SANTA CRUZ BIOTECHNOLOGY, INC.

GPx-4 (B-12): sc-166120

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.

CHROMOSOMAL LOCATION

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

SOURCE

GPx-4 (B-12) is a mouse monoclonal antibody aised against amino acids 108-197 mapping at the C-terminus of GPx-4 of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

GPx-4 (B-12) is available conjugated to agarose (sc-166120 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-166120 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-166120 PE), fluorescein (sc-166120 FITC), Alexa Fluor® 488 (sc-166120 AF488), Alexa Fluor® 546 (sc-166120 AF546), Alexa Fluor® 594 (sc-166120 AF594) or Alexa Fluor® 647 (sc-166120 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-166120 AF680) or Alexa Fluor® 790 (sc-166120 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Alexa Fluor® is a trademark of Molecular Probes, Inc., Oregon, USA

APPLICATIONS

GPx-4 (B-12) 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).

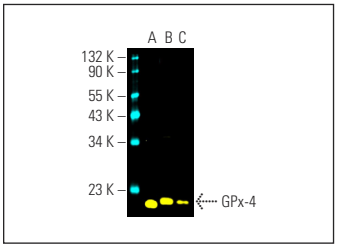
Suitable for use as control antibody for GPx-4 siRNA (h): sc-44465, GPx-4 siRNA (m): sc-63302, GPx-4 shRNA Plasmid (h): sc-44465-SH, GPx-4 shRNA Plasmid (m): sc-63302-SH, GPx-4 shRNA (h) Lentiviral Particles: sc-44465-V and GPx-4 shRNA (m) Lentiviral Particles: sc-63302-V.

Molecular Weight of GPx-4: 21 kDa.

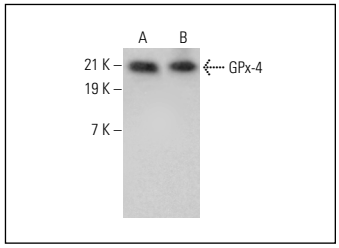
STORAGE

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

DATA



GPx-4 (B-12) Alexa Fluor® 488: sc-166120 AF488. Direct fluorescent western blot analysis of GPx-4 expression in rat testis tissue extract (**A**) and AN3 CA (**B**) and Jurkat (**C**) whole cell lysates. Blocked with UltraCruz® Blocking Reagent: sc-516214. Cruz Marker™ Molecular Weight Standards detected with Cruz Marker™ MW Tag-Alexa Fluor® 647: sc-516791.



GPx-4 (B-12): sc-166120. Western blot analysis of GPx-4 expression in Jurkat whole cell lysate (**A**) and mouse testis tissue extract (**B**).

SELECT PRODUCT CITATIONS

1. Esakky, P., et al. 2013. Molecular analysis of cell type-specific gene expression profile during mouse spermatogenesis by laser microdissection and qRT-PCR. Reprod. Sci. 20: 238-252.
2. Li, L., et al. 2018. Ferroptosis is associated with oxygen-glucose deprivation/reoxygenation-induced Sertoli cell death. Int. J. Mol. Med. 41: 3051-3062.
3. Eleftheriadis, T., et al. 2019. Factors that may protect the native hibernator syrian hamster renal tubular epithelial cells from ferroptosis due to warm anoxia-reoxygenation. Biology 8: 22.
4. Jiang, Y., et al. 2020. Transformable hybrid semiconducting polymer nanozyme for second near-infrared photothermal ferrotherapy. Nat. Commun. 11: 1857.
5. Ghoochani, A., et al. 2021. Ferroptosis inducers are a novel therapeutic approach for advanced prostate cancer. Cancer Res. 81: 1583-1594.
6. Wu, F., et al. 2022. SLC3A2 inhibits ferroptosis in laryngeal carcinoma via mTOR pathway. Hereditas 159: 6.
7. Liu, X., et al. 2022. Co-exposure of polystyrene microplastics and iron aggravates cognitive decline in aging mice via ferroptosis induction. Ecotoxicol. Environ. Saf. 233: 113342.
8. Zhu, C., et al. 2022. Metallopolysaccharide-based smart nanotheranostic for imaging-guided precise phototherapy and sequential enzyme-activated ferroptosis. Biomacromolecules 23: 2007-2018.
9. Xu, P., et al. 2022. VDR activation attenuates osteoblastic ferroptosis and senescence by stimulating the Nrf2/GPX4 pathway in age-related osteoporosis. Free Radic. Biol. Med. 193: 720-735.

RESEARCH USE

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