SANTA CRUZ BIOTECHNOLOGY, INC.

PMCA2/3 (C-3): sc-398013

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 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, ATP2B3 (human) mapping to Xq28; Atp2b2 (mouse) mapping to 6 E3, Atp2b3 (mouse) mapping to X A7.3.

SOURCE

PMCA2/3 (C-3) is a mouse monoclonal antibody raised against amino acids 83-194 mapping near the N-terminus of PMCA2 of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

PMCA2/3 (C-3) is available conjugated to agarose (sc-398013 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-398013 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-398013 PE), fluorescein (sc-398013 FITC), Alexa Fluor® 488 (sc-398013 AF488), Alexa Fluor® 546 (sc-398013 AF546), Alexa Fluor® 594 (sc-398013 AF594) or Alexa Fluor® 647 (sc-398013 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-398013 AF680) or Alexa Fluor® 790 (sc-398013 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

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APPLICATIONS

PMCA2/3 (C-3) is recommended for detection of PMCA2 and PMCA3 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).

PMCA2/3 (C-3) is also recommended for detection of PMCA2 and PMCA3 in additional species, including equine, canine, bovine and porcine.

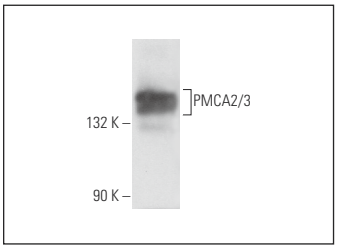
Molecular Weight of PMCA2/3: 127-137 kDa.

Positive Controls: mouse brain extract: sc-2253 or KNRK whole cell lysate: sc-2214.

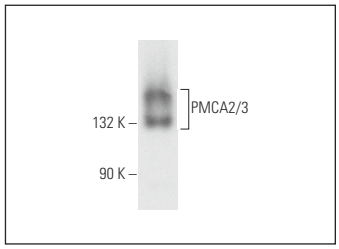
RECOMMENDED SUPPORT REAGENTS

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



PMCA2/3 (C-3): sc-398013. Western blot analysis of PMCA2/3 expression in KNRK whole cell lysate.



PMCA2/3 (C-3): sc-398013. Western blot analysis of PMCA2/3 expression in mouse brain tissue extract.

SELECT PRODUCT CITATIONS

1. 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.e9.

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.