

## Product datasheet for **MR209482**

### Eif2ak1 (NM\_013557) Mouse Tagged ORF Clone

#### Product data:

Product Type:	Expression Plasmids
Product Name:	Eif2ak1 (NM_013557) Mouse Tagged ORF Clone
Tag:	Myc-DDK
Symbol:	Eif2ak1
Synonyms:	HCR; Hri
Mammalian Cell Selection:	Neomycin
Vector:	pCMV6-Entry (PS100001)
E. coli Selection:	Kanamycin (25 ug/mL)



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**ORF Nucleotide Sequence:**

>MR209482 ORF sequence  
 Red=Cloning site Blue=ORF Green=Tags(s)

TTTTGTAATACGACTCACTATAGGGCGGCCGGGAATTCGTCGACTGGATCCGGTACCGAGGAGATCTGCC  
 GCC**CGGATCGCC**

ATGCTGGGGGAGCTCCGTGGACGGCAGCGCACACGGACGACGACGCGGGGGGGCGGTGGCCGCGC  
 CTCTGCCATCGACTTCCCGCAGAGGTGTCGACCCCAAGTATGATGAGTCCGATGTCCCGCAGAGCT  
 CCAAGTGTAAAAGAGCCCTACAGCAGCCACGTTCCCTTTCTGTTGGCAAACCAGCTGCTGCTCGTC  
 TCCTTACTGGAACACTTGAGCCATGTGCACGAGCCAAACCCGCTCCACTCAAACAGGTGTTAAATTAC  
 TGTGCCAGACTTTTATCAAGATGGGGCTGCTCTCTTCTTACCTGCAGTGATGAGTTTACTCTCTGAG  
 ACTCCACCACAACAGAGCCATCACTCATTTAATGAGGTCTGCCAAAGAGAGAGTCCGTCAGGATCCTTGT  
 CAAGATAATTCTTACATGCAGAAAATCAGATCCAGAGAGATAGCCTTCGAAGCACAAACGTCACGCTACT  
 TAAATGAATTTGAAGAGCTTGCCATCTTAGGAAAGGAGGATATGGAAGAGTTTACAAGTCCGGAACAA  
 ATTAGATGGTCAGCATTATGCAATTAAGAAAATCCTGATTAAGAGCGCAACTAAAACAGATTGTATGAAG  
 GTGCTACGGGAAGTGAAGGTTCTGGCAGGTCTCCAGCATCCCAATATTGTTGGCTACCACACTGCGTGGA  
 TAGAACATGTTTATGTGGTTCAGCCACAAGACAGAGTTCGGATCAACTGCCCTCTCTCGAAGTGTCTGC  
 GGAGCAGGAAGGGGACAGAGACCAAGTGGTGTAAAGATAATGAAAGCAGTTCGTCCATTGTCTTTGCT  
 GAACTACCCAGAAAAGAAAACCTTTTGGGAGTCTGAGGTTAAAAATGAGAATAACAACCTGGTGA  
 GCTACACGGCCAACTTAGTGGTCAGGAACAGCAGTGAAGTGAATCGTCCATTGAGCTCCAAGAAGACGG  
 CTTGACTGATTTGTCAGTGTGTCAGGATCAGTCCGCTGGGGCATAGCTCGGAATTGGAA  
 GGAATTTTACATCCAGGATGAGTCTTCTGAAGGCAACTGAACCTGCTGGGGCAGACGGAGGTTCCGT  
 ACCACTGATGTTGCACATCCAGATGCAGCTGTGTGAGCTCTCCCTGTGGGACTGGATAACTGAGAGGAA  
 CAAGCGAGCCGGGAGTATGTGGACGAAGCTGCTTGTCCCTATGTTATGGCCAGTGTGCAACAAAAAATT  
 TTTCAAGAATTGGTGAAGGTGTCTTTTACATACATAACATGGGCATTGTCCACAGAGATCTGAAGCCTA  
 GAAATATTTTTCTTATGCCCTGATCAGCAAGTAAAAATAGGAGACTTTGGTCTGGCCTGTGCAGACAT  
 CATCCAGAATGCAGACTGGACCAACAGAAATGGGAAAGGAACACGGACACACACATCCAGAGTGGGGACT  
 TGTCTCTACGCGTCACCGAACAGCTGGAGGGATCCCAGTACGATGCCAAGTCAGATATGTATAGCTTGG  
 GTGTGATCCTGCTCGAGCTTTTCAGCCATTCCGGACAGAAATGGAGAGGGCAACAGTCTTAACAGCGCT  
 AAGACTGGTCGATACCGAATCCCTCAGTAAAAGGTGTCGGGTGCAAGCAAGTATATCCAGCTCCTA  
 ACCGGGAGGAATGCGTACAGAGACCATCTGCCCTTCAGCTGCTGCAGAGTGAAGTCTTTTCAAACAAGT  
 GAAATGTTAATCTCACATTGCAGATGAAGATAATAGAACAAGAGAAGGAAATTGAAGAAGTAAAGAAGCA  
 ACTAAGCCTCCTTTCTCAGGACAGAGGGCTGAAGAGA

