

Tim14 (S-13): sc-79616

BACKGROUND

The majority of mitochondrial-directed proteins are encoded by the nuclear genome and are transported to the mitochondria via regulated processes involving the mitochondrial Tom and Tim proteins. The mitochondrial Tim protein family is comprised of a large group of evolutionarily conserved proteins that are found in most eukaryotes and are thought to play a role in health and development. Tim14, also known as DNAJC19 (DnaJ (Hsp40) homolog, subfamily C, member 19), is a 116 amino acid single-pass membrane protein that localizes to the inner membrane of the mitochondrion and contains one J domain. Expressed ubiquitously, Tim14 functions as a component of the mitochondrial Tim23 complex, which is responsible for the ATP-dependent translocation of select proteins from the inner mitochondrial membrane to the mitochondrial matrix. Defects in the gene encoding Tim14 are the cause of 3-methylglutaconic aciduria type 5 (MGA5), an autosomal recessive disorder characterized by testicular dysgenesis, dilated cardiomyopathy, growth failure and cerebellar ataxia, causing significant motor delays.

REFERENCES

- Mokranjac, D., et al. 2003. Tim14, a novel key component of the import motor of the Tim23 protein translocase of mitochondria. *EMBO J.* 22: 4945-4956.
- Taylor, S.W., et al. 2003. Characterization of the human heart mitochondrial proteome. *Nat. Biotechnol.* 21: 281-286.
- Mokranjac, D., et al. 2005. The import motor of the yeast mitochondrial Tim23 preprotein translocase contains two different J proteins, Tim14 and Mdj2. *J. Biol. Chem.* 280: 31608-31614.
- Mokranjac, D., et al. 2006. Structure and function of Tim14 and Tim16, the J and J-like components of the mitochondrial protein import motor. *EMBO J.* 25: 4675-4685.
- Davey, K.M., et al. 2006. Mutation of DNAJC19, a human homologue of yeast inner mitochondrial membrane co-chaperones, causes DCMA syndrome, a novel autosomal recessive Barth syndrome-like condition. *J. Med. Genet.* 43: 385-393.
- Sparkes, R., et al. 2007. Cardiac features of a novel autosomal recessive dilated cardiomyopathic syndrome due to defective importation of mitochondrial protein. *Cardiol. Young* 17: 215-217.

CHROMOSOMAL LOCATION

Genetic locus: DNAJC19 (human) mapping to 3q26.33; Dnajc19 (mouse) mapping to 3 A3.

SOURCE

Tim14 (S-13) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of Tim14 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.

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-79616 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

Tim14 (S-13) is recommended for detection of Tim14 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).

Tim14 (S-13) is also recommended for detection of Tim14 in additional species, including equine, canine, bovine and porcine.

Suitable for use as control antibody for Tim14 siRNA (h): sc-76666, Tim14 siRNA (m): sc-76667, Tim14 shRNA Plasmid (h): sc-76666-SH, Tim14 shRNA Plasmid (m): sc-76667-SH, Tim14 shRNA (h) Lentiviral Particles: sc-76666-V and Tim14 shRNA (m) Lentiviral Particles: sc-76667-V.

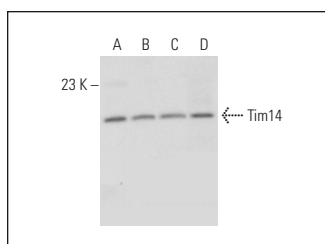
Molecular Weight of Tim14: 18 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, Jurkat whole cell lysate: sc-2204 or A549 cell lysate: sc-2413.

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



Tim14 (S-13): sc-79616. Western blot analysis of Tim14 expression in HeLa (A), Jurkat (B), NIH/3T3 (C) and A549 (D) whole cell lysates.

RESEARCH USE

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