-166965 HRP. Direct western blot analysis of mtTFA expression in non-transfected: sc-117752 (A) and mouse mtTFA transfected: sc-121850 (B) 293T whole cell lysates. Blocked with



mtTFA (F-6): sc-166965. Near-infrared western blot analysis of mtTFA expression in non-transfected: sc-117752 (A) and mouse mtTFA transfected: sc-121850 (B) 293T whole cell lysates. Blocked with UltraCruz® Blocking Reagent: sc-516214. Detection reagent used: m-IgGκ BP-CFL 680: sc-516180.

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) for detailed protocols and support products.