

PRX I (9D2): sc-59657

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.

REFERENCES

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2. Butterfield, L.H., et al. 1999. From cytoprotection to tumor suppression: the multifactorial role of peroxiredoxins. *Antioxid. Redox Signal.* 1: 385-402.
3. Mizusawa, H., et al. 2000. Peroxiredoxin I (macrophage 23 kDa stress protein) is highly and widely expressed in the rat nervous system. *Neurosci. Lett.* 283: 57-60.
4. Noh, D.Y., et al. 2001. Overexpression of peroxiredoxin in human breast cancer. *Anticancer Res.* 21: 2085-2090.
5. Kim, S.H., et al. 2001. Protein levels of human peroxiredoxin subtypes in brains of patients with Alzheimer's disease and Down syndrome. *J. Neural Transm. Suppl.* 61: 223-235.
6. Fujii, J., et al. 2002. Advances in our understanding of peroxiredoxin, a multifunctional, mammalian redox protein. *Redox Rep.* 7: 123-130.
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CHROMOSOMAL LOCATION

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

SOURCE

PRX I (9D2) is a mouse monoclonal antibody raised against full length PRX I of human origin.

PRODUCT

Each vial contains 100 µg IgG₁ kappa light chain in 1.0 ml of HEPES with 0.15M NaCl, 50% glycerol, < 0.1% sodium azide, and 0.01% stabilizer protein.

APPLICATIONS

PRX I (9D2) is recommended for detection of PRX I of mouse, rat and human origin by 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).

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.

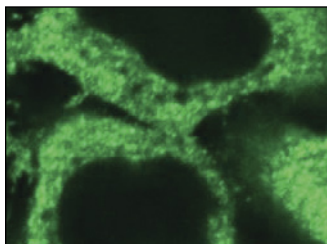
Positive Controls: HeLa whole cell lysate: sc-2200.

RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended:

1) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 2) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz[®] Mounting Medium: sc-24941 or UltraCruz[®] Hard-set Mounting Medium: sc-359850.

DATA



PRX I (9D2): sc-59657. Immunofluorescence staining of methanol-fixed HeLa cells showing cytoplasmic localization.

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.