

PRODUCT INFORMATION

Thioredoxin Glutathione Reductase (*Schistosoma mansoni*, recombinant)

Item No. 39632

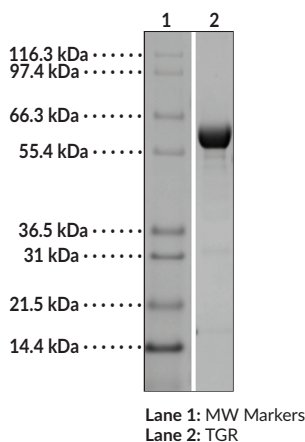
Overview and Properties

Synonym:	TGR
Source:	Active recombinant <i>S. mansoni</i> TGR expressed in <i>E. coli</i>
Amino Acids:	598 residues
Storage:	-20°C (as supplied)
Stability:	≥1 year
Purity:	≥95% estimated by SDS-PAGE
Supplied in:	250 µg protein 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 mM 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



Coomassie stained SDS-PAGE Analysis
of 10 µg of TGR.

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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Description

Thioredoxin glutathione reductase (TGR) is a selenocysteine-containing oxidoreductase flavoenzyme that protects *Schistosoma*, the genus of blood flukes that causes schistosomiasis, and other helminth parasites from host-induced oxidative damage.^{1,2} It is a homodimer that contains an N-terminal glutathione reductase domain, an FAD- and NADPH- binding site, and a thioredoxin domain near the C-terminus, and it can reduce both DTNB and oxidized glutathione (GSSH).² TGR catalyzes NADPH- and FAD-dependent reduction of oxidized thioredoxin (Trx), glutathione (GSH), and glutaredoxin (Grx), which mitigate the effects of reactive oxygen and nitrogen species released by host neutrophils and macrophages that can damage intracellular proteins and lipids.³ Cayman's TGR (*Schistosoma mansoni*, recombinant) protein can be used for enzyme activity assays.

References

1. Alger, H.M. and Williams, D.L. The disulfide redox system of *Schistosoma mansoni* and the importance of a multifunctional enzyme, thioredoxin glutathione reductase. *Mol. Biochem. Parasitol.* **121**(1), 129-139 (2002).
2. Angelucci, F., Miele, A.E., Boumis, G., *et al.* Glutathione reductase and thioredoxin reductase at the crossroad: The structure of *Schistosoma mansoni* thioredoxin glutathione reductase. *Proteins* **72**(3), 936-945 (2008).
3. Williams, D.L., Bonilla, M., Gladyshev, V.N., *et al.* Thioredoxin glutathione reductase-dependent redox networks in platyhelminth parasites. *Antioxid. Redox Signal.* **19**(7), 735-745 (2013).

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