

## Product datasheet for **MC216958**

### **Kcna1 (NM\_010595) Mouse Untagged Clone**

#### **Product data:**

Product Type:	Expression Plasmids
Product Name:	Kcna1 (NM_010595) Mouse Untagged Clone
Tag:	Tag Free
Symbol:	Kcna1
Synonyms:	AI840627; Kca1-1; Kv1.1; MBK1; mceph; Mk-1; Shak
Mammalian Cell Selection:	Neomycin
Vector:	pCMV6-Entry (PS100001)
E. coli Selection:	Kanamycin (25 ug/mL)



[View online »](#)

**Fully Sequenced ORF:** >MC216958 representing NM\_010595  
 Red=Cloning site Blue=ORF Orange=Stop codon

TTTTGTAATACGACTCACTATAGGGCGGCCGGGAATTCGTCGACTGGATCCGGTACCGAGGAGATCTGCC  
 GCC**GCGATCGCC**

ATGACGGTGATGTCGGGGGAGAATGCGGACGAGGCTTCGACCGCTCCAGGTCACCCCCAGGATGGCAGCT  
 ACCCGAGGCAGGCGGACCACGACGACCAGGAATGCTGCGAGCGCTAGTAATCAACATCTCCGGGCTGCG  
 CTTGAAACGCAGCTCAAGACTCTGGCAGACTTCCCAACACGCTGCTGGCAACCCGAAGAAACGCATG  
 CGCTACTTTGACCCCTGAGGAACGAGTACTTCTTTGACCGCAACCGGCCAGCTTCGATGCCATCCTTT  
 ATTACTACCAGTCCGGGGCCGCTGCGCAGGCCGGTCAACGTGCCCTGGACATGTTCTCCGAGGAGAT  
 TAAATTTTACGAGTTGGGCGAGGAAGCCATGGAGAAGTTCGGGAAGATGAGGGCTTCATCAAGGAAGAG  
 GAGCGCCCTACCCGAGAAGGAGTACCAGCGCCAGGTGTGGCTGCTCTTTGAGTATCCGGAGAGCTCAG  
 GACCTGCCGGGTATTGCCATTGTGTCGGTCATGGTCATCCTCATCTCCATAGTCATCTTTTGCCTGGA  
 GACTCTCCCTGAGCTGAAGGACGACAAGGACTTCACGGGCACCATCCACCGCATCGACAACACCACAGTC  
 ATCTATACTTCCAACATCTTACAGACCCCTTCTTCATTGTGAAACCTTGTGTATCATCTGTTCTCTT  
 TTGAGCTGGTGGTGCCTTCTTCGCTGCCCGAGCAAGACAGACTTCTTTAAGAATCATGAACTTCAT  
 CGCATTTGTGGCCATCATCCCTTATTTACCTGGGCACGGAGATAGCTGAGCAGGAGGGAAATCAG  
 AAGGGCGAGCAGGCCACTTCCCTGGCCATCCTCAGGGTATCCGCTTGGTAAGGGTGTTCAGAATCTTCA  
 AACTCTCCCGCCACTCCAAGGGCCTTCCAGTCTGGGCCAGACCTCAAAGCTAGTATGAGGGAGTTAGG  
 GCTGCTCATCTTTTCTTCTTATTGGGGTCATACTGTTTTCTAGCGCAGTGTACTTTGCGGAGGCGGAA  
 GAAGCTGAGTCGCACTTCTCCAGTATCCCGATGCTTTCTGGTGGGCGGTGGTGTCCATGACCACTGTGG  
 GATACGGTGACATGTACCCTGTGACAATTGGAGGCAAGATCGTGGGCTCCTTGTGTGCCATCGCTGGTGT  
 GCTGACAATTGCCCTGCCCGTACCTGTCAATTGTGTCCTCAATTTCAACTATTTCTACCACCGAGAACTGAG  
 GGGGAAGAGCAGGCTCAGTTGCTCCATGTTAGTTCCTAACTTAGCCTCTGACAGTGACCTCAGCCGCC  
 GCAGCTCTCTACTATCAGCAAGTCTGAGTACATGGAGATCGAAGAGGATATGAACAATAGCATAGCCCA  
 TTACAGACAGGCTAATATCAGAAGTGGTAACTGCACCACAGCTGATCAAACTGCGTTAATAAGAGCAAG  
 CTCCTGACCGATGTT**TAA**

**ACGCGT**ACGCGGCCGCTCGAGCAGAAACTCATCTCAGAAGAGGATCTGGCAGCAAATGATATCCTGGATT  
 ACAAGGATGACGACGATAAGGTTTAA

**Restriction Sites:** Sgfl-Mlul

**ACCN:** NM\_010595

**Insert Size:** 1488 bp

**OTI Disclaimer:** Our molecular clone sequence data has been matched to the reference identifier above as a point of reference. Note that the complete sequence of our molecular clones may differ from the sequence published for this corresponding reference, e.g., by representing an alternative RNA splicing form or single nucleotide polymorphism (SNP).

**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\\_010595.3](#), [NP\\_034725.3](#)

**RefSeq Size:** 8970 bp

**RefSeq ORF:** 1488 bp

**Locus ID:** 16485

**UniProt ID:** [P16388](#)

**Cytogenetics:** 6 61.57 cM

**Gene 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 kidney. Contributes to the regulation of the membrane potential and nerve signaling, and prevents neuronal hyperexcitability (PubMed:9736643, PubMed:9581771 PubMed:10191303, PubMed:12611922, PubMed:21966978, PubMed:22158511, PubMed:23473320). 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:15361858). 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. 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:15361858). 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:7517498, PubMed:15361858). In contrast, a heterotetrameric channel formed by KCNA1 and KCNA4 shows rapid inactivation (By similarity). Regulates neuronal excitability in hippocampus, especially in mossy fibers and medial perforant path axons, preventing neuronal hyperexcitability (PubMed:23466697). 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 (PubMed:20392939, PubMed:22641786, PubMed:25377007). Required for normal neuromuscular responses (PubMed:9736643). 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 (PubMed:23473320). Required for normal responses to auditory stimuli and precise location of sound sources, but not for sound perception (PubMed:21966978, PubMed:22396426). The use of toxins that block specific channels suggest that it contributes to the regulation of the axonal release of the neurotransmitter dopamine (PubMed:21233214). Required for normal postnatal brain development and normal proliferation of neuronal precursor cells in the brain (PubMed:8995755, PubMed:17250763, PubMed:17315199, PubMed:22411008). Plays a role in the reabsorption of Mg(2+) in the distal convoluted tubules in the kidney and in magnesium ion homeostasis, probably via its effect on the membrane potential (By similarity). [UniProtKB/Swiss-Prot Function]