

TrxR1 (H-270): sc-20147

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. 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: TXNRD1 (human) mapping to 12q23.3; Txnr1 (mouse) mapping to 10 C1.

SOURCE

TrxR1 (H-270) is a rabbit polyclonal antibody raised against amino acids 71-340 mapping within an internal region of TrxR1 of human origin.

PRODUCT

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

Available as agarose conjugate for immunoprecipitation, sc-20147 AC, 500 µg/0.25 ml agarose in 1 ml.

APPLICATIONS

TrxR1 (H-270) is recommended for detection of TrxR1 of mouse, rat and human 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)], 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).

TrxR1 (H-270) is also recommended for detection of TrxR1 in additional species, including equine, canine, bovine and porcine.

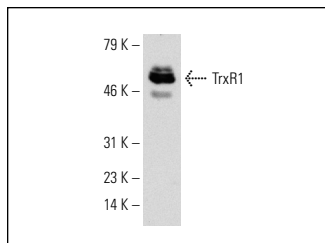
Suitable for use as control antibody for TrxR1 siRNA (h): sc-36750, TrxR1 siRNA (m): sc-36751, TrxR1 shRNA Plasmid (h): sc-36750-SH, TrxR1 shRNA Plasmid (m): sc-36751-SH, TrxR1 shRNA (h) Lentiviral Particles: sc-36750-V and TrxR1 shRNA (m) Lentiviral Particles: sc-36751-V.

Molecular Weight of TrxR1: 55 kDa.

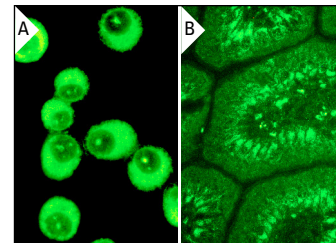
STORAGE

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

DATA



TrxR1 (H-270): sc-20147. Western blot analysis of TrxR1 expression in A549 whole cell lysate.



TrxR1 (H-270): sc-20147. Immunofluorescence staining of methanol-fixed K562 cells showing cytoplasmic localization (A). Immunofluorescence staining of normal mouse intestine frozen section showing cytoplasmic staining (B).

SELECT PRODUCT CITATIONS

- Giraud, M.N., et al. 2005. Expressional reprogramming of survival pathways in rat cardiocytes by neuregulin-1β. *J. Appl. Physiol.* 99: 313-322.
- Huang, Z., et al. 2009. Inorganic arsenic modulates the expression of selenoproteins in mouse embryonic stem cell. *Toxicol. Lett.* 187: 69-76.
- Hama, I., et al. 2010. Simultaneous expression of glutathione, thioredoxin-1, and their reductases in nerve transected hypoglossal motor neurons of rat. *Brain Res.* 1306: 1-7.
- Issaeva, I., et al. 2010. Generation of double-labeled reporter cell lines for studying co-dynamics of endogenous proteins in individual human cells. *PLoS ONE* 5: e13524.
- Maldonado, P.D., et al. 2012. Selenium-induced antioxidant protection recruits modulation of thioredoxin reductase during excitotoxic/pro-oxidant events in the rat striatum. *Neurochem. Int.* 61: 195-206.
- Wassermann, R., et al. 2012. Cell-type-specific effects of silibinin on vitamin D-Induced differentiation of acute myeloid leukemia cells are associated with differential modulation of RXRa levels. *Leuk. Res. Treatment* 2012: 401784.
- Branco, V., et al. 2014. Mitochondrial thioredoxin reductase inhibition, selenium status, and Nrf-2 activation are determinant factors modulating the toxicity of mercury compounds. *Free Radic. Biol. Med.* 73: 95-105.

RESEARCH USE

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



Try **TrxR1 (B-2): sc-28321** or **TrxR1 (A-9): sc-365658**, our highly recommended monoclonal alternatives to TrxR1 (H-270). Also, for AC, HRP, FITC, PE, Alexa Fluor® 488 and Alexa Fluor® 647 conjugates, see **TrxR1 (B-2): sc-28321**.