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Anti-Kv1.2 Picoband Antibody

Catalog # ABO12335

Product Information

Application	WB
Primary Accession	P16389
Host	Rabbit
Reactivity	Human, Mouse, Rat
Clonality	Polyclonal
Format	Lyophilized
Description	Rabbit IgG polyclonal antibody for Potassium voltage-gated channel subfamily A member 2(KCNA2) detection. Tested with WB in Human;Mouse;Rat.
Reconstitution	Add 0.2ml of distilled water will yield a concentration of 500ug/ml.

Additional Information

Gene ID	3737
Other Names	Potassium voltage-gated channel subfamily A member 2, NGK1, Voltage-gated K(+) channel HuKIV, Voltage-gated potassium channel HBK5, Voltage-gated potassium channel subunit Kv1.2, KCNA2
Calculated MW	56717
Application Details	Western blot, 0.1-0.5 □g/ml, Mouse, Rat, Human
Subcellular Localization	Cell membrane ; Multi- pass membrane protein . Membrane . Cell projection, axon . Cell junction, synapse . Endoplasmic reticulum membrane . Cell projection, lamellipodium membrane . Cell junction, synapse, synaptosome . Cell junction, synapse, presynaptic cell membrane . Cell projection, dendrite . KCNA2 by itself is detected both at the endoplasmic reticulum and at the cell membrane. Coexpression with KCNA4 or with beta subunits promotes expression at the cell membrane. Coexpression with KCNA1 inhibits cell surface expression. .
Tissue Specificity	Detected in brain cortex (PubMed:16473933). Detected in peroneal nerve in the juxtaparanodal regions of the node of Ranvier; expression is decreased in patients with diabetes mellitus that suffer from axonal neuropathy (PubMed:22649228). Detected in paranodal and juxtanodal zones in myelinated spinal cord (at protein level) (PubMed:11086297). .
Source	Eukaryota
Protein Name	Potassium voltage-gated channel subfamily A member 2
Contents	Each vial contains 5mg BSA, 0.9mg NaCl, 0.2mg Na2HPO4, 0.05mg NaN3.

Immunogen	A synthetic peptide corresponding to a sequence at the C-terminus of human Kv1.2 (466-499aa NNSNEDFREENLKTANCTLANTNYVNITKMLTDV), identical to the related mouse and rat sequences.
Purification	Immunogen affinity purified.
Cross Reactivity	No cross reactivity with other proteins
Storage	At -20˚C for one year. After r˚Constitution, at 4˚C for one month. It˚Can also be aliquotted and stored frozen at -20˚C for a longer time.Avoid repeated freezing and thawing.

Protein Information

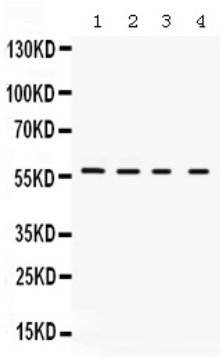
Name	KCNA2
Function	Voltage-gated potassium channel that mediates transmembrane potassium transport in excitable membranes, primarily in the brain and the central nervous system, but also in the cardiovascular system. Prevents aberrant action potential firing and regulates neuronal output. Forms tetrameric potassium-selective channels through which potassium ions pass in accordance with their electrochemical gradient. The channel alternates between opened and closed conformations in response to the voltage difference across the membrane (PubMed:11211111, PubMed:19912772, PubMed:23769686, PubMed:8495559). Can form functional homotetrameric channels and heterotetrameric channels that contain variable proportions of KCNA1, KCNA2, KCNA4, KCNA5, KCNA6, KCNA7, and possibly other family members as well; channel properties depend on the type of alpha subunits that are part of the channel (PubMed:20220134, PubMed:8495559). Channel properties are modulated by cytoplasmic beta subunits that regulate the subcellular location of the alpha subunits and promote rapid inactivation of delayed rectifier potassium channels. In vivo, membranes probably contain a mixture of heteromeric potassium channel complexes, making it difficult to assign currents observed in intact tissues to any particular potassium channel family member. Homotetrameric KCNA2 forms a delayed-rectifier potassium channel that opens in response to membrane depolarization, followed by slow spontaneous channel closure (PubMed:19912772, PubMed:23769686). In contrast, a heteromultimer formed by KCNA2 and KCNA4 shows rapid inactivation (PubMed:8495559). Regulates neuronal excitability and plays a role as pacemaker in the regulation of neuronal action potentials (By similarity). KCNA2- containing channels play a presynaptic role and prevent hyperexcitability and aberrant action potential firing (By similarity). Response to toxins that are selective for KCNA2-containing potassium channels suggests that in Purkinje cells, dendritic subthreshold KCNA2- containing potassium channels prevent random spontaneous calcium spikes, suppressing dendritic hyperexcitability without hindering the generation of somatic action potentials, and thereby play an important role in motor coordination (By similarity). Plays a role in the induction of long-term potentiation of neuron excitability in the CA3 layer of the hippocampus (By similarity). May function as down-stream effector for G protein-coupled receptors and inhibit GABAergic inputs to basolateral amygdala neurons (By similarity). May contribute to the regulation of neurotransmitter release, such as gamma-aminobutyric acid (GABA) (By similarity). Contributes to the regulation of the axonal release of the neurotransmitter dopamine (By similarity). Reduced KCNA2 expression plays a role in the perception of neuropathic pain after peripheral nerve injury, but not acute pain (By similarity). Plays a role in the regulation of the time spent in non-rapid eye movement (NREM) sleep (By similarity).

