

Anti-EIF2AK1 Antibody
Rabbit polyclonal antibody to EIF2AK1
Catalog # AP60958**Specification**

Anti-EIF2AK1 Antibody - Product Information

Application	WB, IHC
Primary Accession	O9BQI3
Other Accession	O9Z2R9
Reactivity	Human, Mouse, Rat
Host	Rabbit
Clonality	Polyclonal
Calculated MW	71106

Anti-EIF2AK1 Antibody - Additional Information**Gene ID** 27102**Other Names**

HRI; KIAA1369; 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

Target/Specificity

Recognizes endogenous levels of EIF2AK1 protein.

Dilution

WB~~WB (1/500 - 1/1000), IH (1/50 - 1/100)
IHC~~1:100~500

Format

Liquid in 0.42% Potassium phosphate, 0.87% Sodium chloride, pH 7.3, 30% glycerol, and 0.09% (W/V) sodium azide.

Storage

Store at -20 °C. Stable for 12 months from date of receipt

Anti-EIF2AK1 Antibody - Protein Information**Name** EIF2AK1 ([HGNC:24921](#))**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](http://www.uniprot.org/citations/32132706), PubMed: [32132707](http://www.uniprot.org/citations/32132707), PubMed: [37327776](http://www.uniprot.org/citations/37327776), PubMed: [37550454](http://www.uniprot.org/citations/37550454)),

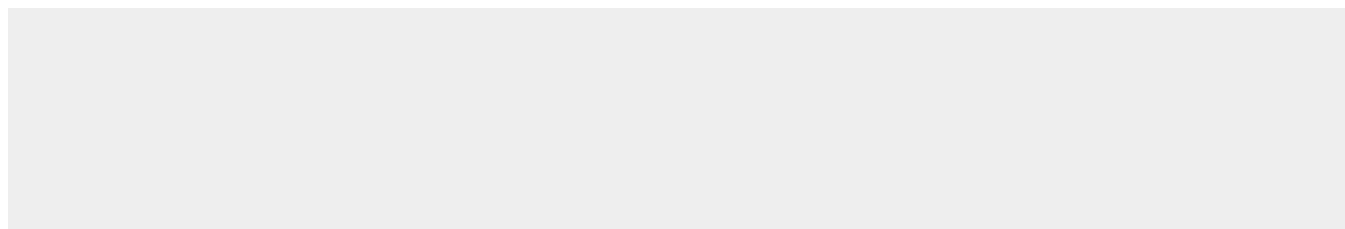
PubMed:38340717). Key activator of the integrated stress response (ISR) required for adaptation to various stress, such as heme deficiency, oxidative stress, osmotic shock, mitochondrial dysfunction and heat shock (PubMed:32132706, PubMed:32132707, PubMed:37327776, PubMed:37550454, PubMed:38340717). 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: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). Also acts as an activator of mitophagy in response to mitochondrial damage: catalyzes phosphorylation of eIF-2-alpha (EIF2S1) following activation by S-DELE1, thereby promoting mitochondrial localization of EIF2S1, triggering PRKN-independent mitophagy (PubMed:38340717).

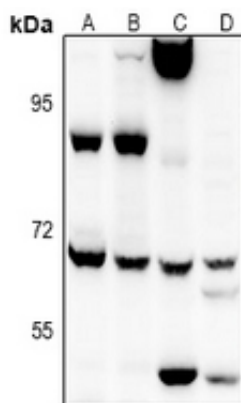
Anti-EIF2AK1 Antibody - Protocols

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

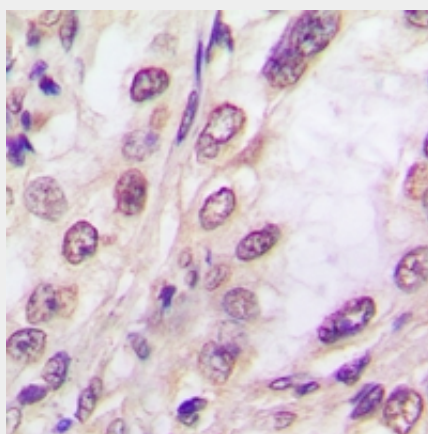
- [Western Blot](#)
- [Blocking Peptides](#)
- [Dot Blot](#)
- [Immunohistochemistry](#)
- [Immunofluorescence](#)
- [Immunoprecipitation](#)
- [Flow Cytometry](#)
- [Cell Culture](#)

Anti-EIF2AK1 Antibody - Images





Western blot analysis of EIF2AK1 expression in K562 (A), LO2 (B), PC12 (C), AML12 (D) whole cell lysates.



Immunohistochemical analysis of EIF2AK1 staining in human lung cancer formalin fixed paraffin embedded tissue section. The section was pre-treated using heat mediated antigen retrieval with sodium citrate buffer (pH 6.0). The section was then incubated with the antibody at room temperature and detected using an HRP conjugated compact polymer system. DAB was used as the chromogen. The section was then counterstained with haematoxylin and mounted with DPX.

Anti-EIF2AK1 Antibody - Background

KLH-conjugated synthetic peptide encompassing a sequence within the C-term region of human EIF2AK1. The exact sequence is proprietary.