

PRX (B-11): sc-137222



The Power to Question

BACKGROUND

The peroxiredoxin (PRX) family comprises six antioxidant proteins, PRX I, II, III, IV, V and VI, which protect cells from reactive oxygen species (Ros) by preventing the metal-catalyzed oxidation of enzymes. The PRX proteins primarily utilize thioredoxin as the electron donor for antioxidant, although they are fairly promiscuous with regard to the hydroperoxide substrate. In addition to protection from Ros, peroxiredoxins are also involved in cell proliferation, differentiation and gene expression. PRX I, II, IV and VI show diffuse cytoplasmic localization, while PRX III and V exhibit distinct mitochondrial localization. The human PRX I gene encodes a protein that is expressed in several tissues, including liver, kidney, testis, lung and nervous system. PRX II is expressed in testis, while PRX III shows expression in lung. PRX I, II and III are overexpressed in breast cancer and may be involved in its development or progression. Upregulated protein levels of PRX I and II in Alzheimer's disease (AD) and Down syndrome (DS) indicate the involvement of PRX I and II in their pathogenesis. The human PRX IV gene is abundantly expressed in many tissues. PRX IV exists as a precursor protein, which is only detected in testis, and a processed secreted form. PRX V also exists as two forms, designated long and short. Like PRX IV, the long form of PRX V is highly expressed in testis. The short form of PRX V is more widely expressed, with high expression in liver, kidney, heart and lung. PRX VI, a 1-Cys peroxiredoxin (also known as antioxidant protein 2 or AOP2), is highly expressed in most tissues, particularly in epithelial cells. Localized to the cell cytosol, PRX VI functions independently of other peroxiredoxins and antioxidant proteins, specializing in antioxidant defense, lung phospholipid metabolism and protection of keratinocytes from cell death induced by reactive oxygen species.

SOURCE

PRX (B-11) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 123-161 near the N-terminus of PRX II 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.

PRX (B-11) is available conjugated to agarose (sc-137222 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-137222 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-137222 PE), fluorescein (sc-137222 FITC), Alexa Fluor® 488 (sc-137222 AF488), Alexa Fluor® 546 (sc-137222 AF546), Alexa Fluor® 594 (sc-137222 AF594) or Alexa Fluor® 647 (sc-137222 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-137222 AF680) or Alexa Fluor® 790 (sc-137222 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-137222 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

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STORAGE

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

APPLICATIONS

PRX (B-11) is recommended for detection of PRX I, PRX II and PRX IV 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).

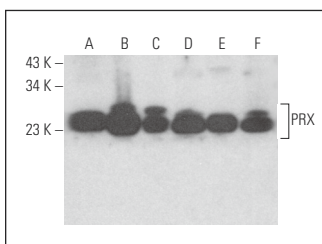
PRX (B-11) is also recommended for detection of PRX I, PRX II and PRX IV in additional species, including equine and porcine.

Suitable for use as control antibody for PRX siRNA (h): sc-37151, PRX siRNA (m): sc-37152, PRX shRNA Plasmid (h): sc-37151-SH, PRX shRNA Plasmid (m): sc-37152-SH, PRX shRNA (h) Lentiviral Particles: sc-37151-V and PRX shRNA (m) Lentiviral Particles: sc-37152-V.

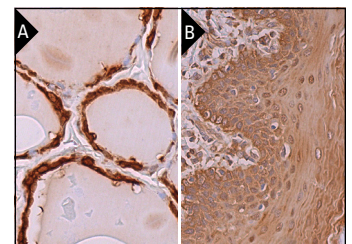
Molecular Weight of PRX: 25 kDa.

Positive Controls: KNRK whole cell lysate: sc-2214, Hep G2 cell lysate: sc-2227 or K-562 whole cell lysate: sc-2203.

DATA



PRX (B-11): sc-137222. Western blot analysis of PRX expression in K-562 (A), Hep G2 (B), NIH/3T3 (C), KNRK (D) and F9 (E) whole cell lysates and rat brain tissue extract (F).



PRX (B-11): sc-137222. Immunoperoxidase staining of formalin fixed, paraffin-embedded human thyroid gland tissue showing cytoplasmic and nuclear staining of glandular cells (A). Immunoperoxidase staining of formalin fixed, paraffin-embedded human esophagus tissue showing cytoplasmic and membrane staining of squamous epithelial cells (B).

SELECT PRODUCT CITATIONS

- McCommis, K.S., et al. 2011. Hypercholesterolemia increases mitochondrial oxidative stress and enhances the MPT response in the porcine myocardium: beneficial effects of chronic exercise. *Am. J. Physiol. Regul. Integr. Comp. Physiol.* 301: R1250-R1258.
- Jaén, R.I., et al. 2020. BML-111 treatment prevents cardiac apoptosis and oxidative stress in a mouse model of autoimmune myocarditis. *FASEB J.* 34: 10531-10546.
- Rivera-Santiago, L., et al. 2022. Structural new data for mitochondrial peroxiredoxin from *Trypanosoma cruzi* show high similarity with human peroxiredoxin 3: repositioning thiostrepton as antichagasic drug. *Front. Cell. Infect. Microbiol.* 12: 907043.

RESEARCH USE

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