SANTA CRUZ BIOTECHNOLOGY, INC.

CNG-β3 (K-14): sc-34991

BACKGROUND

Cyclic nucleotide-gated (CNG) cation channels are heteromeric complexes made up of principal α and modulatory β subunits. The α subunits consist of CNG1-3 and form functional cation channels by themselves. The β subunits consist of CNG4-6 and, unlike the α subunits, do not form functional channels, but rather modify the properties of channels formed by CNG1-3. CNG channels are essential components of olfactory and visual transduction. CNG proteins are present in cone and rod photoreceptors and in the pineal gland, and they contribute to modulating arterial blood pressure. CNG6, also designated cyclic-nucleotide-gated cation channel β3 (CNG-β3), is an integral membrane protein that can form a heterooligomeric complex with CNG-3. CNG-β3 is activated by cGMP and this activation leads to the depolarization of ROD photoreceptors as a result of cation channel being opened. CNG-β3 is expressed in a small group of retinal photoreceptor cells and in testis. Mutations in the gene encoding for CNG-β3, can cause achromatopsia, an autosomal recessively inherited disease characterized by low visual acuity, photophobia, a lack of color discrimination, and nystagmus.

REFERENCES

1. Sautter, A., et al. 1998. An isoform of the rod photoreceptor cyclic necleotide-gated channel β subunit expressed in olfactory neurons. Proc. Natl. Acad. Sci. USA 95: 4696-4701.
2. Gerstner, A., et al. 2000. Molecular cloning and functional characterization of a new modulatory cyclic nucleotide-gated channel subunit from mouse retina. J. Neurosci. 20: 1324-1332.
3. Peng, C., et al. 2003. Functionally important calmodulin-binding sites in both NH2- and COOH-terminal regions of the cone photoreceptor cyclic nucleotide-gated channel CNG-β3 subunit. J. Biol. Chem. 278: 24617-24623.
4. Johnson, S., et al. 2004. Achromatopsia caused by novel mutations in both CNG-α3 and CNG-β3. J. Med. Genet. 41: e20
5. Michaelides, M., et al. 2004. Progressive cone dystrophy associated with mutation in CNG-β3. Invest. Ophthalmol. Vis. Sci. 45: 1975-1982.
6. Okada, A., et al. 2004. Functional role of hCng-β3 in regulation of human cone CNG channel: effect of rod monochromacy-associated mutations in hCNG-β3 on channel function. Invest. Ophthalmol. Vis. Sci. 45: 2324-2332.
7. Kohl, S., et al. 2005. CNG-b3 mutations account for 50% of all cases with autosomal recessive achromatopsia. Eur. J. Hum. Genet. 13: 302-308.

CHROMOSOMAL LOCATION

Genetic locus: CNGB3 (human) mapping to 8q21-q22; Cngb3 (mouse) mapping to 4 A3

SOURCE

CNG-β3 (K-14) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an extracellular domain of CNG-β3 of mouse origin.

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-34991 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

CNG-β3 (K-14) is recommended for detection of CNG-β3 of mouse and rat origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

Suitable for use as control antibody for CNG-β3 siRNA (m): sc-45564.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

PROTOCOLS

See our web site at www.scbt.com or our catalog for detailed protocols and support products.