LD Biopharma, Inc.
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- PRODUCT DATA SHEET -

Name of Product: Recombinant Human TXNRD1 Protein
Catalog Number: hRP-1553
Manufacturer: LD Biopharma, Inc.

Introduction

Human Thioredoxin Reductase 1 (TXNRD1) gene encodes a member of the family of pyridine nucleotide oxidoreductases. This protein reduces thioredoxins as well as other substrates, and plays a role in selenium metabolism and protection against oxidative stress. The functional enzyme is thought to be a homo-dimer, which uses FAD as a cofactor. Inhibition of TXNRD1 activity may provide for potential treatments of cancer, AIDS and other autoimmune diseases as well as bacterial infections and parasitic diseases.

Full-length human TXNRD1 (497aa, derived from BC018122) gene was constructed with 29 aa N-terminal T7 / His / TEV cleavage site Tags and expressed in E.coli as inclusion bodies. The final product was refolded using our unique "temperature shift inclusion body refolding" technology and chromatographically purified.

Gene Symbol:	TXNRD1 (GRIM-12; TR; TRXR1; TXNR)
Accession Number:	NP_877419
Species:	Human
Size:	50 µg / Vial
Composition:	1.0 mg/ml, sterile-filtered, in 20 mM pH 8.0 Tris-HCl Buffer, with proprietary formulation of NaCl, KCl, EDTA, Sucrose, DTT .
Storage:	In Liquid. Keep at -80°C for long term storage. Product is stable at 4 °C for at least 30 days.

Key References

Ozdemirler Erata G, et al., *Is thioredoxin reductase involved in the defense against DNA fragmentation in varicocele?* Asian J. Androl. 15 (4), 518-522 (2013)

Kemerdere R, et al., *Tissue and plasma thioredoxin reductase expressions in patients with glioblastoma multiforme*. J Neurol Surg A Cent Eur Neurosurg 74 (4), 234-238 (2013)

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Cebula M, et al., *The rare TXNRD1_v3 ('v3') splice variant of human thioredoxin reductase 1 protein is targeted to membrane rafts by N-acylation and induces filopodia independently of its redox active site Integrity*. J. Biol. Chem. 288 (14), 10002-10011 (2013)

Wang P, et al., *Thioredoxin and thioredoxin reductase control tissue factor activity by thiol redox-dependent mechanism*. J. Biol. Chem. 288 (5), 3346-3358 (2013)

Applications

1. May be used as *auto-antibodies detection reagent*, which will react with sera of some auto-immuno-diseases and cancer patients.
2. May be used for in vitro human TXNRD1 mediated oxidative stress regulation study by intracellularlly delivery this protein with “ProFectin” reagent.
3. May be used for TXNRD1 protein-protein interaction assay.
4. May be used as specific substrate protein for kinase, and ubiquitin (Sumo pathway) related enzyme functional screening assays.
5. As antigen for specific antibody production.

Quality Control

Purity: > 90% by SDS-PAGE.

Recombinant Protein Sequence

MASMTGGQQMGRGHHHHHHENLYFQGGEFNGPEDLPKSYDYDLIIIGGGSGGLAAAKEAAQYGK
KVMVLDFVTPTPLGTRWGLGGTCVNVGCIPKKLMHQAALLGQALQDSRNYGWKVEETVKHDWDR
MIEAVQNHIGSLNWGYRVALREKKVVYENAYGQFIGPHRIKATNNKGKEKIYSAERFLIATGER
PRYLGIPGDKEYCISSDDLFSLPYCPGKTLVVGASYVALECAGFLAGIGLDVTVMVRSILLRGF
DQDMANKIGEHMEEHGIKFIRQFVPIKVEQIEAGTPGRLRVVAQSTNSEEIIEGEYNTVMLAIG
RDACTRKIGLETVGVKINEKTGKIPVTDEEQTNVPYIYAIGDILEDKVELTPVAIQAGRLLAQR
LYAGSTVKCDYENVPTTVFTPLEYGACGLSEEKAVEKFGEENIEVYHSYFWPLEWTIPSRDNNK
CYAKIICNTKDNERVVGFHVLGPNAGEVTQGFAAALKCGLTKKQLDSTIGIHPVCAEVFTTLSV
TKRSGASILQAGCUG