SANTA CRUZ BIOTECHNOLOGY, INC.

Trx (Trx1): sc-13526

SANTA CRUZ BIOTECHNOLOGY

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 NFκB, 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.

REFERENCES

1. Lunn, C.A. and Pigiet, V.P. 1982. Localization of thioredoxin from *Escherichia coli* in an osmotically sensitive compartment. J. Biol. Chem. 257: 11424-11430.
2. Lunn, C.A., et al. 1984. Amplification and purification of plasmid-encoded thioredoxin from *Escherichia coli* K12. J. Biol. Chem. 259: 10469-10474.
3. Holmgren, A. 1985. Thioredoxin. Annu. Rev. Biochem. 54: 237-271.

SOURCE

Trx (Trx1) is a mouse monoclonal antibody raised against purified *E. coli* Trx.

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.

Trx (Trx1) is available conjugated to agarose (sc-13526 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-13526 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-13526 PE), fluorescein (sc-13526 FITC), Alexa Fluor® 488 (sc-13526 AF488), Alexa Fluor® 546 (sc-13526 AF546), Alexa Fluor® 594 (sc-13526 AF594) or Alexa Fluor® 647 (sc-13526 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-13526 AF680) or Alexa Fluor® 790 (sc-13526 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

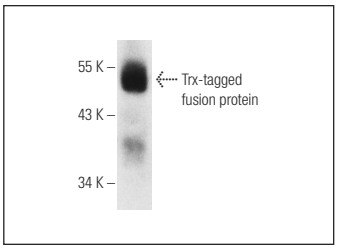
Trx (Trx1) is recommended for detection of Trx and Trx fusion proteins of *E. coli* origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)] and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Molecular Weight of Trx: 12 kDa.

RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 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



Trx (Trx1): sc-13526. Western blot analysis of Trx-tagged fusion protein.

SELECT PRODUCT CITATIONS

1. Wang, Y., et al. 2013. A cell-penetrating peptide suppresses the hypoxia inducible factor-1 function by binding to the helix-loop-helix domain of the aryl hydrocarbon receptor nuclear translocator. Chem. Biol. Interact. 203: 401-411.
2. Shen, K., et al. 2016. Cambogin exerts anti-proliferative and pro-apoptotic effects on breast adenocarcinoma through the induction of NADPH oxidase 1 and the alteration of mitochondrial morphology and dynamics. Oncotarget 7: 50596-50611.
3. Shawky, N.M. and Segar, L. 2017. Sulforaphane inhibits platelet-derived growth factor-induced vascular smooth muscle cell proliferation by targeting mTOR/p70S6kinase signaling independent of Nrf2 activation. Pharmacol. Res. 119: 251-264.
4. Tian, Y., et al. 2018. CXCL12 induces migration of oligodendrocyte precursor cells through the CXCR4-activated MEK/ERK and PI3K/Akt pathways. Mol. Med. Rep. 18: 4374-4380.
5. Zhang, Z., et al. 2019. Luteolin protects PC-12 cells from H_2O_2-induced injury by up-regulation of microRNA-21. Biomed. Pharmacother. 112: 108698.
6. Amara, I., et al. 2020. *Hericium erinaceus* prevents DEHP-induced mitochondrial dysfunction and apoptosis in PC12 cells. Int. J. Mol. Sci. 21: 2138.
7. Salahi, E., et al. 2022. The effect of mitochondria-targeted antioxidant MitoQ10 on redox signaling pathway components in PCOS mouse model. Arch. Gynecol. Obstet. 305: 985-994.

RESEARCH USE

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