



# SZABO SCANDIC

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## Produktinformation



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# PRODUCT INFORMATION



## Thioredoxin Reductase 2 (human, recombinant)

Item No. 39625

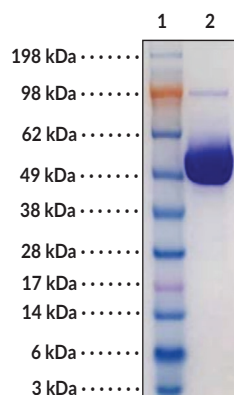
### Overview and Properties

<b>Synonyms:</b>	NADPH-dependent Thioredoxin Reductase 2, TrxR2, Txnrd2
<b>Source:</b>	Active recombinant human TrxR2 expressed in <i>E. coli</i>
<b>Amino Acids:</b>	488 residues
<b>Storage:</b>	-20°C (as supplied)
<b>Stability:</b>	≥1 year
<b>Purity:</b>	≥95% estimated by SDS-PAGE
<b>Supplied in:</b>	TE Buffer with 50% glycerol
<b>Protein</b>	
<b>Concentration:</b>	1 mg/ml
<b>Unit Definition:</b>	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: TrxR2

Coomassie stained SDS-PAGE Analysis  
of 10 μg TrxR2.

**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.

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# PRODUCT INFORMATION



## Description

Thioredoxin reductase 2 (TrxR2) is an oxidoreductase encoded by the *TXNRD2* gene in humans and a member of the antioxidant thioredoxin system.<sup>1</sup> 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 TrxR2.<sup>1,2</sup> TrxR2 is ubiquitously expressed and localizes primarily to the mitochondria.<sup>3</sup> It catalyzes the NADPH-dependent reduction of oxidized thioredoxin 2 (Trx2), restoring the disulfide reductase function of Trx2, which reduces peroxiredoxin-3 (Prx3) dimers.<sup>4,5</sup> TrxR2 has roles in the maintenance of mitochondrial integrity and redox homeostasis in the aging heart and in the regulation of chondrocyte viability, proliferation, and differentiation.<sup>2</sup> Genome-wide deletion of *Txnrd2* is embryonic lethal in mice.<sup>6</sup> *TXNRD2* expression and TrxR2 protein levels are increased in bone biopsies from patients with osteosarcoma that later progress to metastatic disease.<sup>7</sup> SNPs in *TXNRD2* are associated with serum markers of selenium status in patients with advanced- or high-stage, but not localized low-grade, prostate cancer.<sup>8</sup> Cayman's Thioredoxin Reductase 2 (human, recombinant) protein can be used for enzyme activity assays.

## References

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8. Méplan, C., Rohrmann, S., Steinbrecher, A., et al. Polymorphisms in thioredoxin reductase and selenoprotein K genes and selenium status modulate risk of prostate cancer. *PLoS One* **7**(11), e48709 (2012).

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