

# MTO1 (E-16): sc-161115

## 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 12 S 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.

## CHROMOSOMAL LOCATION

Genetic locus: MTO1 (human) mapping to 6q13; Mto1 (mouse) mapping to 9 E1.

## SOURCE

MTO1 (E-16) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of MTO1 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.

Blocking peptide available for competition studies, sc-161115 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## RESEARCH USE

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

## APPLICATIONS

MTO1 (E-16) is recommended for detection of MTO1 of mouse, rat and human 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).

MTO1 (E-16) is also recommended for detection of MTO1 in additional species, including canine, bovine and porcine.

Suitable for use as control antibody for MTO1 siRNA (h): sc-95318, MTO1 siRNA (m): sc-149689, MTO1 shRNA Plasmid (h): sc-95318-SH, MTO1 shRNA Plasmid (m): sc-149689-SH, MTO1 shRNA (h) Lentiviral Particles: sc-95318-V and MTO1 shRNA (m) Lentiviral Particles: sc-149689-V.

Molecular Weight (predicted) of MTO1: 80 kDa.

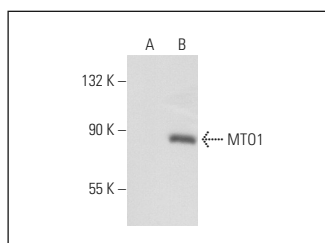
Molecular Weight (observed) of MTO1: 90 kDa.

Positive Controls: MTO1 (h): 293T Lysate: sc-111063, HeLa whole cell lysate: sc-2200 or PC-3 cell lysate: sc-2220.

## RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 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 donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

## DATA



MTO1 (E-16): sc-161115. Western blot analysis of MTO1 expression in non-transfected: sc-117752 (A) and human MTO1 transfected: sc-111063 (B) 293T whole cell lysates.

## STORAGE

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