

Rabbit KCNA1 Polyclonal Antibody | anti-KCNA1 antibody

KCNA1 Antibody

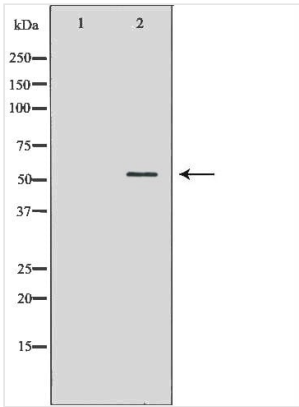
CATALOG #	HOST	REACTIVITY	APPLICATIONS
AAA326872	Rabbit	Human, Mouse, Rat	ELISA, Immunocytochemistry, Immunofluorescence, Immunohistochemistry, Western Blot

PRODUCT SYNONYMS

KCNA1; Polyclonal Antibody; KCNA1 Antibody; AEMK; EA1; Episodic ataxia with myokymia; HBK1; HUK1; Kca1 1; Kcna1; KCNA1_HUMAN; Kcpvd; KV1.1; MBK1; mceph; MGC124402; MGC126782; MGC138385; MK1; mouse; homolog of KV1.1; Potassium channel protein 1; Potassium voltage gated channel shaker related subfamily member 1; Potassium voltage gated channel subfamily A member 1; Potassium voltage gated channel; shaker related subfamily; member 1 (episodic ataxia with myokymia); Potassium voltage-gated channel subfamily A member 1; RBK1; RCK1; Shak; Shaker related subfamily member 1; Voltage gated potassium channel subunit Kv1.1; Voltage-gated K(+) channel HuK1; Voltage-gated potassium channel HBK1; Voltage-gated potassium channel subunit Kv1.1; anti-KCNA1 antibody

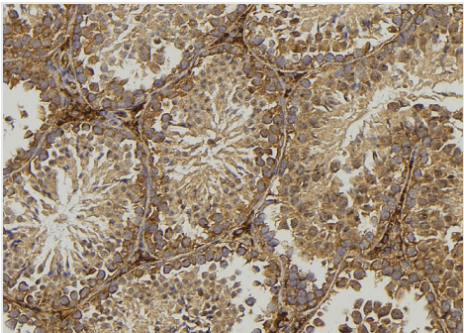
PRODUCT SPECIFICATIONS

Host	Rabbit
Reactivity	Human, Mouse, Rat
Clonality	Polyclonal
Isotype	IgG
Specificity	KCNA1 antibody detects endogenous levels of total KCNA1
Purity/Purification	The antiserum was purified by peptide affinity chromatography using SulfoLink Coupling Resin.
Form/Format	Liquid Phosphate buffered saline, pH 7.4, 150mM NaCl, 0.02% sodium azide and 50% glycerol.
Concentration	1mg/ml (varies by lot)
Sequence Length	495
Applicable Applications for anti-KCNA1 antibody	ELISA, ICC (Immunocytochemistry), IF (Immunofluorescence), IHC (Immunohistochemistry), WB (Western Blot)
Immunogen	A synthetic peptide of human KCNA1
Subcellular Location	Membrane.
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).
Conjugation	Unconjugated
Preparation and Storage	Store at -20 degree C. Stable for 12 months from date of receipt.



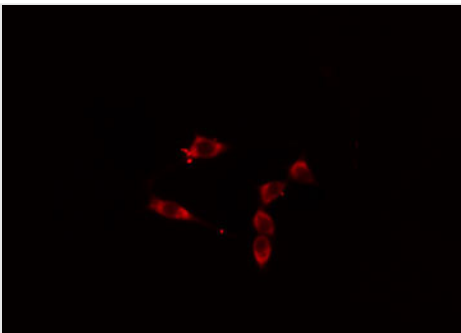
WB (Western Blot)

Western blot analysis of extracts of U251, using KCNA1antibody. The lane on the left is treated with the antigen-specific peptide.



IHC (Immunohistochemistry)

AAA326872 at 1/100 staining Mouse testis tissue by IHC-P. The sample was formaldehyde fixed and a heat mediated antigen retrieval step in citrate buffer was performed. The sample was then blocked and incubated with the antibody for 1.5 hours at 22 degree C. An HRP conjugated goat anti-rabbit antibody was used as the secondary.



IF (Immunofluorescence)

AAA326872 staining HuvEc cells by IF/ICC. The sample were fixed with PFA and permeabilized in 0.1% Triton X-100, then blocked in 10% serum for 45 minutes at 25 degree C. The primary antibody was diluted at 1/200 and incubated with the sample for 1 hour at 37 degree C. An Alexa Fluor 594 conjugated goat anti-rabbit IgG (H+L) antibody, diluted at 1/600, was used as secondary antibody.

