

## Product datasheet for **RG210511**

### G protein alpha 12 (GNA12) (NM\_007353) Human Tagged ORF Clone

#### Product data:

Product Type:	Expression Plasmids
Product Name:	G protein alpha 12 (GNA12) (NM_007353) Human Tagged ORF Clone
Tag:	TurboGFP
Symbol:	GNA12
Synonyms:	gep; NNX3; RMP
Mammalian Cell Selection:	Neomycin
Vector:	pCMV6-AC-GFP (PS100010)
E. coli Selection:	Ampicillin (100 ug/mL)
ORF Nucleotide Sequence:	>RG210511 representing NM_007353 Red=Cloning site Blue=ORF Green=Tags(s)

TTTTGTAATACGACTCACTATAGGGCGGCCGGAATTCGTCGACTGGATCCGGTACCGAGGAGATCTGCC  
GCC**CGATCGCC**

ATGTCCGGGGTGGTGGGACCCTCAGCCGCTGCCTGCTGCCGGCCGAGGCCGGGGGCCCGGAGCGCA  
GGGCGGGCAGCGCGCGCGACGCGGAGCGGAGGCCCGGAGGCGTAGCCGCGACATCGACGCGTGT  
GGCCCGGAGCGCGCGCGGTCCGGCGCTGGTGAAGATCCTGCTGCTGGGCGGGCGAGAGCGGCAAG  
TCCACGTTCTCAAGCAGATGCGCATCATCCACGCCCGGAGTTCGACCAGAAGGCGCTGCTGGAGTTCC  
GCGACACCATCTCGACAACATCCTCAAGGGCTCAAGGGTTCTTGTGATGCACGAGATAAGCTTGGCAT  
TCCTTGGCAGTATTCTGAAAATGAGAAGCATGGATGTTCTGATGGCCTTCGAGAAAGCCAGCGGGCTG  
CCTGTGGAGCCGCCACCTTCCAGCTGTACGTCCCGGCCCTGAGCGCACTCTGGAGGATTCTGGCATCA  
GGGAGGCTTTTCAGCCGGAGAAGCGAGTTTCAGCTGGGGGAGTCCGTGAAGTACTTCTGGACAACCTTGA  
CCGGATCGGCCAGCTGAATTACTTTCTAGTAAGCAAGATATCCTGCTGGCTAGGAAAGCCACCAAGGGA  
ATTGTGGAGCATGACTTCGTTATTAAGAAGATCCCCTTAAAGATGGTGGATGTGGCGGCCAGCGGTCCC  
AGCGCCAGAAGTGGTCCAGTGTTCGACGGGATCACGTCATCCTGTTTCATGGTCTCTCCAGCGAGTA  
CGACCAGTCTCATGGAGGACAGGCGCACCAACCGGCTGGTGGAGTCCATGAACATCTTCGAGACCATC  
GTCAACAACAAGCTCTTCTCAACGTCTCCATCATTCTTCTCAACAAGATGGACCTCTGGTGGAGA  
AGGTGAAGACCGTGAGCATCAAGAAGCACTTCCCGGACTTCAGGGGCGACCCGCACAGGCTGGAGGACGT  
CCAGCGCTACCTGGTCCAGTGTTCGACAGGAAGAGACGGAACCGCAGCAAGCCACTCTTCCACCACTTC  
ACCACCGCATCGACACCGAGAAGCTCCGCTTCGTGTTCCATGCTGTGAAAGACACCATCTGCAGGAGA  
ACCTGAAGGACATCATGCTGCAG

**ACGCGT**ACGCGGCCGCTCGAG - GFP Tag - GTTTAA



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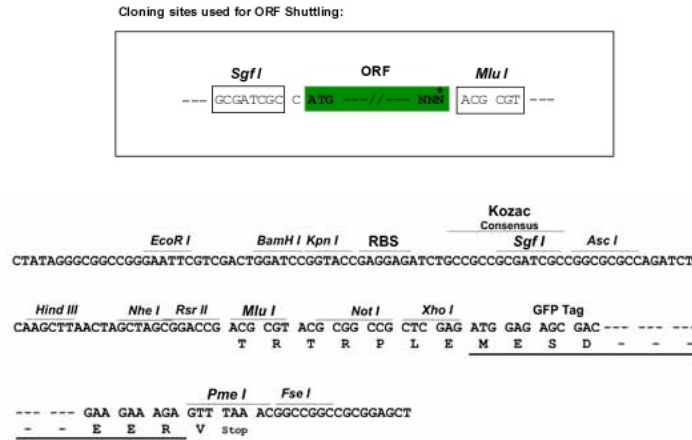
**Protein Sequence:** >RG210511 representing NM\_007353  
 Red=Cloning site Green=Tags(s)

