

Datasheet for ABIN7553749
EIF2AK1 Protein (AA 1-630) (His tag)



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Overview

Quantity:	1 mg
Target:	EIF2AK1
Protein Characteristics:	AA 1-630
Origin:	Human
Source:	HEK-293 Cells
Protein Type:	Recombinant
Purification tag / Conjugate:	This EIF2AK1 protein is labelled with His tag.

Product Details

Purpose:	Custom-made recombinant EIF2AK1 Protein expressed in mammalian cells.
Sequence:	<p>MQGGNSGVRK REEEGDGAGA VAAPPAIDFP AEGPDPEYDE SDVPAEIQVL KEPLQQPTFP FAVANQLLLV SLLEHLSHVH EPNPLRSRQV FKLLCQTFIK MGLLSSFTCS DEFSSLRLHH NRAITHLMRS AKERVRQDPC EDISRIQKIR SREVAEAQT SRYLNEFEEL AILGKGGYGR VYKVRNKLDG QYYAIKKILI KGATKTVCMK VLREVKVLAG LQHPNIVGYH TAWIEHVHVI QPRADRAAIE LPSLEVLSDQ EEDREQCGVK NDESSSSSII FAEPTPEKEK RFGESDTENQ NNKSVKYTTN LVIRESGELE STLELQENGL AGLSASSIVE QQLPLRRNSH LEESFTSTEE SSEENVNFLG QTEAQYHLML HIQMQLCELS LWDWIVERNK RGREYVDESA CPYVMANVAT KIFQELVEGV FYIHNMGIVH RDLKPRNIFL HGPDQQVKIG DFGLACTDIL QKNTDWTNRN GKRTPTHTSR VGTCLYASPE QLEGSEYDAK SDMYSLGVVL LELFQPFGE MERAELTGL RTGQLPESLR KRCPVQAKYI QHLTRRNSSQ RPSAIQLLQS ELFQNSGNVN LTLQMKIIEQ EKEIAELKKQ LNLLSQDKGV RDDGKGGVGV Sequence without tag. The proposed Purification- Tag is based on experiences with the expression system, a different complexity of the</p>

Product Details

protein could make another tag necessary. In case you have a special request, please contact us.

Specificity: If you are looking for a specific domain and are interested in a partial protein or a different isoform, please contact us regarding an individual offer.

Characteristics: Key Benefits:

- Made to order protein - from design to production - by highly experienced protein experts.
- Protein expressed in mammalian cells and purified in one-step affinity chromatography
- The optimized expression system ensures reliability for intracellular, secreted and transmembrane proteins.
- State-of-the-art algorithm used for plasmid design (Gene synthesis).

This protein is a made-to-order protein and will be made for the first time for your order. Our experts in the lab try to ensure that you receive soluble protein.

If you are not interested in a full length protein, please contact us for individual protein fragments.

The big advantage of ordering our made-to-order proteins in comparison to ordering custom made proteins from other companies is that there is no financial obligation in case the protein cannot be expressed or purified.

Purity: > 90 % as determined by Bis-Tris PAGE, anti-tag ELISA, Western Blot and analytical SEC (HPLC)

Grade: custom-made

Target Details

Target: EIF2AK1

Alternative Name: EIF2AK1 ([EIF2AK1 Products](#))

Background: Eukaryotic translation initiation factor 2-alpha kinase 1 (EC 2.7.11.1) (Heme-controlled repressor) (HCR) (Heme-regulated eukaryotic initiation factor eIF-2-alpha kinase) (Heme-regulated inhibitor) (hHRI) (Hemin-sensitive initiation factor 2-alpha kinase),FUNCTION: Metabolic-stress sensing protein kinase that phosphorylates the alpha subunit of eukaryotic translation initiation factor 2 (EIF2S1/eIF-2-alpha) in response to various stress conditions (PubMed:32132706, PubMed:32132707, PubMed:37327776). Key activator of the integrated stress response (ISR) required for adaptation to various stress, such as heme deficiency, oxidative stress, osmotic shock, mitochondrial dysfunction and heat shock (PubMed:32132706, PubMed:32132707, PubMed:37327776). EIF2S1/eIF-2-alpha phosphorylation in response to

Target Details

stress converts EIF2S1/eIF-2-alpha in a global protein synthesis inhibitor, leading to a global attenuation of cap-dependent translation, while concomitantly initiating the preferential translation of ISR-specific mRNAs, such as the transcriptional activator ATF4, and hence allowing ATF4-mediated reprogramming (PubMed:32132706, PubMed:32132707, PubMed:37327776). Acts as a key sensor of heme-deficiency: in normal conditions, binds heme via a cysteine thiolate and histidine nitrogenous coordination, leading to inhibit the protein kinase activity (By similarity). This binding occurs with moderate affinity, allowing it to sense the heme concentration within the cell: heme depletion relieves inhibition and stimulates kinase activity, activating the ISR (By similarity). Thanks to this unique heme-sensing capacity, plays a crucial role to shut off protein synthesis during acute heme-deficient conditions (By similarity). In red blood cells (RBCs), controls hemoglobin synthesis ensuring a coordinated regulation of the synthesis of its heme and globin moieties (By similarity). It thereby plays an essential protective role for RBC survival in anemias of iron deficiency (By similarity). Iron deficiency also triggers activation by full-length DELE1 (PubMed:37327776). Also activates the ISR in response to mitochondrial dysfunction: HRI/EIF2AK1 protein kinase activity is activated upon binding to the processed form of DELE1 (S-DELE1), thereby promoting the ATF4-mediated reprogramming (PubMed:32132706, PubMed:32132707). {ECO:0000250|UniProtKB:Q9Z2R9, ECO:0000269|PubMed:32132706, ECO:0000269|PubMed:32132707, ECO:0000269|PubMed:32197074}.

Molecular Weight: 71.1 kDa

UniProt: [Q9BQI3](#)

Pathways: [Hepatitis C](#)

Application Details

Application Notes: We expect the protein to work for functional studies. As the protein has not been tested for functional studies yet we cannot offer a guarantee though.

Restrictions: For Research Use only

Handling

Format: Liquid

Buffer: The buffer composition is at the discretion of the manufacturer.

Handling Advice: Avoid repeated freeze-thaw cycles.

Handling

Storage: -80 °C

Storage Comment: Store at -80°C.

Expiry Date: 12 months