

Tim44 (A-9): sc-390755

BACKGROUND

Translocation of nuclear encoded preproteins into the mitochondrial matrix requires the coordinated action of the translocases Tom and Tim, which are located in the outer mitochondrial membrane and the inner membrane, respectively. The mitochondrial preprotein translocases of the outer membrane (Tom) is a multi-subunit protein that contains at least eight proteins: four import receptor subunits (Tom70, Tom37, Tom22, and Tom20), three small proteins (Tom7, Tom6, and Tom5), and a structural component of the outer membrane channel (Tom40). The Tom machinery involves the import receptors, which initiate the binding of cytosolically synthesized preproteins to the outer membrane, and a general import pore (GIP), which promotes the translocation of various pre-proteins into the mitochondria. The TIM channel imports nuclear-encoded mitochondrial preproteins, and it involves three proteins, Tim17, Tim23 and Tim44, which are represented at equimolar ratios. Tim17 is expressed as two isoforms Tim17a and Tim17b, which differ only in their C termini sequences, and like Tim23, these proteins are ubiquitously expressed in fetal and adult tissues. Tim17 and Tim23 are integral membrane proteins that comprise the structural elements of the inner membrane channel by which the preproteins are transferred. The Tim44, on the other hand, is a largely hydrophilic protein that recruits the matrix located Hsp70 to the site where the preprotein emerges from the Tim channel.

CHROMOSOMAL LOCATION

Genetic locus: TIMM44 (human) mapping to 19p13.2; Timm44 (mouse) mapping to 8 A1.1.

SOURCE

Tim44 (A-9) is a mouse monoclonal antibody raised against amino acids 144-400 mapping within an internal region of Tim44 of human origin.

PRODUCT

Each vial contains 200 µg IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Tim44 (A-9) is available conjugated to agarose (sc-390755 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-390755 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-390755 PE), fluorescein (sc-390755 FITC), Alexa Fluor® 488 (sc-390755 AF488), Alexa Fluor® 546 (sc-390755 AF546), Alexa Fluor® 594 (sc-390755 AF594) or Alexa Fluor® 647 (sc-390755 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-390755 AF680) or Alexa Fluor® 790 (sc-390755 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

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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 for detailed protocols and support products.

APPLICATIONS

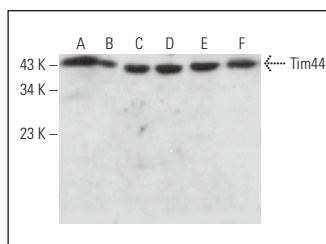
Tim44 (A-9) is recommended for detection of Tim44 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for Tim44 siRNA (h): sc-41263, Tim44 siRNA (m): sc-41264, Tim44 shRNA Plasmid (h): sc-41263-SH, Tim44 shRNA Plasmid (m): sc-41264-SH, Tim44 shRNA (h) Lentiviral Particles: sc-41263-V and Tim44 shRNA (m) Lentiviral Particles: sc-41264-V.

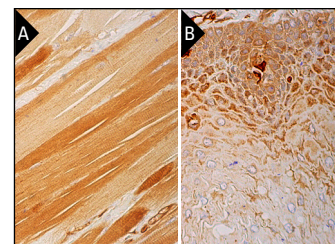
Molecular Weight of Tim44: 44 kDa.

Positive Controls: M1 whole cell lysate: sc-364782, Jurkat whole cell lysate: sc-2204 or Sol8 cell lysate: sc-2249.

DATA



Tim44 (A-9): sc-390755. Western blot analysis of Tim44 expression in Jurkat (A), Sol8 (B), L6 (C), A-10 (D), c4 (E) and M1 (F) whole cell lysates.



Tim44 (A-9): sc-390755. Immunoperoxidase staining of formalin fixed, paraffin-embedded human skeletal muscle tissue showing cytoplasmic staining of myocytes (A), and of human esophagus tissue showing cytoplasmic staining of squamous epithelial cells (B). Blocked with 0.25X UltraCruz® Blocking Reagent: sc-516214. Detection reagents used: m-IgGκ BP-B: sc-516142 and ImmunoCruz® ABC Kit: sc-516216.

SELECT PRODUCT CITATIONS

- Wang, L., et al. 2019. FAM92A1 is a BAR domain protein required for mitochondrial ultrastructure and function. *J. Cell Biol.* 218: 97-111.
- Wang, T., et al. 2021. C9orf72 regulates energy homeostasis by stabilizing mitochondrial complex I assembly. *Cell Metab.* 33: 531-546.e9.
- Avolio, R., et al. 2023. Cytosolic and mitochondrial translation elongation are coordinated through the molecular chaperone TRAP1 for the synthesis and import of mitochondrial proteins. *Genome Res.* 33: 1242-1257.
- Avolio, R., et al. 2023. Cytosolic and mitochondrial translation elongation are coordinated through the molecular chaperone TRAP1 for the synthesis and import of mitochondrial proteins. *bioRxiv*. E-published.

RESEARCH USE

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