

Product datasheet for **TP519469**

Kcna2 (NM_008417) Mouse Recombinant Protein

Product data:

Product Type:	Recombinant Proteins
Description:	Purified recombinant protein of Mouse potassium voltage-gated channel, shaker-related subfamily, member 2 (Kcna2), with C-terminal MYC/DDK tag, expressed in HEK293T cells, 20ug
Species:	Mouse
Expression Host:	HEK293T
Expression cDNA Clone or AA Sequence:	>MR219469 representing NM_008417 Red =Cloning site Green =Tags(s)
	<p>MTVATGDPVDEAAALPGHPQDITYDPEADHECCERVVINISGLRFETQLKTLAQFPETLLGDPKKRMRYFD PLRNEYFFDRNRPSFDAILYQQSGGRLRRPVNVPLDIFSEEIRFYELGEEAMEMFREDEGYIKEERPL PENEFQRQVWLLFEYPESSGPARIIAIVSVMVILISIVSFCLETLPFRDENEDMHGGGVTFHTYSNSTI GYQQSTSFTDPFFIVETLCIIWFSFEFLVRFFACPSKAGFFTNIIMNIIDIVAIIPYFITLGTELAEKPED AQQGQQAMSLAILRVIRLVRFIRFKLSRHSGKLQILGQTLKASMRELGLLIFFLFIGVILFSSAVYFAE ADERDSQFPSIPDAFWWAVVSMTTVGYGDMVPTTIGGKIVGSLCAIAGVLTIALPVPVIVSNFNFYHRE TEGEEQAQYLQVTSCPKIPSSPDLKKRSASTISKSDYMEIQEGVNNSNEDFREENLKTANCTLANTNYV NITKMLTDV</p> <p>TRTRPLEQKLISEEDLAANDILDYKDDDDKV</p>
Tag:	C-MYC/DDK
Predicted MW:	57.2 kDa
Concentration:	>0.05 µg/µL as determined by microplate BCA method
Purity:	> 80% as determined by SDS-PAGE and Coomassie blue staining
Buffer:	25 mM Tris-HCl, 100 mM glycine, pH 7.3, 10% glycerol
Note:	For testing in cell culture applications, please filter before use. Note that you may experience some loss of protein during the filtration process.
Storage:	Store at -80°C after receiving vials.
Stability:	Stable for 12 months from the date of receipt of the product under proper storage and handling conditions. Avoid repeated freeze-thaw cycles.



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RefSeq:	<u>NP_032443</u>
Locus ID:	16490
UniProt ID:	<u>P63141</u>
RefSeq Size:	11582
Cytogenetics:	3 46.61 cM
RefSeq ORF:	1497
Synonyms:	Akr6a4; ENSMUSG00000074335; Gm10672; Kca1-2; Kv1.2; Mk-2

Summary:

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:12527813, PubMed:21233214). 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:20696761). 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 (By similarity). 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:23864368). In contrast, a heteromultimer formed by KCNA2 and KCNA4 shows rapid inactivation (PubMed:23864368). Contributes to the regulation of action potentials in neurons (PubMed:12527813, PubMed:17925011). KCNA2-containing channels play a presynaptic role and prevent hyperexcitability and aberrant action potential firing (PubMed:17634333, PubMed:17925011). 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). 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). KCNA2-containing channels play a role in GABAergic transmission from basket cells to Purkinje cells in the cerebellum, and thereby play an important role in motor coordination (PubMed:20696761). Plays a role in the induction of long-term potentiation of neuron excitability in the CA3 layer of the hippocampus (PubMed:23981714). 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 (PubMed:21233214). 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 (PubMed:17925011).[UniProtKB/Swiss-Prot Function]