

## Product datasheet for **RG223540**

### Myosin Phosphatase (PPP1R12A) (NM\_002480) Human Tagged ORF Clone

#### Product data:

Product Type:	Expression Plasmids
Product Name:	Myosin Phosphatase (PPP1R12A) (NM_002480) Human Tagged ORF Clone
Tag:	TurboGFP
Symbol:	Myosin Phosphatase
Synonyms:	GUBS; M130; MBS; MYPT1
Mammalian Cell Selection:	Neomycin
Vector:	pCMV6-AC-GFP (PS100010)
E. coli Selection:	Ampicillin (100 ug/mL)
ORF Nucleotide Sequence:	>RG223540 representing NM_002480 Red=Cloning site Blue=ORF Green=Tags(s)

TTTTGTAATACGACTCACTATAGGGCGGCCGGAATTCGTCGACTGGATCCGGTACCGAGGAGATCTGCC  
GCC**CGATCGCC**

ATGAAGATGGCGGACGCGAAGCAGAAGCGGAACGAGCAGCTGAAACGCTGGATCGGCTCCGAGACGGACC  
TCGAGCCTCCGGTGGTGAAGCGCCAGAAGACCAAGGTGAAGTTCGACGATGGCGCCGTCTCCTGGCTGC  
TTGCTCCAGCGGCGACACGGACGAGGTCTCAAGCTGCTGCACCGCGGCGCCGACATCAATTACGCCAAT  
GTGGACGGACTCACTGCCCTGCACCAGGCTTGCAATTGATGACAATGTTGATATGGTGAAGTTTCTGGTAG  
AAAATGGAGCAAATATTAATCAACCTGATAATGAAGGCTGGATACCACTACATGCAGCAGCTTCCTGTGG  
ATATCTTGATATTGCAGAGTTTTGATTGGTCAAGGAGCAGATGTAGGGCTGTCAACAGTGAAGGAGAT  
ACACCTTTAGATATTGCGGAGGAGGAGGCAATGGAAGAGCTACTTCAAAATGAAGTTAATCGGCAAGGGG  
TTGATATAGAAGCAGCTCGAAAGGAAGAAGAACGGATCATGCTTAGAGATGCCAGGCAGTGGCTAAATAG  
TGGTCATATAAATGATGTCCGGCATGCAAAATCTGGAGGTACAGCACTTCACGTTGCAGCTGCTAAAGGC  
TATACGGAAGTTTTAAACTTTTAAACAGGCAGGCTATGATGTTAATATTAAGACTATGATGGCTGGA  
CACCTCTTCATGCTGCAGCTCATTGGGGTAAAGAAGAAGCATGTCGAATTTAGTGGACAATCTGTGTGA  
TATGGAGATGGTCAACAAAGTGGCCAAACAGCCTTTGATGTAGCAGATGAAGACATTTTAGGATATTTA  
GAAGAGTTGCAAAAGAAACAAAATCTGCTCCATAGTGAAAAACGGGACAAGAAATCTCCACTAATTTGAAT  
CAACAGCAAATATGGACAATAATCAGTCACAGAAGACCTTTAAAAACAAAGAGACGTTGATTATTGAACC  
AGAGAAAAATGCATCCCCTATTGAATCTCTGGAACAAGAAAAGGTTGATGAAGAAGAAGAAGAAAAGAG  
GATGAGCTAGCTGCTCTAGTGAAGAAGATGAGGAAGTACTCGGAATCAGAAGCTGAAACAGATAAGA  
CAAAACCCTGGCTTCTGTAACCTAATGCCAACCTTCTAGTACACAAGCAGCTCCTGTAGCTGTTACAAC  
ACCTACTGTGTCATCAGGTCAAGCAACCTACATCACCTATTAAGGTTTCCAACCACAGCTACAAAA  
ATTTCTCCAAAGAAGAAGAGAGAAAAGATGAGTCTCCTGCAACTGGAGGTTAGGACTTAGAAAGACGG  
GCAGCTATGGTCACTTGTGAAATCACAGCATCTAAAGAGGTCAGAAAAGAAAAGATACTGCAGGTGT  
TACACGTTCAAGTCCCAGACTTCTCCTCTTTGGATAATAAAGAAAAGGAGAAAAGATAGTAAA



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GGAAGTGGCTTGCATATGTTGCACCTACAATACCAAGACGACTAGCCAGTACATCTGACATTGAAGAGA  
 AAGAAAACAGAGATTCTTCAAGTTTGCGAACAAGTAGTTCATATACAAGGAGAAAATGGGAAGATGATCT  
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 GATTTGATTAGTCTAGTGTCCAAAGCACCACATCAACACCAACAGTTACCTCTGCAGCTGGGCTTCAAG  
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 CCAGTATCAACTCAAGTTCAACCACTCCATCCTTCTCACTTTCTACTATGAGCAGTTCAGTGTATGCTT  
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 TTCTAGATATGAAACCAGTTCTACATCAGCTGGTATCGATATGATTCTTGTGGTGGTCTGGATCA  
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 AGCTTTATGAACAAATTTAGCTGAAAATGAAAAGCTGAAGGCACAGCTACATGATACAAATATGGAAGT  
 AACAGATCTTAAATTACAGTTGGAAAAGGCCACCCAGAGACAAGAAAAGATTTGCTGATAGATCACTGTTG  
 GAAATGGAAAAAGGGAACGAAGAGCTCTAGAAAAGAAGATATCTGAAATGGAAGAAGAGCTCAAATGT  
 TACCAGACCTAAAAGCAGACAACCAGAGGCTAAAGGATGAAAATGGGGCCTTGATCAGAGTTATAAGCAA  
 ACTTTCCAAAAAAGAAAAAAGAAAAAAGTCTGACTCTAGATTGCGGCCGCGGTCA

