

phospho-PERK (Thr980) Rabbit pAb

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Catalog # AP52346

Product Information

Application	WB, IHC-P, IHC-F, IF
Primary Accession	Q9Z2B5
Reactivity	Rat, Human, Mouse
Predicted	Pig, Dog, Rabbit
Host	Rabbit
Clonality	Polyclonal
Calculated MW	124682
Physical State	Liquid
Immunogen	KLH conjugated synthesised phosphopeptide derived from mouse PERK around the phosphorylation site of Thr980
Epitope Specificity	H(p-T)GQ
Isotype	IgG
Purity	affinity purified by Protein A
Buffer	0.01M TBS (pH7.4) with 1% BSA, 0.02% Proclin300 and 50% Glycerol.
SUBCELLULAR LOCATION	Endoplasmic reticulum membrane; Single-pass type I membrane protein.
DISEASE	Wolcott-Rallison syndrome (WRS) [MIM:226980]: A rare autosomal recessive disorder, characterized by permanent neonatal or early infancy insulin-dependent diabetes and, at a later age, epiphyseal dysplasia, osteoporosis, growth retardation and other multisystem manifestations, such as hepatic and renal dysfunctions, mental retardation and cardiovascular abnormalities. Note=The disease is caused by mutations affecting the gene represented in this entry.
Important Note	This product as supplied is intended for research use only, not for use in human, therapeutic or diagnostic applications.
Background Descriptions	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. [provided by RefSeq, Jan 2010].

Additional Information

Gene ID	13666
Other Names	Eukaryotic translation initiation factor 2-alpha kinase 3, 2.7.11.1, PRKR-like endoplasmic reticulum kinase, Pancreatic eIF2-alpha kinase, 2.7.10.2, Eif2ak3 {ECO:0000312 MGI:MGI:1341830}
Dilution	WB=1:500-2000,IHC-P=1:100-500,IHC-F=1:100-500,IF=1:100-500,Flow-Cyt=2ug

/Test

Storage

Store at -20 °C for one year. Avoid repeated freeze/thaw cycles. When reconstituted in sterile pH 7.4 0.01M PBS or diluent of antibody the antibody is stable for at least two weeks at 2-4 °C.

Protein Information

Name

Eif2ak3 {ECO:0000312 | MGI:MGI:1341830}

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:[10882126](#), PubMed:[11106749](#), PubMed:[11430819](#), PubMed:[11997520](#), PubMed:[14978030](#), PubMed:[16418533](#), PubMed:[17998206](#), PubMed:[21954288](#), PubMed:[23921556](#), PubMed:[9930704](#)). 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:[11106749](#), PubMed:[16418533](#), PubMed:[17998206](#), PubMed:[21954288](#), PubMed:[23921556](#), PubMed:[29386355](#), PubMed:[9930704](#)). 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:[10882126](#), PubMed:[11106749](#), PubMed:[11430819](#), PubMed:[11997520](#), PubMed:[23921556](#)). 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 (By similarity). 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 (PubMed:[14517290](#), PubMed:[14978030](#)). Serves as a critical effector of unfolded protein response (UPR)-induced G1 growth arrest due to the loss of cyclin-D1 (CCND1) (PubMed:[11035797](#)). Involved in control of mitochondrial morphology and function (PubMed:[23921556](#)).

Cellular Location

Endoplasmic reticulum membrane; Single-pass type I membrane protein. Note=Localizes to the Localizes to endoplasmic reticulum membrane (PubMed:11430819). Also present at mitochondria-endoplasmic reticulum contact sites; where it interacts with ATAD3A (By similarity). {ECO:0000250 | UniProtKB:Q9NZJ5, ECO:0000269 | PubMed:11430819}

Tissue Location

Ubiquitous (PubMed:9930704). Highly expressed in mouse pancreas, an organ active in protein secretion (at protein level) (PubMed:11430819).

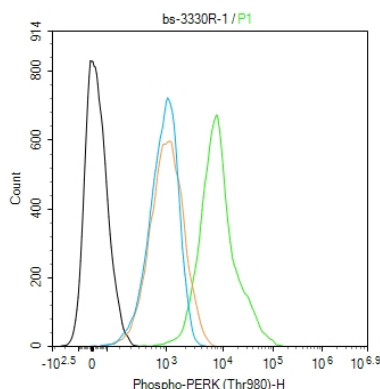
Background

This product as supplied is intended for research use only, not for use in human, therapeutic or diagnostic applications.

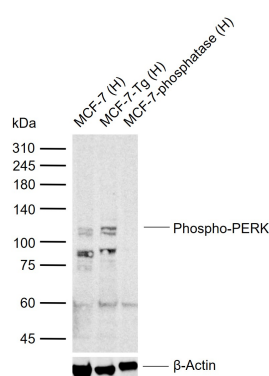
References

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 Harding H.P.,et al.Nature 398:90-90(1999).
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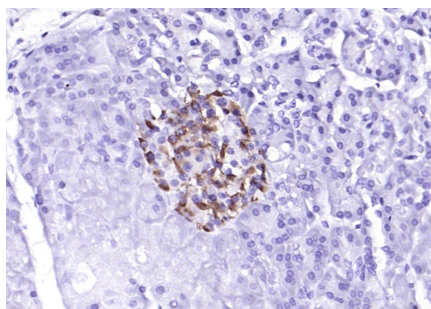
Images



Blank control(black line):HepG2.
 Primary Antibody (green line): Rabbit Anti-Phospho-PERK (Thr980) antibody (AP52346)
 Dilution:1ug/Test;
 Secondary Antibody(white blue line): Goat anti-rabbit IgG-AF488
 Dilution: 0.5ug/Test.
 Isotype control(orange line): Normal Rabbit IgG
 Protocol
 The cells were fixed with 4% PFA (10min at room temperature)and then permeabilized with 90% ice-cold methanol for 20 min at -20°C, The cells were then incubated in 5%BSA to block non-specific protein-protein interactions for 30 min at room temperature .Cells stained with Primary Antibody for 30 min at room temperature. The secondary antibody used for 40 min at room temperature. Acquisition of 20,000 events was performed.



Sample:
 Lane 1: Human MCF-7 cell lysates
 Lane 2: Human MCF-7-Tg (1 μ M thapsigargin, 20 min) cell lysates
 Lane 3: Human MCF-7-phosphatase cell lysates
 Primary: Anti-Phospho-PERK (Thr980) (AP52346) at 1/1000 dilution
 Secondary: IRDye800CW Goat Anti-Rabbit IgG at 1/20000 dilution
 Predicted band size: 119 kDa
 Observed band size: 120 kDa



Paraformaldehyde-fixed, paraffin embedded (human pancreas); Antigen retrieval by boiling in sodium citrate buffer (pH6.0) for 15min; Block endogenous peroxidase by 3% hydrogen peroxide for 20 minutes; Blocking buffer (normal goat serum) at 37°C for 30min; Antibody incubation with (Phospho-PERK (Thr980)) Polyclonal Antibody, Unconjugated (AP52346) at 1:200 overnight at 4°C, followed by operating according to SP Kit(Rabbit) (sp-0023) instructionsand DAB staining.

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.