SANTA CRUZ BIOTECHNOLOGY, INC.

MTO1 (A-8): sc-398760

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

MTO1 (mitochondrial translation optimization 1), also known as CGI-02, is a 717 amino acid mitochondrial protein that belongs to the mnmG family. Expressed ubiquitously with highest expression in tissues which have an elevated metabolic rate, MTO1 is involved in mitochondrial tRNA modification, specifically in the 5-carboxymethylaminomethyl modification of wobble uridine bases. Additionally, MTO1 is thought to participate in the expression of the aminoglycoside-induced and non-syndromic deafness phenotypes associated with mutations in the 12S rRNA gene, suggesting a possible role for MTO1 in the pathogenesis of these deafness-associated conditions. MTO1 exists as multiple isoforms that are produced by alternative splicing events.

REFERENCES

1. Colby, G., et al. 1998. MTO1 codes for a mitochondrial protein required for respiration in paromomycin-resistant mutants of *Saccharomyces cerevisiae*. J. Biol. Chem. 273: 27945-27952.
2. Li, X., et al. 2002. Isolation and characterization of the putative nuclear modifier gene MTO1 involved in the pathogenesis of deafness-associated mitochondrial 12 S rRNA A1555G mutation. J. Biol. Chem. 277: 27256-27264.
3. Li, X. and Guan, M.X. 2002. A human mitochondrial GTP binding protein related to tRNA modification may modulate phenotypic expression of the deafness-associated mitochondrial 12S rRNA mutation. Mol. Cell. Biol. 22: 7701-7711.
4. Li, R., et al. 2003. Identification and characterization of mouse MTO1 gene related to mitochondrial tRNA modification. Biochim. Biophys. Acta 1629: 53-59.
5. Bykhovskaya, Y., et al. 2004. Phenotype of non-syndromic deafness associated with the mitochondrial A1555G mutation is modulated by mitochondrial RNA modifying enzymes MTO1 and GTPBP3. Mol. Genet. Metab. 83: 199-206.
6. Umeda, N., et al. 2005. Mitochondria-specific RNA-modifying enzymes responsible for the biosynthesis of the wobble base in mitochondrial tRNAs. Implications for the molecular pathogenesis of human mitochondrial diseases. J. Biol. Chem. 280: 1613-1624.

CHROMOSOMAL LOCATION

Genetic locus: MTO1 (human) mapping to 6q13.

SOURCE

MTO1 (A-8) is a mouse monoclonal antibody raised against amino acids 401-690 mapping within an internal region of MTO1 of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

STORAGE

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

APPLICATIONS

MTO1 (A-8) is recommended for detection of MTO1 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for MTO1 siRNA (h): sc-95318, MTO1 shRNA Plasmid (h): sc-95318-SH and MTO1 shRNA (h) Lentiviral Particles: sc-95318-V.

Molecular Weight (predicted) of MTO1: 80 kDa.

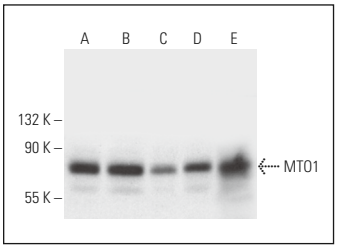
Molecular Weight (observed) of MTO1: 90 kDa.

Positive Controls: RT-4 whole cell lysate: sc-364257, PC-3 cell lysate: sc-2220 or MIA PaCa-2 cell lysate: sc-2285.

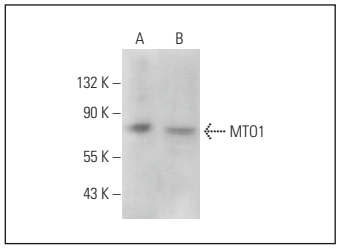
RECOMMENDED SUPPORT REAGENTS

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. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

DATA



MTO1 (A-8): sc-398760. Western blot analysis of MTO1 expression in HeLa (**A**), MIA PaCa-2 (**B**), PC-3 (**C**) and RT-4 (**D**) whole cell lysates and human liver tissue extract (**E**).



MTO1 (A-8): sc-398760. Western blot analysis of MTO1 expression in PC-3 (**A**) and NAMALWA (**B**) whole cell lysates.

SELECT PRODUCT CITATIONS

1. Meng, F., et al. 2017. Biochemical evidence for a nuclear modifier allele (A10S) in TRMU (methylaminomethyl-2-thiouridylate-methyltransferase) related to mitochondrial tRNA modification in the phenotypic manifestation of deafness-associated 12S rRNA mutation. J. Biol. Chem. 292: 2881-2892.

RESEARCH USE

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