

## Product datasheet for **SC323464**

### AMPK alpha 1 (PRKAA1) (NM\_006251) Human Untagged Clone

#### Product data:

Product Type:	Expression Plasmids
Product Name:	AMPK alpha 1 (PRKAA1) (NM_006251) Human Untagged Clone
Tag:	Tag Free
Symbol:	AMPK alpha 1
Synonyms:	AMPK; AMPKa1; AMPK alpha 1
Mammalian Cell Selection:	None
Vector:	<u><a href="#">pCMV6-XL5</a></u>
E. coli Selection:	Ampicillin (100 ug/mL)



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**Fully Sequenced ORF:** >NCBI ORF sequence for NM\_006251, the custom clone sequence may differ by one or more nucleotides

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ATGCGCAGACTCAGTTCCTGGGAAAGATGGCGACAGCCGAGAAGCAGAAACACGACGGGCGGTGAAGA
TCGGCCACTACATTCTGGGTGACACGCTGGGGTCCGCACCTTCGGCAAAGTGAAGTTGGCAAACATGA
ATTGACTGGGCATAAAGTAGCTGTGAAGATACTCAATCGACAGAAGATTCGGAGCCTTGTGTGGTAGGA
AAAATCCGAGAGAAATTCAGAACCTCAAGCTTTTCAGGCATCCTCATATAATTAACACTGTACCAGGTCA
TCAGTACACCATCTGATATTTTCATGGTATGGAATATGTCTCAGGAGGAGAGCTATTTGATTATATCTG
TAAGAATGGAAGGCTGGATGAAAAAGAAAGTCGGCGTCTGTTCCAACAGATCCTTTCTGGTGTGGATTAT
TGTACAGGCATATGGTGGTCCATAGAGATTTGAAACCTGAAAATGTCCTGCTTGTATGCACACATGAATG
CAAAGATAGCTGATTTTGGTCTTCAAACATGATGTCAGATGGTGAATTTTAAAGCAAGTTGTGGCTC
ACCCAATATGCTGCACCAGAAGTAATTCAGGAAGATTGTATGCAGGCCAGAGGTAGATATATGGAGC
AGTGGGGTATTCTCTATGCTTTATTATGTGGAACCTTCCATTTGATGATGACCATGTGCCAATCTTT
TTAAGAAGATATGTGATGGGATCTTCTATACCCCTCAATATTTAAATCCTTCTGTGATTAGCCTTTTGA
ACATATGCTGCAGGTGGATCCCATGAAGAGGGCCACAATCAAAGATATCAGGGAACATGAATGGTTTAA
CAGGACCTTCCAAAATATCTCTTTCCTGAGGATCCATCATATAGTTCAACCATGATTGATGATGAAGCT
TAAAAGAAGTATGTGAAAAGTTTGTGCTCAGAAGAGGAAGTTCTCAGCTGTCTTTACAACAGAAATCA
CCAGGATCCTTTGGCAGTTGCCTACCATCTCATAATAGATAACAGGAGAAATGAATGAAGCCAAAGAT
TTCTATTTGGCGACAAGCCACCTGATTCTTTTCTTGTATGATCATCACCTGACTCGGCCCATCTGAAA
GAGTACCATTCTGGTTGCTGAAACACCAAGGGCAGCCATACCCTTGATGAATTAATCCACAGAAATC
CAAACACCAAGGTGTAGGAAAGCAAAATGGCATTAGGAATTAGAAGTCAAAGTCAGCAAAATGATATT
ATGGCAGAAGTATGTAGAGCAATCAAACAAATGGATTATGAATGGAAGGTTGTAACCCATATTATTTGC
GTGTACGAAGGAAGAATCCTGTGACAAGCACTTACTCCAAAATGAGTCTACAGTTATACCAAGTGGATAG
TAGAACTTATCTACTGGATTTCCGTAGTATTGATGATGAAATTACAGAAGCCAAATCAGGGACTGCTACT
CCACAGAGATCGGGATCAGTTAGCAACTATCGATCTTGCCAAAGGAGTGATTGATGCTGAGGCTCAAG
GAAAATCCTCAGAAGTTTCTTACCTCATCTGTGACCTCACTTGACTCTTCTCCTGTTGACCTAACTCC
AAGACCTGGAAGTCACACAATAGAATTTTTTGGAGATGTGTGCAAATCTAATTAATTTCTGCACAATA
    
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**5' Read Nucleotide Sequence:** >OriGene 5' read for mutant NM\_006251 unedited

