

GPx-1/2 (D-12): sc-133152

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 tendency 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: GPX1 (human) mapping to 3p21.31, GPX2 (human) mapping to 14q23.3; Gpx1 (mouse) mapping to 9 F2, Gpx2 (mouse) mapping to 12 C3.

SOURCE

GPx-1/2 (D-12) is a mouse monoclonal antibody raised against amino acids 50-201 mapping at the C-terminus of GPx-1 of human origin.

PRODUCT

Each vial contains 200 µg IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

GPx-1/2 (D-12) is recommended for detection of GPx-1 and GPx-2 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).

Molecular Weight of GPx-1 monomer: 23 kDa.

Molecular Weight of GPx-1 homotetramer: 92 kDa.

Molecular Weight of GPx-2 monomer: 23 kDa.

Molecular Weight of GPx-5: 26 kDa.

Positive Controls: SK-N-SH cell lysate: sc-2410, THP-1 cell lysate: sc-2238 or mouse liver extract: sc-2256.

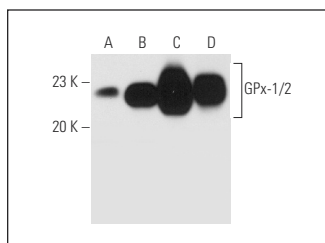
STORAGE

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

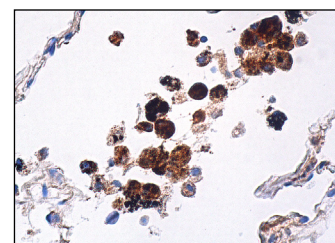
RESEARCH USE

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

DATA



GPx-1/2 (D-12): sc-133152. Western blot analysis of GPx-1/2 expression in SK-N-SH (A) and THP-1 (B) whole cell lysates and mouse liver (C) and rat liver (D) tissue extracts.



GPx-1/2 (D-12): sc-133152. Immunoperoxidase staining of formalin fixed, paraffin-embedded human lung tissue showing cytoplasmic staining of macrophages.

SELECT PRODUCT CITATIONS

- Krifka, S., et al. 2012. The influence of glutathione on redox regulation by antioxidant proteins and apoptosis in macrophages exposed to 2-hydroxyethyl methacrylate (HEMA). *Biomaterials* 33: 5177-5186.
- Niu, C., et al. 2014. Protection of *Angelica sinensis* (Oliv) Diels against hepatotoxicity induced by *Dioscorea bulbifera* L. and its mechanism. *Biosci. Trends* 8: 253-259.
- Van Landuyt, K.L., et al. 2015. Evaluation of cell responses toward adhesives with different photoinitiating systems. *Dent. Mater.* 31: 916-927.
- Schweikl, H., et al. 2017. Critical role of superoxide anions and hydroxyl radicals in HEMA-induced apoptosis. *Dent. Mater.* 33: 110-118.
- Wiedenmann, T., et al. 2018. Modulation of glutathione peroxidase activity by age-dependent carbonylation in glomeruli of diabetic mice. *J. Diabetes Complicat.* 32: 130-138.
- Sultan, C.S., et al. 2018. Impact of carbonylation on glutathione peroxidase-1 activity in human hyperglycemic endothelial cells. *Redox Biol.* 16: 113-122.
- Schweikl, H., et al. 2018. Functions of transcription factors NFκB and Nrf2 in the inhibition of LPS-stimulated cytokine release by the resin monomer HEMA. *Dent. Mater.* 34: 1661-1678.
- Guers, J.J., et al. 2019. Voluntary wheel running prevents salt-induced endothelial dysfunction: role of oxidative stress. *J. Appl. Physiol.* 126: 502-510.
- Miranda, R.A., et al. 2020. Thyroid redox imbalance in adult Wistar rats that were exposed to nicotine during breastfeeding. *Sci. Rep.* 10: 15646.

CONJUGATES

See **GPx-1/2 (B-6): sc-133160** for GPx-1/2 antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor® 488, 546, 594, 647, 680 and 790.