



TXNDC1 (K-12): sc-107110

BACKGROUND

Thioredoxins comprise a family of small proteins that, by catalyzing the oxidation of disulfide bonds, participate in redox reactions throughout the cell. Proteins that contain thioredoxin domains do not necessarily convey the oxidative properties of thioredoxins, but generally function as disulfide isomerases that enzymatically rearrange disulfide bonds found in various proteins. TXNDC1 (thioredoxin-related transmembrane protein 1), also known as MX, TXNDC, PDIA11, TXNDC1 or TMX1, is a 280 amino acid ubiquitously expressed single-pass type I membrane protein that localizes to the endoplasmic reticulum (ER). With highest expression in kidney, liver, placenta and lung, TXNDC1 may participate in regulating ER stress caused by BFA (brefeldin A), an inhibitor of ER-Golgi transport. TXNDC1 is suggested to modulate various molecules with its oxidoreductase activity and regulate redox reactions in the ER.

REFERENCES

- Holmgren, A. 1985. Thioredoxin. *Annu. Rev. Biochem.* 54: 237-271.
- Holmgren, A. 1989. Thioredoxin and glutaredoxin systems. *J. Biol. Chem.* 264: 13963-13966.
- Eklund, H., Gleason, F.K. and Holmgren, A. 1991. Structural and functional relations among thioredoxins of different species. *Proteins* 11: 13-28.
- Matsuo, Y., Akiyama, N., Nakamura, H., Yodoi, J., Noda, M. and Kizaka-Kondoh, S. 2001. Identification of a novel thioredoxin-related transmembrane protein. *J. Biol. Chem.* 276: 10032-10038.
- Anelli, T., Alessio, M., Mezghrani, A., Simmen, T., Talamo, F., Bachi, A. and Sitia, R. 2002. ERp44, a novel endoplasmic reticulum folding assistant of the thioredoxin family. *EMBO J.* 21: 835-844.
- Anelli, T., Alessio, M., Bachi, A., Bergamelli, L., Bertoli, G., Camerini, S., Mezghrani, A., Ruffato, E., Simmen, T. and Sitia, R. 2003. Thiol-mediated protein retention in the endoplasmic reticulum: the role of ERp44. *EMBO J.* 22: 5015-5022.
- Matsuo, Y., Nishinaka, Y., Suzuki, S., Kojima, M., Kizaka-Kondoh, S., Kondo, N., Son, A., Sakakura-Nishiyama, J., Yamaguchi, Y., Masutani, H., Ishii, Y. and Yodoi, J. 2004. TMX, a human transmembrane oxidoreductase of the thioredoxin family: the possible role in disulfide-linked protein folding in the endoplasmic reticulum. *Arch. Biochem. Biophys.* 423: 81-87.
- Breuzer, L., Halbeisen, R., Jenö, P., Otte, S., Barlowe, C., Hong, W. and Hauri, H.P. 2004. Proteomics of endoplasmic reticulum-Golgi intermediate compartment (ERGIC) membranes from brefeldin A-treated Hep G2 cells identifies ERGIC-32, a new cycling protein that interacts with human Erv46. *J. Biol. Chem.* 279: 47242-47253.
- Matsuo, Y., Masutani, H., Son, A., Kizaka-Kondoh, S. and Yodoi, J. 2009. Physical and functional interaction of transmembrane thioredoxin-related protein with major histocompatibility complex class I heavy chain: redox-based protein quality control and its potential relevance to immune responses. *Mol. Biol. Cell.* 20: 4552-4562.

CHROMOSOMAL LOCATION

Genetic locus: TMX1 (human) mapping to 14q22.1.

SOURCE

TXNDC1 (K-12) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an extracellular domain of TXNDC1 of human origin.

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-107110 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

TXNDC1 (K-12) is recommended for detection of TXNDC1 of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), 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 TXNDC1 siRNA (h): sc-92249, TXNDC1 shRNA Plasmid (h): sc-92249-SH and TXNDC1 shRNA (h) Lentiviral Particles: sc-92249-V.

Molecular Weight of TXNDC1: 30 kDa.

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) 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.

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.

PROTOCOLS

See our web site at www.scbt.com or our catalog for detailed protocols and support products.