

PRX III (C-14): sc-23973

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.

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.

CHROMOSOMAL LOCATION

Genetic locus: PRDX3 (human) mapping to 10q26.11; Prdx3 (mouse) mapping to 19 D3.

SOURCE

PRX III (C-14) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the C-terminus of PRX III 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-23973 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

RESEARCH USE

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

APPLICATIONS

PRX III (C-14) is recommended for detection of PRX III of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), 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 III (C-14) is also recommended for detection of PRX III in additional species, including equine, canine, bovine, porcine and avian.

Suitable for use as control antibody for PRX III siRNA (h): sc-40833, PRX III siRNA (m): sc-40834, PRX III shRNA Plasmid (h): sc-40833-SH, PRX III shRNA Plasmid (m): sc-40834-SH, PRX III shRNA (h) Lentiviral Particles: sc-40833-V and PRX III shRNA (m) Lentiviral Particles: sc-40834-V.

Molecular Weight of PRX III: 26 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, MCF7 whole cell lysate: sc-2206 or A-431 whole cell lysate: sc-2201.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (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) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

SELECT PRODUCT CITATIONS

1. Weinkauff, M., et al. 2009. 2-D PAGE-based comparison of proteasome inhibitor bortezomib in sensitive and resistant mantle cell lymphoma. *Electrophoresis* 30: 974-986.
2. Kavazis, A.N., et al. 2009. Exercise training induces a cardioprotective phenotype and alterations in cardiac subsarcolemmal and intermyofibrillar mitochondrial proteins. *Am. J. Physiol. Heart Circ. Physiol.* 297: H144-H152.
3. Dai, D.F., et al. 2012. Mitochondrial proteome remodelling in pressure overload-induced heart failure: the role of mitochondrial oxidative stress. *Cardiovasc. Res.* 93: 79-88.

STORAGE

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



Try **PRX III (1): sc-130336** or **PRX III (12B): sc-59661**, our highly recommended monoclonal alternatives to PRX III (C-14).