

Product datasheet for **SC116247**

AMPK alpha 2 (PRKAA2) (NM_006252) Human Untagged Clone

Product data:

Product Type:	Expression Plasmids
Product Name:	AMPK alpha 2 (PRKAA2) (NM_006252) Human Untagged Clone
Tag:	Tag Free
Symbol:	AMPK alpha 2
Synonyms:	AMPK; AMPK2; AMPKa2; PRKAA
Mammalian Cell Selection:	None
Vector:	<u>pCMV6-XL4</u>
E. coli Selection:	Ampicillin (100 ug/mL)



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Fully Sequenced ORF:

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>OriGene ORF sequence for NM_006252 edited
GGCGGCCGCGCAATTCGCACGAGGCCGCGCGCCGAAGATGGCTGAGAAGCAGAAGCAC
GACGGGCGGGTGAAGATCGGACACTACGTGCTGGGCGACACGCTGGGCGTCGGCACCTTC
GGCAAAGTGAAGATTGGAGAACATCAATTAACAGGCCATAAAGTGGCAGTTAAAAATCTTA
AATAGACAGAAGATTCGCAGTTTAGATGTTGTTGGAAAAATAAACGAGAAATTCAAAAT
CTAAAACCTTTTCGTCATCCTCATATTATCAAACATAACCAGGTGATCAGCACTCCAACA
GATTTTTTTATGGTAATGGAATATGTGCTGGAGGTGAATTATTTGACTACATCTGTAAG
CATGGACGGGTTGAAGAGATGGAAGCCAGCGGCTCTTTTCAGCAGATTCTGTCTGTGTG
GATTACTGTCATAGGCATATGGTTGTTTCATCGAGACCTGAAACCAGAGAATGTCCTGTTG
GATGCACACATGAATGCCAAGATAGCCGATTTCCGATTATCTAATATGATGTCAGATGGT
GAATTTCTGAGAACTAGTTGCGGATCTCCAAATTATGCAGCACCTGAAGTCATCTCAGGC
AGATTGTATGCAGGTCTGAAGTTGATATCTGGAGCTGTGGTGTATCTTGATGCTCTT
CTTTGTGGCACCTCCCATTTGATGATGAGCATGTACCTACGTTATTTAAGAAGATCCGA
GGGGGTGCTTTTTATATCCAGAATATCTCAATCGTTCTGTGCCACTCTCCTGATGCAT
ATGCTGCAGGTTGACCCACTGAAACGAGCAACTATCAAAGACATAAGAGAGCATGAATGG
TTTAAACAAGATTTGCCAGTACTTATTTCTGAAGACCCTTCTATGATGCTAACGTC
ATTGATGATGAGGCTGTGAAAGAAGTGTGTGAAAAATTTGAATGTACAGAATCAGAAGTA
ATGAACAGTTTATATAGTGGTGACCCTCAAGACCAGCTTGCAAGTGGCTTATCATCTTATC
ATTGACAATCGGAGAATAATGAACCAAGCCAGTGAGTTTACCTCGCCTCTAGTCTCCCA
TCTGGTCTTTTTATGGATGATAGTGCCATGCATATTTCCCCCAGGCCTGAAACCTCATCCA
GAAAGGATGCCACCTCTTATAGCAGACAGCCCCAAAGCAAGATGTCCATTGGATGCACTG
AATACGACTAAGCCAAATCTTTAGCTGTGAAAAAAGCCAAGTGGCATCTTGGAAATCCGA
AGTCAGAGCAAACCGTATGACATTATGGCTGAAGTTTACCGAGCTATGAAGCAGCTGGAT
TTTGAATGGAAGGTAGTGAATGCATACCATCTTCGTGTAAGAAGAAAAATCCAGTGACT
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GAGAGCCATTCACTTTCTGGCTCTCTCACTGGCTCTTTGACCGGAAGCACATTGTCTTCA
GTTTCACCTCGCCTGGGCAGTCACACCATGGATTTTTTTGAAATGTGTGCCAGTCTGATT
ACTACTTTAGCCCGTTGATCTGTCTCTAGTTTCTTTCTGTTATTGCACTATGAAAATCAG
TTATATTTCTTTAAATTTTTATCTTACTTTTGGATAAATATCCACTGCAATACTAATTGAGA
AACATGAATTATTTCCAGGGGCACACAATGCTATTGAAATTAAGTAAAACAAAATATCTG
ACATCTTATTTACTTGTAGAAATCTGTAATTCTATTGTGCCTATGATAAATTCACATAGG
CAATATCTTTAATAGGTTAATATCAATGAAGATTTTTAATTACAATAATGAGTTCCTAC
AGACGATTAACACACCACACTGGCGAACCATCTCAATGTAAGGGTGGTTTGGCAACACCT
CCTTGCTTTGCTGTTGGTGTAGGTAATCTAGTTTACTTCTAAATTTTCAGTAGGCTTT
ATGCTGTGTTTATGCCCCAATTTATTTTAAACAAAAGAAGATTAAGTAAAAGAACCA
CGAGTAAGATATTATTTAAATGTTGAAATCTTAAAAACCTGCCTCCAAGATTTTCAGAAGC
CAAGTTTTTCTAACAGTATTTGTACAAATACTGCCTAGTGTATTCAACAGAAGGACTGTG
GGTCATGTAACAGGTAACCACAATTTTC
    
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5' Read Nucleotide Sequence:

