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Anti-EIF2AK1 Antibody
Catalog # ABO11331

Specification

Anti-EIF2AK1 Antibody - Product Information

Application	**WB, ICC**
Primary Accession	Q9BQI3
Host	**Rabbit**
Reactivity	**Human**
Clonality	**Polyclonal**
Format	**Lyophilized**

Description
Rabbit IgG polyclonal antibody for Eukaryotic translation initiation factor 2-alpha kinase 1(EIF2AK1) detection. Tested with WB, ICC in Human.

Reconstitution
Add 0.2ml of distilled water will yield a concentration of 500ug/ml.

Anti-EIF2AK1 Antibody - Additional Information

Gene ID 27102

Other Names
Eukaryotic translation initiation factor 2-alpha kinase 1, 2.7.11.1, 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

Calculated MW
71106 MW KDa

Application Details
Western blot, 0.1-0.5 µg/ml, Human, -
Immunocytochemistry , 0.5-1 µg/ml, Human

Subcellular Localization
Cytoplasm .

Tissue Specificity
Expressed predominantly in erythroid cells. At much lower levels, expressed in hepatocytes (at protein level). .

Protein Name
Eukaryotic translation initiation factor 2-alpha kinase 1

Contents
Each vial contains 5mg BSA, 0.9mg NaCl, 0.2mg Na2HPO4, 0.05mg Thimerosal, 0.05mg NaN3.

Immunogen
A synthetic peptide corresponding to a sequence in the middle region of human EIF2AK1(466-483aa CTDILQKNTDWTNRNGKR).

Purification
Immunogen affinity purified.

Cross Reactivity
No cross reactivity with other proteins

Storage	**At -20˚C for one year. After r˚Constitution, at 4˚C for one month. It˚Can also be aliquotted and stored frozen at -20˚C for a longer time.Avoid repeated freezing and thawing.**

Sequence Similarities
Belongs to the protein kinase superfamily. Ser/Thr protein kinase family. GCN2 subfamily.

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, 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 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 hemin 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).

Anti-EIF2AK1 Antibody - Protocols

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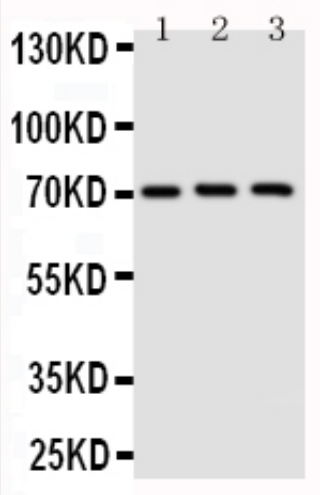
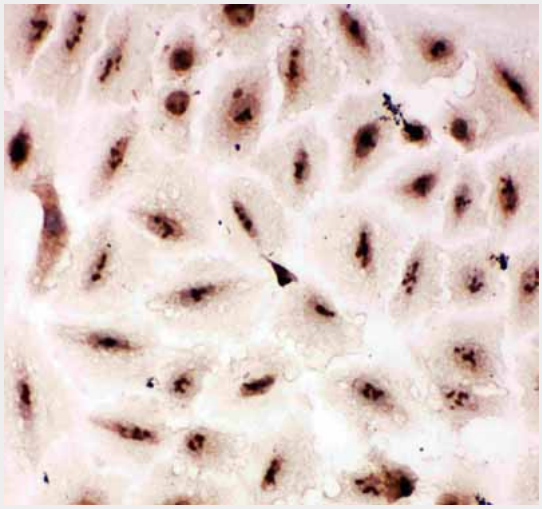
Provided below are standard protocols that you may find useful for product applications.

- Western Blot
- Blocking Peptides
- Dot Blot
- Immunohistochemistry
- Immunofluorescence
- Immunoprecipitation
- Flow Cytomety
- Cell Culture

Anti-EIF2AK1 Antibody - Images



Anti-EIF2AK1 antibody, ABO11331, Western blottingRecombinant Protein Detection Source: E.coli derived -recombinant Human EIF2AK1, 35.5KD(162aa tag+ R398-K551)Lane 1: Recombinant Human EIF2AK1 Protein 10ngLane 2: Recombinant Human EIF2AK1 Protein 5ngLane 3: Recombinant Human EIF2AK1 Protein 2.5ng



Anti-EIF2AK1 antibody, ABO11331, ICCICC: HELA Cell

Anti-EIF2AK1 Antibody - Background

EIF2AK1(Eukaryotic Translation Initiation Factor 2-Alpha Kinase 1), also called HRI, is an enzyme that in humans is encoded by the EIF2AK1 gene. Hartz(2010) mapped the EIF2AK1 gene to

chromosome 7p22.1 based on an alignment of the EIF2AK1 sequence with the genomic sequence. Chen and London(1995) reviewed the activation and control of rat and rabbit Hri. Hri functions as a dimer, and its activation involves autophosphorylation, which requires an invariant lysine in kinase domain II. Using cDNA arrays and Northern blot analysis, Hwang et al.(2000) found that HRI was downregulated in the majority of ovarian cancers examined compared with normal ovarian tissues.