MSGVVRTL<sup>SR</sup>CLLP<sup>AE</sup>AGGARERRAGSGARDAEREARRRSRDIDALLARERRAVRRLVKILLGAGESGK  
 STFLKQMRIIHGREFDQKALLEFRDTIFDNILKGSRVLVDARDKLGIPWQYSENEKHGMFLMAFENKAGL  
 PVEPATFQLYVPALSALWRDSGIREAFSRRSEFQLGESVKYFLDNLDRIGQLNYFSPKQDILLARKATKG  
 IVEHDFVIKKIPFKMVDVGGQRSQRQKWFQCFDGTISILFMVSSSEYDQVLMEDRRTNRLVESMNI<sup>FETI</sup>  
 VNNKLFNVSIILFLNKMDLLVEKVKT<sup>VS</sup>IKKHF<sup>PDF</sup>RGDPH<sup>RL</sup>EDVQRYLVQCFDRKRRNRSKPLFHHF  
 TTAIDTENVRV<sup>FH</sup>AVKDTILQENLKDIMLQ

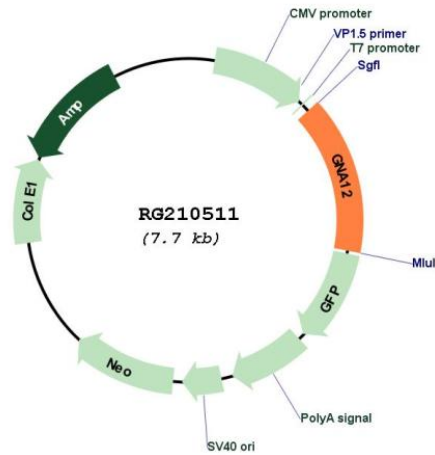
TRTRPLE - GFP Tag - V

**Restriction Sites:** SgfI-MluI

**Cloning Scheme:**



**Plasmid Map:**



**ACCN:** NM\_007353

<b>ORF Size:</b>	1143 bp
<b>OTI Disclaimer:</b>	<p>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 <a href="mailto:custsupport@origene.com">custsupport@origene.com</a> or by calling 301.340.3188 option 3 for pricing and delivery.</p> <p>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. <a href="#">More info</a></p>
<b>OTI Annotation:</b>	This clone was engineered to express the complete ORF with an expression tag. Expression varies depending on the nature of the gene.
<b>Components:</b>	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).
<b>Reconstitution Method:</b>	<ol style="list-style-type: none"> <li>1. Centrifuge at 5,000xg for 5min.</li> <li>2. Carefully open the tube and add 100ul of sterile water to dissolve the DNA.</li> <li>3. Close the tube and incubate for 10 minutes at room temperature.</li> <li>4. Briefly vortex the tube and then do a quick spin (less than 5000xg) to concentrate the liquid at the bottom.</li> <li>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.</li> </ol>
<b>RefSeq:</b>	<a href="#">NM_007353.3</a>
<b>RefSeq Size:</b>	4398 bp
<b>RefSeq ORF:</b>	1146 bp
<b>Locus ID:</b>	2768
<b>UniProt ID:</b>	<a href="#">Q03113</a>
<b>Cytogenetics:</b>	7p22.3-p22.2
<b>Domains:</b>	G-alpha
<b>Protein Families:</b>	Druggable Genome
<b>Protein Pathways:</b>	Long-term depression, MAPK signaling pathway, Regulation of actin cytoskeleton, Vascular smooth muscle contraction

**Gene Summary:**

Guanine nucleotide-binding proteins (G proteins) are involved as modulators or transducers in various transmembrane signaling systems (PubMed:22609986, PubMed:15525651, PubMed:15240885, PubMed:17565996, PubMed:12515866, PubMed:16787920, PubMed:16705036, PubMed:23762476, PubMed:27084452). Activates effector molecule RhoA by binding and activating RhoGEFs (ARHGEF12/LARG) (PubMed:15240885, PubMed:12515866, PubMed:16202387). GNA12-dependent Rho signaling subsequently regulates transcription factor AP-1 (activating protein-1) (By similarity). GNA12-dependent Rho signaling also regulates protein phosphatase 2A activation causing dephosphorylation of its target proteins (PubMed:15525651, PubMed:17565996). Promotes tumor cell invasion and metastasis by activating RhoA/ROCK signaling pathway and up-regulating proinflammatory cytokine production (PubMed:23762476, PubMed:16787920, PubMed:16705036, PubMed:27084452). Inhibits CDH1-mediated cell adhesion in process independent from Rho activation (PubMed:11976333, PubMed:16787920). Together with NAPA promotes CDH5 localization to plasma membrane (PubMed:15980433). May play a role in the control of cell migration through the TOR signaling cascade (PubMed:22609986).[UniProtKB/Swiss-Prot Function]