Product Specification Sheet

Cyclic Nucleotide-Gated Channels 4 (β-Subunit) Antibodies

Cat. # CNG41-P	Rat CNG4 Control Peptide # 1	**SIZE**: 100 ug
Cat. # CNG41-S	Rabbit Anti-rat CNG4 antiserum # 1	**SIZE**: 100 ul
Cat. # CNG41-A	Rabbit Anti-rat CNG4 antiserum (affinity pure) # 1	**SIZE**: 100 ug

The cyclic nucleotides cAMP and cGMP are implicated in signal transduction events such as the visual transduction, relaxation of smooth muscles, intestinal secretion of water and salt, reabsorption of Na+ and water in the distal tubule of the nephrons. cAMP/cGMP activate Ca2+ -permeable ion channels called cyclic nucleotide-gated channels (CNG or CNC). Activation of CNG leads to depolarization of the membrane voltage and to a concomitant increase of the cytosolic Ca2+. CNG consists of two distinct subunits, designated α and β subunits. Several CNG α-subunits (**CNGα 1-3**) & beta subunits (subunit 2 or CNGβ1-2 or **CNG4-5**) and numerous isoforms. α-subunit can form functional channel by themselves, whereas, β-subunits modulate the channel property of α-subunits. CNG display intracellular N and C-termini, 6 transmembrane domains or segments (S1-S6). The region between S5 and S6 contains the ion-conducting pore (P). The cyclic nucleotide-binding region is found at the c-terminus. Native functional CNG may exists as heteromultimer containing some combination of α, and β subunits.

CNG β-subunit or subunit 2 (also called **CNG4**) have been cloned from the rod outer segments (hRCNC2a and hRCNC2b) and from olfactory neurons (rOCNC2, also called **CNG5**). Human RCNC2a (623 aa; missing 1-286 aa) and RCNC2b (909 aa) are alternatively splice and only differ in their N-terminus. The two β proteins show ~30% identity with human α CNG1. Additional alternatively spliced CNG4D (missing 522-530 aa) and CNG4E (missing 515-532 aa) are also expressed. CNG β-subunits form heterooligomeric complex with CNG1-3. The olfactory β-subunit is expressed throughout the nasal epithelium, especially in olfactory sensory neurons, and in the vomeronasal organ.

Source of Antigen and Antibodies

Antigen	24aa peptide of rat CNG4 ; **Designated (CNG41-P or control peptide). Epitope location~ C-terminal, Cytoplasmic domain**
Ab Host/type	Rabbit, polyclonal Aff pure IgG1 (**cat #CNG41-A**) purified over antigen-agarose column
2-ab	**Goat Anti-rabbit IgG-HRP** cat # 20320 (AP, biotin, FITC conjugates also available)
-ve control IgG	# 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 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 for coating 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 1-20 ug/ml in paraformaldehyde fixed sections of tissues.

Specificity & Cross-reactivity

The 24 AA rat CNG41-P control peptide is 100% conserved in alternatively spliced rat β-subunits (1339 aa & 858 aa) and 66% in human β-subunits (1251 aa, RCNC2a 623 aa, 1245 β1, and RCNC2b 909 aa) it is 100% identical in mouse CNG4. No significant sequence homology is detected with other CNGs. Antibody cross-reactivity in various species has not been studied. The CNG41-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 the web site).).

General References: (1). Sautter A et al (1997) Mol. Brain Res. 47, 171; Sautter A et al (1998) PNAS 95, 4696; Chen TY et al (1993) Nature 362, 764, Ardell MD et al (1996) FEBS Lett. 389, 213; Koerschen HG et al (1995) Neuron 15, 627; Biel M et al (1996) J Biol. Chem. 271, 6349; Bognik W et al (1999) J Neurosci. 19, 5332; Colville CA et al (1996) J Biol. Chem. 271, 32968.

2. Citations of for ADI Antibodies (see updates at the web site)
Zhang J, 2002, AJPCell. 283, C-1080C1089, WB,

*This product is for In vitro research use only.

Related material available from ADI

Antibodies CNG1-4; ENaCs (α, β, and γ) CLC1-7 and CLC-K1; KCCL1-3; AQP1-9 and RUT; OCT/OAT1-3, AE1-3, and NCX1-3, NaPi/NaHCO3 transporters 1-3, NHE1-5

CNG41-S-A-P 71217A

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