Related Product Information for anti-KCNA1 antibody

Description: This gene encodes a voltage-gated delayed potassium channel that is phylogenetically related to the Drosophila Shaker channel. The encoded protein has six putative transmembrane segments (S1-S6), and the loop between S5 and S6 forms the pore and contains the conserved selectivity filter motif (GYGD). The functional channel is a homotetramer. The N-terminus of the channel is associated with beta subunits that can modify the inactivation properties of the channel as well as affect expression levels. The C-terminus of the channel is complexed to a PDZ domain protein that is responsible for channel targeting. Mutations in this gene have been associated with myokymia with periodic ataxia (AEMK).

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). 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:19912772, PubMed:19968958, PubMed:19307729, PubMed:19903818). 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 Mg²⁺ in the distal convoluted tubules in the kidney and in magnesium ion homeostasis, probably via its effect on the membrane potential (PubMed:23903368, PubMed:19307729).

Subunit Structure: Homotetramer and heterotetramer with other channel-forming alpha subunits, such as KCNA2, KCNA4, KCNA5, KCNA6 and KCNA7 (PubMed:12077175, PubMed:17156368). Channel activity is regulated by interaction with the beta subunits KCNAB1 and KCNAB2 (PubMed:12077175, PubMed:17156368). Identified in a complex with KCNA2 and KCNAB2 (PubMed:11086297). Interacts (via C-terminus) with the PDZ domains of DLG1, DLG2 and DLG4 (By similarity). Interacts with LGI1 within a complex containing LGI1, KCNA4 and KCNAB1 (By similarity). Interacts (via N-terminus) with STX1A; this promotes channel inactivation (By similarity). Interacts (via N-terminus) with the heterodimer formed by GNB1 and GNG2; this promotes channel inactivation (By similarity). Can interact simultaneously with STX1A and the heterodimer formed by GNB1 and GNG2 (By similarity). Interacts (via cytoplasmic N-terminal domain) with KCNRG; this inhibits channel activity (PubMed:19968958). Interacts with ANK3; this inhibits channel activity (PubMed:23903368).

Post-translational Modifications: N-glycosylated. Palmitoylated on Cys-243; which may be required for membrane targeting. Phosphorylated on tyrosine residues. Phosphorylation increases in response to NRG1; this inhibits channel activity (By similarity). Phosphorylation at Ser-446 regulates channel activity by down-regulating expression at the cell membrane (PubMed:23774215).

Similarity: The cytoplasmic N-terminus is important for tetramerization and for interaction with the beta subunits that promote rapid channel closure. The transmembrane segment S4 functions as voltage-sensor and is characterized by a series of positively charged amino acids at every third position. Channel opening and closing is effected by a conformation change that affects the position and orientation of the voltage-sensor paddle formed by S3 and S4 within the membrane. A transmembrane electric field that is positive inside would push the positively charged S4 segment outwards, thereby opening the pore, while a field that is negative inside would pull the S4 segment inwards and close the pore. Changes in the position and orientation of S4 are then transmitted to the activation gate formed by the inner helix bundle via the S4-S5 linker region. Belongs to the potassium channel family. A (Shaker) (TC 1.A.1.2) subfamily. Kv1.1/KCNA1 sub-subfamily.

NCBI AND UNIPROT INFORMATION

NCBI GI #	119395748
NCBI GeneID	3736
NCBI Accession #	NP_000208.2
NCBI GenBank Nucleotide #	NM_000217.3
UniProt Accession #	Q09470; Q3MIQ9; A6NM83
Molecular Weight	Observed: 56 kDa Predicted: 57 kDa
NCBI Official Full Name	potassium voltage-gated channel subfamily A member 1
NCBI Official Synonym Full Names	potassium voltage-gated channel subfamily A member 1
NCBI Official Symbol	KCNA1
NCBI Official Synonym Symbols	EA1; MK1; AEMK; HBK1; HUK1; MBK1; RBK1; KV1.1
NCBI Protein Information	potassium voltage-gated channel subfamily A member 1
UniProt Protein Name	Potassium voltage-gated channel subfamily A member 1
UniProt Gene Name	KCNA1

For Research Use Only. Not for use in diagnostic or therapeutic procedures. Small volumes of product may become entrapped in the seal of the vial during shipment and storage; if necessary, briefly centrifuge the vial on a tabletop centrifuge to dislodge any liquid in the cap.

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Online datasheet: <https://stage.aaabiotech.com/polyclonal/kcna1-antibody-immunocytochemistry-immunofluorescence-immunohistochemistry-western-blot-elisa/326872>