

# GPx-4 (D-3): sc-166437

## BACKGROUND

Glutathione peroxidase (GPx) enzymes are generally selenium-containing tetrameric glycoproteins that help prevent lipid peroxidation of cell membranes. GPx enzymes reduce lipid hydroperoxides to alcohols, and reduce free hydrogen peroxide to water. GPx members are among the few proteins known in higher vertebrates to contain selenocysteine, which occurs at the active site of glutathione peroxidase and is coded by the nonsense (stop) codon TGA. There are eight GPx homologs (GPx-1–8). GPx-1, Gpx-2 and Gpx-3 exist as homotetramers. Gpx-4 has a high tendency to form high molecular weight oligomers. GPx-1 plays an important role in the antioxidant defense of the vascular wall and neural cells in response to oxidative stress. GPx-2 is the major isoform in the lungs and its basal or inducible expression is dependent on Nrf2. GPx-3 is under regulation by hypoxic stress and the expression and deficiency of GPx-3 is associated with cardiovascular disease and stroke. GPx-5 is selenium-independent; it is bound to the acrosome of sperm, where it may protect sperm from premature acrosome reaction in the epididymis.

## REFERENCES

1. Arai, M., et al. 1996. Import into mitochondria of phospholipid hydroperoxide glutathione peroxidase requires a leader sequence. *Biochem. Biophys. Res. Commun.* 227: 433-439.
2. Chu, F.F., et al. 1997. Expression and chromosomal mapping of mouse GPx-2 gene encoding the gastrointestinal form of glutathione peroxidase, GPx-GI. *Biomed. Environ. Sci.* 10: 156-162.
3. Gladyshev, V.N., et al. 1999. Levels of major selenoproteins in T cells decrease during HIV infection and low molecular mass selenium compounds increase. *Proc. Natl. Acad. Sci. USA* 96: 835-839.
4. Bilodeau, J.F., et al. 1999. Increased resistance of GPx-1 transgenic mice to tumor promoter-induced loss of glutathione peroxidase activity in skin. *Int. J. Cancer* 80: 863-867.
5. Mork, H., et al. 2000. Inverse mRNA expression of the selenocysteine-containing proteins GI-GPx and SeP in colorectal adenomas compared with adjacent normal mucosa. *Nutr. Cancer* 37: 108-116.

## CHROMOSOMAL LOCATION

Genetic locus: GPX4 (human) mapping to 19p13.3; Gpx4 (mouse) mapping to 10 C1.

## SOURCE

GPx-4 (D-3) is a mouse monoclonal antibody raised against amino acids 108-197 mapping at the C-terminus of GPx-4 of human origin.

## PRODUCT

Each vial contains 200 µg IgG<sub>2a</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

## STORAGE

Store at 4° C, **\*\*DO NOT FREEZE\*\***. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

## APPLICATIONS

GPx-4 (D-3) is recommended for detection of GPx-4 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for GPx-4 siRNA (h): sc-44465, GPx-4 siRNA (m): sc-63302, GPx-4 shRNA Plasmid (h): sc-44465-SH, GPx-4 shRNA Plasmid (m): sc-63302-SH, GPx-4 shRNA (h) Lentiviral Particles: sc-44465-V and GPx-4 shRNA (m) Lentiviral Particles: sc-63302-V.

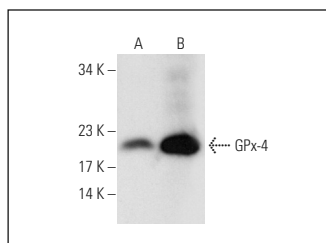
Molecular Weight of GPx-4: 21 kDa.

Positive Controls: mouse testis extract: sc-2405, HeLa whole cell lysate: sc-2200 or Jurkat whole cell lysate: sc-2204.

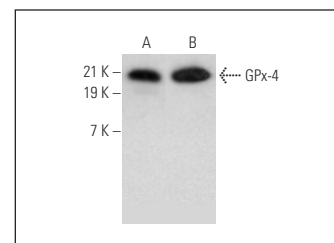
## RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

## DATA



GPx-4 (D-3): sc-166437. Western blot analysis of GPx-4 expression in HeLa whole cell lysate (A) and mouse testis tissue extract (B).



GPx-4 (D-3): sc-166437. Western blot analysis of GPx-4 expression in Jurkat whole cell lysate (A) and rat testis tissue extract (B).

## SELECT PRODUCT CITATIONS

1. Dibas, A., et al. 2018. Neuroprotective effects of psalmitoxin-1, an acid-sensing ion channel (ASIC) inhibitor, in ischemia reperfusion in mouse eyes. *Curr. Eye Res.* 43: 921-933.
2. Yen, H.C., et al. 2018. Alterations of the levels of primary antioxidant enzymes in different grades of human astrocytoma tissues. *Free Radic. Res.* 52: 856-871.

## RESEARCH USE

For research use only, not for use in diagnostic procedures.