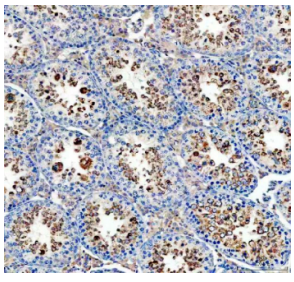
GPX4 Antibody / Glutathione Peroxidase 4 (RQ8921)

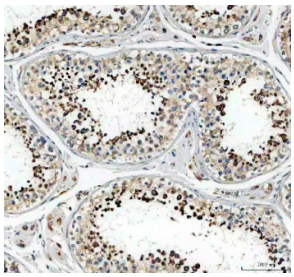
Catalog No.	Formulation	Size
RQ8921	0.5mg/ml if reconstituted with 0.2ml sterile DI water	100 ug

Bulk quote request

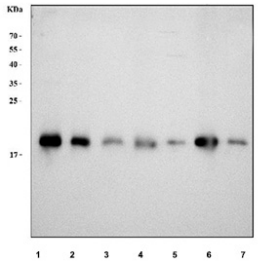
Availability	1-3 business days
Species Reactivity	Human, Mouse, Rat, Monkey
Format	Antigen affinity purified
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit IgG
Purity	Antigen affinity
Buffer	Lyophilized from 1X PBS with 2% Trehalose
UniProt	P36969
Localization	Nuclear, cytoplasmic, membrane
Applications	Western blot: 0.5-1ug/ml Immunohistochemistry (FFPE): 2-5ug/ml Flow Cytometry: 1-3ug/million cells Immunoprecipitation: 2ug per 500ug of lysate
Limitations	This GPX4 antibody is available for research use only.



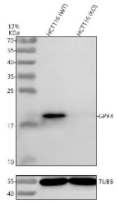
IHC staining of FFPE mouse testis tissue with GPX4 antibody, HRP-secondary and DAB substrate. HIER: boil tissue sections in pH8 EDTA for 20 min and allow to cool before testing.



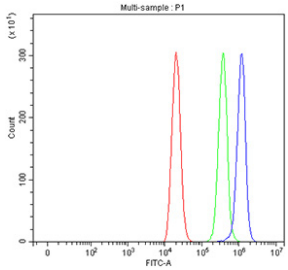
IHC staining of FFPE human testis tissue with GPX4 antibody, HRP-secondary and DAB substrate. HIER: boil tissue sections in pH8 EDTA for 20 min and allow to cool before testing.



Western blot testing of 1) human HepG2, 2) human MCF7, 3) human RT4, 4) monkey COS7, 5) rat kidney, 6) mouse testis and 7) mouse kidney tissue lysate with GPX4 antibody. Predicted molecular weight ~22 kDa.



Immunoprecipitation of GPX4 protein from 500ug of human HCT-116 whole cell lysate with 2ug of GPX4 antibody.



Flow cytometry testing of fixed and permeabilized human ThP-1 cells with GPX4 antibody at 1ug/million cells (blocked with goat sera); Red=cells alone, Green=isotype control, Blue= GPX4 antibody.

Description

GPX4 Antibody targets Glutathione Peroxidase 4, a selenium-dependent antioxidant enzyme encoded by the GPX4 gene that plays a critical role in protecting cells from oxidative damage. Glutathione Peroxidase 4 belongs to the glutathione peroxidase family and is unique among its members due to its ability to directly reduce lipid hydroperoxides within biological membranes. Through this activity, GPX4 contributes to maintenance of membrane integrity and cellular redox balance.

Functionally, Glutathione Peroxidase 4 catalyzes the reduction of phospholipid hydroperoxides and cholesterol hydroperoxides using glutathione as a reducing agent. This activity distinguishes GPX4 from other glutathione peroxidases that primarily act on soluble peroxide substrates. By limiting lipid peroxidation, GPX4 prevents oxidative damage to cellular membranes and associated macromolecules. A GPX4 Antibody enables investigation of antioxidant defense mechanisms and lipid redox regulation in research studies focused on cellular stress responses.

GPX4 expression is observed in many tissues, reflecting its importance in fundamental cellular protection mechanisms. At the subcellular level, Glutathione Peroxidase 4 is found in multiple compartments, including the cytoplasm, nucleus, and mitochondria, depending on isoform and cellular context. This broad distribution allows GPX4 to protect diverse cellular structures from oxidative injury. Changes in GPX4 expression or localization may indicate altered redox state, metabolic

stress, or activation of cell death pathways.

At the molecular level, GPX4 contains a conserved catalytic site that incorporates the amino acid selenocysteine, which is essential for its peroxidase activity. This structural feature confers high reactivity toward lipid hydroperoxides and enables efficient detoxification of oxidized lipids. Regulation of GPX4 expression and activity occurs at transcriptional and post-translational levels and is influenced by cellular selenium availability and redox conditions.

From a biological and disease relevance perspective, GPX4 has been extensively studied in the context of ferroptosis, a regulated form of cell death driven by lipid peroxidation. Loss or inhibition of GPX4 activity leads to accumulation of lipid peroxides and subsequent membrane damage, triggering ferroptotic cell death. As a result, GPX4 is a central focus of research into oxidative stress, neurodegeneration, cancer biology, and metabolic disease, where redox imbalance plays a pathogenic role.

GPX4 Antibody reagents are valuable tools for studying antioxidant enzyme function, lipid peroxidation control, and redox-dependent cell death pathways. These antibodies support research into oxidative stress responses, ferroptosis regulation, and disease-associated alterations in cellular antioxidant defenses. NSJ Bioreagents provides GPX4 Antibody products intended for research use.

Application Notes

Optimal dilution of the GPX4 antibody should be determined by the researcher.

Immunogen

Amino acids A30-F197 of human Glutathione Peroxidase 4 were used as the immunogen for the GPX4 antibody.

Storage

After reconstitution, the GPX4 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.

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