

Product datasheet for **MC220322**

Prkg1 (NM_001013833) Mouse Untagged Clone

Product data:

Product Type:	Expression Plasmids
Product Name:	Prkg1 (NM_001013833) Mouse Untagged Clone
Tag:	Tag Free
Symbol:	Prkg1
Synonyms:	AW125416; CGKI; Gm19690; Prkg1b; Prkgr1b
Mammalian Cell Selection:	Neomycin
Vector:	pCMV6-Entry (PS100001)
E. coli Selection:	Kanamycin (25 ug/mL)



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Fully Sequenced ORF: >MC220322 representing NM_001013833
 Red=Cloning site Blue=ORF

TTTTGTAATACGACTCACTATAGGGCGGCCGGAATTCGTCGACTGGATCCGGTACCGAGGAGATCTGCC
 GCC**CGCATCGCC**

ATGAGCGAACTGGAGGAAGACTTTGCGAAGATTCTCATGCTCAAGGAGGAGAGGATCAAAGAGCTGGAGA
 AGCGGCTGTCAGAGAAGGAGGAAGAAATCCAGGAGCTGAAGAGGAACTCCACAAATGCCAGTCCGGTCT
 GCCGGTGCCTCCACCCACATCGGCCCGCGGACCACCCGGGCGCAGGGCATCTCCGCGGAGCCGAGACC
 TACAGGTCCTTCCACGACCTGCGCCAGGCGTTCGGAAGTTCCTAAATCCGAGAGGTGCAAGGATCTCA
 TAAAGGAGGCTATCCTTGACAATGACTTTCATGAAGAACTGGAGCTGTCACAGATCCAGGAGATTGTGA
 CTGTATGTACCCCGTGAATACGGCAAGGACAGCTGCATCATCAAGGAAGGCGATGTGGGGTCACTGGTG
 TACGTCATGGAAGATGGGAAGGTTGAAGTCACAAAAGAAGGCGTGAAGCTCTGCACCATGGTCTGGAA
 AAGTGTCGGGGAGCTGGCTATACTTTACAACGTACCCGGACAGCGACCGTCAAGACTCTGTAATGT
 GAAACTCTGGGCCATCGATCGACAATGTTTTCAACAATAATGATGAGGACAGGACTCATCAAGCATAACC
 GAGTACATGGAATTTTTAAAAAGTGTCCAACATTCCAGAGCCTTCTGTGAAATCCTCAGCAAGCTGG
 CTGATGTCCTCGAAGAGACCCACTATGAAAATGGAGAATATATCATCAGGCAGGGTGCAAGAGGAGACAC
 CTTCTTCATCATCAGTAAAGGGCAGGTGAATGTTACTCGAGAAGACTCACCAAGTGAAGACCCAGTCTTC
 CTTAGAACTTTAGGGAAGGGAGATTGGTTTTGGAGAGAAAGCGTTGCAGGGGGAGGATGTGAGAACAGCAA
 ATGTTATTGCCGAGAAGCTGTCACCTGCCTTGTGATTGACAGAGACTCTTTCAAGCATTGATTGGAGG
 ACTGGACGATGTTTCTAACAAAGCATATGAGGACGCAGAAGCAAAAGCAAATATGAAGCCGAAGCTGCC
 TTCTTCGCCAACCTGAAGCTGTCTGATTTCAACATCATTGACACCCTTGGAGTTGGAGGTTTCGGACGAG
 TAGAGCTGGTCCAGTTGAAAAGTGAAGAATCCAAAACATTTGCAATGAAGATCCTCAAGAAACGCCACAT
 TGTGGACACCAGACAGCAGGAGCACATCCGCTCAGAGAAGCAGATCATGCAGGGGGCTCATTCTGACTTC
 ATTGTGAGGCTGTACAGGACATTTAAAGACAGCAAACTTGTATATGTTGATGGAAGCGTGCCTGGGTG
 GAGAGCTCTGGACTATTCTCAGGGATAGGGTTCGTTTGAAGACTCAACAACCAGGTTTTACTGCATG
 TGTGGTAGAAGCATTGCCTATCTGCATTCCAAAGGAATCATTTACAGGGACCTCAAGCCGAGAATCTC
 ATCCTAGATCATCGAGGCTATGCCAACTGGTTGACTTTGGCTTTGCAAAGAAAATAGGATTTGAAAGA
 AAACATGGACTTTTTGTGGGACTCCAGAATATGTAGCCCAAGAGATCATCCTGAACAAAGCCATGACAT
 TTCAGTACTACTGGTCACTAGGAATCTGATGTATGAGCTTCTGACTGGCAGCCACCTTTCTCAGGC
 CCAGATCCAATGAAAACCTACAATATCATACTGCGGGGATTGACATGATAGAATTTCCAAGAAGATTG
 CAAAAATGCTGCTAATTTAATTAATAAACTATGCAGGGACAACCCATCAGAGAGGTTAGGAAATTTGAA
 AAACGGAGTCAAAGACATTCAGAAAACAAAGTGGTTTGGGGCTTTAATTTGGGAAGGCTTAAAGAAAGGC
 ACCTTGACACCTCCATAATTCAGAGTGTGCGTCACCCACAGACACAAGCAATTTTGCAGTTTCCCTG
 AGGACAGCGATGAGCCACCACCTGATGACAACCTCAGGCTGGGACATAGACTTCTAA