>OriGene 5' read for NM_006252 unedited
 NGCTTGTACCGCTAAAACGACTCATATAGGCGGCCGCGCAATTCGCACGAGGCCGCGCGC
 GCCGAAGAGGCTGAGAAGCAGAAGCAGCAGCGGGCGGGTGAAGATCGGACACTACGTGCTG
 GGCGACACGCTGGGCGTCGGCACCTTCGGCAAAGTGAAGATTGGAGAACATCAATTAACA
 GGCCATAAAGTGGCAGTTAAAATCTTAAATAGACAGAAGATTCGCAGTTTAGATGTTGTT
 GGAAAAATAAAACGAGAAATCAAATCTAAAATCTTTTCGTCATCCTCATATTATCAAA
 CTATACCAGGTGATCAGCACTCCAACAGATTTTTTATGGTAATGGAATATGTGCTGGA
 GGTGAATTTTACTACATCTGTAAAGCATGGACGGGTTGAAGAGATGGAAGCCAGGCGG
 CTCTTTCAGCAGATTCTGTCTGTGGATTACTGTCATAGGCATATGGTTGTTTCATCGA
 GACCTGAAACCAGAGAATGTCCTGTTGGATGCACACATGAATGCCAAGATAGCCGATTTT
 GGATTATCTAATATGATGTCAGATGGTGAATTTCTGAGAACTAGTTGCGGATCTCCAAAT
 TATGCAGCACCTGAAGTCATCTCAGGCAGATTGTATGCAGGTCCTGAAGTTGATATCTGG
 AGCTGTGGTGTATCTTGTATGCTCTTCTTTGTGGCACCTCCCATTTGATGATGAGCAT
 GTACCTACGTTATTTAAGAAGATCCGAGGGGGTGTCTTTATATCCAGAATATCTCAAT
 CGTTCTGTGCGCCACTCTCCTGATGCATATGCTGCAAGTTGACCCACTGAAACGAGCGACT
 ATCAAAGACATAAGAGAGCATGAAATGGGTTAANACAAGATTTGCCCAGTTACTTATTTT
 CTGGAGACCCCTTCTATGATGCTTACGTCATGATGAT

3' Read Nucleotide Sequence:

>OriGene 3' read for NM_006252 unedited
 NAATACTGNACCGCGCCGATTCTANATCGAGTTTTTTTTCTTTTTTTTTTTTGGCTTAA
 AACACTGGTGTGGAATATATATATTTATTTAAGATAAAAAATTTTTCTTGATGTT
 CAAAGCTTCCCTGCCCTATCAGGTTCAACAGTAAAGTCATAGCCAGCCCTTAGGGCCAG
 AACAGTGTTTTCAAACCTGGACTAGAAAAGATTCAAAGCTATATCAATCAACCACTCAGG
 ATCAAACAATGAACAAAGACAATAGTGACTAGGTGAGGTGAGGTGAAAGGAGTGGCTTCC
 AATGAAGAATTAGCATTATGAGCTGCACCAGGACCCTAACACCTAACACAGAAAAATAAG
 ATCAAAGATAAGGATTCTCATTTAAGGGACTGTTGATACTTTGCTTTGTTTCATTTAACT
 ATTTTATCACTGTTGGTGAATGCAAAAAATAAATAGAGGCAAAAAGAATTTGAGAAAGGT
 AGATTTTGAAGACATTTTTTAAATGACGTAAGTTTATGTAAAAGACAAAAGTTGTTGCAA
 TTCCAGATGTTCCAATATTAATTTGAAACTTGAAGGCTCTTAAGATAAATATATTATCA
 GGGAAATCTCAAGATAAAAAATCCTGAGTTAGTTACAGCTGTTTTTAAGAAACCTGAAAAT
 TGTGGTTACCTGTTACATGACCACAGTCCTTCTGTTGAATACACTAGGCAGTATTTGTAC
 AAATACTGTTAGAAAACTTGGCTTCTGAAATCTTGAAGCAGGTTTTTTAGATTCAAC
 ATTTTAATAATATCTTACTCGTGGTTCTTTTACCTTTTAACTTCTTTGTTAAATAAAT
 TGGGGGCATAAACCCCGCATAAAGCCCACTGAAATTTAGGAAGTTAACTAGATTTACCTA
 CNCCCAACACCAACAGGGAGGTGTTGCACAACCACCTTACAT

Restriction Sites:

NotI-NotI

ACCN:

NM_006252

Insert Size:

3000 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 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](#)

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_006252.2](#), [NP_006243.2](#)

RefSeq Size: 2435 bp

RefSeq ORF: 1659 bp

Locus ID: 5563

UniProt ID: [P54646](#)

Cytogenetics: 1p32.2

Protein Families: Druggable Genome, Protein Kinase

Protein Pathways: Adipocytokine signaling pathway, Hypertrophic cardiomyopathy (HCM), Insulin signaling pathway, mTOR signaling pathway, Regulation of autophagy

Gene Summary: The protein encoded by this gene is a catalytic subunit of the AMP-activated protein kinase (AMPK). AMPK is a heterotrimer consisting of an alpha catalytic subunit, and non-catalytic beta and gamma subunits. AMPK is an important energy-sensing enzyme that monitors cellular energy status. In response to cellular metabolic stresses, AMPK is activated, and thus phosphorylates and inactivates acetyl-CoA carboxylase (ACC) and beta-hydroxy beta-methylglutaryl-CoA reductase (HMGCR), key enzymes involved in regulating de novo biosynthesis of fatty acid and cholesterol. Studies of the mouse counterpart suggest that this catalytic subunit may control whole-body insulin sensitivity and is necessary for maintaining myocardial energy homeostasis during ischemia. [provided by RefSeq, Jul 2008]