SANTA CRUZ BIOTECHNOLOGY, INC.

PRX III (12B): sc-59661

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, α1-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: PRDX3 (human) mapping to 10q26.11; Prdx3 (mouse) mapping to 19 D3.

SOURCE

PRX III (12B) is a mouse monoclonal antibody raised against full length PRX III of human origin.

PRODUCT

Each vial contains IgG_1 in 100 µl of 10 mM HEPES with 150 mM NaCl, 50% glycerol, < 0.1% BSA and 0.03% sodium azide.

STORAGE

Store at -20° C; stable for one year from the date of shipment. Non-hazardous. No MSDS required. Minimize repeated freezing and thawing.

RESEARCH USE

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

PROTOCOLS

See our web site at www.scbt.com or our catalog for detailed protocols and support products.

APPLICATIONS

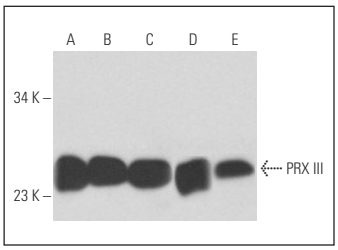
PRX III (12B) is recommended for detection of PRX III of mouse and human origin by Western Blotting (starting dilution to be determined by researcher, dilution range 1:100-1:5000), immunoprecipitation [1-2 µl per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution to be determined by researcher, dilution range 1:50-1:2500), immunohistochemistry (including paraffin-embedded sections) (starting dilution to be determined by researcher, dilution range 1:50-1:2500) and solid phase ELISA (starting dilution to be determined by researcher, dilution range 1:30-1:5000).

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.

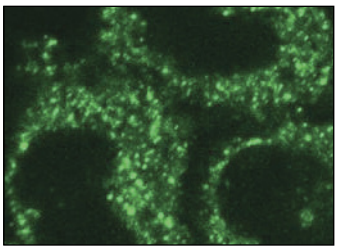
Molecular Weight of PRX III: 26 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, MCF7 whole cell lysate: sc-2206 or mouse lung extract: sc-2390.

DATA



PRX III (12B): sc-59661. Western blot analysis of PRX III expression in SHP-77 (**A**), AMJ2-C11 (**B**), MCF7 (**C**) and HeLa (**D**) whole cell lysates and mouse lung tissue extract (**E**).



PRX III (12B): sc-59661. Immunofluorescence staining of methanol-fixed HeLa cells showing cytoplasmic localization.

SELECT PRODUCT CITATIONS

1. Dong, S., et al. 2009. Discrete molecular states in the brain accompany changing responses to a vocal signal. Proc. Natl. Acad. Sci. USA 106: 11364-11369.
2. Sutinen, E.M., et al. 2014. Interleukin-18 alters protein expressions of neurodegenerative diseases-linked proteins in human SH-SY5Y neuron-like cells. Front. Cell. Neurosci. 8: 1-16.
3. 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.
4. Konzack, A., et al. 2015. Mitochondrial dysfunction due to lack of manganese superoxide dismutase promotes hepatocarcinogenesis. Antioxid. Redox Signal. 23: 1059-1075.
5. Pieper, R., et al. 2015. Impact of high dietary zinc on zinc accumulation, enzyme activity and proteomic profiles in the pancreas of piglets. J. Trace Elem. Med. Biol. 30: 30-36.
6. 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.