**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, TFIIC 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 (Trx2) 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-nucleoside diphosphate 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.

**REFERENCES**


**CHROMOSOMAL LOCATION**

Genetic locus: TXNRD1 (human) mapping to 12q23.3; Txnrd1 (mouse) mapping to 10 C1.

**SOURCE**

TrxR1 (B-2) is a mouse monoclonal antibody raised against amino acids 71-340 of TrxR1 of human origin.

**PRODUCT**

Each vial contains 200 µg IgG2a kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

TrxR1 (B-2) is available conjugated to agarose (sc-28321 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to phycoerythrin (sc-28321 PE), fluorescein (sc-28321 FITC), Alexa Fluor® 488 (sc-28321 AF488), Alexa Fluor® 546 (sc-28321 AF546), Alexa Fluor® 594 (sc-28321 AF594) or Alexa Fluor® 647 (sc-28321 AF647), 200 µg/ml, for WB (RGB), IF, IHC(F) and FC; and to either Alexa Fluor® 680 (sc-28321 AF680) or Alexa Fluor® 790 (sc-28321 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FC.

**STORAGE**

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

**APPLICATIONS**

TrxR1 (B-2) is recommended for detection of TrxR1 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1,000), 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 TrxR1 siRNA (h): sc-36750, TrxR1 siRNA (m): sc-36751, TrxR1 shRNA Plasmid (h): sc-36750-SH, TrxR1 shRNA Plasmid (m): sc-36751-SH, TrxR1 shRNA (h) Lentiviral Particles: sc-36750-V and TrxR1 shRNA (m) Lentiviral Particles: sc-36751-V.

**DATA**

Molecular Weight of TrxR1: 55 kDa.

Positive Controls: L8 cell lysate: sc-3807, RAW 264.7 whole cell lysate: sc-2211 or NIH/3T3 whole cell lysate: sc-2210.

**SELECT PRODUCT CITATIONS**


**RESEARCH USE**

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

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