SANTA CRUZ BIOTECHNOLOGY, INC.

GPx-4 (E-12): sc-166570

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. 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.

CHROMOSOMAL LOCATION

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

SOURCE

GPx-4 (E-12) 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_{2b} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

GPx-4 (E-12) is available conjugated to agarose (sc-166570 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-166570 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-166570 PE), fluorescein (sc-166570 FITC), Alexa Fluor® 488 (sc-166570 AF488), Alexa Fluor® 546 (sc-166570 AF546), Alexa Fluor® 594 (sc-166570 AF594) or Alexa Fluor® 647 (sc-166570 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-166570 AF680) or Alexa Fluor® 790 (sc-166570 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

STORAGE

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

APPLICATIONS

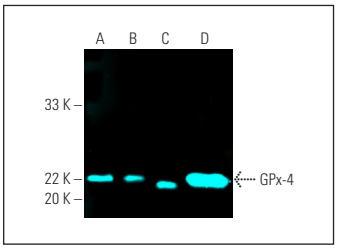
GPx-4 (E-12) is recommended for detection of GPx-4 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (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.

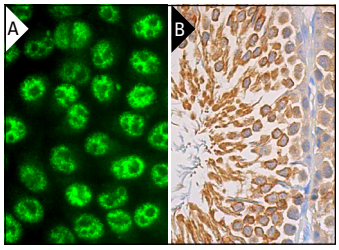
Molecular Weight of GPx-4: 21 kDa.

Positive Controls: Jurkat whole cell lysate: sc-2204, MCF7 whole cell lysate: sc-2206 or human testis extract: sc-363781.

DATA



GPx-4 (E-12) Alexa Fluor® 647: sc-166570 AF647. Direct fluorescent western blot analysis of GPx-4 expression in Jurkat (**A**), MCF7 (**B**) and F9 (**C**) whole cell lysates and human testis tissue extract (**D**). Blocked with UltraCruz® Blocking Reagent: sc-516214.



GPx-4 (E-12): sc-166570. Immunofluorescence staining of formalin-fixed HeLa cells showing nuclear localization (**A**). GPx-4 (E-12) HRP: sc-166570 HRP. Direct immunoperoxidase staining of formalin fixed, paraffin-embedded rat testis tissue showing cytoplasmic staining of cells in seminiferous ducts and Leydig cells. Blocked with 0.25X UltraCruz® Blocking Reagent: sc-516214 (**B**).

SELECT PRODUCT CITATIONS

1. Murphy, K.E., et al. 2018. Mini-GAGR, an intranasally applied polysaccharide, activates the neuronal Nrf2-mediated antioxidant defense system. J. Biol. Chem. 293: 18242-18269.
2. Dong, K., et al. 2022. HOIP modulates the stability of GPx4 by linear ubiquitination. Proc. Natl. Acad. Sci. USA 119: e2214227119.
3. Tian, C., et al. 2023. Silencing LCN2 enhances RSL3-induced ferroptosis in T cell acute lymphoblastic leukemia. Gene 879: 147597.
4. Tak, J., et al. 2024. $G_{\alpha\ 12}$ and endoplasmic reticulum stress-mediated pyroptosis in a single cycle of dextran sulfate-induced mouse colitis. Sci. Rep. 14: 6335.
5. Yuan, C., et al. 2025. S1R mediates NRF2 dependent ferroptosis of renal tubular epithelial cells to promote renal fibrosis in diabetic nephropathy. Int. J. Med. Sci. 22: 955-970.

RESEARCH USE

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