SANTA CRUZ BIOTECHNOLOGY, INC.

PMCA2 (28): sc-136043

SANTA CRUZ BIOTECHNOLOGY
The Power to Question

BACKGROUND

Plasma membrane-type Ca^{2+}-ATPases (PMCAs) mediate the export of bivalent calcium ions from eukaryotic cells. As members of the P class of ion-motive ATPases, PMCAs are a functionally diverse group of proteins that are derived from alternatively spliced transcripts originating from four distinct genes, PMCA1, 2, 3 and 4. The expression of different PMCA isoforms and splice variants is regulated in a developmental, tissue- and cell type-specific manner, and with respect to the physiological needs of specific cell and tissue types. Spatial and temporal rates of resting intracellular Ca^{2+} concentrations and Ca^{2+} signaling in eukaryotic cells are dependent on the array of PMCA isoforms that are expressed in concert with the rate of Ca^{2+} export. The human PMCA2 gene is located on chromosome 3p25.3 and antibodies directed against PMCA2 detect three proteins in brain and heart. Homozygous null mutations in the mouse gene result in deafwaddler mice, which are characterized by having a hesitant, wobbly gait, displaying head bobbing and are deaf.

REFERENCES

1. Olson, S., et al. 1991. Localization of two genes encoding plasma membrane Ca^{2+}-transporting ATPases to human chromosomes 1q25-32 and 12q21-23. Genomics 9: 629-641.
2. Brandt, P., et al. 1992. Determination of the nucleotide sequence and chromosomal localization of the ATP2B2 gene encoding human Ca^{2+}-pumping ATPase isoform PMCA2. Genomics 14: 484-487.
3. Fresu, L., et al. 1999. Plasma membrane calcium ATPase isoforms in astrocytes. Glia 28: 150-155.
4. Lehotsky, J., et al. 1999. Distribution of plasma membrane Ca^{2+} pump (PMCA) isoforms in the gerbil brain: effect of ischemia-reperfusion injury. Neurochem. Int. 35: 221-227.

CHROMOSOMAL LOCATION

Genetic locus: ATP2B2 (human) mapping to 3p25.3; Atp2b2 (mouse) mapping to 6 E3.

SOURCE

PMCA2 (28) is a mouse monoclonal antibody raised against amino acids 81-193 of PMCA2 of rat 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.

STORAGE

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

PROTOCOLS

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

APPLICATIONS

PMCA2 (28) is recommended for detection of PMCA2 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 immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

Suitable for use as control antibody for PMCA2 siRNA (h): sc-42598, PMCA2 siRNA (m): sc-42599, PMCA2 shRNA Plasmid (h): sc-42598-SH, PMCA2 shRNA Plasmid (m): sc-42599-SH, PMCA2 shRNA (h) Lentiviral Particles: sc-42598-V and PMCA2 shRNA (m) Lentiviral Particles: sc-42599-V.

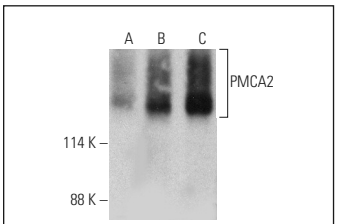
Molecular Weight of PMCA2 splice variants: 132-137 kDa.

Positive Controls: rat cerebellum extract: sc-2398, human cerebral cortex extract: sc-516707 or rat brain extract: sc-2392.

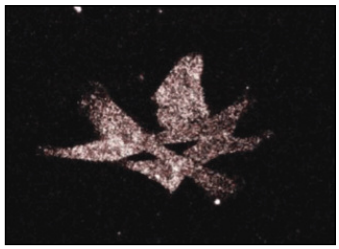
RECOMMENDED SUPPORT PRODUCTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 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 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



PMCA2 (28): sc-136043. Western blot analysis of PMCA2 expression in human cerebral cortex (**A**), rat cerebellum (**B**) and rat plasma (**C**) tissue extracts.



PMCA2 (28): sc-136043. Immunofluorescence staining of SK-BR-3 cells showing membrane localization.

SELECT PRODUCT CITATIONS

1. Boczek, T., et al. 2014. Plasma membrane Ca^{2+}-ATPase isoforms composition regulates cellular pH homeostasis in differentiating PC12 cells in a manner dependent on cytosolic Ca^{2+} elevations. PLoS ONE 9: e102352.
2. Schmidt, N., et al. 2017. Neuroplastin and basigin are essential auxiliary subunits of plasma membrane Ca^{2+}-ATPases and key regulators of Ca^{2+}-clearance. Neuron 96: 827-838.

RESEARCH USE

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