

MTO1 (h): 293T Lysate: sc-111063

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

- Colby, G., Wu, M. and Tzagoloff, A. 1998. MTO1 codes for a mitochondrial protein required for respiration in paromomycin-resistant mutants of *Saccharomyces cerevisiae*. J. Biol. Chem. 273: 27945-27952.
- Li, X., Li, R., Lin, X. and Guan, M.X. 2002. Isolation and characterization of the putative nuclear modifier gene MTO1 involved in the pathogenesis of deafness-associated mitochondrial 12S rRNA A1555G mutation. J. Biol. Chem. 277: 27256-27264.
- 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.
- Li, R., Li, X., Yan, Q., Qin Mo, J. and Guan, M.X. 2003. Identification and characterization of mouse MTO1 gene related to mitochondrial tRNA modification. Biochim. Biophys. Acta 1629: 53-59.
- Bykhovskaya, Y., Mengesha, E., Wang, D., Yang, H., Estivill, X., Shohat, M. and Fischel-Ghodsian, N. 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.
- Umeda, N., Suzuki, T., Yukawa, M., Ohya, Y., Shindo, H., Watanabe, K. and Suzuki, T. 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.

PRODUCT

MTO1 (h): 293T Lysate represents a lysate of human MTO1 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.

APPLICATIONS

MTO1 (h): 293T Lysate is suitable as a Western Blotting positive control for human reactive MTO1 antibodies. Recommended use: 10-20 µl per lane.

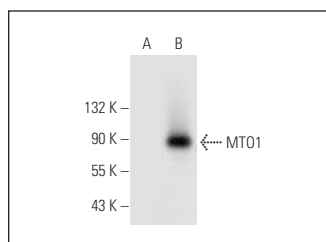
Control 293T Lysate: sc-117752 is available as a Western Blotting negative control lysate derived from non-transfected 293T cells.

MTO1 (H-5): sc-398386 is recommended as a positive control antibody for Western Blot analysis of enhanced human MTO1 expression in MTO1 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



MTO1 (H-5): sc-398386. Western blot analysis of MTO1 expression in non-transfected: sc-117752 (A) and human MTO1 transfected: sc-111063 (B) 293T whole cell lysates.

RESEARCH USE

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

PROTOCOLS

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