

Product Specification Sheet

NADC3 Antibodies

Cat # NADC31-P	Mouse NADC3 control/blocking peptide #1	SIZE: 100 ug
Cat # NADC31-A	Rabbit Anti-mouse NADC3 IgG # 1 (aff pure)	SIZE: 100 ug

The sodium-dicarboxylate cotransporters (Solute carrier family 13), which transport succinate and other Krebs cycle intermediates, fall into 2 categories based on their substrate affinity, low affinity and high affinity. Both the low- and high-affinity transporters play an important role in the handling of citrate by the kidneys. The two different Na⁺-coupled dicarboxylate transporters (**NADC**) have been identified in mammalian tissues. These are **NADC1** and **NADC3** (**NADC2** is found in *C. Elegans*). **NADC1** is Na⁺-coupled, electrogenic, and exhibits low affinity for its dicarboxylate substrates. This isoform is expressed primarily in the brush border membrane of intestinal and renal epithelial cells. The physiological function of **NADC1** is to absorb the intermediates of the citric acid cycle, such as citrate, succinate, α-ketoglutarate, fumarate, and malate, in the intestine and kidney. **NADC3** is also a Na⁺-coupled and electrogenic dicarboxylate transporter, but it exhibits relatively higher affinity for its substrates compared with **NADC1**. The **NADC3** is expressed primarily in the basolateral membrane of intestinal and renal epithelial cells. However, it is also found in tissues such as liver, placenta, and brain. **NADC3** in the kidney is involved in generating the driving force for the organic anion transporter **OAT1** to facilitate the active entry of organic anions into the tubular cells across the basolateral membrane. In the brain, **NADC3** mediates the cellular uptake of N-acetylaspartate, a process closely linked to myelination. Therefore, the physiological functions of the **NADCs** may extend beyond the mediation of cellular entry of citric acid cycle intermediates. Recently, a third member of this family in mammals has been identified, Na⁺-coupled citrate transporter (**NACT**), mediates the cellular uptake of citrate in a Na⁺-coupled manner.

NADC-3, (**SCL13A3** gene) a sodium dependent high-affinity dicarboxylate transporter with 600aa each in mouse and rat, it's a 602aa sequence in human (chr 20q12-q13.1) expressed in kidney, brain, liver and placenta. **NADC-3** exhibits 48% identity with **NADC-1**. The transport function of **NADC-3** shows a sigmoidal relationship with regard to Na⁺ concentration, **NADC3** accepts a number of dicarboxylates including dimethyl-succinate as substrates and excludes monocarboxylates. Transport of succinate is markedly influenced by pH, the transport gradually decreases when pH is acidic.

Source of Antigen and Antibodies

Antigen	16-aa peptide of Mouse NADC-3 ; Designated (NADC31-P or control peptide) , conjugated to KLH; Epitope location ~ Mid-region
Ab Host/type	Rabbit, polyclonal Aff pure IgG1 (cat #NADC31-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

Affinity pure IgG

Alpha Diagnostic Intl Inc., 6203 Woodlake Center Dr, San Antonio, TX 78244, USA; Email: service@4adi.com

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

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.
Shipping: 4oC for solutions and room temp for powder

Recommended Usage

Western Blotting (1-10 ug/ml for affinity pure antibody using Chemiluminescence technique

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

Histochemistry & Immunofluorescence: not tested. we recommend the use of affinity purified antibody at 2-10 ug/ml in paraformaldehyde fixed sections of tissues.

Specificity & Cross-reactivity

The 16 AA mouse **NADC31-P** peptide shows 86% sequence homology with rat **NADC3**. 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/labblock.html).

General References: 1 Ramesh Kekuda et al (1999) JBC, 274, 3422-3429; Pajor, A. M (1996) Am. J. Physiology, 270: F642-48; Rogina, B et al (2000) Science 290: 2137-2140, Wang, H et al (2000) J. Physiol Cell Physiol 278: C1019-1030.

*This product is for In vitro research use only.

Related material available from ADI

Antibodies for NACD 1&3, NACT.

Western blot Recycling kit (probe same blot with multiple antibodies)

NADC31-A-P

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