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Product datasheet for RR214025

Rapgef2 (NM_001107684) Rat Tagged ORF Clone

Product data:

Product Type:	Expression Plasmids
Product Name:	Rapgef2 (NM_001107684) Rat Tagged ORF Clone
Tag:	Myc-DDK
Symbol:	Rapgef2
Synonyms:	nRap GEP; PDZ-GEF1; RA-GEF-1
Vector:	pCMV6-Entry (PS100001)
E. coli Selection:	Kanamycin (25 ug/mL)
Cell Selection:	Neomycin
ORF Nucleotide Sequence:	>RR214025 representing NM_001107684 Red=Cloning site Blue=ORF Green=Tags(s) TTTTGTAATACGACTCACTATAGGGCGGCCGGGAATTCGTCGACTGGATCCGGTACCGAGGAGATCTGCC GCCGCGATCGCC ATGGGAAACAGCTTTGGTGTTTCGCCCACCATGGACAAAGAGTACATGAAAGGAGTCATGAGGACAAAGG TGGATGACTGCCAGTTTGTCTGCATTGCCCAGCAAGATTACTGCCGTATTTTGAACCAAGTAGAAAAGAA CATGCAAAAAGTTGAGGAAGAAGGAGAGATTGTAATGGTGAAGGAGCACCGAGAACTTGATCGGACTGGA ACAAGGAAGGGCCACATCGTCATCAAGGGCACCTCAGAGAGGCTAACCATGCATTTGGTGGAAGAGCATT CTGTAGTGGACCCAACATTCATAGAAGACTTCCTGTTGACATACCGGACTTTCCTTTCCAGCCCAATGGA AGTGGGCAAGAAGTTATTGGAGTGGTTCAATGACCCGAGCCTCAGGGATAAGGTGACACGGGTAGTATTA CTGTGGGTGAATAATCACTTCAATGACTTTGAAGGAGATCCTGCAATGACTCGATTTCTAGAAGAATTTG AAAATAATCTGGAAAGAGAGAAAATGGGTGGACATCTAAGGCTGCTAAACATTGCATGTGCAGCGAAAGC CAAACGAAGGTCGATGACGTTAACAAAGCCGTCCCGGGAGGCGCCTCTGCCCTTCATCCTGCTGGGAGGC TCTGAAAAGGGCTTCGGCATCTTTGTGGACAGTGTTGACTCATCGAGCAAAGCCACTGAAGCAGGCTTGA AGCGTGGGGATCAGATATTAGAAGTGAATGGTCAAAATTTTGAAAATATCCAACTTTCAAAGGCAATGGA AATTCTTAGAAATAACACACACCTGTCCATCACTGTGAAAACCAACTTATTTGTATTTAAAGAACTTCTG ACGAGATTGTCTGAAGAGAAAAGAAATGGTGCCCCCCACCTTCCTAAAATTGGAGACATCAAGAAGGCCA GTCGCTACTCCATACCGGATCTTGCTGTAGATGTAGAACAGGTGATAGGCCTCGAGAAGGTCAACAAGAA AAGCAAAGCCAACACTGTGGGGGGAAGAAACAAGCTAAAGAAAATACTCGACAAGACTCGGATCAGTATC TTACCTCAGAAACCATACAATGATATTGGGATTGGTCAGTCTCAAGATGATAGCATCGTAGGACTGAGGC AGACCAAGCACATTCCAGCTGCCCTGCCTGTCAGTGGAACGCTGTCTTCCAGTAACCCTGACTTGCTGCA GTCACACCACCGGATTCTGGACTTCAGCACTACTCCTGACTTGCCAGATCAGGTACTGAGAGTTTTCAAG GCTGACCAGCAAAGCAGATACATCATGATCAGTAAGGACACCACAGCAAAGGAAGTGGTCATCCAGGCCA TCAGAGAGTTTGCTGTTACTGCCACCCCAGAGCAGTATTCCCTCTGTGAGGTCTCGGTCACGCCAGAGGG AGTTATCAAACAACGAAGGCTCCCAGATCAACTTTCCAAGCTTGCTGACAGAATACAGCTGAGCGGGAGG TATTATCTGAAAAACAACATGGAAACAGAAACGCTTTGCTCAGATGAAGATGCCCAGGAGCTGTTGCGAG

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Protein Sequence:

