abcam

Product datasheet

Anti-Maxi Potassium channel alpha antibody ab3586

★★★★★ 2 Abreviews 2 References

Overview

Product name	Anti-Maxi Potassium channel alpha antibody
Description	Rabbit polyclonal to Maxi Potassium channel alpha
Specificity	Detects Maxi K+ alpha from Human tissues as well as recombinant Human protein.
Tested applications	**Suitable for:** ICC, WB, IHC-P
Species reactivity	**Reacts with:** Mouse, Rat, Horse, Human, Pig **Predicted to work with:** Rabbit, Chicken, Cow, Dog, Caenorhabditis elegans, Rhesus monkey
Immunogen	Synthetic peptide corresponding to Human Maxi Potassium channel alpha aa 945-961. Sequence: TELVNDTNVQFLDQDDD (Peptide available as ab5022) Run BLAST with Run BLAST with

Properties

Form	Liquid
Storage instructions	Shipped at 4°C. Store at +4°C short term (1-2 weeks). Upon delivery aliquot. Store at -20°C or -80°C. Avoid freeze / thaw cycle.
Storage buffer	Preservative: 0.05% Sodium azide Constituents: 0.1% BSA, 99% PBS
Purity	Immunogen affinity purified
Primary antibody notes	Potassium channels are a group of ubiquitously expressed proteins that serve numerous functions in excitable and non-excitable cells. One class of integral membrane potassium channels is the large conductance, calcium-activated potassium channel (Maxi K+). Maxi K+ differs from most other potassium channels in that its activation is controlled by both increases in intracellular calcium and by membrane depolarization. Maxi K+ dual activation is possible because of its structure. The core of the channel, which is similar to other potassium channels, is a Maxi K+ alpha homotetramer that contains both a voltage sensor and an intracellular calcium binding domain. In vascular smooth muscle, an auxiliary beta-subunit is found in a 1:1 stoichiometry. The beta-subunit exhibits its effect on the Maxi K+ channel by effectively decreasing by 5- to 10- fold the concentration of calcium required to keep the pore open.

Clonality	Polyclonal
Isotype	IgG

Applications

Our Abpromise guarantee covers the use of **ab3586** in the following tested applications.

The application notes include recommended starting dilutions; optimal dilutions/concentrations should be determined by the end user.

Application	Abreviews	Notes
ICC		Use a concentration of 10 µg/ml.
WB	★★★★★	Use a concentration of 2 µg/ml. Can be blocked with Maxi Potassium channel alpha peptide (ab5022).
IHC-P	★★★★★	1/200.

Target

Function	Potassium channel activated by both membrane depolarization or increase in cytosolic Ca(2+) that mediates export of K(+). It is also activated by the concentration of cytosolic Mg(2+). Its activation dampens the excitatory events that elevate the cytosolic Ca(2+) concentration and/or depolarize the cell membrane. It therefore contributes to repolarization of the membrane potential. Plays a key role in controlling excitability in a number of systems, such as regulation of the contraction of smooth muscle, the tuning of hair cells in the cochlea, regulation of transmitter release, and innate immunity. In smooth muscles, its activation by high level of Ca(2+), caused by ryanodine receptors in the sarcoplasmic reticulum, regulates the membrane potential. In cochlea cells, its number and kinetic properties partly determine the characteristic frequency of each hair cell and thereby helps to establish a tonotopic map. Kinetics of KCNMA1 channels are determined by alternative splicing, phosphorylation status and its combination with modulating beta subunits. Highly sensitive to both iberiotoxin (IbTx) and charybdotoxin (CTX).
Tissue specificity	Widely expressed. Except in myocytes, it is almost ubiquitously expressed.
Involvement in disease	Generalized epilepsy and paroxysmal dyskinesia
Sequence similarities	Belongs to the potassium channel family. Calcium-activated (TC 1.A.1.3) subfamily. KCa1.1/KCNMA1 sub-subfamily. Contains 1 RCK N-terminal domain.
Domain	The S0 segment is essential for the modulation by the accessory beta subunits KCNMB1, KCNMB2, KCNMB3 and KCNMB4. The S4 segment, which is characterized by a series of positively charged amino acids at every third position, is part of the voltage-sensor. The pore-forming domain (also referred as P region) is imbedded into the membrane, and forms the selectivity filter of the pore. It contains the signature sequence of potassium channels that displays selectivity to potassium. The RCK N-terminal domain mediates the homotetramerization, thereby promoting the assembly of monomers into functional potassium channel. It includes binding sites for Ca(2+) and Mg(2+). The calcium bowl constitutes one of the Ca(2+) sensors and probably acts as a Ca(2+)-binding site. There are however other Ca(2+) sensors regions required for activation of the channel. The heme-binding motif mediates inhibition of channel activation by heme. Carbon monoxide-

	bound heme leads to increased channel activation.
Post-translational modifications	Phosphorylated (Probable). Phosphorylation by kinases such as PKA and/or PKG. In smooth muscles, phosphorylation affects its activity. Palmitoylation by ZDHHC22 and ZDHHC23 within the intracellular linker between the S0 and S1 transmembrane domains regulates localization to the plasma membrane. Depalmitoylated by LYPLA1 and LYPLAL1, leading to retard exit from the trans-Golgi network.
Cellular localization	Cell membrane.

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