ACGCGTACGCGGCCGCTCGAG – GFP Tag – GTTTAA

**Protein Sequence:**

>RG223540 representing NM\_002480  
 Red=Cloning site Green=Tags(s)

MKMADAKQKRNEQLKRWIGSETDLEPPVVKRQKTKVKFDDGAVFLAACSSGDTDEVLLKLRHGDINNYAN  
 VDGLTALHQACIDNDVDMVKFLVENGANINQPDNEGWIPLHAAAACGYLDIAEFLIGQGAHVAVNSEGD  
 TPLDIAEEEEAMEELLQNEVNRQGVDI EAARKEEERIMLRDARQWLNSGHINDVRHAKSGGTALHVAANKG  
 YTEVLKLLIQAGYDVNIKDYDGWTPHAAAHWGKEEACRILVDNLCDMEMVNVKGQTAFDVADEDILGYL  
 EELQKKQNLHSEKRDKKSPLIESTANMDNNQSQKTFKNKETLIEPEKNASRIESLEQEKVDEEEEGKK  
 DESSCSSEDEEDSESEAETDKTKPLASVTNANTSSTQAPVAVTTPVSSGQATPTSPIKKFPTTATK  
 ISPKEEERKDESPATWRLGLRKTGSYGALAEITASKEGQKEKDTAGVTRSASSPRLSSSLDNKEKEKDSK  
 GTRLAYVAPTIPRRLASTSDIEEKENRDSSSLRTSSSYTRRWEDDLKKNSSVNEGSTYHKSCSFGRRQD  
 DLISSVPSTTSTPTVTSAGLQKSLLSSTSTTKITGSSSAGTQSSTSNRLWAEDSTEKEKDSVPTAV  
 TIPVAPTIVNAAASTTTLT TTTAGTVSSTTEVRERRRSYLTPVRDEESESQRKARSRQARQSRSTQGV  
 LTDLQEAETIGRSRSTRTREQENEEKEKEKEKQDKEKQEEKESSETSREDEYKQKYSRTYDETYQRYR  
 PVSTSSSTTPSSSLSTMSSSLYASSQLNRPNSLVGITSAYSRGITKENEREGEKREEEKEGEDKSQPKSI  
 RERRRPREKRRSTGVSFWTQSDENEQEQQSDTEEGSNKKETQTDISRYETSSTSAGDRYDLSLLGRSGS  
 YSYLEERKPYSSRLEKDDSTDFKKLYEQILAENEKLAQLHDTNMELTDLKLQLEKATQRQERFADRSL  
 EMKRERRALERRISEMEEELKMLPDLKADNQLKDENGALIRVISKLSKKKKKKLDSRLRPRS

TRTRPLE – GFP Tag – V

**Restriction Sites:**

Sgfl-MluI

**Cloning Scheme:**


**ACCN:** NM\_002480

**ORF Size:** 3132 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\\_002480.1](#), [NP\\_002471.1](#)

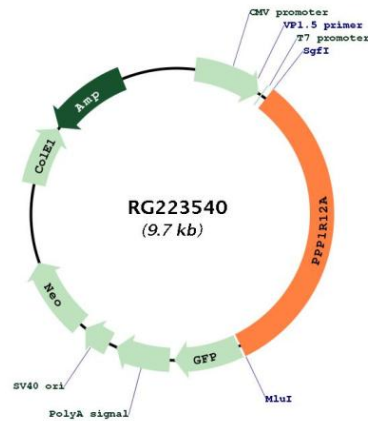
**RefSeq Size:** 4613 bp

**RefSeq ORF:** 3093 bp

**Locus ID:** 4659  
**UniProt ID:** [O14974](#)  
**Cytogenetics:** 12q21.2-q21.31  
**Domains:** ANK  
**Protein Families:** Druggable Genome  
**Protein Pathways:** Focal adhesion, Long-term potentiation, Regulation of actin cytoskeleton, Vascular smooth muscle contraction

**Gene Summary:** Myosin phosphatase target subunit 1, which is also called the myosin-binding subunit of myosin phosphatase, is one of the subunits of myosin phosphatase. Myosin phosphatase regulates the interaction of actin and myosin downstream of the guanosine triphosphatase Rho. The small guanosine triphosphatase Rho is implicated in myosin light chain (MLC) phosphorylation, which results in contraction of smooth muscle and interaction of actin and myosin in nonmuscle cells. The guanosine triphosphate (GTP)-bound, active form of RhoA (GTP.RhoA) specifically interacted with the myosin-binding subunit (MBS) of myosin phosphatase, which regulates the extent of phosphorylation of MLC. Rho-associated kinase (Rho-kinase), which is activated by GTP. RhoA, phosphorylated MBS and consequently inactivated myosin phosphatase. Overexpression of RhoA or activated RhoA in NIH 3T3 cells increased phosphorylation of MBS and MLC. Thus, Rho appears to inhibit myosin phosphatase through the action of Rho-kinase. Several transcript variants encoding different isoforms have been found for this gene. [provided by RefSeq, Jan 2009]

### Product images:



Circular map for RG223540