AG**CGGACCG**ACGCGTACGCGGCCGCTCGAGCAGAAAACCTCATCTCAGAAGAGGATCTGGCAGCAAATGATATCC  
 TGGATTACAAGGATGACGACGATAAGGTTTAA

**Protein Sequence:**

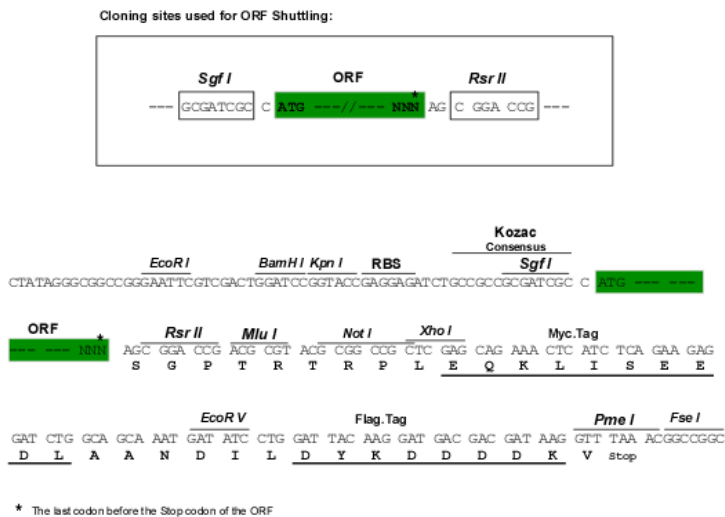
>MR209482 protein sequence  
 Red=Cloning site Green=Tags(s)

MLGSSVDGERDTHDDAAGAVAAPPAIDFPAEVS DPKYDES DVP AELQVLKEPLQPTFPFLVANQLLLV  
 SLL EHL SHVHEPNPLHSKQVFKLLCQTFIKMGLLSSFTCSDEFSSLRLHHNRAITHLMRS AKERV RQDPC  
 QDNSYMQKIRSREIAFEAQTSRYLNEFEELAILGKGGYGRVYKVRNKLDGQHYAIKKILIKSATKTDCMK  
 VLREVKVLAGLQHPNIVGYHTAWIEHVHVVPQDRVPIQLPSLEVLSEQEGDRDQGGVKDNESSSIVFA  
 ELTPEKEKPFGESEVKNENNNLVSYTANL VVRNSSESESSIELQEDGLTDL SVRPVVRHQLPLGHSSELE  
 GNFTSTDESSEGNLNLGQTEVRYHMLHIQMQLCELSLWDWITERNKRSREYVDEAACPYVMASVATKI  
 FQELVEGVFYIHNMGIVHRDLKPRNIFLHGPDQQVIGDFGLACADI IQNADWTNRNGKTRTHTSRVGT  
 CLYASPEQLEGSQYDAKSDMYSLVILLELFPFGTEMERATVLTGVRTGRIPESLSKRCPVQAKYIQLL  
 TGRNASQRPSALQLLQSELFQTTGNVNLTLQMKIIEQEKEIEELKKQLSLLSQDRGLKR

SGP**TRTRPLEQKLI**SEEDLAANDILDYKDDDDKV

Restriction Sites: SgfI-RsrII

Cloning Scheme:



ACCN: NM\_013557

ORF Size: 1860 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\\_013557.1](#), [NM\\_013557.2](#), [NP\\_038585.2](#)

RefSeq Size: 2805 bp

RefSeq ORF: 1860 bp

Locus ID: 15467

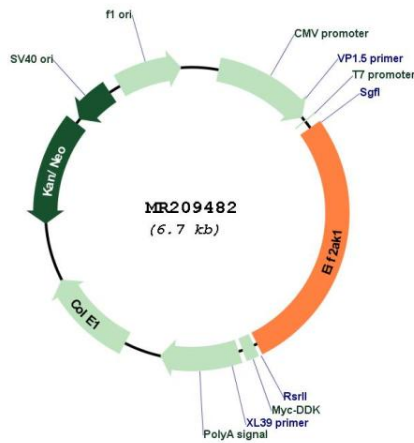
UniProt ID: [Q9Z2R9](#)

**Cytogenetics:** 5 G2

**MW:** 69.7 kDa

**Gene Summary:** Inhibits protein synthesis at the translation initiation level, in response to various stress conditions, including oxidative stress, heme deficiency, osmotic shock and heat shock. Exerts its function through the phosphorylation of EIF2S1 at 'Ser-48' and 'Ser-51', thus preventing its recycling. Binds heme forming a 1:1 complex through a cysteine thiolate and histidine nitrogenous coordination. This binding occurs with moderate affinity, allowing it to sense the heme concentration within the cell. Thanks to this unique heme-sensing capacity, plays a crucial role to shut off protein synthesis during acute heme-deficient conditions. In red blood cells (RBCs), controls hemoglobin synthesis ensuring a coordinated regulation of the synthesis of its heme and globin moieties. Thus plays an essential protective role for RBC survival in anemias of iron deficiency. Similarly, in hepatocytes, involved in heme-mediated translational control of CYP2B and CYP3A and possibly other hepatic P450 cytochromes. May also contain ER stress during acute heme-deficient conditions.[UniProtKB/Swiss-Prot Function]

**Product images:**



Circular map for MR209482