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PRODUCT INFORMATION



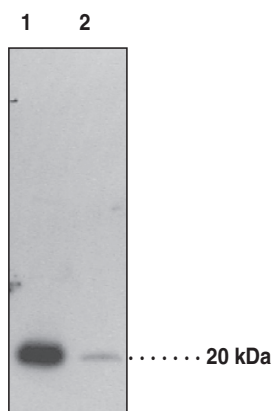
GPX4 Polyclonal Antibody

Item No. 10005258

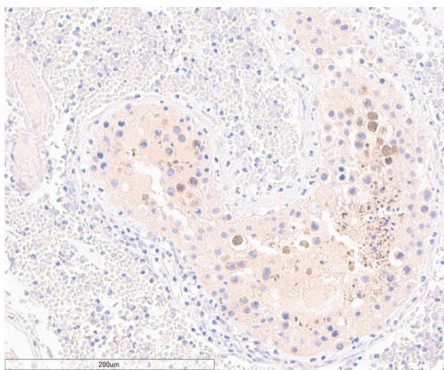
Overview and Properties

Contents:	This vial contains 500 µl of peptide affinity-purified polyclonal antibody.
Synonyms:	Glutathione Peroxidase 4, PhGPx, Phospholipid Hydroperoxide Glutathione Peroxidase
Immunogen:	Peptide from an internal region of human GPX4
Species Reactivity:	(+) Human, mouse, rat, and porcine GPX4; other species not tested
Uniprot No.:	P36969
Form:	Liquid
Storage:	-20°C (as supplied)
Stability:	≥3 years
Storage Buffer:	PBS, pH 7.2, with 50% glycerol, 0.1% BSA, and 0.02% sodium azide
Host:	Rabbit
Applications:	Immunohistochemistry (IHC) and Western blot (WB); the recommended starting dilution is 1:80. Other applications were not tested, therefore optimal working concentration/dilution should be determined empirically.

Images



Lane 1: Rat testis (30 µg)
Lane 2: Mouse brain (30 µg)



Immunohistochemistry analysis of formalin-fixed, paraffin-embedded (FFPE) human testes tissue after heat induced antigen retrieval in pH 6.0 citrate buffer. After incubation with GPX4 polyclonal antibody, (Item No. 10005258), at a 1:80 dilution, slides were incubated with biotinylated secondary antibody, followed by alkaline phosphatase-streptavidin and chromogen (DAB).

WARNING
THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA
This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the [complete](#) Safety Data Sheet, which has been sent via email to your institution.

WARRANTY AND LIMITATION OF REMEDY
Buyer agrees to purchase the material subject to Cayman's Terms and Conditions. Complete Terms and Conditions including Warranty and Limitation of Liability information can be found on our website.

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PRODUCT INFORMATION



Description

Glutathione peroxidase 4 (GPX4) is a selenocysteine-containing glutathione peroxidase that is encoded by the *GPX4* gene in humans and protects cellular membranes from oxidative damage.^{1,2} It is a monomeric protein consisting of a thioredoxin motif and a selenocysteine-glutamine-tryptophan catalytic triad that reduces lipid hydroperoxides, including phospholipid, polyunsaturated lipid, and sterol hydroperoxides, to non-toxic lipid alcohols. During this process, the active site selenocysteine becomes oxidized and must subsequently be replenished by the reducing substrate glutathione (GSH).² There are three isoforms of GPX4, mitochondrial mGPX4, cytosolic cGPX4, and nuclear nGPX4/snGPX4, that are expressed in all tissue types in rats, with the highest mRNA levels observed in testes.¹⁻³ GPX4 is a key regulator of ferroptosis that inhibits ferroptotic cell death by preventing iron-dependent accumulation of toxic lipid reactive oxygen species.² Mutations in *GPX4* have been found in patients with Sedaghatian-type spondylometaphyseal dysplasia (SSMD), and silencing of *Gpx4* in mice is embryonic lethal.^{2,4} Cayman's GPX4 Polyclonal Antibody can be used for immunohistochemistry (IHC) and Western blot (WB) applications. The antibody recognizes GPX4 at 20 kDa from human, mouse, rat, and porcine samples.

References

1. Imai, H. and Nakagawa, Y. Biological significance of phospholipid hydroperoxide glutathione peroxidase (PHGPx, GPx4) in mammalian cells. *Free Radic. Biol. Med.* **34(2)**, 145-169 (2003).
2. Forcina, G.C. and Dixon, S.J. GPX4 at the crossroads of lipid homeostasis and ferroptosis. *Proteomics* **19(18)**, e1800311 (2019).
3. Maiorino, M., Scapin, M., Ursin, F., *et al.* Distinct promoters determine alternative transcription of *gpx-4* into phospholipid-hydroperoxide glutathione peroxidase variants. *J. Biol. Chem.* **278(36)**, 34286-34290 (2003).
4. Smith, A.C., Mears, A.J., Bunker, R., *et al.* Mutations in the enzyme glutathione peroxidase 4 cause Sedaghatian-type spondylometaphyseal dysplasia. *J. Med. Genet.* **51(7)**, 470-474 (2014).

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