

Product datasheet for MC224577

Eif2ak4 (NM_001177806) Mouse Untagged Clone

Product data:

Product Type:	Expression Plasmids
Product Name:	Eif2ak4 (NM_001177806) Mouse Untagged Clone
Tag:	Tag Free
Symbol:	Eif2ak4
Synonyms:	2610011M03; GCN2; MGCN2
Mammalian Cell Selection:	Neomycin
Vector:	pCMV6-Entry (PS100001)
E. coli Selection:	Kanamycin (25 ug/mL)
Fully Sequenced ORF:	>MC224577 representing NM_001177806 Red=Cloning site Blue=ORF

TTTTGTAATACGACTCACTATAGGGCGCCGGGAATTCGTCGACTGGATCCGGTACCGAGGAGATCTGCC
GCC**CGATCGCC**

ATGCCACCTACATACCCAGATGTGTGATGATATTTGAACTGGCACACCATGTGCAGTCGTTTCTCAGCG
AGCATAACAAGCCCCACCAAAGTCTTTCCATGAAGAAATGCTGGAAAGGCAGGCTCAGGAGAAGCAGCA
GAGGTTGCTGGAGGCCAGGCGGAAGGAGGAGCAGGAGCAACGTGAAATCCTCCACGAGATTCAGAGAAGG
AAAGAGGAGATCAAGGAAGAGAAGAAAAGGAAGGAAATGGCTAAGCAGGAACGTTTGAAATCACTAGCT
TGACAAACCAGGACTATGCCTCTAAGAGAGACCCAGCAGGGCACAGGGCAGCTGCCATCCTCCATGGAGG
CTCTCCTGACTTTGTAGGAAATGGTAAAGCCCGGACATACTCCTCAGGAAGGTCCAGGCGAGAACGTCAG
TATTCTGTGTGTAGTGGTGAACCTCTCCTGGCTCGTGTGACATCCTCCATTTCTCTGTGGGTAGCCCTG
ATCAGCTCATGGTGCACAAAGGGAGATGTGTTGGCAGTGATGAGCAGCTGGGAAAGGTGGTATACAATGC
TTTGAAACAGCCACGGGAGCTTTGTCTTGTGTCATGAGTGGGTCTTCAATGGCAGAAGATGGGCCCT
TGCCTTACCAGTCAAGAGAAAGAGAAGATTGACAAGTGCAAAAGGCAGATTCAAGGAGCAGAAACAGAAT
TCAGCTCCCTAGTGAAACTGAGCCATCCAAATATCGTCCGCTACTTTGCGATGAACTCCAGAGAGGAGGA
GGACTCCATTGTGATCGACATTTGGCAGAGCAGTCACTGGCATCTCTCTGGCTACACACCTGAGCCAC
TCGGGCCAGTCCCCGCCACCAGCTGCGCAAGTACACAGCCAGCTCCTGGCAGGCTGGATTACCTAC
ACAGAACTCCGTGGTGCACAAGGTTCTGAGCGGTCCAGTGTCTTGGTAGATGCCGAGGCACTGTCAA
GATAACAGACTACAGCATCTCTAAGCGTCTGGCAGACATTTGCAAGGAGGATGTATTTGAGCAAGCTCGA
GTTCTGTTTGTGACAGTGCCCTGCCTTATAAAACAGGAAAGAAAGGGGATGTGTGGCGGCTCGGCCTCC
TGCTGTTGTCTCTCAGCCAAGGACAGGAGTGTGGGAGTATCCGGTGACCATCCCCAGTGACCTGCCAGC
TGACTTCAAGACTTCTGAAGAAGTGTGTCTGCCTGGACGACAAGGAAAGATGGAGCCCTCAGCAGCTG
CTGAAACAGCTTTATAAACCTCAACCAAAGCTGCCTTTGGTGGAGCAGAGTCTGAAGACTCTGGG
GACAAGACTACATTGAGACCGTCATTCCCAGCAACCAGCTGCCAGCGCTGCGTTCTTCAGTGAGACACA
GAAACAGTTCTCCGGTACTTCATTGAGTTGAAGAACTACAACCTCCTAGGAAAGGAGCTTTGGAGCT



