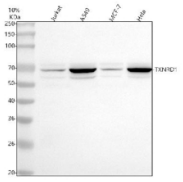
TXNRD1 Polyclonal Antibody / TRXR1 Antibody (FY13051)

Catalog No.	Formulation	Size
FY13051	Adding 0.2 ml of distilled water will yield a concentration of 500 ug/ml	100 ug

Bulk quote request

Species Reactivity	Human
Format	Lyophilized
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit IgG
Purity	Immunogen affinity purified
Buffer	Each vial contains 4 mg Trehalose, 0.9 mg NaCl, 0.2 mg Na2HPO4.
UniProt	Q16881
Applications	Western Blot: 0.25-0.5ug/ml ELISA: 0.1-0.5ug/ml
Limitations	This TXNRD1 Polyclonal Antibody / TRXR1 Antibody is available for research use only.



TXNRD1 Polyclonal Antibody WB Analysis of Human Jurkat, MCF-7 and HeLa Cell Lysates. Western blot analysis of human Jurkat, MCF-7, and HeLa whole-cell lysates using TRXR1 Antibody at 0.5 ug/ml. A strong band is detected at ~65 kDa, with a weaker band at ~60 kDa, while the theoretical molecular weight of TXNRD1 is ~71 kDa. This downward shift is commonly reported and reflects the migration properties of the cytosolic selenoprotein, which often runs ~5-10 kDa lower than predicted. The two bands likely correspond to the major TXNRD1 isoform (~65 kDa) and a C-terminally truncated variant (~60 kDa) lacking the selenocysteine-containing tail.

Description

TXNRD1 Polyclonal Antibody / TRXR1 Antibody targets thioredoxin reductase 1, a selenium-dependent oxidoreductase that maintains the reducing activity of the cytosolic thioredoxin system. Encoded by the TXNRD1 gene, this enzyme transfers electrons from NADPH to oxidized thioredoxin, allowing thioredoxin to participate in reactions involving protein disulfide reduction and cellular redox regulation. The thioredoxin system is an important component of antioxidant defense and contributes to the maintenance of intracellular conditions required for normal protein function, metabolism, and signal transduction.

TXNRD1 is a member of the pyridine nucleotide-disulfide oxidoreductase family and functions as a homodimer. Each subunit contains flavin adenine dinucleotide and conserved redox-active residues that facilitate electron transfer. The enzyme also contains a C-terminal catalytic motif incorporating selenocysteine, a selenium-containing amino acid essential for its characteristic reducing activity. This catalytic arrangement enables TXNRD1 to regenerate reduced thioredoxin and participate in the regulation of additional redox-sensitive substrates.

One of the principal functions of the thioredoxin system is to support peroxiredoxin-dependent antioxidant activity. Reduced thioredoxin supplies electrons to peroxiredoxins, which catalyze the reduction of hydrogen peroxide and certain organic hydroperoxides. This process helps regulate intracellular oxidant concentrations while preserving reactive oxygen species as signaling molecules. The thioredoxin system also contributes to DNA synthesis by providing reducing equivalents for ribonucleotide reductase, connecting TXNRD1 activity to nucleotide production and cellular proliferation.

TXNRD1 expression is influenced by oxidative stress and cellular antioxidant requirements. Stress-responsive transcriptional mechanisms, including those involving NRF2, can increase the expression of genes associated with redox protection. Elevated TXNRD1 activity has been investigated in several cancers, where enhanced antioxidant capacity may support tumor cell survival and resistance to oxidative damage. Conversely, inhibition of thioredoxin reductase can disturb intracellular redox balance and influence cell viability. TXNRD1 Polyclonal Antibody provides a reagent for investigating thioredoxin reductase 1 expression in studies of oxidative stress responses, antioxidant regulation, selenium-dependent enzyme activity, and cellular metabolism.

Application Notes

Optimal dilution of the TXNRD1 Polyclonal Antibody / TRXR1 Antibody should be determined by the researcher.

Immunogen

E.coli-derived human TXNRD1 recombinant protein (Position: Y93-Y326) was used as the immunogen for the TXNRD1 antibody.

Storage

After reconstitution, the TXNRD1 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.

Alternate Names

Thioredoxin reductase 1 antibody, TrxR1 antibody, TR1 antibody, cytosolic thioredoxin reductase antibody, thioredoxin reductase type 1 antibody, TXNRD1 selenoprotein antibody

Copyright © NSJ Bioreagents. All rights reserved.