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Anti-PERK Antibody
Catalog # ABO11333

Specification

Anti-PERK Antibody - Product Information

Application	**WB, ICC**
Primary Accession	Q9NZJ5
Host	**Rabbit**
Reactivity	**Human**
Clonality	**Polyclonal**
Format	**Lyophilized**

Description
Rabbit IgG polyclonal antibody for Eukaryotic translation initiation factor 2-alpha kinase 3(EIF2AK3) detection. Tested with WB, ICC in Human.

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

Anti-PERK 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

Calculated MW
125216 MW KDa

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

Subcellular Localization
Endoplasmic reticulum membrane; Single-pass type I membrane protein.

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

Protein Name
Eukaryotic translation initiation factor 2-alpha kinase 3

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 at the N-terminus of human PERK(163-176aa QWDQDRESMETVPF).

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-PERK 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 QRICH1, and hence allowing ATF4- and QRICH1-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}

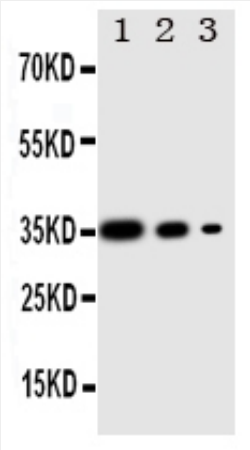
Tissue Location
Ubiquitous. A high level expression is seen in secretory tissues.

Anti-PERK 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 Cytomety
- Cell Culture

Anti-PERK Antibody - Images



Anti-PERK antibody, ABO11333, Western blottingRecombinant Protein Detection Source: E.coli derived -recombinant Human EIF2AK3, 35.1KD(162aa tag+ D93-R246)Lane 1: Recombinant Human EIF2AK3 Protein 10ngLane 2: Recombinant Human EIF2AK3 Protein 5ngLane 3: Recombinant Human EIF2AK3 Protein 2.5ng

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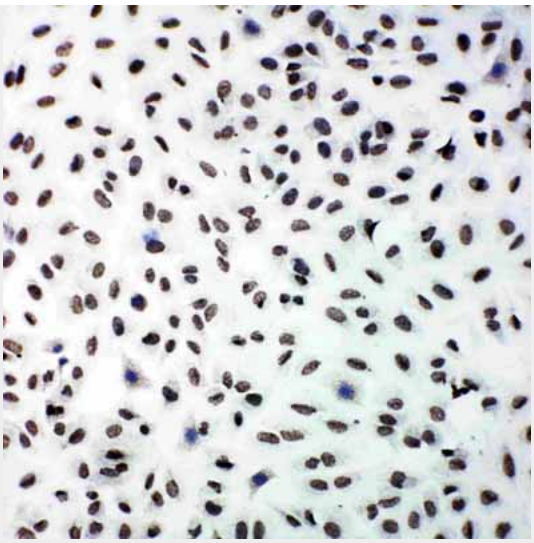

Anti-PERK antibody, ABO11333, ICCICC: A549 Cell

Anti-PERK Antibody - Background

EIF2AK3(Eukaryotic Translation Initiation Factor 2-Alpha Kinase 3), also called PEK, is an enzyme that in humans is encoded by the EIF2AK3 gene. By fluorescence in situ hybridization and radiation hybrid analysis, Hayes et al.(1999) mapped the EIF2AK3 gene to chromosome 2p12. Harding et al.(2000) reported that a targeted mutation of the mouse Eif2ak3 gene, which they called Perk, abolished the phosphorylation of eIF2-alpha in response to accumulation of malfolded proteins in the ER, resulting in abnormally elevated protein synthesis and higher levels of ER stress. Using a library of endoribonuclease-prepared short interfering RNAs(esiRNAs), Kittler et al.(2004) identified 37 genes required for cell division, one of which was EIF2AK3.