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ProductInformation

ANTI-CALCIUM CHANNEL (b_3 Subunit)
(Cacnb3)
Developed in Rabbit, Affinity Isolated Antibody

Product Number **C1978**

Product Description

Anti-Calcium Channel (β_3 Subunit) is developed in rabbit using a synthetic peptide corresponding to amino acids 463-477 of the β_3 subunit of rat brain voltage-gated calcium channel (VGCC, Caβ_3) (with additional N-terminal cysteine) as immunogen.[1] This epitope is identical in all known alternative splicing isoforms of Caβ_3 in mouse, rat human and *Xenopus*. The antibody is affinity isolated using peptide-agarose.

Anti-Calcium Channel (β_3 Subunit) recognizes the β_3 subunit VGCC in rat by immunoblotting. The antibody may also be used for histoblotting.[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 alpha1, beta, alpha2/delta and gamma subunits with the voltage-activated calcium channel function carried by the alpha1 subunits.[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 alpha 1 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 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.[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 important for both modifying 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

Anti-Calcium Channel (β_3 Subunit) is supplied lyophilized at approximately 0.3 mg/ml from phosphate buffered saline, pH 7.4, containing 1% bovine serum albumin, 5% sucrose and 0.025% sodium azide.

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 practices.

Preparation Instructions
Reconstitute the lyophilized vial with 0.05 ml or 0.2 ml deionized water. 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 one month. For extended 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. Working dilution samples should be discarded if not used within 12 hours.

Product Profile
The recommended working dilution is 1:200 – 1:300 (1-1.5 µg/ml) for immunoblotting using an anti-rabbit IgG-peroxidase conjugate and detection by ECL.

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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