

Product Specification Sheet

Sodium Calcium Exchanger 1 (NCX1) Antibodies

Cat. # NCX12-P	Rat NCX1 control/blocking Peptide #2	SIZE: 100 ug
Cat. # NCX12-S	Rabbit Anti-rat NCX1 antiserum # 2	SIZE: 100 ul
Cat. # NCX12-A	Rabbit Anti-rat NCX1 IgG # 2 (aff pure)	SIZE: 100 ug

Ca²⁺ plays a critical role in intracellular signaling. Intracellular Ca²⁺ levels are tightly controlled by continuous 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 share significant sequence homology (~70%), display 11 TM domains, a large central, intracellular hydrophilic regulatory loop between TM5 and 6, extracellular N-terminus and cytoplasmic C-terminus. The N-terminal signal peptide is cleaved off from the mature exchanger protein.

NCX1 (rat 971 aa, human 970 aa, mouse 970 aa) is most prominently expressed in the heart where it plays a major role in excitation-contraction coupling, but is also present in most other tissues. Alternative splicing of NCX1/NACA1 produces numerous tissue specific isoforms (heart NACA1; Kidney NACA2, -3, and -7; brain NACA4-6). **NCX2** (rat 921 aa) is restricted to brain and skeletal muscle. **NCX3** (rat 927 aa) shares 73-75% with NCX1 and NCX2. NCX3 is also restricted to brain and muscle.

Source of Antigen and Antibodies

Antigen	23-aa peptide of Rat (gene accession # S32345) NCX1 ; Designated (NCX12-P or control peptide or blocking peptide) conjugated to KLH~N-terminal, Cytoplasmic
Ab Host/type	Rabbit, Polyclonal unpurified antiserum (# NCX12-S) and IgG, purified over antigen-agarose (Cat # NCX12-A) purified over the antigen column
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: We recommend the use of affinity purified antibody at 5-20 ug/ml in paraformaldehyde fixed sections of tissues.

Specificity & Cross-reactivity

The 23 AA rat NCX12-P control peptide 100% conserved in mouse, dog, cat, 95% in human, rabbit, monkey, bovine, 86% in chicken, and 73% in frog NCX1. NCX11-P epitope is conserved in NCX isoforms 1-7 that have deletions or substitutions after ~600 aa. No significant sequence homology is detected with other NCX. Antibody cross-reactivity in various species has not been studied. The **NCX12-P** control 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 (see detailed protocol at: www.4adi.com/data/abblock.html).

General References: (1). Low W et al (1993) FEBS Lett. 316, 63; Furman I et al (1993) FEBS Lett. 319, 105; Lee SL et al (1994) J Biol. Chem. 269, 14849; Nicoll DA et al (1996) J Biol. Chem. 271, 24914; Kumoro I et al (1992) PNAS 89, 4769;). Blaustein MP and Lederer J (1999) Physiol Rev. 79, 763-854 (review).

(2) Citations of ADI's Antibodies (see web site for updated list)

Okafor M, 2003, Cell Calcium 34, 231-240, WB, IHC 4% PF
Unlap MT, 2003, Hypertension, 42, 363-368, WB, OK-pth cells
Xu X, 2005, Cell 120, 59-72

*This product is for In vitro research use only.

Related material available from ADI

NCX12-S-A-P 50302A

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