

Trx (K-20): sc-801

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 thioredoxin is involved in a variety of human diseases, including cancer. TrxR is an ubiquitously expressed flavoprotein that catalyzes the NADPH-dependent reduction of thioredoxin as well as several other oxidized cellular components. Mammalian TrxR is a part of a selenium-containing pyridine nucleotide-disulphide oxidoreductase family, which has a conserved catalytic site of Cys-Val-Asn-Val-Gly-Cys. The two known forms of TrxR, TrxR1 and TrxR2, are also involved in the prevention of oxidative stress. Inhibition of TrxR activity may provide for potential treatments of cancer, AIDS and other autoimmune diseases as well as bacterial infections and parasitic diseases.

REFERENCES

- Holmgren, A. 1985. Thioredoxin. *Annu. Rev. Biochem.* 54: 237-271.
- LaVallie, E.R., DiBlasio, E.A., Kovacic, S., Grant, K.L., Schendel, P.F. and McCoy, J.M. 1993. A thioredoxin gene fusion expression system that circumvents inclusion body formation in the *E. coli* cytoplasm. *Biotechnology* 11: 187.
- Lunn, C.A., Kathju, S., Wallace, B.J., Kushner, S.R. and Pigiet, V. 1984. Amplification and purification of plasmid-encoded thioredoxin from *Escherichia coli* K12. *J. Biol. Chem.* 259: 10469-10474.
- 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.
- Tanaka, T., Nakamura, H., Nishiyama, A., Hosoi, F., Masutani, H., Wada, H. and Yodoi, J. 2000. Redox regulation by thioredoxin superfamily; protection against oxidative stress and aging. *Free Radic. Res.* 33: 851-855.
- Williams, C.H., Arcsott, L.D., Muller, S., Lennon, B.W., Ludwig, M.L., Wang, P.F., Veine, D.M., Becker, K. and Schirmer, R.H. 2000. Thioredoxin reductase two modes of catalysis have evolved. *Eur. J. Biochem.* 267: 6110-6117.
- Becker, K., Gromer, S., Schirmer, R.H. and Muller, S. 2000. Thioredoxin reductase as a pathophysiological factor and drug target. *Eur. J. Biochem.* 267: 6118-6125.

SOURCE

Trx (K-20) is an affinity purified rabbit polyclonal antibody raised against a peptide mapping near the C-terminus of the Trx-encoded domain of pTrx Fus expression plasmid.

STORAGE

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

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-801 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

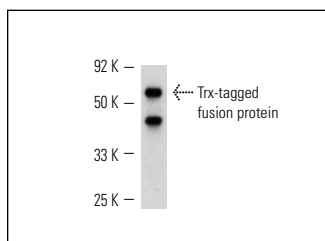
APPLICATIONS

Trx (K-20) is recommended for detection of Trx and pTrx Fus-ended fusion proteins 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).

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (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



Trx (K-20): sc-801. Western blot analysis of Trx-tagged fusion protein.

SELECT PRODUCT CITATIONS

- Nouvion, A.L., Thibaut, J., Lohez, O.D., Venet, S., Colas, P., Gillet, G. and Lalle, P. 2007. Modulation of Nr-13 antideath activity by peptide aptamers. *Oncogene* 26: 701–710.

RESEARCH USE

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

MONOS
Satisfaction
Guaranteed

Try **Trx (Trx1): sc-13526**, our highly recommended monoclonal alternative to Trx (K-20).