SANTA CRUZ BIOTECHNOLOGY, INC.

GPx-3 (23B1): sc-58361

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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 tendancy 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. 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. Hall, L., et al. 1998. The majority of human glutathione peroxidase type 5 (GPX5) transcripts are incorrectly spliced: implications for the role of GPX5 in the male reproductive tract. Biochem. J. 333: 5-9.
3. 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.
4. 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.
5. 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.

CHROMOSOMAL LOCATION

Genetic locus: GPX3 (human) mapping to 5q33.1, Gpx3 (mouse) mapping to 11 B1.3.

SOURCE

GPx-3 (23B1) is a mouse monoclonal antibody raised against a recombinant protein corresponding to amino acids 21-226 of GPx-3 of human origin.

PRODUCT

Each vial contains IgG_1 in 100 µl of PBS with < 0.1% sodium azide, 0.1% gelatin, 1% glycerol and < 0.1% stabilizer protein.

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 (23B1) is recommended for detection of GPx-3 of mouse, rat and human origin by Western Blotting (starting dilution to be determined by researcher, dilution range 1:100-1:5000), immunoprecipitation [1-2 µl per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution to be determined by researcher, dilution range 1:50-1:2500) and immunohistochemistry (including paraffin-embedded sections) (starting dilution to be determined by researcher, dilution range 1:50-1:2500).

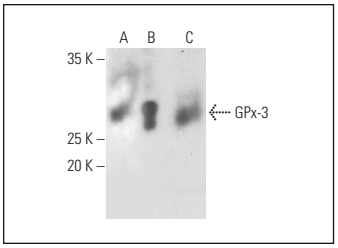
Suitable for use as control antibody for GPx-3 siRNA (h): sc-62417, GPx-3 siRNA (m): sc-62418, GPx-3 shRNA Plasmid (h): sc-62417-SH, GPx-3 shRNA Plasmid (m): sc-62418-SH, GPx-3 shRNA (h) Lentiviral Particles: sc-62417-V and GPx-3 shRNA (m) Lentiviral Particles: sc-62418-V.

Molecular Weight of GPx-3 monomer: 23 kDa.

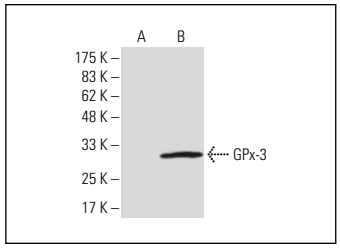
Molecular Weight of GPx-3 homotetramer: 92 kDa.

Positive Controls: human plasma extract: sc-364374, rat kidney extract: sc-2394 or HeLa whole cell lysate: sc-2200.

DATA



GPx-3 (23B1): sc-58361. Western blot analysis of GPx-3 expression in human plasma (**A**), mouse plasma (**B**) and rat kidney (**C**) tissue extracts.



GPx-3 (23B1): sc-58361. Western blot analysis of GPx-3 expression in non-transfected (**A**) and human GPx-3 transfected (**B**) Bosc23 whole cell lysates.

SELECT PRODUCT CITATIONS

1. Akahoshi, N., et al. 2019. Dietary selenium deficiency or selenomethionine excess drastically alters organ selenium contents without altering the expression of most selenoproteins in mice. J. Nutr. Biochem. 69: 120-129.
2. Castaldo, S.A., et al. 2019. Annexin A2 regulates AKT upon H_2O_2-dependent signaling activation in cancer cells. Cancers 11: 492.
3. El-Gowily, A.H., et al. 2021. Tioconazole and chloroquine act synergistically to combat doxorubicin-induced toxicity via inactivation of PI3K/AKT/mTOR signaling mediated Ros-dependent apoptosis and autophagic flux inhibition in MCF-7 breast cancer cells. Pharmaceuticals 14: 254.
4. Liu, Y., et al. 2021. Hydroxy selenomethionine improves meat quality through optimal skeletal metabolism and functions of selenoproteins of pigs under chronic heat stress. Antioxidants 10: 1558.

RESEARCH USE

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