

Recombinant Human GPX1 Protein, 203 residues

Cat. No. GPX1-18H **Lot. No.** (See product label)

SPECIFICATION

Product Overview	Recombinant Human Glutathione Peroxidase 1 (Non-tagged; 203 residues)
Species	Human
ProteinLength	203 residues
Description	The protein encoded by this gene belongs to the glutathione peroxidase family, members of which catalyze the reduction of organic hydroperoxides and hydrogen peroxide (H₂O₂) by glutathione, and thereby protect cells against oxidative damage. Other studies indicate that H₂O₂ is also essential for growth-factor mediated signal transduction, mitochondrial function, and maintenance of thiol redox-balance; therefore, by limiting H₂O₂ accumulation, glutathione peroxidases are also involved in modulating these processes. Several isozymes of this gene family exist in vertebrates, which vary in cellular location and substrate specificity. This isozyme is the most abundant, is ubiquitously expressed and localized in the cytoplasm, and whose preferred substrate is hydrogen peroxide. It is also a selenoprotein, containing the rare amino acid selenocysteine (Sec) at its active site. Sec is encoded by the UGA codon, which normally signals translation termination. The 3' UTRs of selenoprotein mRNAs contain a conserved stem-loop structure, designated the Sec insertion sequence (SECIS) element, that is necessary for the recognition of UGA as a Sec codon, rather than as a stop signal. This gene contains an in-frame GCG trinucleotide repeat in the coding region, and three alleles with 4, 5 or 6 repeats have been found in the human population. The allele with 4 GCG repeats has been significantly associated with breast cancer risk in premenopausal women.

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Alternatively spliced transcript variants have been found for this gene. Pseudogenes of this locus have been identified on chromosomes X and 21.

Purity	≥ 95% as judged by gel analysis
Unit definition	1 U of enzyme consumes 1 μmol GSH per min in a Glutathione Reductase-coupled GPx assay containing 1 mM GSH, 0.5 mM Cumene Hydroperoxide, 15 nM Human Glutathione Reductase and 0.3 mM NADPH in TE buffer (50 mM Tris-HCl, 2 mM EDTA, pH 7.5)
Applications	Glutathione Reductase-coupled GPx assay; Inhibitor screening; etc.
Notes	Centrifuge the tube briefly before opening the lid.
Concentration	1 mg/mL
Storage Buffer	25 mM Tris-HCl (pH 8.0) with 250 mM KCl, 2 mM 2-Mercaptoethanol and 10% glycerol.
Shipping	Shipped in cold pack by courier service. Store at -20 centigrade upon delivery.
References	1. Cheng Q, Arnér ES. (2017) Selenocysteine Insertion at a Predefined UAG Codon in a Release Factor 1 (RF1)-depleted Escherichia coli Host Strain Bypasses Species Barriers in Recombinant Selenoprotein Translation. J Biol Chem. 292:5476-5487.

GENE INFORMATION

Gene Name	GPX1 glutathione peroxidase 1 [Homo sapiens (human)]
Official Symbol	GPX1

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Synonyms	GPX1; glutathione peroxidase 1; GPx-1; GSHPx-1; cellular glutathione peroxidase; GPXD; GSHPX1; MGC14399; MGC88245
Gene ID	2876
mRNA Refseq	NM_000581
Protein Refseq	NP_000572
MIM	138320
UniProt ID	P07203

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