Cellular Location	Cell membrane; Multi-pass membrane protein {ECO:0000250|UniProtKB:P63142, ECO:0000305}. Membrane {ECO:0000250|UniProtKB:P63142}. Cell projection, axon. Synapse {ECO:0000250|UniProtKB:P63142} Endoplasmic reticulum membrane {ECO:0000250|UniProtKB:P63142}. Cell projection, lamellipodium membrane {ECO:0000250|UniProtKB:P63142} Synapse, synaptosome {ECO:0000250|UniProtKB:P63141}. Presynaptic cell membrane {ECO:0000250|UniProtKB:P63141}. Cell projection, dendrite {ECO:0000250|UniProtKB:P63141}. Cell junction, paranodal septate junction {ECO:0000250|UniProtKB:P63141}. Note=KCNA2 by itself is detected both at the endoplasmic reticulum and at the cell membrane Coexpression with KCNA4 or with beta subunits promotes expression at the cell membrane. Coexpression with KCNA1 inhibits cell surface expression. In myelinated peripheral axons, clustered in the juxtaparadonal region and at an internodal line located along the mesaxon and below the Schmidt-Lanterman incisures (By similarity) {ECO:0000250|UniProtKB:P63141, ECO:0000250|UniProtKB:P63142}
Tissue Location	Detected in brain cortex (PubMed:16473933). Detected in peroneal nerve in the juxtaparanodal regions of the node of Ranvier; expression is decreased in patients with diabetes mellitus that suffer from axonal neuropathy (PubMed:22649228). Detected in paranodal and juxtanodal zones in myelinated spinal cord (at protein level) (PubMed:11086297).

Background

Potassium voltage-gated channel subfamily A member 2, also known as Kv1.2, is a protein that in humans is encoded by the KCNA2 gene. Potassium channels represent the most complex class of voltage-gated ion channels from both functional and structural standpoints. Their diverse functions include regulating neurotransmitter release, heart rate, insulin secretion, neuronal excitability, epithelial electrolyte transport, smooth muscle contraction, and cell volume. Four sequence-related potassium channel genes - shaker, shaw, shab, and shal - have been identified in Drosophila, and each has been shown to have human homolog(s). This gene encodes a member of the potassium channel, voltage-gated, shaker-related subfamily. This member contains six membrane-spanning domains with a shaker-type repeat in the fourth segment. It belongs to the delayed rectifier class, members of which allow nerve cells to efficiently repolarize following an action potential. The coding region of this gene is intronless, and the gene is clustered with genes KCNA3 and KCNA10 on chromosome 1.

Images



Anti- Kv1.2 Picoband antibody, ABO12335, Western blottingAll lanes: Anti Kv1.2 (ABO12335) at 0.5ug/mlLane 1: Rat Kidney Tissue Lysate at 50ugLane 2: Rat Brain Tissue Lysate at 50ugLane 3: Mouse Brain Tissue Lysate at 50ugLane 4: Mouse Kidney Tissue Lysate at 50ugPredicted bind size: 57KDObserved bind size: 57KD

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.