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Product Specification Sheet

Plasma Membrane Ca+-ATPase (PMCA)/Ca+-Pump Antibodies

Cat. # PMCA21-P	Human PMCA control/blocking Peptide # 2	**SIZE**: 100 ug
Cat. # PMCA21-S	Rabbit Anti-Human PMCA antiserum	**SIZE**: 100 ul
Cat. # PMCA21-A	Rabbit Anti-Human PMCA IgG (aff pure)	**SIZE**: 100 ug

Ca2+ plays a critical role in intracellular signaling. Intracellular Ca2+ levels are tightly controlled by continuos removal of Ca2+ via ATP-driven **Ca2+ pump** in the endoplasmic reticulum and plasma membrane, and Ca2+ transport system, the **Na+/Ca2+ exchangers (NCX)**, in the plasma membrane. NCX can move Ca2+ either into or out of cells, depending on the net Na+, Ca2+, and K+ gradient across the membrane. In most cells, 3 Na+ are exchanged for 1 Ca2+. In mammals, at least 5 distinct genes code for the exchangers: Three **NCX (NCX1, NCX2, and NCX3),** and two in the **NCKX family (NCKX1 and NCKX2**).

NCX contains a highly basic region in the large hydrophilic, intracellular loop called **XIP (Exchange inhibitory peptide**; RRLLFYKYVYKRYRAGKQRG 20 aa), that inhibits Na-Ca+ exchange in cardiac sarcolemmal vesicles and in other cells. Little or no sequence identity is found between the NCX and the Ca-pump. However, XIP also inhibits the Ca pumps with more or less same efficiency as **C28R2** peptide sequence (LRRGQILWFRGLNRIQTQIRVVKAFRSS, 28 aa) corresponding to the autoinhibitory domain of Ca-pump. **Ca+-pump** is a Mg+-dependent enzyme that catalyzes the hydrolysis of ATP with the transport of Ca+. Plasma membrane Ca+-ATPase (calcium pump) exists in several isoforms (human isoforms 1, 1084 aa; 1b, 1220 aa; from 2, 198/1243 aa; 3a/b 1173/1220 aa; 4, 1205 aa) and numerous sub-isoforms have been identified in various species. Ca+-pump displays 10 TM domains, with cytoplasmic N and C-termini. C28R2 is located in within the cytoplasmic, C-terminal domain of Ca+-ATPases.

Source of Antigen and Antibodies

Antigen	20-aa peptide of human PMCA2 ; **Designated (# PMCA21-P, control/blocking peptide**) conjugated to KLH; Epitope location ~N-terminus, Cytoplasmic domain
Ab Host/type	Rabbit, Polyclonal unpurified antiserum (#PMCA21-S) and IgG, purified over antigen-agarose (Cat # PMCA21-A)
2-Ab	Cat # 20320, goat anti-rabbit IgG-HRP (AP, biotin, FITC conjugates also available).
-ve control	# 20009-1, Rabbit (non-immune) IgG, purified, suitable for ELISA, Western, IHC as –ve control

Form & Storage of Antibodies/Peptide Control

Antiserum (unpurified)
100ul solution lyophilized powder
Supplied in Buffer: 0.05% azide

Reconstitute powder in 100 ul PBS

Affinity pure IgG
100 ug/100ul solution lyophilized powder
Supplied in **Buffer**: PBS+0.1% BSA
Reconstitute powder in PBS at 1mg/ml

Control/blocking peptide
100 ug/100 ul solution lyophilized powder
Supplied in Buffer: PBS pH 7.5,
Reconstitute powder in PBS at 1 mg/ml.

Storage
Short-term: unopened, undiluted liquid vials at 20°C and powder at 4°C or -20°C..
Long-term: at –20°C or below in suitable aliquots after reconstitution. Do not freeze and thaw and store working, diluted solutions.

Stability: 6-12 months at –20°C or below.
Shipping: 4°C for solutions and room temp for powder

Recommended Usage

Western Blotting (1:1K-5K for neat serum and 1-10 ug/ml for affinity pure antibody using ECL technique).

ELISA: Control peptide can be used to coat ELISA plates at 1 ug/ml and detected with antibodies (1:10-50K for neat serum and 0.5-1 ug/ml for affinity pure).

Histochemistry & Immunofluorescence: Not tested. We recommend the use of affinity purified antibody at 5-20 ug/ml in paraformaldehyde fixed sections of tissues.

Specificity & Cross-reactivity

The 20 AA human PMCA21-P sequence is 75-100% conserved in mouse Ca+-ATPase isoforms 1, 1b, 2, 3a/b, and isoform 4 in mouse, rat, and human. Antibody cross-reactivity in various species has not been studied. The **PMCA21-P c**ontrol peptide, because of its low mol. Wt (<3 kDa), is not suitable for Western. It should be used for ELISA or antibody blocking experiments (use 5-10 ug control peptide per 1 ug of aff pure IgG or 1 ul antiserum) to confirm antibody specificity

General References:

(1) Street VA (1998) Nat. Genet. 19, 390; Heim R (1992) Eur. J. Biochem. 205, 330; Brandt P (1992) Genomics 14, 484; Latif F (1993) Cancer Res. 53, 861; Keeton TP (1995) Biochem. J. 306, 779; shull GE (1988) J Biol. Chem. 263, 8646; Brown BJ (1996) BBA 1283, 10; Hale CC (1997) BBRC 236, 113; Xu W (1997) Arch. Biochem. Biophys. 341, 273; Blaustein MP and Lederer J (1999) Physiol Rev. 79, 763-854 (review).

*This product is for In vitro research use only.

PMCA21-S-A-P 70912J

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