ACGCGTACGCGGCCGCTCGAGCAGAACTCATCTCAGAAGAGGATCTGGCAGCAATGATATCCTGGATT
 ACAAGGATGACGACGATAAGGTTTAA

Chromatograms: https://cdn.origene.com/chromatograms/ja1688_g04.zip

Restriction Sites: SgfI-MluI

ACCN: NM_001013833

Insert Size: 2016 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:	<ol style="list-style-type: none">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:	<u>NM_001013833.2</u> , <u>NP_001013855.1</u>
RefSeq Size:	3914 bp
RefSeq ORF:	2016 bp
Locus ID:	19091
UniProt ID:	<u>P0C605</u>
Cytogenetics:	19 C1

Gene Summary:

Serine/threonine protein kinase that acts as key mediator of the nitric oxide (NO)/cGMP signaling pathway. GMP binding activates PRKG1, which phosphorylates serines and threonines on many cellular proteins. Numerous protein targets for PRKG1 phosphorylation are implicated in modulating cellular calcium, but the contribution of each of these targets may vary substantially among cell types. Proteins that are phosphorylated by PRKG1 regulate platelet activation and adhesion, smooth muscle contraction, cardiac function, gene expression, feedback of the NO-signaling pathway, and other processes involved in several aspects of the CNS like axon guidance, hippocampal and cerebellar learning, circadian rhythm and nociception. Smooth muscle relaxation is mediated through lowering of intracellular free calcium, by desensitization of contractile proteins to calcium, and by decrease in the contractile state of smooth muscle or in platelet activation. Regulates intracellular calcium levels via several pathways: phosphorylates MRV11/IRAG and inhibits IP3-induced Ca(2+) release from intracellular stores, phosphorylation of KCNMA1 (BKCa) channels decreases intracellular Ca(2+) levels, which leads to increased opening of this channel. PRKG1 phosphorylates the canonical transient receptor potential channel (TRPC) family which inactivates the associated inward calcium current. Another mode of action of NO/cGMP/PKG1 signaling involves PKGI-mediated inactivation of the Ras homolog gene family member A (RhoA). Phosphorylation of RHOA by PRKG1 blocks the action of this protein in myriad processes: regulation of RHOA translocation; decreasing contraction; controlling vesicle trafficking, reduction of myosin light chain phosphorylation resulting in vasorelaxation. Activation of PRKG1 by NO signaling alters also gene expression in a number of tissues. In smooth muscle cells, increased cGMP and PRKG1 activity influence expression of smooth muscle-specific contractile proteins, levels of proteins in the NO/cGMP signaling pathway, down-regulation of the matrix proteins osteopontin and thrombospondin-1 to limit smooth muscle cell migration and phenotype. Regulates vasodilator-stimulated phosphoprotein (VASP) functions in platelets and smooth muscle.[UniProtKB/Swiss-Prot Function]

Transcript Variant: This variant (1) has an alternate 5' exon, as compared to variant 2. The resulting isoform (alpha) is shorter and has a different N-terminus, as compared to isoform beta. Sequence Note: This RefSeq record was created from transcript and genomic sequence data to make the sequence consistent with the reference genome assembly. The genomic coordinates used for the transcript record were based on transcript alignments.