

Product datasheet for **SC118821**

Glutathione Peroxidase 4 (GPX4) (NM_002085) Human Untagged Clone

Product data:

Product Type:	Expression Plasmids
Product Name:	Glutathione Peroxidase 4 (GPX4) (NM_002085) Human Untagged Clone
Symbol:	Glutathione Peroxidase 4
Synonyms:	GPx-4; GSHPx-4; MCSP; PHGPx; SMD5; snGPx; snPHGPx
Mammalian Cell Selection:	None
Vector:	<u>pCMV6-XL5</u>
E. coli Selection:	Ampicillin (100 ug/mL)
Fully Sequenced ORF:	>NCBI ORF sequence for NM_002085, the custom clone sequence may differ by one or more nucleotides

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ATGAGCCTCGGCCGCCTTTGCCGCCTACTGAAGCCGGCGCTGCTCTGTGGGGCTCTGGCCGCGCCTGGCC
TGGCCGGGACCATGTGCGCGTCCCGGGACGACTGGCGCTGTGCGCGCTCCATGCACGAGTTTCCGCCAA
GGACATCGACGGGCACATGGTTAACCTGGACAAGTACCGGGGCTTCGTGTGCATCGTCACCAACGTGGCC
TCCCAGTGAGGCAAGACCGAAGTAACTACACTCAGCTCGTCGACCTGCACGCCCGATACGCTGAGTGTG
GTTTGGGATCCTGGCCTTCCCGTGTAAACAGTTCGGGAAGCAGGAGCCAGGGAGTAACGAAGAGATCAA
AGAGTTCGCCCGGGCTACAACGTCAAATTCGATATGTTCAAGCATCTGCGTGAACGGGACGACGCC
CACCCGCTGTGGAAGTGGATGAAGATCCAACCAAGGGCAAGGCATCCTGGGAAATGCCATCAAGTGGA
ACTTCACCAAGTTCCTCATCGACAAGAACGGCTGCGTGGTGAAGCGCTACGGACCCATGGAGGAGCCCCT
GGTGATAGAGAAGGACCTGCCCCACTATTTCTAG
  
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5' Read Nucleotide Sequence:

>OriGene 5' read for NM_002085 unedited
 CCCCCGATAGGATTTGTATACGACTTATATAGGCGGCCGCAATTCGCACGAGGGTGGG
 GGAGCCAGGAGGGGCGGGCGACGGGCGGGTATGGGCCGCGGGCGCAGGCTCCCCGGG
 CGCCGACGGCAGCGGTGCCAGAGCCGGGCGAGGCGGGCGGCGAGCCCTCGGCGGCGG
 AAGGCCACGCGTGCAGGCGCAGGAGGGCGGGCGGCGGCGGAAGAAGCCCTGTCCCCGC
 AGCTTGCAGCCGAGATCCACGAATGTCCCAAGTCCCAGGACCGTGCGCGTCCCGGAC
 GACTGGCGCTGTGCGCGCTCCATGCACGAGTTTTCCGCCAAGGACATCGACGGGCACATG
 GTTAACCTGGACAAGTACCGGGGCTTCGTGTGCATCGTCACCAACGTGGCCTCCCACTGA
 GGCAAGACCGAAGTAACTACACTCAGCTCGTCGACCTGCACGCCGATACGCTGAGTGT
 GGTTTGGGATCCTGGCCTTCCCGTGTAAACAGTTCGGGAAGCAGGAGCCAGGGAGTAAC
 GAAGAGATCAAAGAGTTCGCCGCGGGCTACAACGTCAAATTCGATATGTTACGAAGATC
 TGCGTGAACGGGACGACGCCACCCGCTGTGGAAGTGGATGAAGATCCAACCAAGGGC
 AAGGGCATCCTGTGAAATGCCATCAAGTGAACCTCACCAAGTTCCTCATCGACAAGACG
 GCTGCGTGGTGAAGCGCTACTGACCCATGGAGGAGCCCTGGTGATAGAGAAGGACCTGC
 CCCACTATTTCTAGCTCCACAAGTGTGTGGCCCCGCCGAGCCCTGCCACGCTCTTGG
 AGCCTTTCACCGCACTCATGACGGCCTGCCTGCCAACCTGCTGGTGGGCGAGACCCGA

3' Read Nucleotide Sequence:

