

PMCA3 (G-6): sc-390148

BACKGROUND

Plasma membrane-type Ca^{2+} -ATPases (PMCA) mediate the export of bivalent calcium ions from eukaryotic cells. As members of the P class of ion-motive ATPases, PMCA 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. PMCA3 expression is confined to brain and skeletal muscle. The PMCA4 gene is located on human chromosome 1q25 and is ubiquitously expressed.

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. Eakin, T.J., et al. 1995. Localization of the plasma membrane Ca^{2+} -ATPase isoform PMCA3 in rat cerebellum, choroid plexus and hippocampus. *Brain Res. Mol. Brain Res.* 29: 71-80.
3. Garcia, M.L., et al. 1999. Plasma membrane calcium ATPases as critical regulators of calcium homeostasis during neuronal cell function. *Front. Biosci.* 4: D869-D882.

CHROMOSOMAL LOCATION

Genetic locus: ATP2B3 (human) mapping to Xq28; Atp2b3 (mouse) mapping to X A7.3.

SOURCE

PMCA3 (G-6) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 1133-1167 near the C-terminus of PMCA3 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.

PMCA3 (G-6) is available conjugated to agarose (sc-390148 AC), 500 μg /0.25 ml agarose in 1 ml, for IP; to HRP (sc-390148 HRP), 200 μg /ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-390148 PE), fluorescein (sc-390148 FITC), Alexa Fluor® 488 (sc-390148 AF488), Alexa Fluor® 546 (sc-390148 AF546), Alexa Fluor® 594 (sc-390148 AF594) or Alexa Fluor® 647 (sc-390148 AF647), 200 μg /ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-390148 AF680) or Alexa Fluor® 790 (sc-390148 AF790), 200 μg /ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-390148 P, (100 μg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

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APPLICATIONS

PMCA3 (G-6) is recommended for detection of all isoforms of 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).

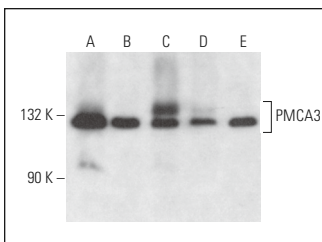
PMCA3 (G-6) is also recommended for detection of all isoforms of PMCA3 in additional species, including equine, canine, bovine and porcine.

Suitable for use as control antibody for PMCA3 siRNA (h): sc-42600, PMCA3 siRNA (m): sc-42601, PMCA3 shRNA Plasmid (h): sc-42600-SH, PMCA3 shRNA Plasmid (m): sc-42601-SH, PMCA3 shRNA (h) Lentiviral Particles: sc-42600-V and PMCA3 shRNA (m) Lentiviral Particles: sc-42601-V.

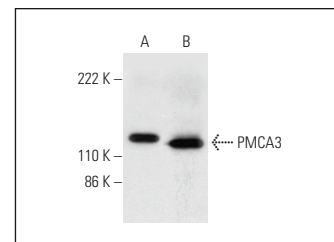
Molecular Weight of PMCA3: 130-140 kDa.

Positive Controls: Neuro-2A whole cell lysate: sc-364185, Ramos cell lysate: sc-2216 or IMR-32 cell lysate: sc-2409.

DATA



PMCA3 (G-6): sc-390148. Western blot analysis of PMCA3 expression in IMR-32 (A), U-87 MG (B), SK-N-MC (C), Neuro-2A (D) and EOC 20 (E) whole cell lysates.



PMCA3 (G-6): sc-390148. Western blot analysis of PMCA3 expression in Ramos (A) and IMR-32 (B) whole cell lysates.

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.e9.
3. Byts, N., et al. 2021. Transmembrane prolyl 4-hydroxylase is a novel regulator of calcium signaling in astrocytes. *eNeuro* 8: ENEURO.0253-20.2020.

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.