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ProductInformation

Anti-Calcium Channel (α_{1G} Subunit)
Developed in Rabbit, Fractionated Antibody

Product Number **C 5488**

Product Description

Anti-Calcium Channel (α_{1G} Subunit) is developed in rabbit using as immunogen a synthetic peptide derived from the rat α_{1G} calcium channel subunit conjugated to KLH. The antiserum is purified by ammonium sulfate precipitation. Anti-Calcium Channel (α_{1G} Subunit) specifically recognizes a splice variant of α_{1G} 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 $\alpha 1$, β, $\alpha 2/\delta$ 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] Evidence suggests that calcium channel $\alpha 1$ subunit function may be modulated via interactions with other cellular proteins.[3]

The α_{1G} calcium channel subunit gives rise to T-type calcium currents. T-type calcium channels belong to the low-voltage activated (LVA) group and are strongly blocked by nickel and mibefradil. A peculiarity of this type of channels is an opening at quite negative potentials and a voltage-dependent inactivation. T-type channels serve pacemaking functions in both central neurons and cardiac nodal cells and support calcium signaling in secretory cells and vascular smooth muscle. They may also be involved in the modulation of firing patterns of neurons which is important for information processing as well as in cell growth processes.[4-6] The α_{1G} calcium channel subunit is most likely responsible for burst firing in thalamic relay cells. These neurons burst during various thalamocortical oscillations including absence seizures. The modulation of the intrinsic firing pattern mediated by α_{1G} T-type Ca^{2+} channels plays a critical role in the genesis of absence seizures in the thalamocortical pathway.[7]

Reagent

Anti-Calcium Channel (α_{1G} Subunit), at approximately 1 mg/ml, is supplied 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 °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 µg/ml is determined by immunoblotting.

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

References

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5. Perez-Reyes, E et.al. Molecular characterization of a neuronal low-voltage-activated T-type calcium channel. Nature, **391**, 896-900 (1998).
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