

GPX4 Mouse mAb

Catalog # AP96691

Product Information

Application	WB
Primary Accession	O70325
Other Accession	O70325
Reactivity	Rat, Human, Mouse
Host	Mouse
Clonality	Monoclonal
Calculated MW	22229
Physical State	Liquid
Immunogen	Recombinant mouse GPX4 protein
Isotype	IgG2a, κ
Purity	affinity purified by Protein A
Buffer	0.01M TBS (pH7.4) with 1% BSA, 0.02% Proclin300 and 50% Glycerol.
SIMILARITY	Belongs to the glutathione peroxidase family.
SUBUNIT	Monomer. Has a tendency to form higher mass oligomers.
Important Note	This product as supplied is intended for research use only, not for use in human, therapeutic or diagnostic applications.
Background Descriptions	Glutathione peroxidases (Gpxs) are ubiquitously expressed proteins which catalyze the reduction of hydrogen peroxides and organic hydroperoxides by glutathione. There are several isoforms which differ in their primary structure and localization. The classical cytosolic/mitochondrial GPx1 (cGPx) is a selenium-dependent enzyme, first of the GPx family to be discovered. GPx2, also known as gastrointestinal GPx (GI-GPx), is an intracellular enzyme expressed only at the epithelium of the gastrointestinal tract. Extracellular plasma GPx (pGPx or GPx3) is mainly expressed by the kidney from where it is released into the blood circulation. Phospholipid hydroperoxide GPx4 (PH-GPx) expressed in most tissues, can reduce many hydroperoxides including hydroperoxides integrated in membranes, hydroperoxy lipids in low density lipoprotein or thymine. All mammalian GPx family members, except for the recently described Cys containing GPx3 and epididymis-specific secretory GPx (eGPx or GPx5) isoforms, possess selenocysteine at the active site.

Additional Information

Gene ID	625249
Other Names	GPx-4; GSHPx-4; MCSP; PHGPx; SMDS; snGPx; snPHGPx; mtPHGPx; GPX4_HUMAN; GPX4; Glutathione peroxidase 4 (GPx-4 GSHPx-4); 1.11.1.12; GPX4_MOUSE; GPX4_RAT; glutathione peroxidase 4; glutathione peroxidase 4 (phospholipid hydroperoxidase); phospholipid hydroperoxidase; selenoprotein GPX4
Dilution	WB=1:500-2000

Storage	Store at -20 °C for one year. Avoid repeated freeze/thaw cycles. When reconstituted in sterile pH 7.4 0.01M PBS or diluent of antibody the antibody is stable for at least two weeks at 2-4 °C.
----------------	---

Protein Information

Name	Gpx4 {ECO:0000303 PubMed:19417079, ECO:0000312 MGI:MGI:104767}
Function	Essential antioxidant peroxidase that directly reduces phospholipid hydroperoxide even if they are incorporated in membranes and lipoproteins (PubMed: 29290465). Can also reduce fatty acid hydroperoxide, cholesterol hydroperoxide and thymine hydroperoxide (By similarity). Plays a key role in protecting cells from oxidative damage by preventing membrane lipid peroxidation (PubMed: 12566075). Required to prevent cells from ferroptosis, a non-apoptotic cell death resulting from an iron-dependent accumulation of lipid reactive oxygen species (PubMed: 12566075 , PubMed: 24439385 , PubMed: 25402683 , PubMed: 25922076 , PubMed: 29290465). The presence of selenocysteine (Sec) versus Cys at the active site is essential for life: it provides resistance to overoxidation and prevents cells against ferroptosis (PubMed: 29290465). The presence of Sec at the active site is also essential for the survival of a specific type of parvalbumin-positive interneurons, thereby preventing against fatal epileptic seizures (PubMed: 29290465). May be required to protect cells from the toxicity of ingested lipid hydroperoxides (PubMed: 12566075). Required for normal sperm development and male fertility (PubMed: 19783653 , PubMed: 25922076). Essential for maturation and survival of photoreceptor cells (PubMed: 22207760). Plays a role in a primary T-cell response to viral and parasitic infection by protecting T-cells from ferroptosis and by supporting T-cell expansion (PubMed: 25824823). Plays a role of glutathione peroxidase in platelets in the arachidonic acid metabolism (By similarity). Reduces hydroperoxy ester lipids formed by a 15-lipoxygenase that may play a role as down- regulator of the cellular 15-lipoxygenase pathway (By similarity). Can also reduce small soluble hydroperoxides such as H2O2 and tert-butyl hydroperoxide (PubMed: 12566075).
Cellular Location	[Isoform Mitochondrial]: Mitochondrion [Isoform Nuclear]: Nucleus
Tissue Location	Widely expressed with the highest levels in testis, heart, cerebrum, ileum, stomach, liver, jejunum and epididymis (PubMed:17503194). Expressed primarily in testis and sperm midpiece (at protein level) (PubMed:12566075, PubMed:19417079). Expressed in brain (at protein level) (PubMed:12566075, PubMed:22207760). Expressed in heart, liver and kidney (at protein level) (PubMed:12566075). Expressed in retina, especially in inner segments of photoreceptor cells (at protein level) (PubMed:22207760). [Isoform Cytoplasmic]: Highly expressed during embryogenesis (PubMed:1668477). In contrast to isoform Mitochondrial and isoform Nuclear, which are down-regulated between 14.5 dpc and 17.5 dpc, remains constant (PubMed:1668477).

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.