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GTCATCAAGGTGCAAAACAAGCTTGATGGCTGCTGCTATGCTGTGAAGCGCATCCCTATCAACCCTGCAA
 GCAGACTTCCGCCGATCAAGGGCGAGGTGACTGCTATCGCGCTGCACCATGAGAACATTGTGCG
 CTAACAACGCCTGGATCGAGCGGCATGAGCGCCAGCGGTGCCAGGGACACCGCCCCAGACTGCACA
 CCCCAGGCCAGGACAGCCAGCCACCTGCGGGAAAACATCAGGCGACTGAAGAACTGGGCAGCGTGG
 AGGCTGCAGCACCCACCCATCCTCAGCAGCTCGGTGGAGTGGAGCACATCTGCAGAGCCTTACCAG
 CACCCGCTCCAGTACGGGCCAGGATCCAGCAGCGATGAGGAGGACGAGGACGAGCGGATGGCGTC
 TTCTCCAGTCTTTCTACCTGCTTACAGATTCTGACAGTACATCATCTTTGACAATGAAGATGAAAACA
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 GACCAGGGCTGTTCCGAGACACCAGCCGGCTCTGGAGGCTTTCCGAGAGATTCTGGATGGATTAGCTT
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 CAGGCAGTGACGGAGTGATTAAGTCAGACCCTCAGGCCATTTGACTGGCATGGTTGGTACTGCTCTGT
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 TCATCTCCTGGCTGTTGAACCATGATCCAGCTAAACGGCCACGGCCATGGAAGTCTCAAGAGTGAAGT
 GCTCCCCCGCCGAGATGGAGGAGTCCGAGTGCATGAAGTGTGCACCACACGCTGGCCAACATAGAT
 GGAAGGCCTACCGACCATGATGAGTCAGATCTTCTGCCAGCACATCTCCCCGCTATAGACTACACCT
 ACGACAGTGACATCCTGAAGGGCAACTTCTTGAATCGTACAGCCAAGATCCAGCAGCTTGTATGTAAAC
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 CAAATATATGAGCACAACGAAGCGGCTTTGTTTCATGGATCACAGCGGCATGCTGGTGAAGTCCGTTCC
 ACCTGGGGTCCCTTTTGAAGATATGTGGCAAGAAATAACATACTGAATTTAAAACGACTACTGCATAGA
 GCGGGTGTTCAGACCTCGGAAGTTAGACCGATTTTCATCCAAAGAACTCCTGGAATGTGCATTTGATATC
 GCACTTCTACCACCAACAGCTCTCTGCCACTGCCGAAACCATCTACACCATCTATGAAATAATCCAGG
 AGTTTCTGCACTTACAGAAAGGAATTACAGCATTACTTGAACCATACGATGCTTCTGAAGGCAATACT
 CCTACACTGTGGGATCCCAGAGGACAAGCTCAGCCAAGTCTACGTCATTCTGTATGATGCTGTGACAGAG
 AAGCTGACTAGGAGAGAAGTGAAGCTAAATTCTGTAACCTGTCTTGTCTTCTAATAGCCTGTGTAGAC
 TCTACAAGTTCATTGAGCAGAAGGGGATTTGCAAGACTTAACGCCAACCATCAACTCAATAAAAACA
 GAAAACAGGCGTTGCTCAGTTGGTGAAGTATAGCTTAAAAGACCTCGAGGACGTCGTCGGCTGCTGAAG
 AAAGTGGCGTGAAGTTACAGGTCTCCATCAACCTGGGCTTGGTCTACAAGGTGCAGCAGCACACTGGCA
 TCATCTCCAGTTCCTGGCATTACAGAAACGCAGGCAAAGGGTTGTGCCTGAGATCCTTCCGCGCGGTGG
 CAGATACGACCTGCTGATTCCCAAGTTCAGAGGCCACAGACTGTGGGGCAGTCCCCTGCTGTGCGGT
 GTCAGCATAGCCATAGACAAGATATTTGCTGCTGTCTCAACATGGAAGAGCCTGTTACAGTGAGCTCCT
 GTGACCTCCTGGTTGTCAGTGTGGCCAGATGTCCATGTCCAGGGCCATCAACCTAACCCAGAAACTGTG
 GACAGCGGCATCACTGCAGAAATCATGTATGACTGGTCCCAGTCCCAGGAAGAGTTACAAGAGTACTGC
 AGACACCATGAAATCACCTATGTGGCTCTGGTCTCCGATAAAGAAGGAAGCCATGTCAAGGTCAAGTCTT
 TTGAGAAGGAGAGGCAAACAGAAAAGCGTGTATTGGAATCGGATCTTGTGGATCACGTTATGCAGAACT
 AAGAACCAGGTTGGTGACGAAAGAAATTTAGAGACGCTTCTGATAATCTTCCCGTACAACTCTGAAG
 GGCTCGTTTTCTAATGCTTACAGTTTGTGTTGAAATCCATGGAACACTACAGTGTCCCAACGTTGTTTC
 TAGCACCAGAAAAGTGTGAGCCAGCACCAGGAGCGACATGAGATTGAGGTGAAAACCCGACTTACAGAC
 TACACTTGCCAACTTACATCAGAAAAGCAGTGAATTTGAAATTTTGGCTGTGGACCTACCCAAGGAAACA
 ATCTTACAGTTTCTATCATTAGAGTGGGATGCTGATGAACAGGCATTTAACACAAGTGTGAAGCAGCTGC
 TGTACGCTGCCAAAGCAAAGATACCTCAAACCTGCTGCGATGAAATTTATAACATCAAAGTTGAAAA
 GAAGGTGCAGTGTCTCTGTACAGTACAGAGATGACTACTACAGAATCCTATTTTGA

