

**HRI (EIF2AK1) Antibody (Center)**  
**Purified Rabbit Polyclonal Antibody (Pab)**  
**Catalog # AP8114c****Specification**

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**HRI (EIF2AK1) Antibody (Center) - Product Information**

Application	IHC-P, WB,E
Primary Accession	<a href="#">O9BQI3</a>
Reactivity	Human
Host	Rabbit
Clonality	Polyclonal
Isotype	Rabbit IgG
Calculated MW	71106
Antigen Region	267-296

**HRI (EIF2AK1) Antibody (Center) - Additional Information****Gene ID** 27102**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, KIAA1369

**Target/Specificity**

This HRI (EIF2AK1) antibody is generated from rabbits immunized with a KLH conjugated synthetic peptide between 267-296 amino acids from the Central region of human HRI (EIF2AK1).

**Dilution**

IHC-P~~1:10~50

WB~~1:1000

E~~Use at an assay dependent concentration.

**Format**

Purified polyclonal antibody supplied in PBS with 0.09% (W/V) sodium azide. This antibody is prepared by Saturated Ammonium Sulfate (SAS) precipitation followed by dialysis against PBS.

**Storage**

Maintain refrigerated at 2-8°C for up to 2 weeks. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.

**Precautions**

HRI (EIF2AK1) Antibody (Center) is for research use only and not for use in diagnostic or therapeutic procedures.

**HRI (EIF2AK1) Antibody (Center) - Protein Information****Name** EIF2AK1 ([HGNC:24921](#))

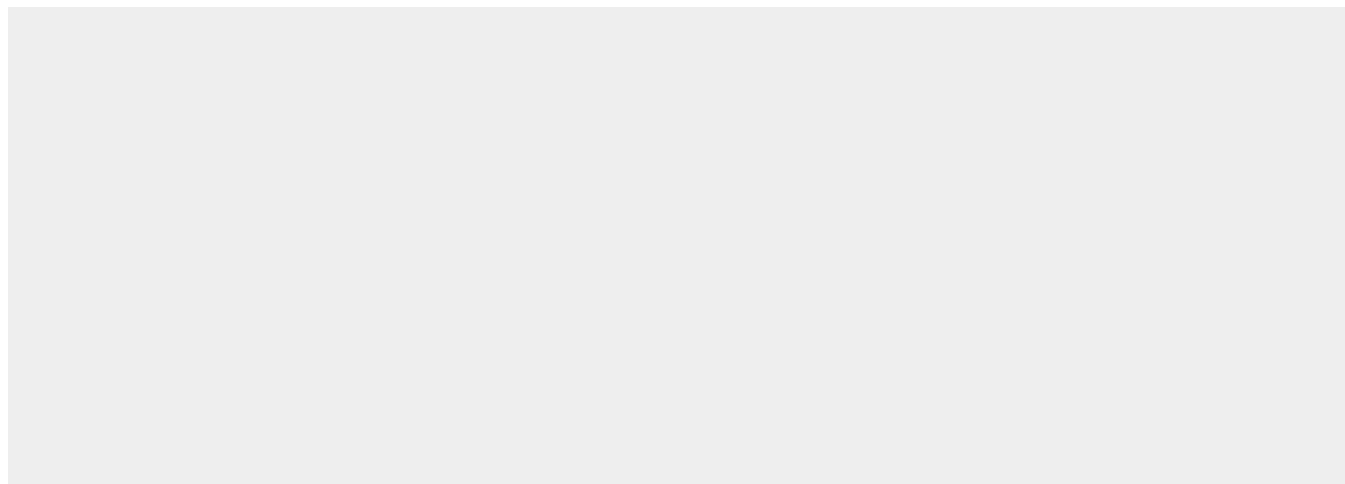
**Function** Metabolic-stress sensing protein kinase that phosphorylates the alpha subunit of eukaryotic translation initiation factor 2 (EIF2S1/eIF-2-alpha) in response to various stress conditions (PubMed:[32132706](#), PubMed:[32132707](#), PubMed:[37327776](#), PubMed:[37550454](#), PubMed:[38340717](#)). 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](#)).

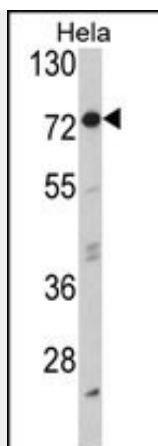
### **HRI (EIF2AK1) Antibody (Center) - Protocols**

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

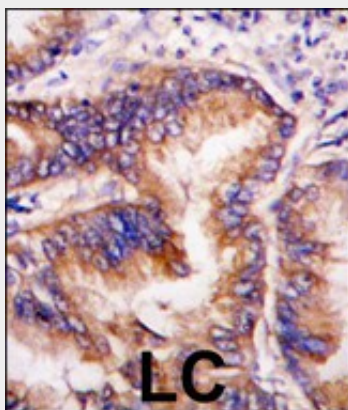
- [Western Blot](#)
- [Blocking Peptides](#)
- [Dot Blot](#)
- [Immunohistochemistry](#)
- [Immunofluorescence](#)
- [Immunoprecipitation](#)
- [Flow Cytometry](#)
- [Cell Culture](#)

### **HRI (EIF2AK1) Antibody (Center) - Images**





Western blot analysis of EIF2AK1 Antibody (Center) (Cat. #AP8114c) in HeLa cell line lysates (35ug/lane). EIF2AK1 (arrow) was detected using the purified Pab.



Formalin-fixed and paraffin-embedded human lung carcinoma tissue reacted with EIF2AK1 antibody (Center), which was peroxidase-conjugated to the secondary antibody, followed by DAB staining. This data demonstrates the use of this antibody for immunohistochemistry; clinical relevance has not been evaluated.

#### **HRI (EIF2AK1) Antibody (Center) - Background**

The HRI gene is localized to 7p22 where its 3' end slightly overlaps the 3' end of the gene JTV1. The two genes are transcribed from opposite strands. Studies in rat and rabbit suggest that the HRI gene product phosphorylates the alpha subunit of eukaryotic initiation factor 2. Its kinase activity is induced by low levels of heme and inhibited by the presence of heme.

#### **HRI (EIF2AK1) Antibody (Center) - References**

Hwang S.-Y., Mol. Cells 10:584-591(2000).  
Omasa T., DNA Seq. 13:133-137(2002).