>RR214025 representing NM_001107684
Red=Cloning site Green=Tags(s)

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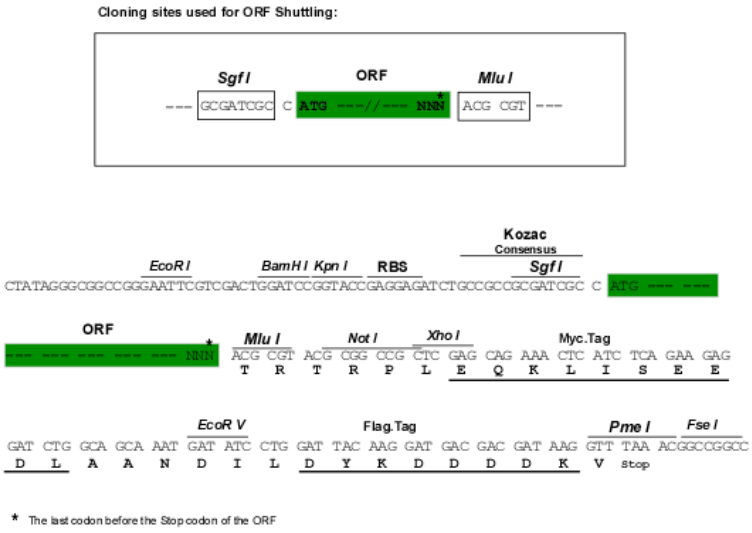
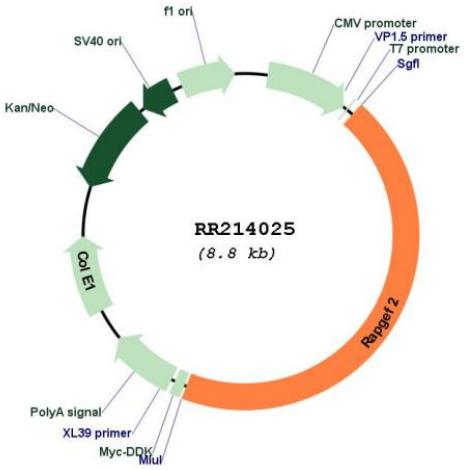
Restriction Sites: SgfI-MluI

Cloning Scheme:



Plasmid Map:



ACCN:	NM_001107684
ORF Size:	3882 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_001107684.1, NP_001101154.1
RefSeq Size:	6311 bp
RefSeq ORF:	3885 bp
Locus ID:	310533
UniProt ID:	F1M386
Cytogenetics:	2q33

MW: 144.3 kDa

Gene Summary: Functions as a guanine nucleotide exchange factor (GEF), which activates Rap and Ras family of small GTPases by exchanging bound GDP for free GTP in a cAMP-dependent manner. Serves as a link between cell surface receptors and Rap/Ras GTPases in intracellular signaling cascades. Acts also as an effector for Rap1 by direct association with Rap1-GTP thereby leading to the amplification of Rap1-mediated signaling. Shows weak activity on HRAS. It is controversial whether RAPGEF2 binds cAMP and cGMP or not. Its binding to ligand-activated beta-1 adrenergic receptor ADRB1 leads to the Ras activation through the G(s)-alpha signaling pathway. Involved in the cAMP-induced Ras and Erk1/2 signaling pathway that leads to sustained inhibition of long term melanogenesis by reducing dendrite extension and melanin synthesis. Provides also inhibitory signals for cell proliferation of melanoma cells and promotes their apoptosis in a cAMP-independent nanner. Regulates cAMP-induced neuritogenesis by mediating the Rap1/B-Raf/ERK signaling through a pathway that is independent on both PKA and RAPGEF3/RAPGEF4. Involved in neuron migration and in the formation of the major forebrain fiber connections forming the corpus callosum, the anterior commissure and the hippocampal commissure during brain development. Involved in neuronal growth factor (NGF)-induced sustained activation of Rap1 at late endosomes and in brain-derived neurotrophic factor (BDNF)-induced axon outgrowth of hippocampal neurons. Plays a role in the regulation of embryonic blood vessel formation and in the establishment of basal junction integrity and endothelial barrier function. May be involved in the regulation of the vascular endothelial growth factor receptor KDR and cadherin CDH5 expression at allantois endothelial cell-cell junctions.[UniProtKB/Swiss-Prot Function]