10320 Camino Santa Fe, Suite G
San Diego, CA 92121
Tel: 858.875.1900 Fax: 858.875.1999

Anti-KCNA1/Kv1.1 Rabbit Monoclonal Antibody

Catalog # ABO13668

Product Information

Application	WB, IP
Primary Accession	Q09470
Host	Rabbit
Isotype	Rabbit IgG
Reactivity	Human
Clonality	Monoclonal
Format	Liquid
Description	Anti-KCNA1/Kv1.1 Rabbit Monoclonal Antibody . Tested in WB, IP applications. This antibody reacts with Human.

Additional Information

Gene ID	3736
Other Names	Potassium voltage-gated channel subfamily A member 1, Voltage-gated K(+) channel HuKI, Voltage-gated potassium channel HBK1, Voltage-gated potassium channel subunit Kv1.1, KCNA1 (HGNC:6218)
Calculated MW	56466
Application Details	WB 1:5000-1:10000 IP 1:10
Subcellular Localization	Cell membrane ; Multi- pass membrane protein. Membrane. Cell projection, axon. Cytoplasmic vesicle. Perikaryon. Endoplasmic reticulum. Cell projection, dendrite. Cell junction. Cell junction, synapse. Cell junction, synapse, presynaptic cell membrane. Homotetrameric KCNA1 is primarily located in the endoplasmic reticulum. Interaction with KCNA2 and KCNAB2 or with KCNA4 and KCNAB2 promotes expression at the cell membrane (By similarity). Detected at axon terminals (By similarity)..
Tissue Specificity	Detected adjacent to nodes of Ranvier in juxtaparanodal zones in spinal cord nerve fibers, but also in paranodal regions in some myelinated spinal cord axons (at protein level) (PubMed:11086297). Detected in the islet of Langerhans (PubMed:21483673)..
Source	Eukaryota
Contents	Rabbit IgG in phosphate buffered saline, pH 7.4, 150mM NaCl, 0.02% sodium azide and 50% glycerol, 0.4-0.5mg/ml BSA.
Clone Names	Clone: FFI-11
Immunogen	A synthesized peptide derived from human KCNA1

Purification	Affinity-chromatography
Storage	Store at -20°C for one year. For short term storage and frequent use, store at 4°C for up to one month. Avoid repeated freeze-thaw cycles.

Protein Information

Name	KCNA1 (HGNC:6218)
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 kidney (PubMed:19903818, PubMed:8845167). Contributes to the regulation of the membrane potential and nerve signaling, and prevents neuronal hyperexcitability (PubMed:17156368). 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:19912772). 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:12077175, PubMed:17156368). 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 (PubMed:12077175, PubMed:17156368). 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 KCNA1 forms a delayed-rectifier potassium channel that opens in response to membrane depolarization, followed by slow spontaneous channel closure (PubMed:19307729, PubMed:19903818, PubMed:19912772, PubMed:19968958). In contrast, a heterotetrameric channel formed by KCNA1 and KCNA4 shows rapid inactivation (PubMed:17156368). Regulates neuronal excitability in hippocampus, especially in mossy fibers and medial perforant path axons, preventing neuronal hyperexcitability. Response to toxins that are selective for KCNA1, respectively for KCNA2, suggests that heteromeric potassium channels composed of both KCNA1 and KCNA2 play a role in pacemaking and regulate the output of deep cerebellar nuclear neurons (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) release (By similarity). Plays a role in regulating the generation of action potentials and preventing hyperexcitability in myelinated axons of the vagus nerve, and thereby contributes to the regulation of heart contraction (By similarity). Required for normal neuromuscular responses (PubMed:11026449, PubMed:17136396). Regulates the frequency of neuronal action potential firing in response to mechanical stimuli, and plays a role in the perception of pain caused by mechanical stimuli, but does not play a role in the perception of pain due to heat stimuli (By similarity). Required for normal responses to auditory stimuli and precise location of sound sources, but not for sound perception (By similarity). The use of toxins that block specific channels suggest that it contributes to the regulation of the axonal release of the neurotransmitter dopamine (By similarity). Required for normal postnatal brain development and normal proliferation of neuronal precursor cells in the brain (By similarity). Plays a role in the reabsorption of Mg(2+) in the distal convoluted tubules in the kidney and in magnesium ion homeostasis, probably via its effect on the membrane potential (PubMed:19307729,

PubMed:23903368).

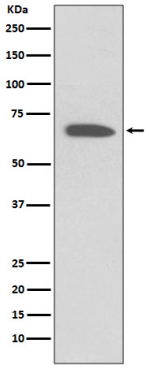
Cellular Location

Cell membrane; Multi-pass membrane protein. Membrane Cell projection, axon. Cytoplasmic vesicle. Perikaryon {ECO:0000250|UniProtKB:P10499}. Endoplasmic reticulum {ECO:0000250|UniProtKB:P10499}. Cell projection, dendrite {ECO:0000250|UniProtKB:P16388}. Cell junction {ECO:0000250|UniProtKB:P16388}. Synapse {ECO:0000250|UniProtKB:P16388} Presynaptic cell membrane {ECO:0000250|UniProtKB:P10499}. Presynapse {ECO:0000250|UniProtKB:P16388}. Note=Homotetrameric KCNA1 is primarily located in the endoplasmic reticulum. Interaction with KCNA2 and KCNAB2 or with KCNA4 and KCNAB2 promotes expression at the cell membrane (By similarity). {ECO:0000250|UniProtKB:P10499, ECO:0000250|UniProtKB:P16388}

Tissue Location

Detected adjacent to nodes of Ranvier in juxtaparanodal zones in spinal cord nerve fibers, but also in paranodal regions in some myelinated spinal cord axons (at protein level) (PubMed:11086297). Detected in the islet of Langerhans (PubMed:21483673).

Images



Western blot analysis of KCNA1 expression in Human fetal brain lysate.

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