SANTA CRUZ BIOTECHNOLOGY, INC.

Tom22 (1C9-2): sc-58308

BACKGROUND

The mitochondrial preprotein translocases of the outer membrane (Tom) is a multisubunit protein complex that facilitates the import of nucleus-encoded precursor proteins across the mitochondrial outer membrane. The Tom machinery consists of import receptors for the initial binding of cytosolically synthesized preproteins and a general import pore (GIP) for the membrane translocation of various preproteins into the mitochondria. The import receptors include Tom20 and Tom22, which form a heteromeric receptor complex that initiates the insertion of newly synthesized proteins into the outer membrane and then directs the precursor protein into the GIP. In yeast, Tom22 is the essential component of the import receptor complex, as it functions as a receptor for the preproteins and serves as a docking point for both Tom20 and the GIP. Tom22 directly associates with Tom40, the major component of the GIP, and forms a stable interaction between the two core complexes. This interactions facilitates the fluid movement of preproteins into the mitochondria. Structural features of Tom22 include an N-terminal negatively charged region exposed to the cytosol, a C-terminal innermembrane space region with little negative charge, and a putative transmembrane region. The gene encoding the human Tom22 protein maps to chromosome 22q13.1.

REFERENCES

1. Rapaport, D., et al. 1997. Mitochondrial protein import. Tom40 plays a major role in targeting and translocation of preproteins by forming a specific binding site for the presequence. J. Biol. Chem. 272: 18725-18731.
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: TOMM22 (human) mapping to 22q13.1; Tomm22 (mouse) mapping to 15 E1.

SOURCE

Tom22 (1C9-2) is a mouse monoclonal antibody raised against a membrane fraction from Vero cells derived from kidney of monkey origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Tom22 (1C9-2) is available conjugated to agarose (sc-58308 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-58308 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-58308 PE), fluorescein (sc-58308 FITC), Alexa Fluor® 488 (sc-58308 AF488), Alexa Fluor® 546 (sc-58308 AF546), Alexa Fluor® 594 (sc-58308 AF594) or Alexa Fluor® 647 (sc-58308 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-58308 AF680) or Alexa Fluor® 790 (sc-58308 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

STORAGE

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

APPLICATIONS

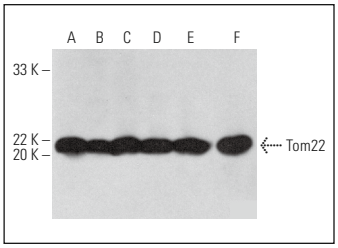
Tom22 (1C9-2) is recommended for detection of Tom22 of mouse, rat, human and monkey origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500).

Suitable for use as control antibody for Tom22 siRNA (h): sc-41265, Tom22 siRNA (m): sc-41266, Tom22 shRNA Plasmid (h): sc-41265-SH, Tom22 shRNA Plasmid (m): sc-41266-SH, Tom22 shRNA (h) Lentiviral Particles: sc-41265-V and Tom22 shRNA (m) Lentiviral Particles: sc-41266-V.

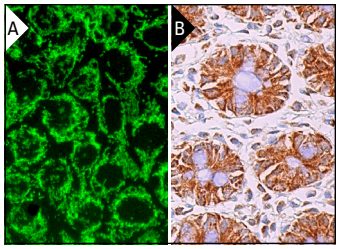
Molecular Weight of Tom22: 22 kDa.

Positive Controls: Raji whole cell lysate: sc-364236, Hep G2 cell lysate: sc-2227 or HeLa whole cell lysate: sc-2200.

DATA



Tom22 (1C9-2) HRP: sc-58308 HRP. Direct western blot analysis of Tom22 expression in Raji (**A**), A-431 (**B**), K-562 (**C**), HeLa (**D**), Hep G2 (**E**) and HL-60 (**F**) whole cell lysates.



Tom22 (1C9-2): sc-58308. Immunofluorescence staining of formalin-fixed A-431 cells showing mitochondrial localization (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human rectum tissue showing cytoplasmic staining of glandular cells (**B**).

SELECT PRODUCT CITATIONS

1. Bacon, K., et al. 2019. Screening yeast display libraries against magnetized yeast cell targets enables efficient isolation of membrane protein binders. ACS Comb. Sci. 21: 817-832.
2. Fielden, L.F., et al. 2020. Proteomic identification of *Coxiella burnetii* effector proteins targeted to the host cell mitochondria during infection. Mol. Cell. Proteomics 20: 100005.
3. Amen, T. and Kaganovich, D. 2021. Stress granules inhibit fatty acid oxidation by modulating mitochondrial permeability. Cell Rep. 35: 109237.
4. Schreier, H.K., et al. 2022. Polymerase ζ is involved in mitochondrial DNA maintenance processes in concert with APE1 activity. Genes 13: 879.
5. Waguia Kontchou, C., et al. 2022. *Chlamydia trachomatis* inhibits apoptosis in infected cells by targeting the pro-apoptotic proteins Bax and Bak. Cell Death Differ. 29: 2046-2059.

RESEARCH USE

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

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