SANTA CRUZ BIOTECHNOLOGY, INC.

PMCA4b (2T2): sc-71909

BACKGROUND

The plasma membrane Ca^{2+}-pumping ATPase (PMCA) mRNAs are encoded on four genes designated PMCA1–4. The PMCA genes undergo alternative splicing to yield "b" splice forms, which contain PDZ interaction domains and interact promiscuously but also specifically with different members of the PSD95 family. PMCA4b is the major PMCA expressed in developing mammary tissue. During lactation, PMCA1b expression increases while PMCA4b expression decreases, indicating that PMCAs play a critical role in maintaining cellular Ca^{2+} homeostasis. In addition, human PMCA4b may have an important role in regulating intracellular Ca^{2+} in the apoptotic cell. PMCA4b is cleaved at Asp 1080 by caspase-3 to produce a single fragment that is fully active, responding much faster to an increase in Ca^{2+} than the autoinhibited form. PMCA4b also plays an essential role in maintaining low cytosolic Ca^{2+} in resting platelets. Specifically, PMCA4b is phosphorylated on Tyr 1176 by pp60 (src).

REFERENCES

1. Brandt, P., et al. 1992. Analysis of the tissue-specific distribution of mRNAs encoding the plasma membrane calcium-pumping ATPases and characterization of an alternately spliced form of PMCA4 at the cDNA and genomic levels. J. Biol. Chem. 267: 4376-4385.
2. Dean, W.L., et al. 1997. Regulation of platelet plasma membrane Ca^{2+}-ATPase by cAMP-dependent and tyrosine phosphorylation. J. Biol. Chem. 272: 15113-15119.
3. Reinhardt, T.A., et al. 1999. Ca^{2+}-ATPases and their expression in the mammary gland of pregnant and lactating rats. Am. J. Physiol. 276: 796-802.
4. Reinhardt, T.A., et al. 2000. Ca^{2+}-ATPase protein expression in mammary tissue. Am. J. Physiol., Cell Physiol. 279: 1595-1602.
5. Zabe, M., et al. 2001. Plasma membrane Ca^{2+}-ATPase associates with the cytoskeleton in activated platelets through a PDZ-binding domain. J. Biol. Chem. 276: 14704-14709.

CHROMOSOMAL LOCATION

Genetic locus: ATP2B4 (human) mapping to 1q32.1; Atp2b4 (mouse) mapping to 1 E4.

SOURCE

PMCA4b (2T2) is a mouse monoclonal antibody raised against amino acids 1156-1180 of purified erythrocyte Ca^{2+} pump 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.

STORAGE

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

APPLICATIONS

PMCA4b (2T2) is recommended for detection of PMCA4b 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 PMCA4b siRNA (h): sc-36279, PMCA4b siRNA (m): sc-36280, PMCA4b shRNA Plasmid (h): sc-36279-SH, PMCA4b shRNA Plasmid (m): sc-36280-SH, PMCA4b shRNA (h) Lentiviral Particles: sc-36279-V and PMCA4b shRNA (m) Lentiviral Particles: sc-36280-V.

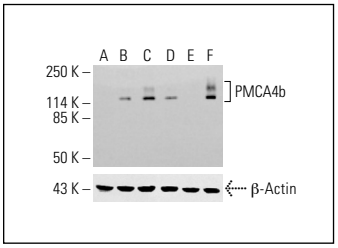
Molecular Weight of PMCA4b: 140 kDa.

Positive Controls: Caki-1 cell lysate: sc-2224, Hep G2 cell lysate: sc-2227 or HeLa whole cell lysate: sc-2200.

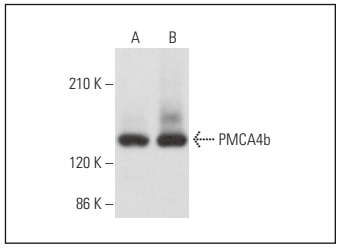
RECOMMENDED SUPPORT REAGENTS

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.

DATA



PMCA4b (2T2): sc-71909. Western blot analysis of PMCA4b expression in untreated HeLa (**A**), chemically-treated HeLa (**B**, **C**, **D**), untreated HCT-116 (**E**) and chemically-treated HCT-116 (**F**) whole cell lysates. β-Actin (C4): sc-47778 used as loading control. Detection reagent used: m-IgG Fc BP-HRP: sc-525409.



PMCA4b (2T2): sc-71909. Western blot analysis of PMCA4b expression in HeLa (**A**) and Caki-1 (**B**) whole cell lysates.

SELECT PRODUCT CITATIONS

1. Czech-Sioli, M., et al. 2020. The ubiquitin-specific protease Usp7, a novel Merkel cell polyomavirus large T-antigen interaction partner, modulates viral DNA replication. J. Virol. 94: e01638-19.

RESEARCH USE

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