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Product Information

Anti-Calcium Channel (Cardiac α_{1C} Subunit) (L-type of Voltage-gated Ca^{2+} Channel)

produced in rabbit, affinity isolated antibody

Catalog Number **C4980**

Product Description

Anti-Calcium Channel (Cardiac α_{1C} Subunit) is produced in rabbit using a highly purified GST fusion protein[1] containing the sequence MLRALVQPATPAYQ PLPSHLSAETESTCKGTVVHEAQLNHFYIAPG, corresponding to the N-terminal portion of rabbit cardiac type α_{1C} subunit (residues 1-46), as an immunogen.[2] The antibody was affinity isolated on immobilized immunogen.

Anti-Calcium Channel (Cardiac α_{1C} Subunit) recognizes a cardiac type splice variant of α_{1C} from rat and rabbit by immunoblotting and immunoprecipitation. The epitope is homologous to the rat and guinea pig antigens (31 of 46 amino acids identical).

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/$\delta$and γ subunits with the voltage-activated calcium channel function carried by the αsubunits.[3] 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. These include 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]

Recent advances have allowed researchers to learn 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.

Reagents

Supplied lyophilized at ~1 mg/ml 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 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 1-3% 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 dilution samples should be discarded if not used within 12 hours.

Product Profile
Immunoblotting: the recommended working dilution is 1:200 (1.5 μg/ml) using peroxidase conjugated goat anti-rabbit IgG and detection by chemiluminescence. . The procedure for immunoprecipitation using this antibody has been described.[15]

Note: In order to obtain best results and assay sensitivities of different techniques and preparations, we recommend determining optimal working dilutions by titration test.

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