

# PRX I (N-19): sc-7381

## 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 (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.

## CHROMOSOMAL LOCATION

Genetic locus: PRDX1 (human) mapping to 1p34.1; Prdx1 (mouse) mapping to 4 D1.

## SOURCE

PRX I (N-19) is an affinity purified goat polyclonal antibody raised against a peptide mapping at the N-terminus of PRX I 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-7381 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](http://www.scbt.com) or our catalog for detailed protocols and support products.

## APPLICATIONS

PRX I (N-19) is recommended for detection of PRX I 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).

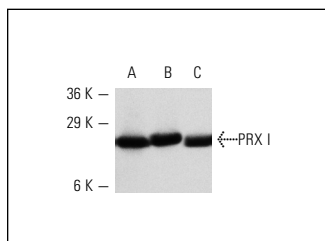
PRX I (N-19) is also recommended for detection of PRX I in additional species, including equine, canine, bovine and porcine.

Suitable for use as control antibody for PRX I siRNA (h): sc-36177, PRX I siRNA (m): sc-36178, PRX I shRNA Plasmid (h): sc-36177-SH, PRX I shRNA Plasmid (m): sc-36178-SH, PRX I shRNA (h) Lentiviral Particles: sc-36177-V and PRX I shRNA (m) Lentiviral Particles: sc-36178-V.

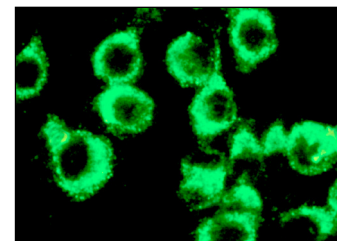
Molecular Weight of PRX I monomer: 25 kDa.

Molecular Weight of PRX I dimer: 50 kDa.

## DATA



PRX I (N-19): sc-7381. Western blot analysis of PRX I expression in K-562 (A), U-937 (B) and RAW 264.7 (C) whole cell lysates.



PRX I (N-19): sc-7381. Immunofluorescence staining of methanol-fixed RAW 264.7 cells showing cytoplasmic localization.

## SELECT PRODUCT CITATIONS

1. Eddy, S.F., et al. 2005. Up-regulation of a thioredoxin peroxidase-like protein, proliferation-associated gene, in hibernating bats. *Arch. Biochem. Biophys.* 435: 103-111.
2. Goemaere, J. and Knoop, B. 2012. Peroxiredoxin distribution in the mouse brain with emphasis on neuronal populations affected in neurodegenerative disorders. *J. Comp. Neurol.* 520: 258-280.
3. Aristorena, M., et al. 2014. Expression of endoglin isoforms in the myeloid lineage and their role during aging and macrophage polarization. *J. Cell Sci.* 127: 2723-2735.
4. Myers, C.R. 2015. Enhanced targeting of mitochondrial peroxide defense by the combined use of thiosemicarbazones and inhibitors of thioredoxin reductase. *Free Radic. Biol. Med.* 91: 81-92.



Try **PRX (B-11): sc-137222** or **PRX (E-7): sc-271020**, our highly recommended monoclonal alternatives to PRX I (N-19).