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CCCCCGTTGAGCAATGGGCGGTAGGCGTGTACGGTGGGAGGTCTATATAAGCAGAGCTCGTTTAGTGAA
CCGTGAGAATTTTGAATACGACTCACTATAGGGCGGCCGGAATCGGCACGAGGCCCTCGTGCCGAATTC
GGCAGCAGGCAGCCGAGAAGCAGAAACACGACGGGCGGGTGAAGATCGGCCACTACATTCTGGGTGACAC
GCTGGGGTTCGGCACCTTCGGCAAAGTGAAGTTGGCAAACATGAATTGACTGGGCATAAAGTAGCTGTG
ATGATACTCAATCGACAGAAGATTCCGAGCCTTTGATGTGGTAGGGAAAAATCCGCAGAGAAAATTCAGA
ACCTCAAGCTTTTTTCAGGCATCCCTCAATATAATTAACCTGTACCCAGGTATCCAGTACACCATCTGA
ATTTTTTCATGGTGATGGGATTATGTTCTAAGGGAGGAAAAGCTTTTTTGGATATATTCTTTGTAGGAATGA
AAGCCTTGGTTGAAAAGGAAGGCCCGCTGTTCCACCCGGATCCTTCCGGTGTGTGATTATGGCACA
CAGCATTAGGGTTGGTCAATTGAGAGATTGAAACCTGAATGTGTCCTGCTGTTATGCAACATGAGAATGC
AGATAGCTGAGTTTTGTCTTTCACATGATATGTCGAAGTGTGATTTTAGAGAACGTGTTGGGGCCACAC
CCTACTGTGCGCACGAGATATATTCGAGAGTGTGTGCCAGCCAAAGTAATATTGAGACGTGGGTATTC
CTAGCGCTATAATGGAACCTCTATGTGAGAGACAGGGCCACTTTTTAAGAATTGGTGGGTCTCTACA
CCCAGTTATCCTGGTAACCTTGGACATCGCATGGATCGAAGGCATTGAATCGAATGTTAGCTCGATCT
    
```

**Kinase Domain Sequence:** >SC323464 kinase domain raw sequence. By performing [BLASTX](#) analysis with this sequence against NCBI reference protein database, you can confirm the presence of the kinase-deficient mutation

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CCCTGMGCATGGGCGGTAGGCGTGTACGGTGGGAGGTCTATATAAGCAGAGCTCGTTTAGTGAACCGTCA
GAATTTTGAATACGACTCACTATAGGGCGGCCGGAATCGGCACGAGGCCCTCGTGCCGAATTCGGCAGC
AGGCAGCCGAGAAGCAGAAACACGACGGGCGGGTGAAGATCGGCCACTACATTCTGGGTGACACGCTGGG
GGTCCGCACCTTCGGCAAAGTGAAGTTGGCAAACATGAATTGAC
    
```

<b>Restriction Sites:</b>	Please inquire
<b>ACCN:</b>	NM_006251
<b>Insert Size:</b>	1700 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>	<p>This kinase-deficient mutant clone was generated by created by site-directed mutagenesis from the corresponding wild-type clone. See details in "Application of active and kinase-deficient kinome collection for identification of kinases regulating hedgehog signaling." <a href="#">Cell. 2008 May p536-548.</a></p>
<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_006251.4</a> , <a href="#">NP_006242.4</a>
<b>RefSeq Size:</b>	5085 bp
<b>RefSeq ORF:</b>	5085 bp
<b>Locus ID:</b>	5562
<b>UniProt ID:</b>	<a href="#">Q13131</a>
<b>Cytogenetics:</b>	5p13.1
<b>Domains:</b>	pkinase, TyrKc, S_TKc
<b>Protein Families:</b>	Druggable Genome, Protein Kinase
<b>Protein Pathways:</b>	Adipocytokine signaling pathway, Hypertrophic cardiomyopathy (HCM), Insulin signaling pathway, mTOR signaling pathway, Regulation of autophagy

**Gene Summary:**

The protein encoded by this gene belongs to the ser/thr protein kinase family. It is the catalytic subunit of the 5'-prime-AMP-activated protein kinase (AMPK). AMPK is a cellular energy sensor conserved in all eukaryotic cells. The kinase activity of AMPK is activated by the stimuli that increase the cellular AMP/ATP ratio. AMPK regulates the activities of a number of key metabolic enzymes through phosphorylation. It protects cells from stresses that cause ATP depletion by switching off ATP-consuming biosynthetic pathways. Alternatively spliced transcript variants encoding distinct isoforms have been observed. [provided by RefSeq, Jul 2008]

Transcript Variant: This variant (1) lacks an in-frame coding exon compared to variant 2. The resulting isoform (1) lacks an internal segment, as compared to isoform 2.