>OriGene 3' read for NM_002085 unedited
 TTTATTCACCAAGTAGCCAGGGGTGGGGGCGCCGAGCCAAGCCAGCAGGCCATGGGAC
 CTTCTCCGGCGGGGTGCACGCTGGATTTTCGGGTCTGCCCCACAGCAGGTTTGCAGGC
 AGGCCGTGATAGTGCCGGTGAAGGCTCCAAGGGCGTGGGCAGGGGCTCGGGCGGGGCC
 ACACACTTGTGGAGCTAGAAATAGTGGGGCAGGTCCTTCTCTATCACCAGGGCTCCTCC
 ATGGGTCCGTAGCGCTTACCACGCAGCCGTTCTTGTGATGAGGAACCTGGTGAAGTTC
 CACTTGATGGCATTTCAGGATGCCCTTGCCCTTGGGTTGGATCTTCATCCACTTCCAC
 AGCGGGTGGGCGTGTCCCGTTACGCAGATCTTGCTGAACATATCGAATTTGACGTTG
 TAGCCCCGCGCGAACTCTTGATCTCTCGTTACTCCCTGGCTCCTGCTCCCGAACTGG
 TTACACGGGAAGGCCAGGATCCGCAACCACTCAGCGTATCGGGCGTGCAGGTCGACG
 AGCTGAGTGTAGTTTACTTCGGTCTTGCTCCTACTGGGAGGCCACGTTGGTGACGATGCAC
 ACGAAGCCCCGGTACTTGTCCAGGTTAACCATGTGCCGTCGATGCTTGGCGGAACT
 CGTGATGGAGCGGCACAGCGCCAGTCGTCCTGGGACGCGCACGNTCTGNGACTTGG
 GACATCCGGGATCTCCGGTCGCAAGCTGCGGTGACAGGGCTTNTCCGCCGGCGCCGNG
 CCCTTCTGNGCTGCACGCTGGGGCCCTCCGCCGCCGAGGGGCTCGCGCGCGNCGNCTG
 CCCCCTCTGGCACGNTGCTGNGCGCCGGGNNAGCTGCGCCGGGCGGCCATACCCG
 CCGTGTTCCGCCCTCTGGGTCCCCACCCTNGTGCCGATNCGGGCCGCTTATGGAGCGTT
 ATACAAATTTGACGGTCTAACGAGCTTTGCTTATTGACTCCACGTTACCCTACCGNCA
 TTGCTG

Restriction Sites:

ECoRI-NOT

ACCN:

NM_002085

Insert Size:

1000 bp

OTI Disclaimer:

Our molecular clone sequence data has been matched to the reference identifier above as a point of reference. Note that the complete sequence of our molecular clones may differ from the sequence published for this corresponding reference, e.g., by representing an alternative RNA splicing form or single nucleotide polymorphism (SNP). The expression of this clone is not guaranteed due to the nature of selenoproteins.

OTI Annotation:

This clone encodes a selenoprotein containing the rare amino acid selenocysteine (Sec). Sec is encoded by UGA codon, which normally signals translational termination. Expression of this clone is not guaranteed due to the nature of selenoproteins.

Components:	The ORF clone is ion-exchange column purified and shipped in a 2D barcoded Matrix tube containing 10ug of transfection-ready, dried plasmid DNA (reconstitute with 100 ul of water).
Reconstitution Method:	<ol style="list-style-type: none"> 1. Centrifuge at 5,000xg for 5min. 2. Carefully open the tube and add 100ul of sterile water to dissolve the DNA. 3. Close the tube and incubate for 10 minutes at room temperature. 4. Briefly vortex the tube and then do a quick spin (less than 5000xg) to concentrate the liquid at the bottom. 5. Store the suspended plasmid at -20°C. The DNA is stable for at least one year from date of shipping when stored at -20°C.
Note:	Plasmids are not sterile. For experiments where strict sterility is required, filtration with 0.22um filter is required.
RefSeq:	<u>NM_002085.1</u> , <u>NP_002076.1</u>
RefSeq Size:	942 bp
Locus ID:	2879
UniProt ID:	<u>P36969</u>
Cytogenetics:	19p13.3
Protein Families:	Druggable Genome
Protein Pathways:	Arachidonic acid metabolism, Glutathione metabolism

Gene Summary:

The protein encoded by this gene belongs to the glutathione peroxidase family, members of which catalyze the reduction of hydrogen peroxide, organic hydroperoxides and lipid hydroperoxides, and thereby protect cells against oxidative damage. Several isozymes of this gene family exist in vertebrates, which vary in cellular location and substrate specificity. This isozyme has a high preference for lipid hydroperoxides and protects cells against membrane lipid peroxidation and cell death. It is also required for normal sperm development; thus, it has been identified as a 'moonlighting' protein because of its ability to serve dual functions as a peroxidase, as well as a structural protein in mature spermatozoa. Mutations in this gene are associated with Sedaghatian type of spondylometaphyseal dysplasia (SMDS). This isozyme 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. Transcript variants resulting from alternative splicing or use of alternate promoters have been described to encode isoforms with different subcellular localization. [provided by RefSeq, Dec 2018]

Transcript Variant: This variant (1) represents the predominant transcript and encodes the canonical isoform A. A similar isoform in rat (L-form) has been shown to be localized to the mitochondria (PMID:9988735). CCDS Note: This CCDS ID represents a selenoprotein that is functionally sensitive to selenium levels (e.g., PMID:14642406). Position 73 of the protein is a selenocysteine residue, which is cotranslationally incorporated when a UGA codon, which is normally a stop codon, is recognized by a specific selenocysteyl-tRNA in conjunction with a stem-loop SECIS element in the 3' UTR.