

## Product datasheet for **MG227648**

### Rac1 (NM\_009007) Mouse Tagged ORF Clone

#### Product data:

**Product Type:** Expression Plasmids  
**Product Name:** Rac1 (NM\_009007) Mouse Tagged ORF Clone  
**Tag:** TurboGFP  
**Symbol:** Rac1  
**Synonyms:** AL023026; D5ErtD559e  
**Mammalian Cell Selection:** Neomycin  
**Vector:** pCMV6-AC-GFP (PS100010)  
**E. coli Selection:** Ampicillin (100 ug/mL)  
**ORF Nucleotide Sequence:** >MG227648 representing NM\_009007  
 Red=Cloning site Blue=ORF Green=Tags(s)

TTTTGTAATACGACTCACTATAGGGCGGCCGGAATTCGTCGACTGGATCCGGTACCGAGGAGATCTGCC  
 GCC**CGATCGCC**

ATCGAGGCCATCAAGTGTGTGGTGGTGGGAGACGGAGCTGTTGGTAAAACCTGCCTGCTCATCAGTTACA  
 CGACCAATGCATTTCTGGAGAGTACATCCCCACCGTCTTTGACAATATTCTGCCAATGTTATGGTAGA  
 TGGAAAACCAAGTGAATCTGGCCTATGGGACACAGCTGGACAAGAAGATTATGACAGATTGCGTCCCCTC  
 TCCTACCCGCAGACAGAGCTGTTCTTAATTTGCTTTTCCCTTGTGAGTCTGCATCATTTGAAAATGTCC  
 GTGCAAAGTGGTATCCTGAAGTGGACACCACTGTCCAATACTCTATCATCCTCGTGGGACGAAGCT  
 TGATCTTAGGGATGATAAGGACACCATTTGAGAAGCTGAAGGAGAAGAAGCTGACTCCCATCACCTACCCG  
 CAGGGGCTGGCCATGGCGAAAGAGATCGGTGCTGTCAAATACCTGGAGTGCTCAGCTCTCACACAGCGAG  
 GACTCAAGACAGTGTTTGACGAAGCTATCCGAGCGTTCTCTGTCCCCTCCTGTCAAGAAGAGGAAGAG  
 AAAATGCCTGCTGTTG

**ACGCGTACGCGGCCGCTCGAG** - GFP Tag - GTTTAA

**Protein Sequence:** >MG227648 representing NM\_009007  
 Red=Cloning site Green=Tags(s)

MQAIKCVVVDGAVGKTCLLISYTTNAFPGEYIPTVFDNYSANVMVDGKPVNLGLWDTAGQEDYDRLRPL  
 SYPQTDVFLICFSLVSPASFENVRKWPVRRHCPNTPIILVGTKLRLRDKDTIEKLKEKLLTPITYP  
 QGLAMAKEIGAVKYLECSALTQRGLKTVFDEAIRAVLCPPPVKKRKRKCLLL

**TRTRPLE** - GFP Tag - V

**Restriction Sites:** Sgfl-MluI



**Cloning Scheme:**


**ACCN:** NM\_009007

**ORF Size:** 576 bp

**OTI Disclaimer:** Due to the inherent nature of this plasmid, standard methods to replicate additional amounts of DNA in E. coli are highly likely to result in mutations and/or rearrangements. Therefore, OriGene does not guarantee the capability to replicate this plasmid DNA. Additional amounts of DNA can be purchased from OriGene with batch-specific, full-sequence verification at a reduced cost. Please contact our customer care team at [custsupport@origene.com](mailto:custsupport@origene.com) or by calling 301.340.3188 option 3 for pricing and delivery.

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\\_009007.2](#), [NP\\_033033.1](#)

RefSeq Size: 2284 bp

RefSeq ORF: 579 bp

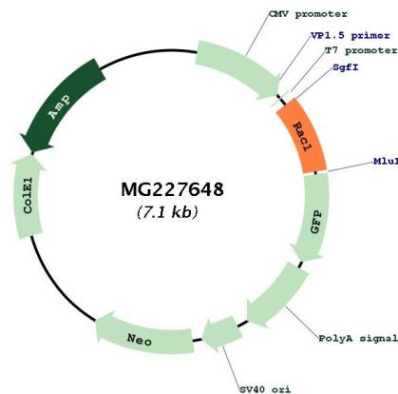
Locus ID: 19353

UniProt ID: [P63001](#)

Cytogenetics: 5 82.22 cM

**Gene Summary:** Plasma membrane-associated small GTPase which cycles between active GTP-bound and inactive GDP-bound states (PubMed:24352656). In its active state, binds to a variety of effector proteins to regulate cellular responses such as secretory processes, phagocytosis of apoptotic cells, epithelial cell polarization, neurons adhesion, migration and differentiation, and growth-factor induced formation of membrane ruffles. Rac1 p21/rho GDI heterodimer is the active component of the cytosolic factor sigma 1, which is involved in stimulation of the NADPH oxidase activity in macrophages. Essential for the SPATA13-mediated regulation of cell migration and adhesion assembly and disassembly. Stimulates PKN2 kinase activity. In concert with RAB7A, plays a role in regulating the formation of RBs (ruffled borders) in osteoclasts. In glioma cells, promotes cell migration and invasion. Required for atypical chemokine receptor ACKR2-induced LIMK1-PAK1-dependent phosphorylation of cofilin (CFL1) and for up-regulation of ACKR2 from endosomal compartment to cell membrane, increasing its efficiency in chemokine uptake and degradation. In podocytes, promotes nuclear shuttling of NR3C2; this modulation is required for a proper kidney functioning. In neurons, is involved in dendritic spine formation and synaptic plasticity (PubMed:24352656, PubMed:26969129). In synapses, seems to mediate the regulation of F-actin cluster formation performed by SHANK3.[UniProtKB/Swiss-Prot Function]

### Product images:



Circular map for MG227648