

## Product datasheet for **RC400414**

### **PTEN (NM\_000314) Human Mutant ORF Clone**

#### **Product data:**

Product Type:	Mutant ORF Clones
Product Name:	PTEN (NM_000314) Human Mutant ORF Clone
Mutation Description:	R173H
Affected Codon#:	173
Affected NT#:	c.518
Nucleotide Mutation:	PTEN Mutant (R173H), Myc-DDK-tagged ORF clone of Homo sapiens phosphatase and tensin homolog (PTEN) as transfection-ready DNA
Effect:	Missense
Symbol:	PTEN
Synonyms:	10q23del; BZS; CWS1; DEC; GLM2; MHAM; MMAC1; PTEN1; PTENbeta; TEP1
E. coli Selection:	Kanamycin (25 ug/mL)
Mammalian Cell Selection:	Neomycin
Vector:	pCMV6-Entry (PS100001)
Tag:	Myc-DDK
ACCN:	NM_000314
ORF Size:	1209 bp
Restriction Sites:	Sgfi-Mlul



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**ORF Nucleotide Sequence:**

>RC400414 representing NM\_000314  
 Red=Cloning site Blue=ORF Green=Tags(s)

TTTTGTAATACGACTCACTATAGGGCGGCCGGAATTCGTCGACTGGATCCGGTACCGAGGAGATCTGCC  
 GCC**GCGATCGCC**

ATGACAGCCATCATCAAAGAGATCGTTAGCAGAAACAAAAGGAGATATCAAGAGGATGGATTCGACTTAG  
 ACTTGACCTATATTTATCCAAACATTATTGCTATGGGATTTCTGCAGAAAGACTTGAAGGCGTATACAG  
 GAACAATATTGATGATGTAGTAAGGTTTTGGATTCAAAGCATAAAAACCATTACAAGATATAACAATCTT  
 TGTGCTGAAAGACATTATGACACCGCCAAATTTAATTGCAGAGTTGCACAATATCCTTTTGAAGACCATA  
 ACCCACCACAGCTAGAACTTATCAAACCCTTTGTGAAGATCTTGACCAATGGCTAAGTGAAGATGACAA  
 TCATGTTGCAGCAATTCAGTGTAAAGCTGAAAAGGGACGAACTGGTGTAAATGATATGTGCATATTTATTA  
 CATCGGGGCAAATTTTTAAAGGCACAAGAGGCCCTAGATTTCTATGGGGAAGTAAAGACCAGAGACAAAA  
 AGGGAGTAACTATCCAGTCAGAGGCACTATGTGATTATTATAGCTACCTGTTAAAGAATCATCTGGA  
 TTATAGACCAGTGGCACTGTTGTTTACAAGATGATGTTTGAAGTAACTTCCAATGTTCACTGGCGGA  
 TGCAATCCTCAGTTTGTGGTCTGCCAGCTAAAGGTGAAGATATATTCCTCCAATTCAGGACCCACACGAC  
 GGAAGACAAGTTCATGTACTTTGAGTTCCTCAGCCGTTACCTGTGTGTGGTATATCAAGTAGAGTT  
 CTTCCACAAAACAGAAAGATGCTAAAAAGGACAAAAATGTTTCACTTTTGGGTAATACATTCTTCATA  
 CCAGGACCAGAGGAACTCAGAAAAAGTAGAAAAAGTGAAGTCTATGTGATCAAGAAATCGATAGCATT  
 GCAGTATAGAGCGTGCAGATAATGACAAGGAATATCTAGTACTACTTTAACAAAAATGATCTTGACAA  
 AGCAAAATAAGACAAAGCCAACCGATACTTTTCTCAAATTTAAGGTGAAGCTGACTTCAAAAAACA  
 GTAGAGGAGCCGTCAAATCCAGAGGCTAGCAGTTCAACTTCTGTAACACCAGATGTTAGTGACAATGAAC  
 CTGATCATTATAGATTTCTGACACCACTGACTCTGATCCAGAGAATGAACCTTTTGATGAAGATCAGCA  
 TACACAAATTACAAAAGTC

