

Recombinant Human Thioredoxin Reductase 1, His-tagged

Cat. No. TXNRD1-2497H **Lot. No.** (See product label)

SPECIFICATION

Product Overview	Recombinant human TXNRD1 protein, fused to His-tag at N-terminus, was expressed in <i>E.coli</i> and purified by using conventional chromatography techniques. MW = 55.7 kDa (508aa).
Species	Human
Source	E.coli
Description	TXNRD1, also known as Thioredoxin reductase 1, is a part of a selenium-containing pyridine nucleotide-disulphide oxidoreductase family, which has a conserved catalytic site of Cys-Val-Asn-Val-Gly-Cys. This protein reduces thioredoxins as well as other substrates, and plays a role in selenium metabolism and protection against oxidative stress. Inhibition of TXNRD1 activity may provide for potential treatments of cancer, AIDS and other autoimmune diseases as well as bacterial infections and parasitic diseases.
Form	Liquid. In Phosphate Buffered Saline pH7.4 containing 10% glycerol.
Purity	> 95% by SDS – PAGE.
Concentration	0.5 mg/ml (determined by Bradford assay).
Sequences Of Amino Acids	MGSSHHHHHH SSGLVPRGSH MYDYDLIIIG GSGGGLAAAK EAAQYGKKVM VLDFVTPTPL GTRWGLGGTC VNVGCIPKKL MHQAALLGQA LQDSRNYGWK VEETVKHDWD RMIEAVQNHI GSLNWGYRVA LREKKVYEN AYGQFIGPHR

 Tel: 1-631-559-9269 1-516-512-3133

 Email: info@creative-biomart.com  Fax: 1-631-938-8127

 45-1 Ramsey Road, Shirley, NY 11967, USA

IKATNNKGKE KIYSAERFLI ATGERPRYLG IPGDKEYCIS SDDLFSLPYC
 PGKTLVVGAS YVALECAGFL AGIGLDVTVM VRSILLRGFD QDMANKIGEH
 MEEHGIKFIR QFVPIKVEQI EAGTPGRLRV VAQSTNSEEI IEGEYNTVML
 AIGRDACTRK IGLETVGVKI NEKTGKIPVT DEEQTNVPYI YAIGDILEDK
 VELTPVAIQA GRLLAQRLYA GSTVKCDYEN VPTTVFTPLE YGACGLSEEK
 AVEKFGEENI EVYHSYFWPL EWTIPSRDNN KCYAKIICNT KDNERVVGPH
 VLGPNAGEVT QGFAAALKCG LTKKQLDSTI GIHPVCAEVF TTLSVTKRSG
 ASILQAGC.

Biological activity

Specific activity is 0.48-0.6 units/ml, and was measured in a coupled assay with DTNB and NADPH. The amount of TNB generated by NADPH was measured in absorbance at 412 nm.

Activity Assay

1. Prepare a 0.7ml reaction mixture into a suitable container: The final concentrations are 100mM potassium phosphate, 10mM EDTA, 0.2mM beta-NADPH, 0.05% BSA, 0.014% (w/v) thioredoxin, 5mM DTNB, 5ug, human TRXNRD1. 2. Equilibrate to 25C and monitor the A412nm until the value is constant using a spectrophotometer. 3. Add 35ul of 100mM DTNB into reaction mixture and mix immediately. 4. Record the increase in A412nm for 2 minutes.

Storage

can be stored at +4°C short term (1-2 weeks). For long term storage, aliquot and store at -20°C or -70°C. Avoid repeated freezing and thawing cycles.

GENE INFORMATION

Gene Name

TXNRD1 thioredoxin reductase 1 [Homo sapiens]

Synonyms

thioredoxin reductase 1; TR; TR1; TXNR; TRXR1; GRIM-12; MGC9145; TXNRD1;
 thioredoxin reductase 1, cytoplasmic; oxidoreductase; thioredoxin reductase TR1;
 thioredoxin reductase GRIM-12; KM-102-derived reductase-like factor; gene

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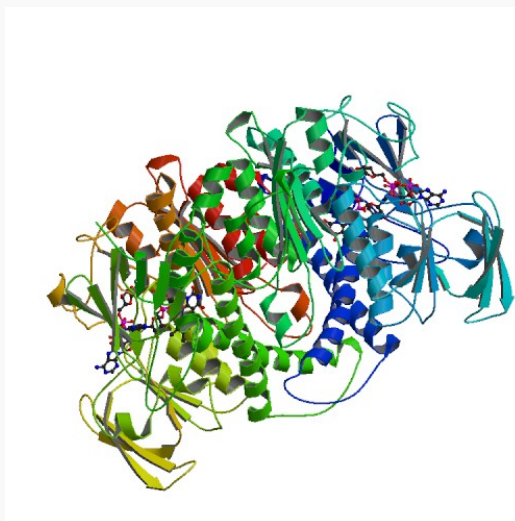
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associated with retinoic and IFN-induced mortality 12 protein; gene associated with retinoic and interferon-induced mortality 12 protein; Trxr1; EC 1.8.1.9; Gene associated with retinoid-IFN-induced mortality 12 protein; Thioredoxin reductase TR1

Gene ID	7296
mRNA Refseq	NM_001093771
Protein Refseq	NP_001087240
MIM	601112
UniProt ID	Q16881
Chromosome Location	12q23-q24.1
Pathway	Pyrimidine metabolism; Metabolism of nucleotides
Function	FAD binding; NADP or NADPH binding; electron carrier activity; oxidoreductase activity; protein disulfide oxidoreductase activity; thioredoxin-disulfide reductase activity

PDB rendering based
on 1h6v.



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