

TrxR2 (N-13): sc-46279

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. 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.

REFERENCES

- Conrad, M., et al. 2004. Essential role for mitochondrial thioredoxin reductase in hematopoiesis, heart development, and heart function. *Mol. Cell. Biol.* 24: 9414-9423.
- Kim, J.R., et al. 2004. Oxidation of thioredoxin reductase in HeLa cells stimulated with tumor necrosis factor α . *FEBS Lett.* 567: 189-196.

CHROMOSOMAL LOCATION

Genetic locus: TXNRD2 (human) mapping to 22q11.21; Txnrd2 (mouse) mapping to 16 A3.

SOURCE

TrxR2 (N-13) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the N-terminus of TrxR2 of human origin.

PRODUCT

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

Blocking peptide available for competition studies, sc-46279 P, (100 μ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

STORAGE

Store at 4 $^{\circ}$ 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.

APPLICATIONS

TrxR2 (N-13) is recommended for detection of TrxR2 isoforms 1 and 2 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

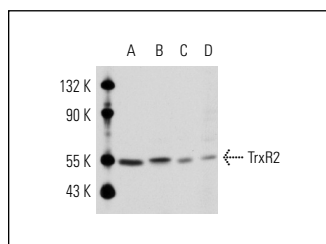
TrxR2 (N-13) is also recommended for detection of TrxR2 isoforms 1 and 2 in additional species, including equine and canine.

Suitable for use as control antibody for TrxR2 siRNA (h): sc-45819, TrxR2 siRNA (m): sc-45820, TrxR2 shRNA Plasmid (h): sc-45819-SH, TrxR2 shRNA Plasmid (m): sc-45820-SH, TrxR2 shRNA (h) Lentiviral Particles: sc-45819-V and TrxR2 shRNA (m) Lentiviral Particles: sc-45820-V.

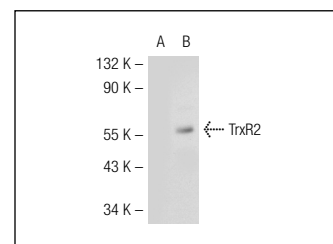
Molecular Weight of TrxR2: 56-57 kDa.

Positive Controls: TrxR2 (m2): 293T Lysate: sc-124315, HeLa whole cell lysate: sc-2200 or K-562 whole cell lysate: sc-2203.

DATA



TrxR2 (N-13): sc-46279. Western blot analysis of TrxR2 expression in HeLa (A), K-562 (B) and Hep G2 (C) whole cell lysates and mouse heart tissue extract (D).



TrxR2 (N-13): sc-46279. Western blot analysis of TrxR2 expression in non-transfected: sc-117752 (A) and mouse TrxR2 transfected: sc-124315 (B) 293T whole cell lysates.

SELECT PRODUCT CITATIONS

- Zucker, S.N., et al. 2014. Nrf2 amplifies oxidative stress via induction of Klf9. *Mol. Cell* 53: 916-928.

PROTOCOLS

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



Try **TrxR2 (F-5): sc-376868** or **TrxR2 (B-10): sc-365714**, our highly recommended monoclonal alternatives to TrxR2 (N-13).