SANTA CRUZ BIOTECHNOLOGY, INC.

PRX VI (36): sc-101522

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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.
4. Noh, D.Y., et al. 2001. Overexpression of peroxiredoxin in human breast cancer. Anticancer Res. 21: 2085-2090.

CHROMOSOMAL LOCATION

Genetic locus: PRDX6 (human) mapping to 1q25.1; Prdx6 (mouse) mapping to 1 H2.1.

SOURCE

PRX VI (36) is a mouse monoclonal antibody raised against recombinant PRX VI of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

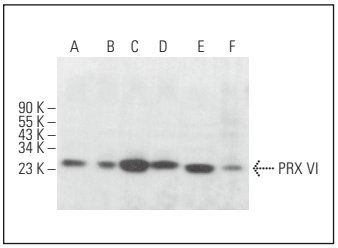
PRX VI (36) is recommended for detection of PRX VI of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)] and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for PRX VI siRNA (h): sc-62896, PRX VI siRNA (m): sc-62897, PRX VI shRNA Plasmid (h): sc-62896-SH, PRX VI shRNA Plasmid (m): sc-62897-SH, PRX VI shRNA (h) Lentiviral Particles: sc-62896-V and PRX VI shRNA (m) Lentiviral Particles: sc-62897-V.

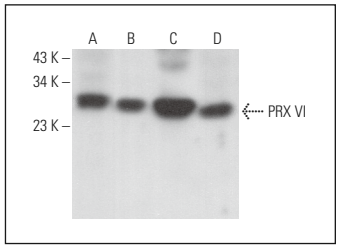
Molecular Weight of PRX VI: 25 kDa.

Positive Controls: EOC 20 whole cell lysate: sc-364187, Jurkat whole cell lysate: sc-2204 or c4 whole cell lysate: sc-364186.

DATA



PRX VI (36): sc-101522. Western blot analysis of PRX VI expression in EOC 20 (**A**), Neuro-2A (**B**), c4 (**C**), Hep G2 (**D**) and SH-SY5Y (**E**) whole cell lysates and rat brain tissue extract (**F**).



PRX VI (36): sc-101522. Western blot analysis of PRX VI expression in Jurkat (**A**) and EOC 20 (**B**) whole cell lysates and mouse liver (**C**) and rat liver (**D**) tissue extracts.

SELECT PRODUCT CITATIONS

1. Singh, S.P., et al. 2016. Delivery of a protein transduction domain-mediated Prdx6 protein ameliorates oxidative stress-induced injury in human and mouse neuronal cells. Am. J. Physiol., Cell Physiol. 310: C1-C16.
2. Nishad, S. and Ghosh, A. 2016. Dynamic changes in the proteome of human peripheral blood mononuclear cells with low dose ionizing radiation. Mutat. Res. Genet. Toxicol. Environ. Mutagen. 797: 9-20.
3. Chhunchha, B., et al. 2018. Sumoylation-deficient Prdx6 repairs aberrant sumoylation-mediated Sp1 dysregulation-dependent Prdx6 repression and cell injury in aging and oxidative stress. Aging 10: 2284-2315.
4. Nishad, S. and Ghosh, A. 2018. Comparative proteomic analysis of human peripheral blood mononuclear cells indicates adaptive response to low-dose radiation in individuals from high background radiation areas of Kerala. Mutagenesis 33: 359-370.

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.