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Product Information

Anti-PERK (C-Terminal)
produced in rabbit, IgG fraction of antiserum

Catalog Number: **P0074**

Product Description

Anti-PERK C-terminal is produced in rabbit using as immunogen a synthetic peptide corresponding to amino acids 1078-1092 of mouse PERK (Gene ID: 13666) conjugated to KLH. This sequence is identical in rat and differs by one amino acid in human. Whole antiserum is fractionated and then further purified by ion-exchange chromatography to provide the IgG fraction of antiserum that is essentially free of other rabbit serum proteins.

Anti- PERK specifically recognizes PERK. The antibody may be used in several applications including immunoblotting (~150 kDa). Staining of the PERK band in immunoblotting is specifically inhibited with the immunizing peptide.

A critical event in regulation of translation initiation is the phosphorylation of the α subunits of translation initiation factor eIF2 at Ser^{51}, a modification that blocks initiation, therefore attenuating global protein translation.[1] PERK belongs to a family of EIF2a kinases that respond to distinct cellular stress signals. This family includes the double-stranded RNA dependent kinase (PKR),[2] heme-regulated inhibitor kinase (HRI), [3] and general control non-derepressible-2 (GCN2) or eIF2AK4.[4]

PERK (also known as eIF2AK3, PEK and WRS) is a transmembrane kinase that is highly expressed in the pancreas. It resides in the ER and couples stress signals initiated by protein malfolding in the ER lumen to eIF2α phosphorylation and reduces protein biosynthesis.[5] PERK contains two main domains: a kinase domain with similarity to other eIF2α kinases and an N-terminal domain similar to IRE1, a protein involved in the unfolded protein response (UPR). In response to ER stress, BiP, a chaperon bound to IRE1-domain, dissociates from PERK allowing it to dimerize, resulting in its activation and thus phosphorylation of eIF2α.[6] Mice deficient for PERK exhibit skeletal, pancreatic and growth defects,[7] which are similar to those seen in human Wolcott-Rallison syndrome caused by mutation in the *PERK* gene.[8]

Reagent

Supplied as a solution in 0.01 M phosphate buffered saline, pH 7.4, containing 15 mM sodium azide as a preservative.

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

Storage/Stability

For continuous use, store at 2-8 °C for up to one month. For extended storage, freeze in working aliquots. Repeated freezing and thawing, or storage in "frost-free" freezers, is not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use. Working dilutions should be discarded if not used within 12 hours.

Product Profile

Immunoblotting: a working dilution of 1:500-1:1,000 is recommended using a whole cell lysate of HEK-293T expressing PERK cells.

Note: In order to obtain the best results using various techniques and preparations, we recommend determining the optimal working dilutions by titration.

References

1. Daver, T.E., *Cell*, **108**, 545-556 (2002).
2. Clemens, M.J., et al., *J. Interferon Cytokine Res*., **17**, 503-524 (1997).
3. Han, A.P., et al., *EMBO J.,* **20***,* 6909–6918 (2001).
4. Berlanga, J.J., et al., *Eur. J. Biochem*., **265**, 754-762 (1999).
5. Harding, H., et al., *Nature*, **397**, 271-274 (1999).
6. Ma, K., et al., *J. Biol. Chem*., **277**,18278-18235 (2002).
7. Zang, P., et al., *Mol. Cell. Biol.,* **22**, 3864-3874 (2002).
8. Delepine, M., et al., *Nat. Genet*., **25**,406-409 (2000).

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