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Product datasheet for MR210968

Kcnb1 (NM_008420) Mouse Tagged ORF Clone

Product data:

Product Type:	Expression Plasmids
Product Name:	Kcnb1 (NM_008420) Mouse Tagged ORF Clone
Tag:	Myc-DDK
Symbol:	Kcnb1
Synonyms:	Kcr1-1; Kv2.1; Shab
Mammalian Cell Selection:	Neomycin
Vector:	pCMV6-Entry (PS100001)
E. coli Selection:	Kanamycin (25 ug/mL)

ORF Nucleotide Sequence:

>MR210968 representing NM_008420
Red=Cloning site Blue=ORF Green=Tags(s)

TTTTGTAATACGACTCACTATAGGGCGGCCGGGAATTCGTCGACTGGATCCGGTACCGAGGAGATCTGCC
GCCGCGATCGCC

ATGCCGGCGGGCATGACGAAGCATGGCTCGCGCTCCACCAGCTCGCTGCCGCCCGAGCCCATGGAGATCG
TGCGCAGCAAGGCGTGCTCGCGCCGGGTGCGCCTCAACGTCGGGGGCCTGGCGCACGAGGTGCTGTGGCG
CACTCTGGACCGCCTGCCTCGCACGCGGCTGGGCAAGCTCCGGGACTGCAACACGCACGACTCTCTGCTC
CAGGTGTGCGACGACTACAGCCTCGAGGACAACGAGTACTTCTTCGACCGCCACCCTGGCGCCTTCACCT
CTATTCTCAATTTCTACCGCACCGGCCGGCTGCACATGATGGAGGAGATGTGCGCGCTGAGCTTCAGCCA
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ACAACACGTGCTGTGCTGAGAAGAGGAAGAAACTTTGGGACCTGCTGGAGAAGCCCAACTCATCGGTGGC
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CTGCCTGAGCTACAGAGCCTGGACGAATTCGGCCAGAGCACGGACAACCCGCAGCTGGCACACGTGGAGG
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ACAAGGATGACGACGATAAGGTTTAA

Protein Sequence:

>MR210968 representing NM_008420
Red=Cloning site Green=Tags(s)

MPAGMTKHGSRSTSSLPPEPMEIVRSKACSRRVRLNVGGLAHEVLWRTLDRLPRTRLGKLRDCNTHDSLL
QVCDDYSLEDNEYFFDRHPGAFTSILNFYRTGRLHMMEEMCALSFSQELDYWGIDEIYLESCCQARYHQK
KEQMNEELKREAETLREREGEEFDNTCCAEKRKKLWDLLEKPNSSVAAKILAIISIMFIVLSTIALSLNT
LPELQSLDEFGQSTDNPQLAHVEAVCIAWFTMEYLLRFLSSPKKWKFFKGPLNAIDLLAILPYYVTIFLT
ESNKSVLQFQNVRRVVQIFRIMRILRILKLARHSTGLQSLGFTLRRSYNELGLLILFLAMGIMIFSSLVF
FAEKDEDDTKFKSIPASFWWATITMTTVGYGDIYPKTLLGKIVGGLCCIAGVLVIALPIPIIVNNFSEFY
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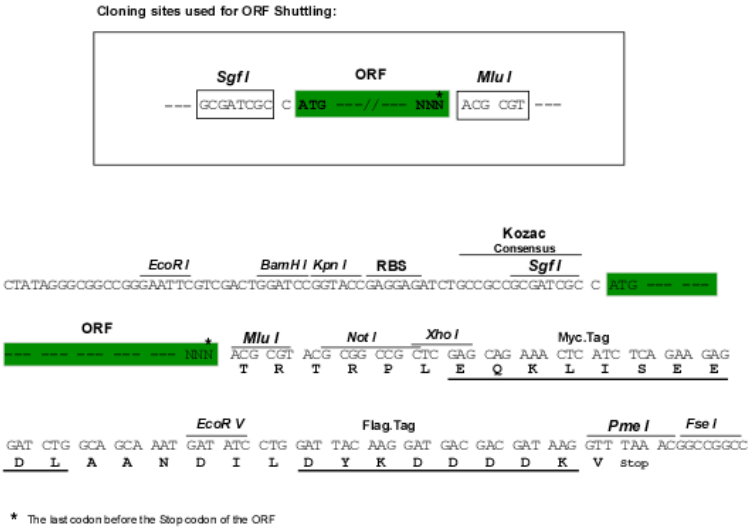
EMGSMPSPVAPLPTRTEGVIDMRSMSSIDSFISCATDFPEATRFSHSPLASLSGKSGGSTAPEVGWRGAL
GASGGRLMETNPIPEASRSGFFVESPRSSMKTHNPMKLRALKVNFLEGDPTPLLPALGLYHDPLRNRGGA
AAAVAGLECASLLDKPVLSPESSIYTTASARTPPRSPEKHTAIAFNFEAGVHQYIDTDTDDEGQLLYSVD
SSPPKSLHGSTSPKFSLGARTEKNHFESSPLPTSPKFLRPNCVYASEGLPGKGPGAQEKCKLENHTSPDV
HMLPGGGAHGSTRDQSI

