

# GPx-3/5/6 (G-13): sc-55102

## 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 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. 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.
2. 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.
3. 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.
4. 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.
5. Nasr, M.A., et al. 2004. GPx-1 modulates Akt and P70S6K phosphorylation and Gadd45 levels in MCF-7 cells. *Free Radic. Biol. Med.* 37: 187-195.
6. Hussain, S.P., et al. 2004. p53-induced up-regulation of MnSOD and GPx but not catalase increases oxidative stress and apoptosis. *Cancer Res.* 64: 2350-2356.

## SOURCE

GPx-3/5/6 (G-13) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of GPx-6 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-55102 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## STORAGE

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

## APPLICATIONS

GPx-3/5/6 (G-13) is recommended for detection of GPx-3, GPx-5 and GPx-6 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, 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).

GPx-3/5/6 (G-13) is also recommended for detection of GPx-3, GPx-5 and GPx-6 in additional species, including equine, canine and bovine.

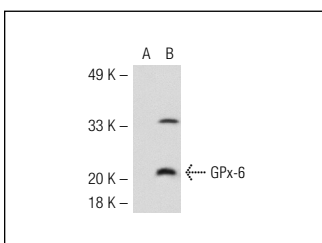
Molecular Weight of GPx-3/5/6: 25 kDa.

Positive Controls: Hep G2 cell lysate: sc-2227 or GPx-6 (m): 293T Lysate: sc-120618.

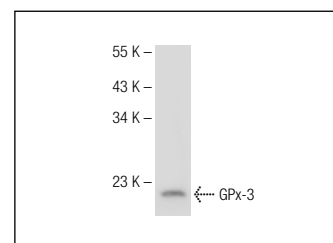
## RECOMMENDED SECONDARY REAGENTS

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) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) 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.

## DATA



GPx-3/5/6 (G-13): sc-55102. Western blot analysis of GPx-6 expression in non-transfected: sc-117752 (A) and mouse GPx-6 transfected: sc-120618 (B) 293T whole cell lysates.



GPx-3/5/6 (G-13): sc-55102. Western blot analysis of GPx-3/5/6 expression in Hep G2 whole cell lysate.

## RESEARCH USE

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

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Try **GPx-3 (23B1): sc-58361**, our highly recommended monoclonal alternative to GPx-3/5/6 (G-13).