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PRODUCT INFORMATION



Thioredoxin Reductase 1 (human, recombinant)

Item No. 39624

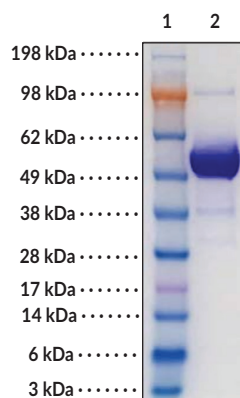
Overview and Properties

Synonyms:	NADPH-dependent Thioredoxin Reductase, TrxR1, Txnrd1
Source:	Active recombinant human TrxR1 expressed in <i>E. coli</i>
Amino Acids:	499 residues
Storage:	-20°C (as supplied)
Stability:	≥1 year
Purity:	≥95% estimated by SDS-PAGE
Supplied in:	TE buffer with 50% glycerol
Protein	
Concentration:	1 mg/ml
Unit Definition:	One unit is defined as the amount of enzyme required to reduce 1 μmol DTNB per minute in 0.5 ml standard DTNB assay with 2.5 mM DTNB and 0.3 NADPH in TE buffer (50 nM Tris-HCl, 2 mM EDTA, pH 7.5)

Special Conditions: Centrifuge tube briefly before opening

Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Image



Lane 1: MW Markers
Lane 2: TrxR1

Coomassie stained SDS-PAGE Analysis
of 10 μg TrxR1.

WARNING
THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA
This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the [complete](#) Safety Data Sheet, which has been sent via email to your institution.

WARRANTY AND LIMITATION OF REMEDY
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PRODUCT INFORMATION



Description

Thioredoxin reductase 1 (TrxR1) is an oxidoreductase encoded by the *TXNRD1* gene in humans and a member of the antioxidant thioredoxin system, which is involved in the maintenance of cellular thiol redox homeostasis.¹⁻³ It exists as a homodimer and contains a dimer interface domain, FAD- and NADPH-binding domains, an N-terminal redox catalytic site, and a C-terminal selenocysteine residue, which is essential for the catalytic activity of TrxR1.^{1,4} TrxR1 is ubiquitously expressed, localizes to the cytoplasm, and is regulated by the antioxidant transcription factor Nrf2.^{2,6} TrxR1 catalyzes the NADPH-dependent reduction of oxidized thioredoxin (Trx), restoring the disulfide reductase function of Trx, which regulates redox-sensitive transcription factors, such as NF- κ B and p53, and has roles in apoptosis and cell signaling.^{3,7} Genome-wide deletion of *Txnrd1* is embryonic lethal in mice.⁸ Increased serum TrxR1 activity is associated with reduced progression-free survival in patients with non-small cell lung cancer (NSCLC).⁹ Cayman's Thioredoxin Reductase 1 (human, recombinant) protein can be used for enzyme activity assay.

References

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