**ACGCGT**ACGCGGCCGCTCGAGCAGAACTCATCTCAGAAGAGGATCTGGCAGCAAATGATATCCTGGATT  
 ACAAGGATGACGACGATAAGGTTTAA

**Protein Sequence:**

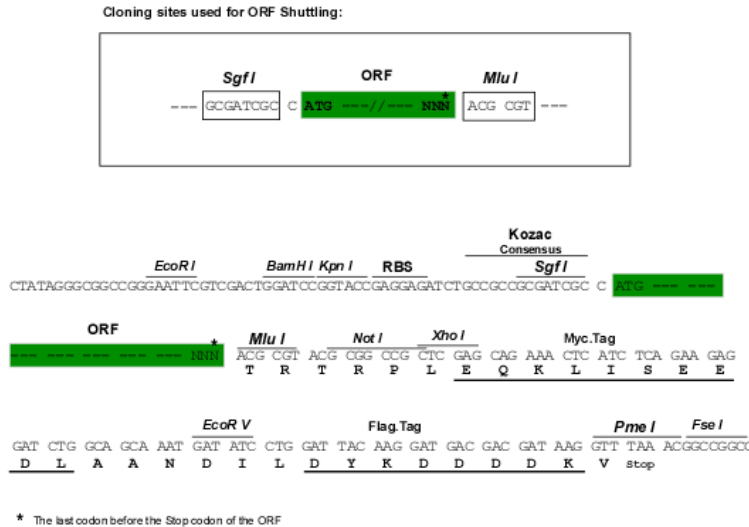
>RC400414 representing NM\_000314  
 Red=Cloning site Green=Tags(s)

MTAIIKEIVSRNKRRYQEDGFDLDTYIYPNIIAMGFPAERLEGVYRNNIDDVVRFLDSKHKNHYKIYNL  
 CAERHYDTAKFNCRVAQYPFEDHNPPQLELIKPFCELDQWLSDDNHVAAIHCKAGKGRGVMICAYLL  
 HRGKFLKAQEALDFYGEVTRDKKGVTIQSRHYVYYSYLLKNHLDYRPVALLFHKMMFETIPMFSGGT  
 CNPQFVVCQLKVKIYSSNSGPTRRREDFMYEFQPLPVCVDIKVEFFHKQNKMLKKDKMFHFWNTFFI  
 PGPEETSEKVENGSLCDQEIDSICSIERADNDKEYLVLTLTKNDLKDANKDKANRYFSPNFKVKLYFTKT  
 VEEPSNPEASSSTSVTPDVSDNEPDHYRYSDDTSDPENEPFDEDQHTQITKV

**TR**TRPLEQKLISEEDLAANDILDYKDDDDKV

**Restriction Sites:**

SgfI-MluI

**Cloning Scheme:**

**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).

**RefSeq:**

[NP\\_000305](#)

**RefSeq Size:**

5572 bp

**RefSeq ORF:**

1212 bp

**Locus ID:**

5728

**Cytogenetics:**

10q23.31

**Domains:**

PTPc\_motif

**Protein Families:**

Druggable Genome, Phosphatase

<b>Protein Pathways:</b>	Endometrial cancer, Focal adhesion, Glioma, Inositol phosphate metabolism, Melanoma, p53 signaling pathway, Pathways in cancer, Phosphatidylinositol signaling system, Prostate cancer, Small cell lung cancer, Tight junction
<b>MW:</b>	47 kDa
<b>Gene Summary:</b>	<p>This gene was identified as a tumor suppressor that is mutated in a large number of cancers at high frequency. The protein encoded by this gene is a phosphatidylinositol-3,4,5-trisphosphate 3-phosphatase. It contains a tensin like domain as well as a catalytic domain similar to that of the dual specificity protein tyrosine phosphatases. Unlike most of the protein tyrosine phosphatases, this protein preferentially dephosphorylates phosphoinositide substrates. It negatively regulates intracellular levels of phosphatidylinositol-3,4,5-trisphosphate in cells and functions as a tumor suppressor by negatively regulating AKT/PKB signaling pathway. The use of a non-canonical (CUG) upstream initiation site produces a longer isoform that initiates translation with a leucine, and is thought to be preferentially associated with the mitochondrial inner membrane. This longer isoform may help regulate energy metabolism in the mitochondria. A pseudogene of this gene is found on chromosome 9. Alternative splicing and the use of multiple translation start codons results in multiple transcript variants encoding different isoforms. [provided by RefSeq, Feb 2015]</p>