

GPx-4 (Y-13): sc-55200

BACKGROUND

GPx-4, also known as phospholipid hydroperoxide glutathione peroxidase (PHGPx), is the only known antioxidant enzyme that reduces phospholipid hydroperoxides within membranes and lipoproteins, thus inhibiting lipid peroxidation. A number of pathophysiological states rely on peroxidation of lipids, suggesting that GPx-4 plays a crucial role in antioxidative defense. GPx-4 is expressed at low levels in a wide variety of organs with two distinct forms: L-GPx-4, which localizes in the mitochondria, and S-GPx-4, the cytosolic form. In some tissues, GPx-4 is more highly expressed, suggesting that GPx-4 is involved in more specific functions. For example, regulation of the enzyme in testicular tissue implies a necessary role for GPx-4 in sperm maturation. The gene encoding GPx-4 presents a number of different protein-binding domains, allowing regulation of expression to be influenced by Sp1, NF-Y and ApoER2, as well as other proteins. Therefore, complex interactions between a variety of proteins and the GPx-4 gene, in addition to interplay with fatty acids, cytokines and antioxidants, ultimately dictate the functional significance of GPx-4.

REFERENCES

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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.
6. Crack, P.J., et al. 2001. Increased infarct size and exacerbated apoptosis in the glutathione peroxidase-1 (GPx-1) knockout mouse brain in response to ischemia/reperfusion injury. *J. Neurochem.* 78: 1389-1399.
7. Sneddon, A.A., et al. 2003. Regulation of selenoprotein GPx4 expression and activity in human endothelial cells by fatty acids, cytokine, and antioxidants. *Atherosclerosis* 171: 57-65.

CHROMOSOMAL LOCATION

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

SOURCE

GPx-4 (Y-13) is an affinity purified goat polyclonal antibody raised against a peptide mapping at the C-terminus of GPx-4 of human origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-55200 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

GPx-4 (Y-13) is recommended for detection of GPx-4 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), 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).

GPx-4 (Y-13) is also recommended for detection of GPx-4 in additional species, including bovine and porcine.

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: HeLa whole cell lysate: sc-2200, mouse testis extract: sc-2405 or rat testis extract: sc-2400.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

STORAGE

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

RESEARCH USE

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



Try **GPx-4 (E-12): sc-166570** or **GPx-4 (D-3): sc-166437**, our highly recommended monoclonal alternatives to GPx-4 (Y-13).