SANTA CRUZ BIOTECHNOLOGY, INC.

PMCA (H-8): sc-271194

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. and Shull, G.E. 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.
3. Fresu, L., et al. 1999. Plasma membrane calcium ATPase isoforms in astrocytes. Glia 28: 150-155.
4. Caride, A.J., et al. 2001. Delayed activation of the plasma membrane calcium pump by a sudden increase in Ca^{2+}: fast pumps reside in fast cells. Cell Calcium 30: 49-57.
5. Strehler, E.E. and Zacharias, D.A. 2001. Role of alternative splicing in generating isoform diversity among plasma membrane calcium pumps. Physiol. Rev. 81: 21-50.

SOURCE

PMCA (H-8) 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_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

PMCA (H-8) 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).

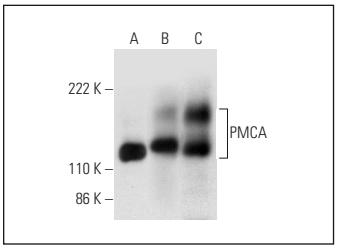
Molecular Weight of PMCA isoforms: 120-140 kDa.

Positive Controls: Ramos whole cell lysate: sc-2216, IMR-32 cell lysate: sc-2409 or mouse brain extract: sc-2253.

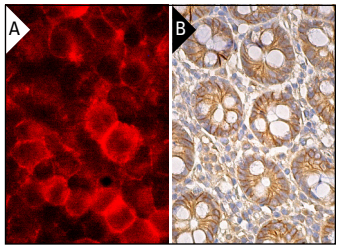
RECOMMENDED SUPPORT REAGENTS

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 (H-8): sc-271194. Western blot analysis of PMCA expression in Ramos (**A**) and IMR-32 (**B**) whole cell lysates and mouse brain tissue extract (**C**).



PMCA (H-8): sc-271194. Immunofluorescence staining of methanol-fixed HeLa cells showing membrane localization (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human small intestine tissue showing membrane and cytoplasmic staining of glandular cells (**B**).

SELECT PRODUCT CITATIONS

1. Hettiarachchi, N.T., et al. 2012. Peroxynitrite mediates disruption of Ca^{2+} homeostasis by carbon monoxide via Ca^{2+} ATPase degradation. Antioxid. Redox Signal. 17: 744-755.
2. Kim, J.M., et al. 2017. G protein-coupled calcium-sensing receptor is a crucial mediator of MTA-induced biological activities. Biomaterials 127: 107-116.

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.