

Cat. # NCKX21-P	Rat NCKX2 control/blocking Peptide	SIZE: 100 ug
Cat. # NCKX21-S	Rabbit Anti-Rat NCKX2 antiserum	SIZE: 100 ul
Cat. # NCKX21-A	Rabbit Anti-Rat NCKX2 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 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⁺. Several genes code for the 3 **NCX (NCX1, NCX2, and NCX3)**, and three in the **NCKX family (NCKX1, NCKX2, NCKX3)**. 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.

In vertebrate photoreceptors, some neurons, and certain other cells, 3 K⁺ are transported in the same direction as Ca²⁺, with coupling ratio of 4 Na⁺ to 1 Ca²⁺ plus 1 K⁺ by new class of exchangers called **NCKX for K⁺-dependent Na⁺/Ca²⁺ exchangers**. NCKX share the general topology and functional properties of NCX proteins. Rod exchangers also contains a large hydrophilic segment at the its N-terminus that is not found in NCX. **NCKX1** (human 1099/1081 aa, bovine 1199 aa) is expressed in retinal rod cells. **NCKX2** (rat 670 aa) shares 80% identity with NCKX1. The two hydrophilic loops are also much shorter in NCKX2 than in NCKX1, accounting largely for the difference between the size of the two proteins. NCKX2 is expressed in various regions of the brain (striatum, parietal cortex, cerebellum, hippocampus, and thalamus). A third member of NCKX family, namely **NCKX3** (rat 624 aa, mouse 595, and human 644/625) has been cloned and characterized. Human NCKX3 is most abundant in the brain (thalamic nuclei, hippocampal CA1 neurons, layer IV of the cerebral cortex). It is also expressed at lower levels in aorta, uterus, and intestine.

FUNCTION: Critical component of the visual transduction cascade, controlling the calcium concentration of outer segments during light and darkness. Light causes a rapid lowering of cytosolic free calcium in the outer segment of both retinal rod and cone photoreceptors and the light-induced lowering of calcium is caused by extrusion via this protein which plays a key role in the process of light adaptation. Transports 1 Ca(2+) and 1 K(+) in exchange for 4 Na(+).

SUBCELLULAR LOCATION: Membrane; Multi-pass membrane protein.

SIMILARITY: Belongs to the sodium/potassium/calcium exchanger family. SLC24A subfamily.

Protein name Sodium/potassium/calcium exchanger 2 [Precursor]

Synonyms Na(+)/K(+)/Ca(2+)-exchange protein 2

Retinal cone Na-Ca+K exchanger

Gene name Name: Slc24a2, Synonyms: Nckx2

Source of Antigen and Antibodies

Antigen	20aa peptide of Rat (gene accession # 054701) NCKX2 ; Designated (NCKX21-P or control peptide), conjugated to KLH; Epitope location ~N-terminal, Extracellular
Ab Host/type	Rabbit, polyclonal; Unpurified antiserum (cat #NCKX21-S) Aff pure IgG (cat #NCKX21-A)
2-ab	Goat Anti-rabbit IgG-HRP cat # 20320 (AP, biotin, FITC conjugates also available)
-ve control	# 20009-1, Rabbit (non-immune) IgG,

	purified, suitable for ELISA, Western, IHC as -ve control
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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 -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.

Shipping: 4oC 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 rat NCKX21-P peptide shows 90% sequence homology with human NCKX21. Antibody cross-reactivity in various species has not been studied. 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). Tsoi M et al (1998) J Biol. Chem. 273, 4155-4162; Blaustein MP and Lederer J (1999) Physiol Rev. 79, 763-854 (review).

*This product is for In vitro research use only.

Related material available from ADI

India Contact:

Life Technologies (India) Pvt. Ltd.

306, Aggarwal City Mall, Opposite M2K Pitampura, Delhi - 110034 (INDIA). Ph: +91-11-42208000, 42208111, 42208222, Mobile: +91-9810521400, Fax: +91-11-42208444

Email: customerservice@lifetechindia.com Website: www.lifetechindia.com