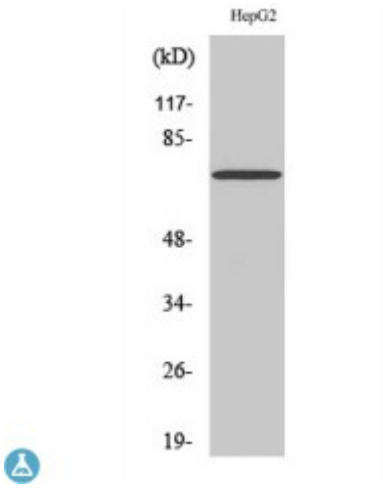
Anti-KV3.2 antibody



Description	Rabbit polyclonal to KV3.2.

Model	STJ93876
Host	Rabbit
Reactivity	Human, Mouse, Rat
Applications	ELISA, IHC, WB
Immunogen	Synthesized peptide derived from human KV3.2
Immunogen Region	560-640 aa, C-terminal
Gene ID	3747
Gene Symbol	KCNC2
Dilution range	WB 1:500-1:2000IHC 1:100-1:300ELISA 1:10000
Specificity	KV3.2 Polyclonal Antibody detects endogenous levels of KV3.2 protein.
Purification	The antibody was affinity-purified from rabbit antiserum by affinity-chromatography using epitope-specific immunogen.
Note	For Research Use Only (RUO).
Protein Name	Potassium voltage-gated channel subfamily C member 2 Shaw-like potassium channel Voltage-gated potassium channel Kv3.2
Molecular Weight	70 kDa
Clonality	Polyclonal
Conjugation	Unconjugated

Isotype	IgG
Formulation	Liquid in PBS containing 50% glycerol, 0.5% BSA and 0.02% sodium azide.
Concentration	1 mg/ml
Storage Instruction	Store at -20°C, and avoid repeat freeze-thaw cycles.
Database Links	HGNC:6234OMIM:176256
Alternative Names	Potassium voltage-gated channel subfamily C member 2 Shaw-like potassium channel Voltage-gated potassium channel Kv3.2
Function	Voltage-gated potassium channel that mediates transmembrane potassium transport in excitable membranes, primarily in the brain. Contributes to the regulation of the fast action potential repolarization and in sustained high-frequency firing in neurons of the central nervous system. Homotetramer channels mediate delayed-rectifier voltage-dependent potassium currents that activate rapidly at high-threshold voltages and inactivate slowly. Forms tetrameric 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 . Can form functional homotetrameric and heterotetrameric channels that contain variable proportions of KCNC1, and possibly other family members as well; channel properties depend on the type of alpha subunits that are part of the channel. Channel properties may be modulated either by the association with ancillary subunits, such as KCNE1, KCNE2 or KCNE3 or indirectly by nitric oxide (NO) through a cGMP- and PKG-mediated signaling cascade, slowing channel activation and deactivation of delayed rectifier potassium channels . Contributes to fire sustained trains of very brief action potentials at high frequency in retinal ganglion cells, thalamocortical and suprachiasmatic nucleus (SCN) neurons and in hippocampal and neocortical interneurons . Sustained maximal action potential firing frequency in inhibitory hippocampal interneurons is negatively modulated by histamine H2 receptor activation in a cAMP- and protein kinase (PKA) phosphorylation-dependent manner. Plays a role in maintaining the fidelity of synaptic transmission in neocortical GABAergic interneurons by generating action potential (AP) repolarization at nerve terminals, thus reducing spike-evoked calcium influx and GABA neurotransmitter release. Required for long-range synchronization of gamma oscillations over distance in the neocortex. Contributes to the modulation of the circadian rhythm of spontaneous action potential firing in suprachiasmatic nucleus (SCN) neurons in a light-dependent manner .
Sequence and Domain Family	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.
Cellular Localization	Cell membrane Membrane Perikaryon Cell projection, axon Cell projection,

	dendrite Cell junction, synapse, postsynaptic cell membrane Cell junction, synapse, presynaptic cell membrane Cell junction, synapse, synaptosome Cell junction, synapse Apical cell membrane Basolateral cell membrane. Colocalizes with parvalbumin in globus pallidus neurons. Localizes in thalamocortical axons and synapses. Localizes on the surface of cell somata, proximal dendrites and axonal membranes. Also detected throughout the neuropil. Localized in starburst cell somata and proximal dendrite processes. Colocalized with GABA in presynaptic terminals. Clustered in patches in somatic and proximal dendritic membrane as well as in axons and presnypatic terminals of GABAergic interneurons. some of these patches are found near postsynaptic sites.
Post-translational Modifications	Phosphorylated by PKA in cortical synaptosomes. cAMP-dependent phosphorylation inhibits channel activity . Histamine H2 receptor- and PKA-induced phosphorylation extends action potential spike duration, reduces action potential spike amplitude, sustains maximum firing frequency in hippocampal interneurons; also reduces the incidence of high-frequency oscillations in hippocampal CA3 pyramidal cell layers.