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Product Information

Anti-Cyclic Nucleotide-Gated Cation Channel A3 (CNGA3, CNG3, CNNC1)

Developed in Rabbit, Affinity Isolated Antibody

Product Number **C 1491**

Product Description

Anti-Cyclic Nucleotide-Gated Cation Channel A3 (CNGA3) was developed in rabbit using a synthetic peptide (C)GHGFSPDRENSEDASKAD, corresponding to amino acid residues 594-611 of rat CNGA3 as the immunogen. This sequence has 15/18 residues identical in mouse. The antibody was affinity isolated on immobilized immunogen.

Anti-Cyclic Nucleotide-Gated Cation Channel A3 (CNGA3) recognizes CNGA3 in Western blot with rat brain membranes. The antibody recognizes the two published isoforms of CNGA3.

Cyclic nucleotide-gated (CNG) channels are voltage-independent, non-selective cation (Na^+ and Ca^{2+}) channels which couple electrical and/or Ca^{2+} signals to the concentration of cyclic nucleotides. The CNG channels are formed as tetramers, and in their native form are composed of α (CNGA1, CNGA2 and CNGA3) and β (CNG4, CNG5 and CNG6) subunits, with a stoichiometry thought to be $2\alpha:2\beta$.¹ When expressed heterologously, α subunits form functional ion channels, while β subunits only function to modulate the α subunits. Each subunit contains 6 transmembrane domains (TM) with the pore-forming domain between TM5 and TM6.^{2,3} In addition, these channels contain intracellular cAMP and cGMP binding domains.

The CNG channels are found in a variety of organs. They were first identified in photoreceptors, and current evidence indicates that the native channels in the rods and cones are composed of CNGA1/CNG4 and CNGA3/CNG6 subtypes respectively.⁴⁻⁶ Mutations of cone photoreceptor CNG channels cause colorblindness in humans.⁷ The olfactory system and the pineal gland also contain CNG channels, with the CNGA2/CNG4/CNG5 subunits forming the native channel in olfactory neurons.^{1,8,9} CNG channels are also expressed in testis (CNGA3), endothelial and

smooth muscle cells (CNGA1), and the central nervous system (CNGA1 and CNGA2), where the CNGA1 has been implicated in higher cognitive functions.¹⁰⁻¹³ The elimination of the gene expressing the CNGA1 subtype leads to alterations in hippocampal long-term potentiation, a model for learning and memory.¹⁴

Reagent

The antibody is supplied as lyophilized powder from phosphate buffered saline containing 1% bovine serum albumin and 0.05% sodium azide as preservative.

Precautions and Disclaimer

Due to the sodium azide content, a material safety data sheet (MSDS) for this product has been sent to the attention of the safety officer of your institution. Consult the MSDS for information regarding hazards and safe handling.

Preparation Instructions

Reconstitute the lyophilized vial with 0.05 ml or 0.2 ml deionized water, depending on the package size purchased. Antibody dilutions should be made in buffer containing 1% bovine serum albumin.

Storage/Stability

Lyophilized powder can be stored intact at room temperature for several weeks. For extended storage, it should be stored at $-20\text{ }^{\circ}\text{C}$ or below. The reconstituted solution can be stored at $2-8\text{ }^{\circ}\text{C}$ for up to 2 weeks. For longer storage, freeze in working aliquots. Repeated freezing and thawing is not recommended. Storage in "frost-free" freezers is not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use. Centrifuge all antibody preparations before use ($10000\text{ } \times g$ 5 min). Working dilution samples should be discarded if not used within 12 hours.

Product Profile

The recommended working dilution is 1:200 for immunoblotting.

Note: In order to obtain best results in different techniques and preparations we recommend determining optimal working concentration by titration test.

References

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