

# Tim23 (yN-19): sc-14046

## 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 preproteins 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-terminal 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 HSP 70 to the site where the preprotein emerges from the Tim channel.

## REFERENCES

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3. Brix, J., et al. 1999. Distribution of binding sequences for the mitochondrial import receptors Tom20, Tom22, and Tom70 in a presequence-carrying preprotein and a non-cleavable preprotein. *J. Biol. Chem.* 274: 16522-16530.
4. Schulke, N., et al. 1999. A multisubunit complex of outer and inner mitochondrial membrane protein translocases stabilized *in vivo* by translocation intermediates. *J. Biol. Chem.* 274: 22847-22854.
5. Bauer, M.F., et al. 1999. Genetic and structural characterization of the human mitochondrial inner membrane translocase. *J. Mol. Biol.* 289: 69-82.
6. Moro, F., et al. 1999. The Tim17.23 preprotein translocase of mitochondria: composition and function in protein transport into the matrix. *EMBO J.* 18: 3667-3675.
7. Ryan, M.T., et al. 2000. The transport machinery for the import of preproteins across the outer mitochondrial membrane. *Int. J. Biochem. Cell Biol.* 32: 13-21.

## SOURCE

Tim23 (yN-19) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the N-terminus of Tim23 of *Saccharomyces cerevisiae* origin.

## RESEARCH USE

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

## 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-14046 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## APPLICATIONS

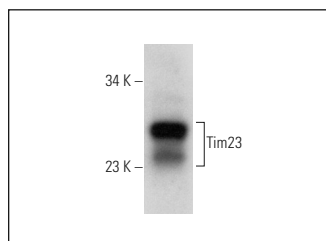
Tim23 (yN-19) is recommended for detection of Tim23 of *Saccharomyces cerevisiae* origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)].

Positive Controls: EGY48 whole cell lysate: sc-364775.

## 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).

## DATA



Tim23 (yN-19): sc-14046. Western blot analysis of Tim23 expression in EGY48 whole cell lysate.

## 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](http://www.scbt.com) or our catalog for detailed protocols and support products.