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Antibodies to Ion channel subunit proteins

Cyclic nucleotide-gated channel beta 1 subunit (CNG1b) antibodies (CNGb1-201AP, P-CNG1b and PC-CNG1b)

Alternate nomenclature:

Cyclic nucleotide-gated (CNG) channels play central roles in visual and olfactory signal transduction, these channels are activated by cAMP and are composed of at least 5 distinct members (CNG1-5). Native CNG channels are heteromeric complexes consisting of alpha subunit (CNG1-3) which can form functional channels by themselves and the modulatory beta subunits (CNG4-5). There are at least two subtypes of CNG channel characterized (alpha and beta subunits) each expressed in multiple spliced variant form. Expression studies indicate that only CNG1-3 are able to form functional homooligomeric channels. The cone photoreceptor cells express only CNG alpha 2 subunit whereas rat olfactory sensory neurons have been shown to express alpha3, alpha4 and beta 1 subunit. The CNGb1 is an alternate splice form of rod photoreceptor CNG beta 1a subunit (1). Single channel analyses on olfactory sensory neurons cilia suggest that CNG channel is assembled and composed of all three subunits in different combinations of a specific alpha subunit with various forms of an alternatively spliced beta subunit. Rat pineal gland CNG channels express three types of subunits, an alpha-subunit, two beta subunit splice variants (rCNG4.1 and rCNG4.2) and a hydrophilic glutamic acid-rich protein GARP in addition the CNG4 expression was also noted in arcuate periventricular and supraoptic nuclei of the hypothalamus (2).

CNG channels are expressed in several tissues and cell types suggesting a general function of these channels in a wide variety of cellular systems regulated by second messenger mediated pathways regulated by Ca<sup>2+</sup> influx. The CNG channels in ROD photoreceptors consist of CNG1 and CNG4 and olfactory neurons have CNG2, CNG4 and CNG5. In the cone photoreceptors only alpha subunit CNG3 is identified. Recently a new CNG6 subunit is identified in mouse retina which has highest similarity to CNG4 beta subunit (3). The CNG channels are also involved in spermatogenesis and steroidogenesis in testis. The CNGs are expressed along with PKGI, soluble guanylate cyclases (sGC) in spermatids. The CNG beta 1 subunit is a 1339 aa protein containing several functional motifs and possesses a single transmembrane domain. The CNGb1 is located on chromosome 19p13.

The Anti-CNGb1-selective antibodies were generated against conserved sequences that are unique to human and rat CNGb1 protein. The CNGb1-selective antibodies are affinity purified against immobilized antigen based affinity chromatography which yielded epitope-specific antibodies. The CNGb1 antibodies label a 160kDa protein in Western blot using Western blot positive control for rat CNGb1 (PC-CNGb1). Anti-CNGb1-selective antibodies can be conjugated to FITC or other fluorophores for direct application in IHC and confocal microscopy at a nominal charge. Limited quantities of Western blot positive controls for CNGb1 (PC-CNGb1) and antigenic blocking peptide for CNGb1 antibody are also available, please inquire availability before placing orders. *FabGennix Inc.* also provides antibodies to many transporter and ion channel proteins, for a complete listing please visit [www.fabgennix.com](http://www.fabgennix.com). *FabGennix Inc* employs cyclic peptide methodology for generating antibodies, which results in higher titer and specificity.

Catalog #	Host Species	Nature	Cross reactivity	Quantity	vol
CNGb1-201AP	Rabbit	Affinity purified CNG beta1 antibody	rat/human	100ug	200ul
P-CNGb1	n/a	antigenic blocking peptide for CNGb1-101AP	n/a	250ug	100ul
PC-CNGb1	n/a	Western blot positive control for CNGb1	for 5 applications	inquire	100ul

R = rat; M = mouse; H = human; C = chicken; monk = monkey; Sh = sheep; B = bovine ; \* not all variants are labeled equally

**Immunogen:** Synthetic peptide selected from rat CNGb1 protein, the epitope location is C-terminal corresponding to aa 1319-1339 (aa seq: dpg eqt lsv eml eek kee ve). The peptide was covalently modified to achieve the desired antigenicity and was conjugated to carrier proteins before injected in to rabbits to generate antibodies.

**Concentration:** CNGb1-201AP IgG concentration in the range of 0.55-0.60mg/ml in antibody stabilization buffer

**Applications:** CNGb1-201AP antibodies were tested in ELISA and western blotting applications. CNGb1-201AP can be used at 1:500 dilution in WB application using PC-CNGb1 sample. Application of these antibodies in other protocols have not been tested and standardized. Antibody dilutions for this antibody is for reference only, investigators are expected to determine the optimal conditions.

**Reactivity:** CNGb1-201AP reacts to band at 160kDa.

**Protocols:** Standard protocol for various applications (WB, IMM, IHC) of this antibody can be obtained upon request. The specification sheet for CNGb1-201AP antibodies will be supplied with each product. *FabGennix Inc.* strongly recommends investigators to optimize conditions for use of this antibody in their laboratories.

**From/Storage:** The antiserum is supplied in antibody stabilization buffer. For long-term storage of antibody, store at -20°C. *FabGennix Inc.* does not recommend storage of very dilute antibody solutions unless they are prepared in specially formulated multi use antibody dilution buffer (Cat # FGI-1963). Working solutions of antibodies in DiluOBuffer should be filtered through 0.45u filter after use for long-term storage.

**Notes:** Briefly centrifuge to collect liquid before opening the vial, heat the PC-CNGb1 tube in 90°C water bath for 1-2 minutes to dissolve any precipitate before use. This product is "ready-to-use" for electrophoresis. After thawing store at room temperature, Repeated freezing and thawing may result in appearance of higher molecular weight immunoreactive bands.

Now you can recycle your western blots (nitrocellulose, supported membranes and PVDF membranes) by using our StripOBuffer (Cat FGI-1989). Each stripping is guaranteed to give better signal (up to 8 stripping). No strong pungent smell of reducing agents or heating is required.

**References:**

- Bönigk W, Bradley J, Müller F, Sesti F, Boekhoff I, Ronnett GV, Kaupp UB, Frings S, Jentsch, V, Stein F, Weinreich A, Zdebik. The native rat olfactory cyclic nucleotide-gated channel is composed of three distinct subunits. *J Neurosci.* 1999 Jul 1;19(13):5332-47.
- Sautter A, Biel M, Hofmann F. Molecular cloning of cyclic nucleotide-gated cation channel subunits from rat pineal gland. *Brain Res Mol Brain Res.* 1997 Aug;48(1):171-5.
- Gerstner A, Zong X, Hofmann F, Biel M. Molecular cloning and functional characterization of a new modulatory cyclic nucleotide-gated channel subunit from mouse retina. *J Neurosci.* 2000 Feb 15;20(4):1324-32.

\* For users who may require large amounts of CNGb1-201AP, please inquire about bulk material discounts.  
This Product is for Research Use Only and is NOT intended for use in humans or clinical diagnosis.

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