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Product Information

Anti-Calcium Channel (α_2/δ–1 subunit)
produced in rabbit, affinity isolated antibody

Catalog Number **C5105**

Product Description

Anti-Calcium Channel (α_2/δ–1 subunit) is produced in rabbit using as immunogen a highly purified peptide (EPFPSAVTIKSWVDKC) corresponding to amino acids 1-15 of α_2 subunit (amino acids 27-41 of rabbit α_2/δ–1 precursor).[1,2] with a C-terminal cysteine. The antibody was affinity isolated on immobilized immunogen.

Anti-Calcium Channel (α_2/δ–1 subunit) recognizes the α_2/δ–1 protein from rat brain by immunoblotting. The epitope is identical in the human and porcine antigens and highly homologous (14of 15 amino acids identical) in the rat and mouse antigens.

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 α1, β, α2/δ, and γ subunits with the voltage-activated calcium channel function carried by the α subunits.[3] Calcium Channel (α_2/δ–1 subunit) is an L-type voltage-gated Ca^{2+} channel.

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.[4,5] Recent evidence suggests that the α1 subunit function may be modulated via interactions with other cellular proteins.[4,6] 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.[7]

With the ubiquitous expression and functional importance of VGCCs, it is not surprising that alterations in channel function have been implicated in many diseases. This includes cardiovascular disease, migraines, ataxia, and epilepsy.[8,9] Mutations in three calcium channel genes have been found in epileptic mice.[10] Calcium dependent processes are important in synaptic modification and thus alterations in calcium channel function may be involved in synaptic plasticity and also in age-related neurodegenerative diseases.[11] Calcium channel antagonists are used as antiarrhythmics[12] and in the treatment of hypertension[13] and may even be neuroprotective in Parkinson's Disease.[14]

Researchers have learned much about the structure and function of these VGCCs. However, much remains to be determined about their precise cellular localization, *in vivo* physiological roles, roles in disease states and possible routes to modulate their structure/function to ameliorate effects of disease.

Reagent

Supplied as a lyophilized powder from phosphate buffered saline, pH 7.4, containing 1% bovine serum albumin, and 0.05% sodium azide.

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

Preparation Instructions

Reconstitute the 0.05 mL vial with 50 µL deionized water. Reconstitute the 0.2 mL vial with 200 µL deionized water. After reconstitution, the antibody concentration is ~0.8 mg/mL.

Further antibody dilutions should be made using 1% bovine serum albumin.

Storage/Stability

Prior to reconstitution, store at –20 °C. After reconstitution, the stock antibody solution may be stored at 2-8 °C for up to 2 weeks. For extended storage, freeze in working aliquots. Repeated freezing and thawing, or storage in "frost-free" freezers, is not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use. Working dilutions should be discarded if not used within 12 hours.

Product Profile
Immunoblotting: a working dilution of 1:200 is recommended using peroxidase conjugated goat anti-rabbit IgG and detection by chemiluminescence.

Note: In order to obtain the best results using various techniques and preparations, we recommend determining the optimal working dilutions by titration.

References

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