



Product Information

Anti-Calcium Channel $Ca_v3.3$ ($\alpha 1I$)

Developed in Rabbit, Affinity Isolated Antibody

Product Number **C 4616**

Product Description

Anti-Calcium Channel $Ca_v3.3$ ($\alpha 1I$) is developed in rabbit using a peptide CNGRMPNIAKDVFTK corresponding to amino acid residues 1053-1067 of rat $Ca_v3.3$ as the immunogen. The antigen homology to human is 14/15 residues identical. The antibody was affinity isolated on immobilized immunogen.

Anti-Calcium Channel $Ca_v3.3$ ($\alpha 1I$) specifically recognizes the calcium channel $Ca_v3.3$ ($\alpha 1I$) protein in rat brain membrane extracts by immunoblotting

Voltage-gated calcium channels (VGCCs) are present in most excitable cells. There are five high-voltage activated calcium channel types (L, N, P, Q, and R) and one low-voltage activated channel type (T). Each of these channels exists as a heteromultimer of $\alpha 1$, β , $\alpha 2/\delta$ and γ subunits with the voltage-activated calcium channel function carried by the α subunits.¹ VGCCs exert spatial and temporal control over cellular calcium concentrations and serve to modulate neurotransmitter release, hormone secretion, muscle contraction, electrical activity, cell metabolism and proliferation, gene expression, and neuronal survival.^{2,3} Recent evidence suggests that the $\alpha 1$ subunit function may be modulated via interactions with other cellular proteins.^{2,4} Cellular fine control of VGCCs even allows selection of different subtypes of VGCCs depending upon cellular conditions. For example, in neurotransmitter release from autonomic neurons, different VGCC subtypes are coupled to transmitter release at low versus high electrical stimulation frequencies, and potassium depolarization versus chemical stimulation.⁵

Calcium channel $Ca_v3.3$ ($\alpha 1I$) is a low-voltage-activated T-type calcium channel. Such T-type channels are expressed throughout the body. In heart, they may be involved in pacemaker current. In neurons, too, these channels may play a secondary pacemaker role.⁶ Three genes encoding T-type Ca^{2+} channels have been cloned and designated as $Ca_v3.1$ ($\alpha 1G$), $Ca_v3.2$ ($\alpha 1H$)

and $Ca_v3.3$ ($\alpha 1I$).⁷⁻⁹ While $Ca_v3.1$ ($\alpha 1G$) and $Ca_v3.2$ ($\alpha 1H$) are widely expressed in various tissues, $Ca_v3.3$ ($\alpha 1I$) is primarily expressed in the central nervous system, where high expression was described in thalamic neurons. The Ca^{2+} current generated by the $Ca_v3.3$ channel displays much slower activation and inactivation compared to the currents produced by $Ca_v3.1$ and $Ca_v3.2$, suggesting it might play a different role in neuronal excitability.^{7,10}

Reagents

The antibody is supplied lyophilized from phosphate buffered saline, pH 7.4, with 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 hazardous 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 ($10000 \times g$ 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 and assay sensitivities of different techniques and preparations, we recommend determining optimal working dilutions by titration test.

References

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