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Product Information

Anti-Calcium Channel (α_{1A} Subunit)
(P/Q-Type of Voltage-Gated Ca^{2+} Channel)
produced in rabbit, affinity isolated antibody

Catalog Number **C1353**

Product Description

Anti-Calcium Channel (α_{1A} Subunit) is produced in rabbit using as immunogen a synthetic peptide corresponding to amino acids 865-881 of the α_{1A} subunit of rat brain voltage-gated calcium channel (VGCC, CNA1), with additional N-terminal lysine and tyrosine, conjugated to KLH. The antibody is affinity-purified using the immunizing peptide immobilized on agarose.

Anti-Calcium Channel (α_{1A} Subunit) recognizes mouse and rat α_{1A} subunit. Applications include the detection of the α_{1A} subunit by immunoblotting. Both the major 190 kDa and the minor 210 kDa form of VGCC in rat and mouse are observed. The antibody may also be used in immunoprecipitation[2,3] and immunocyto-chemistry.[2]

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 exits as a heteromultimer of $\alpha 1$, β, $\alpha 2/\delta$ and γ subunits with the voltage-activated calcium channel function carried by the $\alpha 1$ subunits.[4] 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.[5,6] Recent evidence suggests that the $\alpha 1$ subunit function may be modulated via interactions with other cellular proteins.[5,7] Cellular fine control of VGCCs even allows selection of different subtypes of VGCC 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.[8]

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.[9,10] Mutations in three calcium channel genes have been found in epileptic mice.[11] Calcium dependent processes are important in synaptic modification and thus alterations in calcium channel function may be important for both modifying synaptic plasticity and also in age-related neurodegenerative diseases.[12] Calcium channel antagonists are used as antiarrhythmics[13] and in the treatment of hypertension[14] and may even be neuroprotective in Parkinson's Disease.[15]

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 as a preservative.

Preparation Instructions

Reconstitute the lyophilized vial with 0.05 ml or 0.2 ml deionized water, depending on package size. Antibody concentration after reconstitution is 0.95 mg/mL.

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.

Storage/Stability
Store at –20 °C. For continuous use, the product may be stored at 2-8 °C for up to one month. Reconstituted solution may be stored at 4 °C for up to two weeks. For extended storage, add glycerol to antibody solution in a 1:1 ratio and store aliquots at –20 °C. 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.

Product Profile
Immunoblotting: a working antibody dilution of 1:200 is recommended.

Immunohistochemistry: a working antibody dilution of 1:100 is recommended.

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

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