

Tim17 (H-1): sc-271152

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.

REFERENCES

1. Neupert, W. 1997. Protein import into mitochondria. *Annu. Rev. Biochem.* 66: 863-917.
2. Yano, M., et al. 1998. Functional analysis of human mitochondrial receptor Tom20 for protein import into mitochondria. *J. Biol. Chem.* 273: 26844-26851.

CHROMOSOMAL LOCATION

Genetic locus: TIMM17A (human) mapping to 1q32.1; Timm17a (mouse) mapping to 1 E4.

SOURCE

Tim17 (H-1) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 117-152 near the C-terminus of Tim17 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.

Tim17 (H-1) is available conjugated to agarose (sc-271152 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-271152 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-271152 PE), fluorescein (sc-271152 FITC), Alexa Fluor[®] 488 (sc-271152 AF488), Alexa Fluor[®] 546 (sc-271152 AF546), Alexa Fluor[®] 594 (sc-271152 AF594) or Alexa Fluor[®] 647 (sc-271152 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor[®] 680 (sc-271152 AF680) or Alexa Fluor[®] 790 (sc-271152 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-271152 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

APPLICATIONS

Tim17 (H-1) is recommended for detection of Tim17 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), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

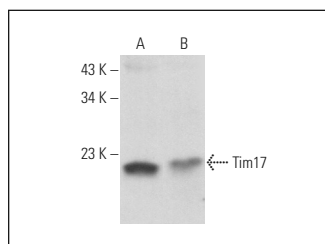
Tim17 (H-1) is also recommended for detection of Tim17 in additional species, including equine and canine.

Suitable for use as control antibody for Tim17 siRNA (h): sc-41261, Tim17 siRNA (m): sc-41262, Tim17 shRNA Plasmid (h): sc-41261-SH, Tim17 shRNA Plasmid (m): sc-41262-SH, Tim17 shRNA (h) Lentiviral Particles: sc-41261-V and Tim17 shRNA (m) Lentiviral Particles: sc-41262-V.

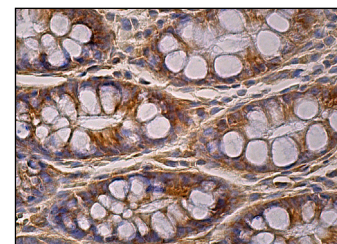
Molecular Weight of Tim17: 17 kDa.

Positive Controls: HUV-EC-C whole cell lysate: sc-364180, KNRK whole cell lysate: sc-2214 or K-562 whole cell lysate: sc-2203.

DATA



Tim17 (H-1): sc-271152. Western blot analysis of Tim17 expression in HUV-EC-C (A) and K-562 (B) whole cell lysates.



Tim17 (H-1): sc-271152. Immunoperoxidase staining of formalin fixed, paraffin-embedded human rectum tissue showing cytoplasmic staining of glandular cells.

SELECT PRODUCT CITATIONS

1. Rainbolt, T.K., et al. 2013. Stress-regulated translational attenuation adapts mitochondrial protein import through Tim17A degradation. *Cell Metab.* 18: 908-919.
2. Shah, S.S., et al. 2019. APOL1 kidney risk variants induce cell death via mitochondrial translocation and opening of the mitochondrial permeability transition pore. *J. Am. Soc. Nephrol.* 30: 2355-2368.
3. Minhas, P.S., et al. 2021. Restoring metabolism of myeloid cells reverses cognitive decline in ageing. *Nature* 590: 122-128.

STORAGE

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

RESEARCH USE

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

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