

# Trx-2 (B-8): sc-133200

## BACKGROUND

Thioredoxin (Trx) is a redox protein 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. Thioredoxin 2 (Trx-2) is a small redox protein that is localized to the mitochondria and is essential for cell viability, playing a crucial role in the scavenging of ROS in mitochondria and regulating the mitochondrial apoptosis signaling pathway. Trx reductases (TrxR1 and TrxR2) are ubiquitously expressed flavoproteins that catalyze the NADPH-dependent reduction of Trx as well as several other oxidized cellular components. Mammalian Trx reductases are a part of a selenium-containing pyridine nucleotide-disulphide oxidoreductase family, which has a conserved catalytic site of Cys-Val-Asn-Val-Gly-Cys. 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.

## CHROMOSOMAL LOCATION

Genetic locus: TXN2 (human) mapping to 22q12.3; Txn2 (mouse) mapping to 15 E1.

## SOURCE

Trx-2 (B-8) is a mouse monoclonal antibody raised against amino acids 92-166 mapping at the C-terminus of Trx-2 of human origin.

## PRODUCT

Each vial contains 200 µg IgG<sub>2b</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

## APPLICATIONS

Trx-2 (B-8) is recommended for detection of Trx-2 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, 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), 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-2 siRNA (h): sc-44173, Trx-2 siRNA (m): sc-60084, Trx-2 shRNA Plasmid (h): sc-44173-SH, Trx-2 shRNA Plasmid (m): sc-60084-SH, Trx-2 shRNA (h) Lentiviral Particles: sc-44173-V and Trx-2 shRNA (m) Lentiviral Particles: sc-60084-V.

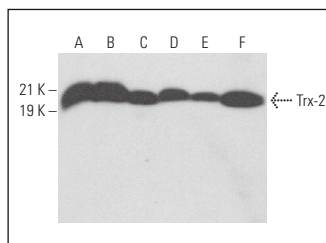
Molecular Weight of Trx-2: 18 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, C2C12 whole cell lysate: sc-364188 or K-562 whole cell lysate: sc-2203.

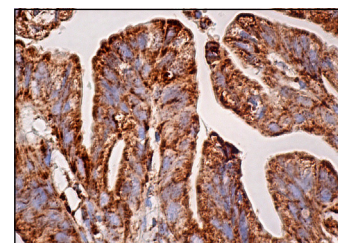
## RECOMMENDED SUPPORT REAGENTS

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). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850. 4) Immunohistochemistry: use m-IgGκ BP-HRP: sc-516102 with DAB, 50X: sc-24982 and Immunohistomount: sc-45086, or Organo/Limonene Mount: sc-45087.

## DATA



Trx-2 (B-8): sc-133200. Western blot analysis of Trx-2 expression in HeLa (A), C2C12 (B), K-562 (C), Sol8 (D) and PC-12 (E) whole cell lysates and rat tongue tissue extract (F).



Trx-2 (B-8): sc-133200. Immunoperoxidase staining of formalin fixed, paraffin-embedded human gall bladder tissue showing cytoplasmic staining of glandular cells.

## SELECT PRODUCT CITATIONS

1. Yu, Y., et al. 2013. Overexpression of thioredoxin-binding protein 2 increases oxidation sensitivity and apoptosis in human lens epithelial cells. *Free Radic. Biol. Med.* 57: 92-104.

## 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](http://www.scbt.com) for detailed protocols and support products.