TRTRPLEQKLISEEDLAANDILDYKDDDDKV

Chromatograms: https://cdn.origene.com/chromatograms/mm9012_g04.zip

Restriction Sites: SgfI-MluI

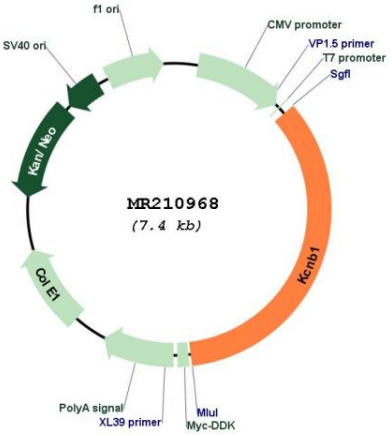
Cloning Scheme:



ACCN:	NM_008420
ORF Size:	2571 bp
OTI Disclaimer:	The molecular sequence of this clone aligns with the gene accession number as a point of reference only. However, individual transcript sequences of the same gene can differ through naturally occurring variations (e.g. polymorphisms), each with its own valid existence. This clone is substantially in agreement with the reference, but a complete review of all prevailing variants is recommended prior to use. More info
OTI Annotation:	This clone was engineered to express the complete ORF with an expression tag. Expression varies depending on the nature of the gene.
Components:	The ORF clone is ion-exchange column purified and shipped in a 2D barcoded Matrix tube containing 10ug of transfection-ready, dried plasmid DNA (reconstitute with 100 ul of water).
Reconstitution Method:	1. Centrifuge at 5,000xg for 5min. 2. Carefully open the tube and add 100ul of sterile water to dissolve the DNA. 3. Close the tube and incubate for 10 minutes at room temperature. 4. Briefly vortex the tube and then do a quick spin (less than 5000xg) to concentrate the liquid at the bottom. 5. Store the suspended plasmid at -20°C. The DNA is stable for at least one year from date of shipping when stored at -20°C.
RefSeq:	NM_008420.4, NP_032446.2
RefSeq Size:	11153 bp
RefSeq ORF:	2574 bp
Locus ID:	16500
UniProt ID:	Q03717
Cytogenetics:	2 87.22 cM
MW:	96 kDa
Gene Summary:	Voltage-gated potassium channel that mediates transmembrane potassium transport in excitable membranes, primarily in the brain, but also in the pancreas and cardiovascular system. Contributes to the regulation of the action potential (AP) repolarization, duration and frequency of repetitive AP firing in neurons, muscle cells and endocrine cells and plays a role in homeostatic attenuation of electrical excitability throughout the brain (PubMed:14684365, PubMed:19383458, PubMed:24494598). Plays also a role in the regulation of exocytosis independently of its electrical function (By similarity). 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. Homotetrameric channels mediate a delayed-rectifier voltage-dependent outward potassium current that display rapid activation and slow inactivation in response to membrane depolarization (PubMed:22056818). Can form functional homotetrameric and heterotetrameric channels that contain variable proportions of KCNB2; channel properties depend on the type of alpha subunits that are part of the

channel (By similarity). Can also form functional heterotetrameric channels with other alpha subunits that are non-conducting when expressed alone, such as KCNF1, KCNG1, KCNG3, KCNG4, KCNH1, KCNH2, KCNS1, KCNS2, KCNS3 and KCNV1, creating a functionally diverse range of channel complexes (By similarity). Heterotetrameric channel activity formed with KCNS3 show increased current amplitude with the threshold for action potential activation shifted towards more negative values in hypoxic-treated pulmonary artery smooth muscle cells (By similarity). Channel properties are also modulated by cytoplasmic ancillary beta subunits, such as AMIGO1, KCNE1, KCNE2 and KCNE3, slowing activation and inactivation rate of the delayed rectifier potassium channels (PubMed:22056818). 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. Major contributor to the delayed-rectifier voltage-gated potassium current in neurons of the central nervous system, sympathetic ganglion neurons, neuroendocrine cells, pancreatic beta cells, cardiomyocytes and smooth muscle (PubMed:10506487, PubMed:12270920, PubMed:17767909, PubMed:23161216, PubMed:24494598). Mediates the major part of the somatodendritic delayed-rectifier potassium current in hippocampal and cortical pyramidal neurons and sympathetic superior cervical ganglion (CGC) neurons that acts to slow down periods of firing, especially during high frequency stimulation (By similarity). Plays a role in the induction of long-term potentiation (LTP) of neuron excitability in the CA3 layer of the hippocampus (PubMed:24494598). Contributes to the regulation of the glucose-induced amplitude and duration of action potentials in pancreatic beta-cells, hence limiting calcium influx and insulin secretion (PubMed:12270920, PubMed:17767909, PubMed:19383458, PubMed:23161216). Plays a role in the regulation of resting membrane potential and contraction in hypoxia-treated pulmonary artery smooth muscle cells (By similarity). May contribute to the regulation of the duration of both the action potential of cardiomyocytes and the heart ventricular repolarization QT interval (PubMed:10506487, PubMed:14684365). Contributes to the pronounced pro-apoptotic potassium current surge during neuronal apoptotic cell death in response to oxidative injury (By similarity). May confer neuroprotection in response to hypoxia/ischemic insults by suppressing pyramidal neurons hyperexcitability in hippocampal and cortical regions (By similarity). Promotes trafficking of KCNG3, KCNH1 and KCNH2 to the cell surface membrane, presumably by forming heterotetrameric channels with these subunits (By similarity). Plays a role in

Product images:



Circular map for MR210968