ACGCGTACGCGGCCGCTCGAGCAGAAACTCATCTCAGAAGAGGATCTGGCAGCAAATGATATCCTGGATT
 ACAAGGATGACGACGATAAGGTTTAA

Restriction Sites:

SgfI-MluI

ACCN:

NM_001177806

Insert Size:	4611 bp
OTI Disclaimer:	Our molecular clone sequence data has been matched to the reference identifier above as a point of reference. Note that the complete sequence of our molecular clones may differ from the sequence published for this corresponding reference, e.g., by representing an alternative RNA splicing form or single nucleotide polymorphism (SNP).
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:	<ol style="list-style-type: none">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:	<u>BC072637</u> , <u>AAH72637</u>
RefSeq Size:	4951 bp
RefSeq ORF:	4611 bp
Locus ID:	27103
UniProt ID:	<u>Q9QZ05</u>
Cytogenetics:	2 E5

Gene Summary:

Metabolic-stress sensing protein kinase that phosphorylates the alpha subunit of eukaryotic translation initiation factor 2 (eIF-2-alpha/EIF2S1) on 'Ser-52' in response to low amino acid availability (PubMed:10504407, PubMed:10655230, PubMed:12176355, PubMed:12215525, PubMed:15213227, PubMed:16054071, PubMed:16176978, PubMed:16121183, PubMed:15774759, PubMed:16601681, PubMed:26102367). Plays a role as an activator of the integrated stress response (ISR) required for adaptation to amino acid starvation. Converts phosphorylated eIF-2-alpha/EIF2S1 either to a competitive inhibitor of the translation initiation factor eIF-2B, leading to a global protein synthesis repression, and thus to a reduced overall utilization of amino acids, or to a translational initiation activation of specific mRNAs, such as the transcriptional activator ATF4, and hence allowing ATF4-mediated reprogramming of amino acid biosynthetic gene expression to alleviate nutrient depletion (PubMed:10655230, PubMed:11106749, PubMed:12176355, PubMed:15213227, PubMed:16176978, PubMed:26102367). Binds uncharged tRNAs (By similarity). Involved in cell cycle arrest by promoting cyclin D1 mRNA translation repression after the unfolded protein response pathway (UPR) activation or cell cycle inhibitor CDKN1A/p21 mRNA translation activation in response to amino acid deprivation (PubMed:16176978, PubMed:26102367). Plays a role in the consolidation of synaptic plasticity, learning as well as formation of long-term memory (PubMed:16121183). Plays a role in neurite outgrowth inhibition (PubMed:23447528). Plays a role in feeding behavior to maintain amino acid homeostasis; contributes to the innate aversion toward diets of imbalanced amino acid composition (PubMed:16054071, PubMed:15774759). Plays a proapoptotic role in response to glucose deprivation (PubMed:20660158). Promotes global cellular protein synthesis repression in response to UV irradiation independently of the stress-activated protein kinase/c-Jun N-terminal kinase (SAPK/JNK) and p38 MAPK signaling pathways (PubMed:12176355).[UniProtKB/Swiss-Prot Function]

Transcript Variant: This variant (2) differs in the 5' UTR and coding sequence and lacks an alternate internal exon in the 5' end compared to variant 1, that causes a frameshift. The resulting isoform (2) has a shorter and distinct N-terminus compared to isoform 1.