

Product Specification Sheet

Sodium Calcium Exchanger 3 (NCX3) Antibodies

Cat. # NCX31-P	Rat NCX3 control/blocking Peptide	SIZE: 100 ug
Cat. # NCX31-S	Rabbit Anti-rat NCX3 antiserum	SIZE: 100 ul
Cat. # NCX31-A	Rabbit Anti-rat NCX3 IgG (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.

FUNCTION: Rapidly transports Ca(2+) during excitation-contraction coupling. Ca(2+) is extruded from the cell during relaxation so as to prevent overloading of intracellular stores.

SUBCELLULAR LOCATION: Membrane; Multi-pass membrane protein.

SIMILARITY: Belongs to the sodium/potassium/calcium exchanger family. SLC8 subfamily.

Protein name Sodium/calcium exchanger 3 [Precursor]

Synonym Na(+)/Ca(2+)-exchange protein 3

Gene name Name: Slc8a3 ;Synonyms: Ncx3

Source of Antigen and Antibodies

Antigen	20-aa peptide from (gene accession # P70549) rat NCX3 (1); Designation (NCX31-P, control/blocking peptide) conjugated to KLH; Epitope location ~N-terminal, Extracellular
Ab Host/type	Rabbit, Polyclonal unpurified antiserum (# NCX31-S) and IgG, purified over antigen-agarose (Cat # NCX31-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

Affinity pure IgG
100 ug/100ul solution lyophilized powder

Supplied in **Buffer:** PBS+0.1% BSA
Reconstitute powder in PBS at 1 mg/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 -20OC and powder at 4oC or -20oC..
Long-term: at -20C or below in suitable aliquots after reconstitution. Do not freeze and thaw and store working, diluted solutions.

Stability: 6-12 months at -20oC or below.

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 rat NCX31-P control peptide is 90% conserved in mouse, and 80% in human NCX3. No significant sequence homology exists with other NCX. Antibody cross-reactivity in various species has not been studied. The **NCX31-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). Nicoll DA (1996) J Biol. Chem. 271, 24914-24921; Iwamoto T (1999) J Biol. Chem. 274, 23094-23102; Blaustein MP (1999) Physiol Rev. 79, 763-854 (review).

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

Pignataro G, 2004, Stroke, 35: 2566 – 2570, WB

*This product is for In vitro research use only.

Related material available from ADI

Antibodies CLC1-7, KCCL1-3; AQP1-9, OCT/OCTN1-3, OAT1-3, AE1-3, and NCKX1-3, NaPi and NaHCO₃ transporters 1-3, NHE1-5

Recycle your blot in Just 5-10 min at room temp. (use the same strip for various NCX)

NCX31-S-A-P 40318A

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