SANTA CRUZ BIOTECHNOLOGY, INC.

PMCA (F-3): sc-271917

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 at least four distinct genes. 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.

REFERENCES

1. Greeb, J., et al. 1989. Molecular cloning of a third isoform of the calmodulin-sensitive plasma membrane Ca^{2+}-transporting ATPase that is expressed predominantly in brain and skeletal muscle. J. Biol. Chem. 264: 18569-18576.
2. 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.

SOURCE

PMCA (F-3) is a mouse monoclonal antibody raised against amino acids 481-780 mapping within a cytoplasmic domain of PMCA1 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.

PMCA (F-3) is available conjugated to agarose (sc-271917 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-271917 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-271917 PE), fluorescein (sc-271917 FITC), Alexa Fluor® 488 (sc-271917 AF488), Alexa Fluor® 546 (sc-271917 AF546), Alexa Fluor® 594 (sc-271917 AF594) or Alexa Fluor® 647 (sc-271917 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-271917 AF680) or Alexa Fluor® 790 (sc-271917 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

PMCA (F-3) is recommended for detection of PMCA1, PMCA2, PMCA3 and PMCA4 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), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

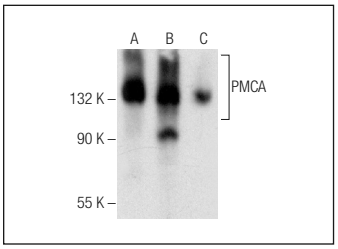
Molecular Weight of PMCA isoforms: 120-140 kDa.

Positive Controls: mouse brain extract: sc-2253, rat cerebellum extract: sc-2398 or HeLa whole cell lysate: sc-2200.

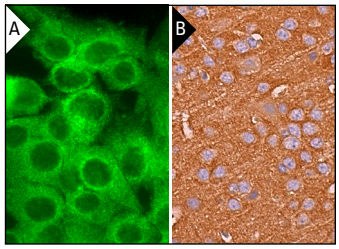
RECOMMENDED SUPPORT REAGENTS

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. 4) Immunohistochemistry: use m-IgGκ BP-HRP: sc-516102 with DAB, 50X: sc-24982 and Immunohistomount: sc-45086, or Organo/Limonene Mount: sc-45087.

DATA



PMCA (F-3): sc-271917. Western blot analysis of PMCA expression in mouse brain (**A**), rat cerebellum (**B**) and human hippocampus (**C**) tissue extracts.



PMCA (F-3): sc-271917. Immunofluorescence staining of formalin-fixed Hep G2 cells showing cytoplasmic localization (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded mouse brain tissue showing neuropil staining (**B**).

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.
2. Assali, E.A., et al. 2020. NCLX prevents cell death during adrenergic activation of the brown adipose tissue. Nat. Commun. 11: 3347.
3. Luo, Z., et al. 2022. Berberine increases stromal production of Wnt molecules and activates Lgr5+ stem cells to promote epithelial restitution in experimental colitis. BMC Biol. 20: 287.

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.

PROTOCOLS

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