



Product Information

Anti-Calcium Channel (α_2/δ Subunit)

Developed in Rabbit, Fractionated Antibody

Product Number **C 5613**

Product Description

Anti-Calcium Channel α_2/δ subunit is developed in rabbit using as immunogen a synthetic peptide derived from the rat α_2/δ calcium channel subunit conjugated to KLH. The antiserum is purified by ammonium sulfate precipitation. Anti-Calcium Channel α_2/δ subunit specifically recognizes a splice variant of α_2/δ (122 kDa) from human, mouse and rat. It is used in immunoblotting applications.

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 α_1 , β , α_2/δ 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} Evidence suggests that calcium channel α_1 subunit function may be modulated via interactions with other cellular proteins.³

The calcium channel α_2/δ subunit is a glycosylated structural subunit consisting of the α_2 subunit and the δ peptide. The α_2/δ subunit appears to modulate the channel kinetics. There is distinctive α_2 subunit expression in rat spinal cord and dorsal root ganglia (DRG). There are two forms of the α_2 subunit in DRG that are different from the α_2 subunit in other tissues examined, at least at the glycosylation level. Thus, post-translational modification may be important in tissue specific and functional expression of the calcium channel α_2/δ subunit.⁴ The calcium channel α_2/δ and β_1 subunits interact with the α_{1G} subunit to increase trafficking of, or stabilize, functional α_{1G} calcium channels expressed at the plasma membrane.⁵

Reagent

Anti-Calcium Channel α_2/δ subunit is supplied at approximately 1 mg/ml as a solution in phosphate buffered saline containing 0.08% sodium azide. The amount of the reagent is sufficient for 10 blots.

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.

Storage/Stability

Store at $-20\text{ }^{\circ}\text{C}$. For extended storage, upon initial thawing, freeze in working aliquots. Do not store in frost-free freezers. Avoid repeated freezing and thawing to prevent denaturing the antibody. Working dilution samples should be discarded if not used within 12 hours. The antibody is stable for at least 6 months when stored appropriately.

Product Profile

A recommended working concentration of 5 to 10 $\mu\text{g/ml}$ is determined by immunoblotting using rat brain tissue lysate.

Note: In order to obtain best results in different techniques and preparations we recommend determining optimal working concentration by titration test.

References

1. Varadi, G. et al., Molecular elements of ion permeation and selectivity within calcium channels. *Crit. Rev. Biochem. Mol. Biol.*, **34**, 181-204 (1999).
2. Moreno, D.H., Molecular and functional diversity of voltage-gated calcium channels. *Ann. N.Y. Acad. Sci.*, **868**, 102-117 (1999).
3. Waterman, S. A., Voltage-gated calcium channels in autonomic neuroeffector transmission. *Prog. Neurobiol.*, **60**, 181-210 (2000).

4. Luo, Z.D. Rat dorsal root ganglia express distinctive forms of the alpha2 calcium channel subunit. *Neuroreport.*, **11**, 3449-3452 (2000).
5. Dolphin, AC et al. "The effect of α_2 - δ and other accessory subunits on expression and properties of the calcium channel α_1G . *J. Physiol.*, **519**, 35-45 (1999).

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