

EIF2AK3 Antibody
Purified Mouse Monoclonal Antibody (Mab)
Catalog # AM8570b

Specification

EIF2AK3 Antibody - Product Information

Application	WB,E
Primary Accession	O9NZJ5
Reactivity	Human, Mouse, Rat
Host	Mouse
Clonality	monoclonal
Isotype	IgG1
Calculated MW	125216

EIF2AK3 Antibody - Additional Information

Gene ID 9451

Other Names

Eukaryotic translation initiation factor 2-alpha kinase 3, 2.7.11.1, PRKR-like endoplasmic reticulum kinase, Pancreatic eIF2-alpha kinase, HsPEK, EIF2AK3, PEK, PERK

Target/Specificity

This EIF2AK3 antibody is generated from a mouse immunized with a recombinant protein conjugated synthetic peptide between 530-850 amino acids from human EIF2AK3.

Dilution

WB~~1:250-1:1000

Format

Purified monoclonal antibody supplied in PBS with 0.09% (W/V) sodium azide. This antibody is purified through a protein G column, 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

EIF2AK3 Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

EIF2AK3 Antibody - 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

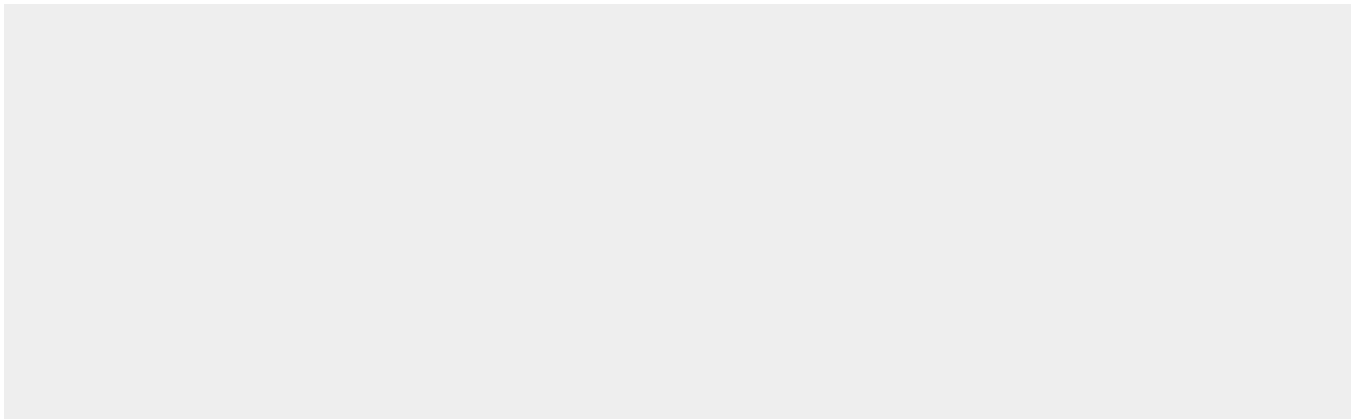
Ubiquitous. A high level expression is seen in secretory tissues.

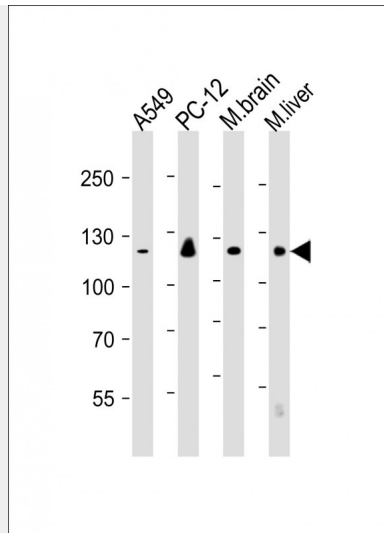
EIF2AK3 Antibody - Protocols

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 - Images





All lanes : Anti-EIF2AK3 Antibody at 1:250-1:1000 dilution Lane 1: A549 whole cell lysate Lane 2: PC-12 whole cell lysate Lane 3: mouse brain lysate Lane 4: mouse liver lysate Lysates/proteins at 20 µg per lane. Secondary Goat Anti-mouse IgG, (H+L), Peroxidase conjugated at 1/10000 dilution. Predicted band size : 125 kDa Blocking/Dilution buffer: 5% NFDM/TBST.

EIF2AK3 Antibody - Background

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. Serves as a critical effector of unfolded protein response (UPR)-induced G1 growth arrest due to the loss of cyclin-D1 (CCND1). Involved in control of mitochondrial morphology and function (By similarity).

EIF2AK3 Antibody - References

- Shi Y.,et al.J. Biol. Chem. 274:5723-5730(1999).
- Sood R.,et al.Biochem. J. 346:281-293(2000).
- Delepine M.,et al.Nat. Genet. 25:406-409(2000).
- Ota T.,et al.Nat. Genet. 36:40-45(2004).
- Hillier L.W.,et al.Nature 434:724-731(2005).