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Zuschläge

- Mindermengenzuschlag
- Trockeneiszuschlag
- Gefahrgutzuschlag
- Expressversand

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PRODUCT INFORMATION



GPX2 (human, recombinant)

Item No. 39630

Overview and Properties

Synonyms: Glutathione Peroxidase 2 (Gastrointestinal), GSHPX2, GSHPX-GI
Source: Active recombinant human GPX2 expressed in *E. coli*
Amino Acids: 190 residues
Storage: -20°C (as supplied)
Stability: ≥1 year
Purity: ≥95% estimated by SDS-PAGE
Supplied in: 25 mM Tris-HCl, pH 8.0, with 250 mM sodium chloride, 2 mM 2-mercaptoethanol, and 10% glycerol

Protein

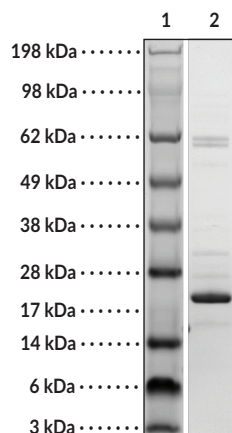
Concentration: 1 mg/ml

Unit Definition: One unit is defined as the amount of enzyme required to consume 1 μmol GSH per minute in a glutathione reductase-coupled GPX assay with 1 mM GSH, 0.5 mM cumene hydroperoxide, 15 mM human glutathione reductase, 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



Lane 1: MW Markers
Lane 2: GPX2

Coomassie stained SDS-PAGE Analysis
of 30 μg GPX2.

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

Glutathione peroxidase 2 (GPX2) is a selenocysteine-containing glutathione peroxidase that protects cells from oxidative damage.¹ It is a homotetramer and has an active site containing selenocysteine, glutamine, asparagine, and tryptophan.^{2,3} mRNA encoding GPX2 has been found predominantly in the liver and gastrointestinal tract and is localized to the nucleus and cytosol, and GPX2 can reduce organic peroxides, such as hydrogen-, *tert*-butyl-, or cumene hydroperoxide.³⁻⁵ It catalyzes the reduction of these reactive oxygen species (ROS) to water or their corresponding non-toxic lipid alcohols by converting glutathione (GSH) to oxidized glutathione (GSSH), reducing intracellular oxidative stress.⁵ GPX2 knockout increases inflammation and tumor growth in a dextran sulfate sodium (DSS) mouse model of inflammation-associated colon carcinogenesis.⁶ Its levels are increased in undifferentiated basal cells, but absent in lineage-restricted luminal progenitors and luminal cells, in normal human breast tissue.⁷ GPX2 levels are decreased in triple-negative- and HER2⁺ breast cancers, but not in luminal breast cancers, and are negatively correlated with patient survival.⁸ Cayman's GPX2 (human, recombinant) protein can be used for enzyme activity assays.

References

1. Imai, H. and Nakagawa, Y. Biological significance of phospholipid hydroperoxide glutathione peroxidase (PHGPx, GPx4) in mammalian cells. *Free Radic. Biol. Med.* **34(2)**, 145-169 (2003).
2. Forcina, G.C. and Dixon, S.J. GPX4 at the crossroads of lipid homeostasis and ferroptosis. *Proteomics* **19(18)**, e1800311 (2019).
3. Guo, X., Song, J., Guan, T., *et al.* Characterization of recombinant human gastrointestinal glutathione peroxidase mutant produced in *Escherichia coli*. *Free Radic. Res.* **49(3)**, 228-235 (2015).
4. Chu, F.-F., Doroshow, J.H., and Esworthy, R.S. Expression, characterization, and tissue distribution of a new cellular selenium-dependent glutathione peroxidase, GSHPx-GI. *J. Biol. Chem.* **268(4)**, 2571-2576 (1993).
5. Esworthy, R.S., Doroshow, J.H., and Chu, F.-F. The beginning of GPX2 and 30 years later. *Free Radic. Biol. Med.* **188**, 419-433 (2022).
6. Brigelius-Flohé, R. and A.P., K. Physiological functions of GPx2 and its role in inflammation-triggered carcinogenesis. *Ann. N. Y. Acad. Sci.* **1259**, 19-25 (2012).
7. Kannan, N., Nguyen, L.V., Makarem, M., *et al.* Glutathione-dependent and -independent oxidative stress-control mechanisms distinguish normal human mammary epithelial cell subsets. *Proc. Natl. Acad. Sci. USA* **111(21)**, 7789-7794 (2014).
8. Ren, Z., Liang, H., Galbo, P.M., Jr., *et al.* Redox signaling by glutathione peroxidase 2 links vascular modulation to metabolic plasticity of breast cancer. *Proc. Natl. Acad. Sci. USA* **119(8)**, e2107266119 (2022).