

GTPBP3 (E-14): sc-240542

BACKGROUND

Small G proteins act as molecular switches for regulation of a variety of cellular processes, such as nuclear transport, signal transduction, membrane trafficking and protein synthesis. GTPBP3 (GTP-binding protein 3), also known as tRNA modification GTPase GTPBP3, mitochondrial, MSS1 or MTGP1 (mitochondrial GTP-binding protein 1), is a 492 amino acid protein belonging to the Era/MnmE GTP-binding protein family and MnmE subfamily. Localizing to the mitochondrion, GTPBP3 is ubiquitously expressed and may play a role in mitochondrial tRNA modification at the wobble uridine base. The gene encoding GTPBP3 maps to human chromosome 8 B3.3, polymorphisms in this region may influence aminoglycoside-induced deafness (AID), a disorder characterized by varying degrees of deafness. GTPBP3 exists as three isoforms due to alternative splicing events.

REFERENCES

- Li, X., et al. 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, X., et al. 2003. Identification and characterization of mouse GTPBP3 gene encoding a mitochondrial GTP-binding protein involved in tRNA modification. *Biochem. Biophys. Res. Commun.* 312: 747-754.
- 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.
- Villarroya, M., et al. 2008. Characterization of human GTPBP3, a GTP-binding protein involved in mitochondrial tRNA modification. *Mol. Cell. Biol.* 28: 7514-7531.
- Reiling, E., et al. 2009. Genetic association analysis of 13 nuclear-encoded mitochondrial candidate genes with type II diabetes mellitus: the DAMAGE study. *Eur. J. Hum. Genet.* 17: 1056-1062.
- Hendrickson, S.L., et al. 2010. Genetic variants in nuclear-encoded mitochondrial genes influence AIDS progression. *PLoS ONE* 5: e12862.

CHROMOSOMAL LOCATION

Genetic locus: GTPBP3 (human) mapping to 19p13.11; Gtpbp3 (mouse) mapping to 8 B3.3.

SOURCE

GTPBP3 (E-14) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of GTPBP3 of human origin.

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.

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-240542 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

GTPBP3 (E-14) is recommended for detection of GTPBP3 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), 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); non cross-reactive with other GTPBP family members.

GTPBP3 (E-14) is also recommended for detection of GTPBP3 in additional species, including canine and bovine.

Suitable for use as control antibody for GTPBP3 siRNA (h): sc-97799, GTPBP3 siRNA (m): sc-145828, GTPBP3 shRNA Plasmid (h): sc-97799-SH, GTPBP3 shRNA Plasmid (m): sc-145828-SH, GTPBP3 shRNA (h) Lentiviral Particles: sc-97799-V and GTPBP3 shRNA (m) Lentiviral Particles: sc-145828-V.

Molecular Weight of GTPBP3 isoform 1: 52 kDa.

Molecular Weight of GTPBP3 isoform 2: 56 kDa.

Molecular Weight of GTPBP3 isoform 3: 50 kDa.

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) 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.

RESEARCH USE

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