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PRODUCT INFORMATION



Glutaredoxin 2 (human, recombinant)

Item No. 32572

Overview and Properties

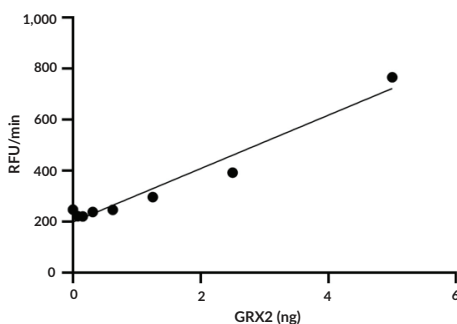
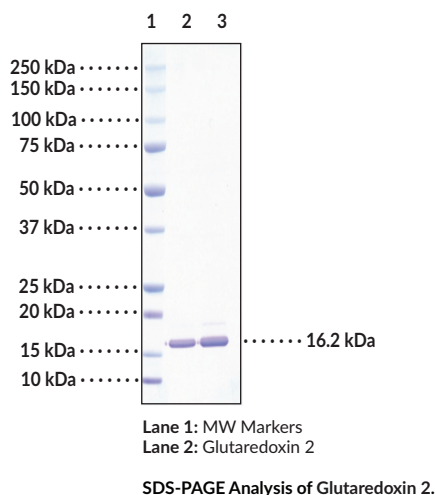
Synonyms: Glrx2, Grx2, Thioltransferase 2, TTF2
Source: Active recombinant human N-terminal His-tagged Grx2 expressed in *E. coli*
Amino Acids: 41-164
Uniprot No.: Q9NS18
Molecular Weight: 16.2 kDa
Storage: -80°C (as supplied)
Stability: ≥1 year
Purity: **batch specific** (≥95% estimated by SDS-PAGE)
Supplied in: 50 mM Tris-HCl, pH 7.8, with 150 mM sodium chloride, 1 mM EDTA, 10% glycerol, 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-GSH-BSA.

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

Images



Glutaredoxin 2 activity was determined using Cayman's Glutaredoxin Fluorescent Activity Assay Kit (Item No. 11536) with 20 μM eosin-GSH-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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PRODUCT INFORMATION



Description

Glutaredoxin 2 (Grx2) is a thiol-disulfide oxidoreductase and member of the thioredoxin family encoded by *GLRX2* with a role in the maintenance of cellular thiol redox homeostasis.^{1,2} Alternative splicing of *GLRX2* produces three ubiquitously expressed isoforms, Grx2a, Grx2b, and Grx2c, with Grx2a localized to the mitochondria and Grx2b and Grx2c in the cytoplasm and nucleus. It is a dithiol Grx that contains two active site cysteine residues and catalyzes the glutathione-dependent reduction of disulfides, acting as an electron donor for ribonucleotide or sulfate reduction, and regulating protein levels of glutathione mixed disulfides.² In its inactive state, Grx2 is a homodimer linked by a single [2Fe-2S] cluster, which acts as a redox sensor that drives monomerization and activation of Grx2 under conditions of oxidative stress, such as free radical formation or oxidation of the glutathione (GSH) pool.²⁻⁴ The oxidized active site in Grx2 is reduced by GSH and, unlike other eukaryotic Grxs, is also a substrate for thioredoxin reductase (TrxR). Grx2 catalyzes the reversible glutathionylation of mitochondrial complex I to regulate superoxide production and facilitates the reduction of protein disulfides, glutathionylated proteins, and other low molecular weight substrates under conditions of oxidative stress.⁶ Knockdown or overexpression of *GLRX2* enhances and reduces, respectively, oxidative stress-induced apoptosis in HeLa cells. *Grx2* knockdown increases high-fat diet-induced insulin resistance, hippocampal inflammation, increases in body weight, and cognitive dysfunction in mice.⁵ Cayman's Glutaredoxin 2 (human, recombinant) protein can be used for enzyme activity assays.

References

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