SANTA CRUZ BIOTECHNOLOGY, INC.

mtTFA (H-203): sc-28200

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.

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.

CHROMOSOMAL LOCATION

Genetic locus: TFAM (human) mapping to 10q21.1; Tfam (mouse) mapping to 10 B5.3.

SOURCE

mtTFA (H-203) is a rabbit polyclonal antibody raised against amino acids 44-246 mapping at 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. Also available as TransCruz reagent for Gel Supershift and ChIP applications, sc-28200 X, 200 µg/0.1 ml.

STORAGE

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

PROTOCOLS

See our web site at www.scbt.com or our catalog for detailed protocols and support products.

APPLICATIONS

mtTFA (H-203) 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).

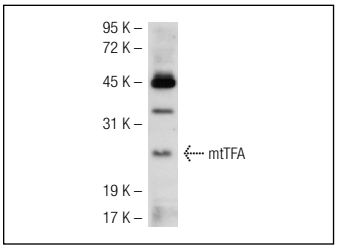
Suitable for use as control antibody for mtTFA siRNA (h): sc-38053, mtTFA siRNA (m): sc-45912, mtTFA siRNA (r): sc-156067, mtTFA shRNA Plasmid (h): sc-38053-SH, mtTFA shRNA Plasmid (m): sc-45912-SH, mtTFA shRNA Plasmid (r): sc-156067-SH, mtTFA shRNA (h) Lentiviral Particles: sc-38053-V, mtTFA shRNA (m)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

mtTFA (H-203) X TransCruz antibody is recommended for Gel Supershift and ChIP applications.

Molecular Weight of mtTFA: 25 kDa.

Positive Controls: NTERA-2 cl.D1 whole cell lysate: sc-364181, A-431 whole cell lysate: sc-2201 or CCRF-CEM cell lysate: sc-2225.

DATA



mtTFA (H-203): sc-28200. Western blot analysis of mtTFA expression in 293T whole cell lysate.

SELECT PRODUCT CITATIONS

1. Rothfuss, O., et al. 2009. Parkin protects mitochondrial genome integrity and supports mitochondrial DNA repair. Hum. Mol. Genet. 18: 3832-3850.
2. Mao, L., et al. 2009. HMGA1 levels influence mitochondrial function and mitochondrial DNA repair efficiency. Mol. Cell. Biol. 29: 5426-5440.
3. Vadrot, N., et al. 2012. Mitochondrial DNA maintenance is regulated in human hepatoma cells by glycogen synthase kinase 3β and p53 in response to tumor necrosis factor β. PLoS ONE 7: e40879.

RESEARCH USE

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