

**EIF2AK3 Antibody (N-term)**  
**Affinity Purified Rabbit Polyclonal Antibody (Pab)**  
**Catalog # AP14551A****Specification**

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**EIF2AK3 Antibody (N-term) - Product Information**

Application	WB, IHC-P,E
Primary Accession	<a href="#">O9NZJ5</a>
Other Accession	<a href="#">NP_004827.4</a>
Reactivity	Human
Host	Rabbit
Clonality	Polyclonal
Isotype	Rabbit IgG
Calculated MW	125216
Antigen Region	73-102

**EIF2AK3 Antibody (N-term) - Additional Information****Gene ID** 9451**Other Names**

Eukaryotic translation initiation factor 2-alpha kinase 3, PRKR-like endoplasmic reticulum kinase, Pancreatic eIF2-alpha kinase, HsPEK, EIF2AK3, PEK, PERK

**Target/Specificity**

This EIF2AK3 antibody is generated from rabbits immunized with a KLH conjugated synthetic peptide between 73-102 amino acids from the N-terminal region of human EIF2AK3.

**Dilution**

WB~~1:1000

IHC-P~~1:10~50

**Format**

Purified polyclonal antibody supplied in PBS with 0.09% (W/V) sodium azide. This antibody is purified through a protein A column, followed by peptide affinity purification.

**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**

EIF2AK3 Antibody (N-term) is for research use only and not for use in diagnostic or therapeutic procedures.

**EIF2AK3 Antibody (N-term) - Protein Information****Name** EIF2AK3 {ECO:0000303|PubMed:10932183, ECO:0000312|HGNC:HGNC:3255}

**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, such as unfolded protein response (UPR) (PubMed:[10026192](#), PubMed:[10677345](#), PubMed:[11907036](#), PubMed:[12086964](#), PubMed:[25925385](#), PubMed:[31023583](#)). Key effector of the integrated stress response (ISR) to unfolded proteins: EIF2AK3/PERK specifically recognizes and binds misfolded proteins, leading to its activation and EIF2S1/eIF-2-alpha phosphorylation (PubMed:[10677345](#), PubMed:[27917829](#), PubMed:[31023583](#)). 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 activators ATF4 and QRI1, and hence allowing ATF4- and QRI1-mediated reprogramming (PubMed:[10026192](#), PubMed:[10677345](#), PubMed:[31023583](#), PubMed:[33384352](#)). The EIF2AK3/PERK-mediated unfolded protein response increases mitochondrial oxidative phosphorylation by promoting ATF4-mediated expression of COX7A2L/SCAF1, thereby increasing formation of respiratory chain supercomplexes (PubMed:[31023583](#)). In contrast to most subcellular compartments, mitochondria are protected from the EIF2AK3/PERK-mediated unfolded protein response due to EIF2AK3/PERK inhibition by ATAD3A at mitochondria-endoplasmic reticulum contact sites (PubMed:[39116259](#)). In addition to EIF2S1/eIF-2-alpha, also phosphorylates NFE2L2/NRF2 in response to stress, promoting release of NFE2L2/NRF2 from the BCR(KEAP1) complex, leading to nuclear accumulation and activation of NFE2L2/NRF2 (By similarity). Serves as a critical effector of unfolded protein response (UPR)-induced G1 growth arrest due to the loss of cyclin-D1 (CCND1) (By similarity). Involved in control of mitochondrial morphology and function (By similarity).

#### Cellular Location

Endoplasmic reticulum membrane {ECO:0000250|UniProtKB:Q9Z2B5}; Single-pass type I membrane protein. Note=Localizes to the Localizes to endoplasmic reticulum membrane (By similarity). Also present at mitochondria-endoplasmic reticulum contact sites; where it interacts with ATAD3A (PubMed:[39116259](#)). {ECO:0000250|UniProtKB:Q9Z2B5, ECO:0000269|PubMed:[39116259](#)}

#### Tissue Location

Ubiquitous. A high level expression is seen in secretory tissues.

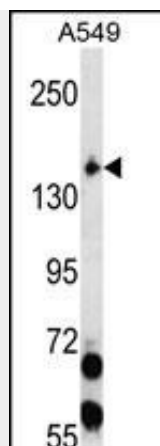
### EIF2AK3 Antibody (N-term) - Protocols

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

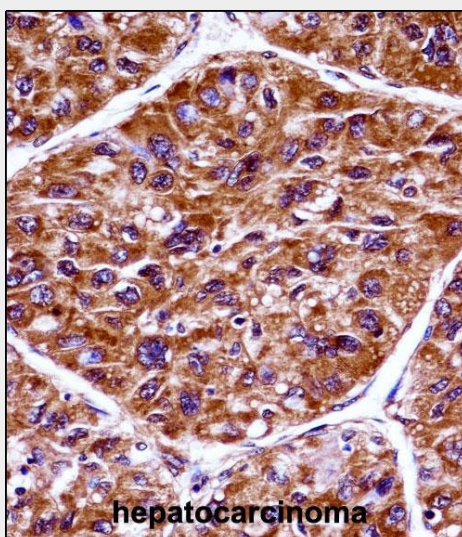
- [Western Blot](#)
- [Blocking Peptides](#)
- [Dot Blot](#)
- [Immunohistochemistry](#)
- [Immunofluorescence](#)
- [Immunoprecipitation](#)
- [Flow Cytometry](#)
- [Cell Culture](#)

### EIF2AK3 Antibody (N-term) - Images





EIF2AK3 Antibody (N-term) (Cat. #AP14551a) western blot analysis in A549 cell line lysates (35ug/lane). This demonstrates the EIF2AK3 antibody detected the EIF2AK3 protein (arrow).



EIF2AK3 Antibody (N-term) (AP14551a) immunohistochemistry analysis in formalin fixed and paraffin embedded human hepatocarcinoma followed by peroxidase conjugation of the secondary antibody and DAB staining. This data demonstrates the use of EIF2AK3 Antibody (N-term) for immunohistochemistry. Clinical relevance has not been evaluated.

#### **EIF2AK3 Antibody (N-term) - Background**

The protein encoded by this gene phosphorylates the alpha subunit of eukaryotic translation-initiation factor 2 (EIF2), leading to its inactivation, and thus to a rapid reduction of translational initiation and repression of global protein synthesis. It is a type I membrane protein located in the endoplasmic reticulum (ER), where it is induced by ER stress caused by malformed proteins. Mutations in this gene are associated with Wolcott-Rallison syndrome.

#### **EIF2AK3 Antibody (N-term) - References**

Xu, H., et al. Toxicology 277 (1-3), 1-5 (2010) :  
Bailey, S.D., et al. Diabetes Care 33(10):2250-2253(2010)  
Rose, J.E., et al. Mol. Med. 16 (7-8), 247-253 (2010) :  
Kim, K.W., et al. Oncogene 29(22):3241-3251(2010)

Lee do, Y., et al. PLoS ONE 5 (5), E10489 (2010) :