

## PRX (D-8): sc-137149

### 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 antioxidation, 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

1. Iwahara, S., et al. 1995. Purification, characterization and cloning of a heme-binding protein (23 kDa) in rat liver cytosol. *Biochemistry* 34: 13398-13406.
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.

### CHROMOSOMAL LOCATION

Genetic locus: PRDX2 (human) mapping to 19p13.2; Prdx2 (mouse) mapping to 8 C3.

### SOURCE

PRX (D-8) 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 IgG<sub>1</sub> in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

### APPLICATIONS

PRX (D-8) is recommended for detection of PRX I, II, IV and to a lesser extent PRX III 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

PRX (D-8) is also recommended for detection of PRX I, II, IV and to a lesser extent PRX III 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.

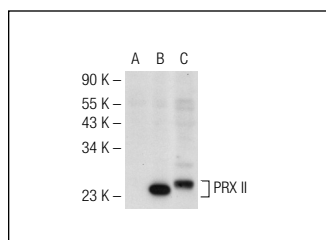
Molecular Weight of PRX: 25 kDa.

Positive Controls: MCF7 whole cell lysate: sc-2206, rat brain extract: sc-2392 or mouse intestine.

### RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-mouse IgG-HRP: sc-2005 (dilution range: 1:2000-1:32,000) or Cruz Marker™ compatible goat anti-mouse IgG-HRP: sc-2031 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use goat anti-mouse IgG-FITC: sc-2010 (dilution range: 1:100-1:400) or goat anti-mouse IgG-TR: sc-2781 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

### DATA



PRX (D-8): sc-137149. Western blot analysis of PRX II expression in non-transfected 293T: sc-117752 (A), mouse PRX II transfected 293T: sc-122808 (B) and MCF7 (C) whole cell lysates.

### 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.