

Mouse Eif2ak1 Antibody (N-term) Blocking peptide
Synthetic peptide
Catalog # BP13913a**Specification**

Mouse Eif2ak1 Antibody (N-term) Blocking peptide - Product InformationPrimary Accession [Q9Z2R9](#)**Mouse Eif2ak1 Antibody (N-term) Blocking peptide - Additional Information****Gene ID** 15467**Other Names**

Eukaryotic translation initiation factor 2-alpha kinase 1, Heme-controlled repressor, HCR, Heme-regulated eukaryotic initiation factor eIF-2-alpha kinase, Heme-regulated inhibitor, Hemin-sensitive initiation factor 2-alpha kinase, Eif2ak1, Hri

Target/Specificity

The synthetic peptide sequence used to generate the antibody AP13913a was selected from the N-term region of Mouse Eif2ak1. A 10 to 100 fold molar excess to antibody is recommended. Precise conditions should be optimized for a particular assay.

Format

Peptides are lyophilized in a solid powder format. Peptides can be reconstituted in solution using the appropriate buffer as needed.

Storage

Maintain refrigerated at 2-8°C for up to 6 months. For long term storage store at -20°C.

Precautions

This product is for research use only. Not for use in diagnostic or therapeutic procedures.

Mouse Eif2ak1 Antibody (N-term) Blocking peptide - Protein Information**Name** Eif2ak1 {ECO:0000312|MGI:MGI:1353448}**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:11726526, PubMed:12767237, PubMed:16893190). 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:11726526, PubMed:16893190). EIF2S1/eIF-2-alpha phosphorylation in response to 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:11726526, PubMed:16893190). 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 (PubMed:16893190). 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 (PubMed:16893190). Thanks to this unique heme- sensing capacity, plays a crucial role to shut off protein synthesis during acute heme-deficient conditions (PubMed:16893190). In red blood cells (RBCs), controls hemoglobin synthesis ensuring a coordinated regulation of the synthesis of its heme and globin moieties (PubMed:11726526, PubMed:11050009, PubMed:15931390). It thereby plays an essential protective role for RBC survival in anemias of iron deficiency (PubMed:11726526). Iron deficiency also triggers activation by full-length DELE1 (By similarity). 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 (By similarity).

Cellular Location

Cytoplasm

Tissue Location

Expressed predominantly in erythroid cells, mature reticulocytes, as well as fetal liver nucleated erythroid cells (PubMed:11689689). At much lower levels, expressed in hepatocytes and bone marrow-derived macrophages (at protein level) (PubMed:17932563)

Mouse Eif2ak1 Antibody (N-term) Blocking peptide - Protocols

Provided below are standard protocols that you may find useful for product applications.

- [Blocking Peptides](#)

Mouse Eif2ak1 Antibody (N-term) Blocking peptide - Images

Mouse Eif2ak1 Antibody (N-term) Blocking peptide - Background

Mediates down-regulation of protein synthesis in response to various stress conditions by the phosphorylation of EIF2S1 at 'Ser-48' and 'Ser-51'. Protein synthesis is inhibited at the level of initiation.