

PRODUCT INFORMATION



Glutaredoxin 1 (human, recombinant)

Item No. 31037

Overview and Properties

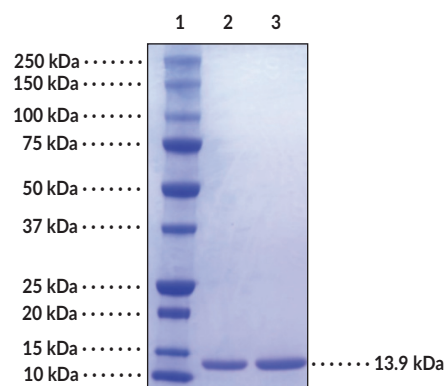
Synonyms: Glrx1, Grx1, Thioltransferase 1, TTF1
Source: Active human recombinant N-terminal His-TEV tagged Grx1 expressed in *E. coli*
Amino Acids: 2-106
Uniprot No.: P35754
Molecular Weight: 13.9 kDa
Storage: -80°C (as supplied)
Stability: ≥1 year
Purity: **batch specific** ≥95% estimated by SDS-PAGE
Supplied in: 50 mM Tris-HCl, pH 7.8, with 150 mM sodium chloride, 10% glycerol, 1 mM EDTA, and 0.1 mM DTT

Protein

Concentration: **batch specific** mg/ml
Activity: **batch specific** U/ml
Specific Activity: **batch specific** U/mg
Unit Definition: One unit is defined as the amount of enzyme required to produce 1 nmol of Eosin-GSH per minute at 25°C in 0.1 M potassium phosphate, pH 7.5, containing 1 mM EDTA, 1 U/mL glutathione reductase, 0.5 mM GSH, 0.25 mM NADPH, 0.75 μM alkylated BSA, and 20 μM Eosin-GS-BSA.

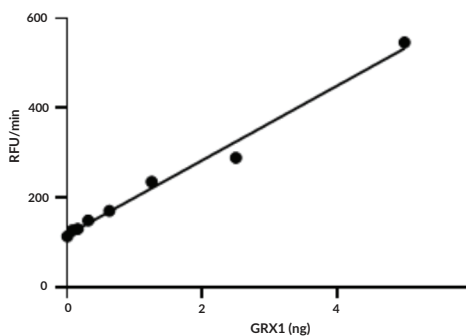
Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Images



Lane 1: MW Markers
Lane 2: Glutaredoxin 1 (2 μg)
Lane 3: Glutaredoxin 1 (4 μg)

SDS-PAGE Analysis of Glutaredoxin 1.



Glutaredoxin 1 activity was determined using Cayman's Glutaredoxin Fluorescent Activity Assay Kit (Item No. 11536) with 20 μM Eosin-GS-BSA substrate.

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
Buyer agrees to purchase the material subject to Cayman's Terms and Conditions. Complete Terms and Conditions including Warranty and Limitation of Liability information can be found on our website.

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Description

Glutaredoxin 1 (Grx1) is a thiol-disulfide oxidoreductase and member of the thioredoxin family encoded by *GLRX1* with a role in the maintenance of cellular thiol redox homeostasis.¹ It is ubiquitously expressed and localizes to the cytosol, nucleus, and mitochondrial intermembrane space. Grx1 is a dithiol Grx that contains two active site cysteine residues, which catalyze the deglutathionylation of protein disulfides and glutathionylated proteins to regulate redox signal transduction and repair oxidized proteins.²⁻⁴ Knockdown or overexpression of *GLRX1* enhances or reduces, respectively, oxidative stress-induced apoptosis in HEK293T cells.⁵ *Grx1*^{-/-} mice have increased bronchoalveolar lavage fluid (BALF) macrophage infiltration and lung glutathionylated protein levels induced by cigarette smoke compared with wild-type mice.⁶ Grx1 levels are decreased in postmortem brain from patients with Parkinson's disease.⁴ Cayman's Glutaredoxin 1 (human, recombinant) can be used for enzyme activity assays.

References

1. Hanschmann, E.-M., Godoy, J.R., Berndt, C., *et al.* Thioredoxins, glutaredoxins, and peroxiredoxins—molecular mechanisms and health significance: From cofactors to antioxidants to redox signaling. *Antioxid. Redox Signal.* **19(13)**, 1539-1605 (2013).
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3. Lillig, C.H., Berndt, C., Vergnolle, O., *et al.* Characterization of human glutaredoxin 2 as iron-sulfur protein: A possible role as redox sensor. *Proc. Natl. Acad. Sci. USA* **102(23)**, 8168-8173 (2005).
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6. Kuipers, I., Bracke, K.R., Brusselle, G.G., *et al.* Altered cigarette smoke-induced lung inflammation due to ablation of Grx1. *PLoS One* **7(6)**, e38984 (2012).

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