

Prx IV (F-15): sc-23974

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 antioxidantation, 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 and down syndrome 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.

CHROMOSOMAL LOCATION

Genetic locus: PRDX4 (human) mapping to Xq22.11; Prdx4 (mouse) mapping to X F3.

SOURCE

PRX IV (F-15) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of PRX IV of human origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-23974 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

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.

PROTOCOLS

See our web site at www.scbt.com or our catalog for detailed protocols and support products.

APPLICATIONS

Prx IV (F-15) is recommended for detection of Prx IV of mouse, rat and human origin by Western Blotting (starting dilution 1:200, 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). PRX IV (F-15) is also recommended for detection of PRX IV in additional species, including porcine.

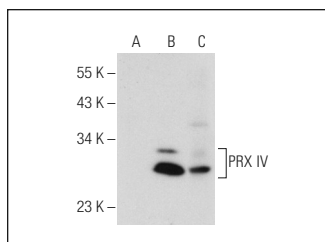
Suitable for use as control antibody for PRX IV siRNA (h): sc-40835, PRX IV siRNA (m): sc-40836, PRX IV shRNA Plasmid (h): sc-40835-SH, PRX IV shRNA Plasmid (m): sc-40836-SH, PRX IV shRNA (h) Lentiviral Particles: sc-40835-V and PRX IV shRNA (m) Lentiviral Particles: sc-40836-V.

Molecular Weight of membrane-bound PRX IV: 31 kDa.

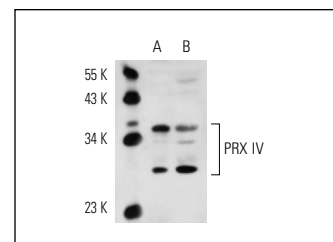
Molecular Weight of PRX IV processed secreted form: 27 kDa.

Positive Controls: PRX IV (m): 293T Lysate: sc-122810, MCF7 whole cell lysate: sc-2206 or Caki-1 cell lysate: sc-2224.

DATA



PRX IV (F-15): sc-23974. Western blot analysis of PRX IV expression in non-transfected 293T: sc-117752 (A), mouse PRX IV transfected 293T: sc-122810 (B) and MCF7 (C) whole cell lysates.



PRX IV (F-15): sc-23974. Western blot analysis of PRX IV expression MDA-MB-231 (A) and Caki-1 (B) whole cell lysate.

SELECT PRODUCT CITATIONS

- Shiota, M., et al. 2008. Ets regulates peroxiredoxin1 and 5 expressions through their interaction with the high-mobility group protein B1. *Cancer Sci.* 99: 1950-1959.
- Izumi, H., et al. 2010. Role of ZNF143 in tumor growth through transcriptional regulation of DNA replication and cell-cycle-associated genes. *Cancer Sci.* 101: 2538-2545.
- Roumes, H., et al. 2010. Investigation of peroxiredoxin IV as a calpain-regulated pathway in cancer. *Anticancer Res.* 30: 5085-5089.
- Miyamoto, N., et al. 2011. Quercetin induces the expression of peroxiredoxins 3 and 5 via the Nrf2/NRF1 transcription pathway. *Invest. Ophthalmol. Vis. Sci.* 52: 1055-1063.

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Try **PRX IV (F-2): sc-376668**, our highly recommended monoclonal alternative to PRX IV (F-15).