

Trx (A-5): sc-166393



The Power to Question

BACKGROUND

Thioredoxin (Trx) is a redox protein that is found in several species, such as bacteria, plants and mammals, and contains a conserved active site, consisting of Trp-Cys-Gly-Pro-Cys. Trx has several biological functions. It acts as a hydrogen donor for ribonucleotide reductase, which is critical for DNA synthesis, and modulates the DNA-binding activity of several transcription factors, including NF κ B, AP-1, p53, TFIIIC and glucocorticoid receptor. Trx also stimulates cell growth, is an inhibitor of apoptosis and plays a role in the protection against oxidative stress. Drugs that inhibit Trx have antitumor activity, suggesting that Trx is involved in a variety of human diseases, including cancer. TrxR is a ubiquitously expressed flavoprotein that catalyzes the NADPH-dependent reduction of Trx as well as several other oxidized cellular components.

CHROMOSOMAL LOCATION

Genetic locus: TXN (human) mapping to 9q31.3.

SOURCE

Trx (A-5) is a mouse monoclonal antibody raised against amino acids 1-105 representing full length Trx of human origin.

PRODUCT

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

Trx (A-5) is available conjugated to agarose (sc-166393 AC), 500 μ g/0.25 ml agarose in 1 ml, for IP; to HRP (sc-166393 HRP), 200 μ g/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-166393 PE), fluorescein (sc-166393 FITC), Alexa Fluor[®] 488 (sc-166393 AF488), Alexa Fluor[®] 546 (sc-166393 AF546), Alexa Fluor[®] 594 (sc-166393 AF594) or Alexa Fluor[®] 647 (sc-166393 AF647), 200 μ g/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor[®] 680 (sc-166393 AF680) or Alexa Fluor[®] 790 (sc-166393 AF790), 200 μ g/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

Trx (A-5) is recommended for detection of Trx of human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g 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).

Suitable for use as control antibody for Trx siRNA (h): sc-106984, Trx shRNA Plasmid (h): sc-106984-SH and Trx shRNA (h) Lentiviral Particles: sc-106984-V.

Molecular Weight of Trx: 12 kDa.

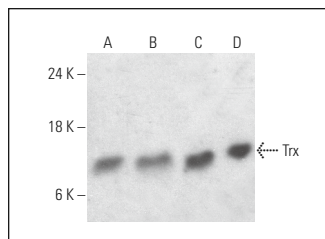
Positive Controls: HeLa whole cell lysate: sc-2200, AML-193 whole cell lysate: sc-364182 or BJAB whole cell lysate: sc-2207.

STORAGE

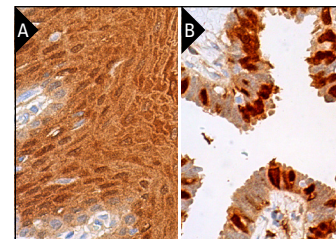
Store at 4° C, ****DO NOT FREEZE****. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

RESEARCH USE

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

DATA

Trx (A-5): sc-166393 HRP. Direct western blot analysis of Trx expression in AML-193 (A), BJAB (B), HeLa (C) and Jurkat (D) whole cell lysates.



Trx (A-5): sc-166393. Immunoperoxidase staining of formalin fixed, paraffin-embedded human esophagus tissue showing cytoplasmic and nuclear staining of squamous epithelial cells (A). Immunoperoxidase staining of formalin fixed, paraffin-embedded human fallopian tube tissue showing cytoplasmic and nuclear staining of glandular cells (B).

SELECT PRODUCT CITATIONS

- Bhaskaran, N., et al. 2012. Induction of heme oxygenase-1 by chamomile protects murine macrophages against oxidative stress. *Life Sci.* 90: 1027-1033.
- Antonella Nadalutti, C., et al. 2013. Thioredoxin is involved in endothelial cell extracellular transglutaminase 2 activation mediated by celiac disease patient IgA. *PLoS ONE* 8: e77277.
- Castaldo, S.A., et al. 2019. Annexin A2 regulates Akt upon H₂O₂-dependent signaling activation in cancer cells. *Cancers* 11: 492.
- Gong, T., et al. 2021. Selenoprotein M promotes hypothalamic leptin signaling and thioredoxin antioxidant activity. *Antioxid. Redox Signal.* 35: 775-787.
- Lee, M.J., et al. 2022. Pumpless three-dimensional photo paper-based microfluidic analytical device for automatic detection of thioredoxin-1 using enzyme-linked immunosorbent assay. *Anal. Bioanal. Chem.* 414: 3219-3230.
- Pérez-Torres, I., et al. 2022. Deodorized garlic decreases oxidative stress caused by lipopolysaccharide in rat heart through hydrogen sulfide: preliminary findings. *Int. J. Mol. Sci.* 23: 12529.
- Ren, W., et al. 2024. Single-cell transcriptomic atlas of taste papilla aging. *Aging Cell* 21: e14308.
- Russell-Guzmán, J., et al. 2024. Activation of the ROS/TXNIP/NLRP3 pathway disrupts Insulin-dependent glucose uptake in skeletal muscle of Insulin-resistant obese mice. *Free Radic. Biol. Med.* 222: 187-198.

PROTOCOLS

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

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