

mtTFA (C-9): sc-376672

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.

SOURCE

mtTFA (C-9) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 207-241 near the C-terminus of mtTFA of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

mtTFA (C-9) is available conjugated to agarose (sc-376672 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-376672 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-376672 PE), fluorescein (sc-376672 FITC), Alexa Fluor® 488 (sc-376672 AF488), Alexa Fluor® 546 (sc-376672 AF546), Alexa Fluor® 594 (sc-376672 AF594) or Alexa Fluor® 647 (sc-376672 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-376672 AF680) or Alexa Fluor® 790 (sc-376672 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-376672 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

APPLICATIONS

mtTFA (C-9) is recommended for detection of mtTFA of human origin by Western Blotting (starting dilution 1:100, 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), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

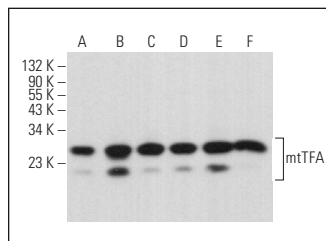
Suitable for use as control antibody for mtTFA siRNA (h): sc-38053, mtTFA shRNA Plasmid (h): sc-38053-SH and mtTFA shRNA (h) Lentiviral Particles: sc-38053-V.

Molecular Weight of mtTFA: 25 kDa.

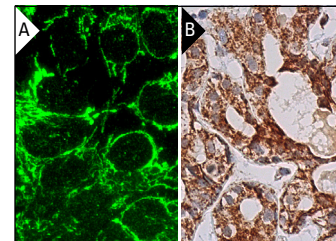
STORAGE

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

DATA



mtTFA (C-9): sc-376672. Western blot analysis of mtTFA expression in RD (A), A-673 (B), Caco-2 (C), U-698-M (D), K-562 (E) and HL-60 (F) whole cell lysates.



mtTFA (C-9): sc-376672. Immunofluorescence staining of formalin-fixed Hep G2 cells showing mitochondrial localization (A). Immunoperoxidase staining of formalin fixed, paraffin-embedded human testis tissue showing cytoplasmic staining of cells in seminiferous ducts and Leydig cells (B).

SELECT PRODUCT CITATIONS

1. Chaube, B., et al. 2015. AMPK maintains energy homeostasis and survival in cancer cells via regulating p38/PGC-1 α -mediated mitochondrial biogenesis. *Cell Death Discov.* 1: 15063.
2. Zuo, W., et al. 2016. Drp-1, a potential therapeutic target for brain ischaemic stroke. *Br. J. Pharmacol.* 173: 1665-1677.
3. Branco, R.C.S., et al. 2017. Protein malnutrition blunts the increment of taurine transporter expression by a high-fat diet and impairs taurine reestablishment of Insulin secretion. *FASEB J.* 31: 4078-4087.
4. Wang, D., et al. 2018. Resveratrol improves muscle atrophy by modulating mitochondrial quality control in STZ-induced diabetic mice. *Mol. Nutr. Food Res.* 62: e1700941.
5. Zhu, Z., et al. 2019. Negative effects of ROS generated during linear sperm motility on gene expression and ATP generation in boar sperm mitochondria. *Free Radic. Biol. Med.* 141: 159-171.
6. Sreekumar, P.G., et al. 2020. Transporter-mediated mitochondrial GSH depletion leading to mitochondrial dysfunction and rescue with α B crystallin peptide in RPE cells. *Antioxidants* 9: 411.
7. Wang, D., et al. 2020. Antioxidant apigenin relieves age-related muscle atrophy by inhibiting oxidative stress and hyperactive mitophagy and apoptosis in skeletal muscle of mice. *J. Gerontol. A Biol. Sci. Med. Sci.* 75: 2081-2088.
8. Rahmel, T., et al. 2020. Mitochondrial dysfunction in sepsis is associated with diminished intramitochondrial TFAM despite its increased cellular expression. *Sci. Rep.* 10: 21029.

RESEARCH USE

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

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