

# PERK Rabbit mAb

Catalog # AP75893

## Product Information

|                   |                        |
|-------------------|------------------------|
| Application       | WB                     |
| Primary Accession | <a href="#">Q9NZJ5</a> |
| Reactivity        | Human, Mouse, Rat      |
| Host              | Rabbit                 |
| Clonality         | Monoclonal Antibody    |
| Calculated MW     | 125216                 |

## Additional Information

|             |                  |
|-------------|------------------|
| Gene ID     | 9451             |
| Other Names | EIF2AK3          |
| Dilution    | WB~~1/500-1/1000 |
| Format      | Liquid           |

## Protein Information

|          |   |
|----------|---|
| Name     | EIF2AK3 {ECO:0000303   PubMed:10932183, ECO:0000312   HGNC:HGNC:3255}   |
| Function | <p>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:<a href="#">10026192</a>, PubMed:<a href="#">10677345</a>, PubMed:<a href="#">11907036</a>, PubMed:<a href="#">12086964</a>, PubMed:<a href="#">25925385</a>, PubMed:<a href="#">31023583</a>). 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:<a href="#">10677345</a>, PubMed:<a href="#">27917829</a>, PubMed:<a href="#">31023583</a>). 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:<a href="#">10026192</a>, PubMed:<a href="#">10677345</a>, PubMed:<a href="#">31023583</a>, PubMed:<a href="#">33384352</a>). 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:<a href="#">31023583</a>). 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</p> |

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

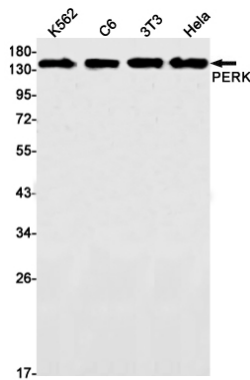
Endoplasmic reticulum membrane {ECO:0000250|UniProtKB:Q9Z2B5}; Single-pass type I membrane protein. Note=Localizes to the Localizes to endoplasmic reticulum membrane (By similarity). Also present at mitochondria-endoplasmic reticulum contact sites; where it interacts with ATAD3A (PubMed:39116259). {ECO:0000250|UniProtKB:Q9Z2B5,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

#### Tissue Location

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

## Images

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