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KCNAB1 Antibody(N-term)

Affinity Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP19413a

Product Information

Application	WB, E
Primary Accession	Q14722
Other Accession	NP_003462.2
Reactivity	Human
Host	Rabbit
Clonality	Polyclonal
Isotype	Rabbit IgG
Clone Names	RB40526
Calculated MW	46563
Antigen Region	15-44

Additional Information

Gene ID	7881
Other Names	Voltage-gated potassium channel subunit beta-1, K(+) channel subunit beta-1, Kv-beta-1, KCNAB1, KCNA1B
Target/Specificity	This KCNAB1 antibody is generated from rabbits immunized with a KLH conjugated synthetic peptide between 15-44 amino acids from the N-terminal region of human KCNAB1.
Dilution	WB~~1:1000 E~~Use at an assay dependent concentration.
Format	Purified polyclonal antibody supplied in PBS with 0.09% (W/V) sodium azide. This antibody is purified through a protein A column, followed by peptide affinity purification.
Storage	Maintain refrigerated at 2-8°C for up to 2 weeks. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.
Precautions	KCNAB1 Antibody(N-term) is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	KCNAB1 (HGNC:6228)
Synonyms	KCNA1B
Function	Regulatory subunit of the voltage-gated potassium (Kv) Shaker channels

	composed of pore-forming and potassium-conducting alpha subunits and of regulatory beta subunits (PubMed:17156368, PubMed:17540341, PubMed:19713757, PubMed:7499366, PubMed:7603988). The beta-1/KCNAB1 cytoplasmic subunit mediates closure of delayed rectifier potassium channels by physically obstructing the pore via its N- terminal domain and increases the speed of channel closure for other family members (PubMed:9763623). Promotes the inactivation of Kv1.1/KCNA1, Kv1.2/KCNA2, Kv1.4/KCNA4, Kv1.5/KCNA5 and Kv1.6/KCNA6 alpha subunit-containing channels (PubMed:12077175, PubMed:12130714, PubMed:15361858, PubMed:17156368, PubMed:17540341, PubMed:19713757, PubMed:7499366, PubMed:7603988, PubMed:7649300, PubMed:7890764, PubMed:9763623). Displays nicotinamide adenine dinucleotide phosphate (NADPH)-dependent aldoketoreductase activity by catalyzing the NADPH- dependent reduction of a variety of endogenous aldehydes and ketones (By similarity). The binding of NADPH is required for efficient down- regulation of potassium channel activity (PubMed:17540341). Oxidation of the bound NADPH restrains N-terminal domain from blocking the channel, thereby decreasing N-type inactivation of potassium channel activity (By similarity).
Cellular Location	Cytoplasm. Membrane {ECO:0000250|UniProtKB:P63144}; Peripheral membrane protein; Cytoplasmic side. Cell membrane; Peripheral membrane protein; Cytoplasmic side. Note=Recruited to the cytoplasmic side of the cell membrane via its interaction with pore-forming potassium channel alpha subunits.
Tissue Location	In brain, expression is most prominent in caudate nucleus, hippocampus and thalamus. Significant expression also detected in amygdala and subthalamic nucleus. Also expressed in both healthy and cardiomyopathic heart. Up to four times more abundant in left ventricle than left atrium.

Background

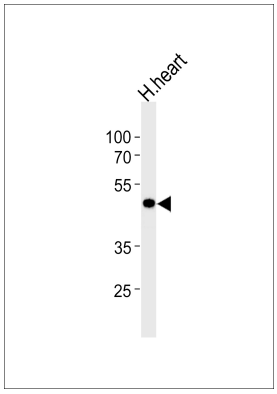
Potassium channels represent the most complex class of voltage-gated ion channels from both functional and structural standpoints. Their diverse functions include regulating neurotransmitter release, heart rate, insulin secretion, neuronal excitability, epithelial electrolyte transport, smooth muscle 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 includes three distinct isoforms which are encoded by three alternatively spliced transcript variants of this gene. These three isoforms are beta subunits, which form heteromultimeric complex with alpha subunits and modulate the activity of the pore-forming alpha subunits.

References

Rose, J.E., et al. Mol. Med. 16 (7-8), 247-253 (2010) :
Decher, N., et al. EMBO J. 27(23):3164-3174(2008)
Cavalleri, G.L., et al. Lancet Neurol 6(11):970-980(2007)
Lamesch, P., et al. Genomics 89(3):307-315(2007)
Lunetta, K.L., et al. BMC Med. Genet. 8 SUPPL 1, S13 (2007) :

Images

Western blot analysis of lysate from human heart tissue lysate, using KCNAB1 Antibody (N-term)(Cat. #AP19413a). AP19413a was diluted at 1:1000 at each lane. A goat anti-rabbit IgG H&L(HRP) at 1:5000 dilution was used as



the secondary antibody. Lysate at 35ug per lane.