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Anti-Glutathione Peroxidase 4 (Gpx4) (RABBIT) Antibody

Glutathione Peroxidase 4 Antibody
Catalog # ASR5381

Specification

Anti-Glutathione Peroxidase 4 (Gpx4) (RABBIT) Antibody - Product Information

Host	**Rabbit**
Conjugate	**Unconjugated**
Target Species	**Mouse**
Reactivity	**Rat, Mouse, Guinea Pig**
Clonality	**Polyclonal**
Application	**WB, IHC, E, I, LCI**
Application Note	**This affinity purified antibody has been tested for use in ELISA and western blotting. Specific conditions for reactivity should be optimized by the end user. Expect a band approximately 19 kDa in size corresponding to GPx4 protein by western blotting in the appropriate cell lysate or extract.**
Physical State	**Liquid (sterile filtered)**
Buffer	**0.02 M Potassium Phosphate, 0.15 M Sodium Chloride, pH 7.2**
Immunogen	**This affinity purified antibody was prepared from whole rabbit serum produced by repeated immunizations with a synthetic peptide corresponding to amino acids near the carboxyl terminus of mouse GPx4 protein.**
Preservative	**0.01% (w/v) Sodium Azide**

Anti-Glutathione Peroxidase 4 (Gpx4) (RABBIT) Antibody - Additional Information

Gene ID 625249

Other Names
625249

Purity
This affinity purified antibody is directed against mouse GPx4 protein. The product was affinity purified from monospecific antiserum by immunoaffinity chromatography. A BLAST analysis was used to suggest cross-reactivity with GPx4 protein from mouse, rat and guinea pig based on 100% homology with the immunizing sequence. Cross-reactivity with human GPx4 is also predicted based on a 94% homology with the immunizing sequence. Reactivity against homologues from other sources is not known.

Storage Condition
Store vial at -20° C prior to opening. Aliquot contents and freeze at -20° C or below for extended storage. Avoid cycles of freezing and thawing. Centrifuge product if not completely clear after standing at room temperature. This product is stable for several weeks at 4° C as an undiluted

liquid. Dilute only prior to immediate use.

Precautions Note
This product is for research use only and is not intended for therapeutic or diagnostic applications.

Anti-Glutathione Peroxidase 4 (Gpx4) (RABBIT) Antibody - 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

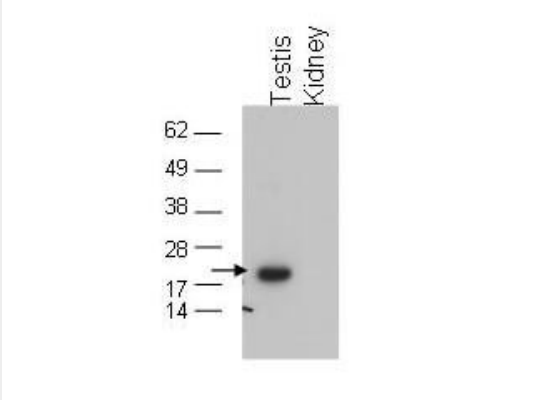
(PubMed:1668477). In contrast to isoform Mitochondrial and isoform Nuclear, which are down-regulated between 14.5 dpc and 17.5 dpc, remains constant (PubMed:1668477).

Anti-Glutathione Peroxidase 4 (Gpx4) (RABBIT) Antibody - Protocols

Provided below are standard protocols that you may find useful for product applications.

- Western Blot
- Blocking Peptides
- Dot Blot
- Immunohistochemistry
- Immunofluorescence
- Immunoprecipitation
- Flow Cytomety
- Cell Culture

Anti-Glutathione Peroxidase 4 (Gpx4) (RABBIT) Antibody - Images



Western blot using Rockland's affinity purified anti-GPx4 to detect GPx4 in testis extract (arrow). Tissue extract (40 µg) was electrophoresed and transferred to nitrocellulose. The membrane was probed with the primary antibody at a 1:1,000 dilution. Personal Communication, Dolph Hatfield, CCR-NCI, Bethesda, MD.

Anti-Glutathione Peroxidase 4 (Gpx4) (RABBIT) Antibody - Background

This antibody is designed, produced, and validated as part of a collaboration between Rockland and the National Cancer Institute (NCI) and is suitable for Cancer, Immunology and Nuclear Signaling research. Glutathione Peroxidase 4 (GPx4, also known as PHGPx) functions as an antioxidant and also plays a role in redox regulation, sexual maturation, inflammation, apoptosis, and differentiation. GPx4 was found to have an important role in preventing lipid peroxidation, and has been discussed primarily as the glutathione peroxidase protecting biomembranes against oxidative stress. GPx4 can react with free hydrogen peroxide as well as with a wide range of lipid hydroperoxides, including those derived from cholesterol and cholesteryl esters. GPx4 is the only GPx to use phospholipid hydroperoxides as substrates. It can also reduce thymine hydroperoxide. In contrast to GPx1 and GPx3, GPx4 can use a wide range of reducing substrates in addition to glutathione. GPx4 is expressed in high levels in testes, suggesting a role in male fertility. It has also been identified as an enzymatically inactive structural protein of the mitochondrial capsule of sperm.