

**Product Name: Phospho-PKR (T446) (4N9) Rabbit
Monoclonal Antibody
Catalog #: AMRe05976**

Summary

Production Name	Phospho-PKR (T446) (4N9) Rabbit Monoclonal Antibody
Description	Rabbit Monoclonal Antibody
Host	Rabbit
Application	WB,ELISA
Reactivity	Human

Performance

Conjugation	Unconjugated
Modification	Phospho Antibody
Isotype	IgG
Clonality	Monoclonal
Form	Liquid
Storage	Store at 4°C short term. Aliquot and store at -20°C long term. Avoid freeze/thaw cycles.
Buffer	Rabbit IgG in phosphate buffered saline , pH 7.4, 150mM NaCl, 0.02% New type preservative N and 50% glycerol. Store at +4°C short term. Store at -20°C long term. Avoid freeze / thaw cycle.
Purification	Affinity purification

Immunogen

Gene Name	EIF2AK2
Alternative Names	E2AK2;E2AK2; EIF2AK1; EIF2AK2; MGC126524; PKR p68 kinase; PKR; PRKR;
Gene ID	5610.0
SwissProt ID	P19525.

Application

Dilution Ratio	WB 1:500-1:2000
Molecular Weight	62kDa

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Background

PKR a protein kinase of the PEK family. Upon binding double-stranded RNA, it becomes autophosphorylated and activated. Phosphorylates and inhibits the alpha subunit of eIF2 alpha, which leads to an inhibition of the initiation of protein synthesis. IFN-induced dsRNA-dependent serine/threonine-protein kinase that phosphorylates the alpha subunit of eukaryotic translation initiation factor 2 (EIF2S1/eIF-2-alpha) and plays a key role in the innate immune response to viral infection (PubMed: [18835251](http://www.uniprot.org/citations/18835251)), PubMed: [19507191](http://www.uniprot.org/citations/19507191), PubMed: [19189853](http://www.uniprot.org/citations/19189853), PubMed: [21123651](http://www.uniprot.org/citations/21123651), PubMed: [21072047](http://www.uniprot.org/citations/21072047), PubMed: [22948139](http://www.uniprot.org/citations/22948139), PubMed: [23229543](http://www.uniprot.org/citations/23229543), PubMed: [22381929](http://www.uniprot.org/citations/22381929)). Inhibits viral replication via the integrated stress response (ISR): EIF2S1/eIF-2- alpha phosphorylation in response to viral infection converts EIF2S1/eIF-2- alpha in a global protein synthesis inhibitor, resulting to a shutdown of cellular and viral protein synthesis, while concomitantly initiating the preferential translation of ISR-specific mRNAs, such as the transcriptional activator ATF4 (PubMed: [19189853](http://www.uniprot.org/citations/19189853), PubMed: [21123651](http://www.uniprot.org/citations/21123651), PubMed: [22948139](http://www.uniprot.org/citations/22948139), PubMed: [23229543](http://www.uniprot.org/citations/23229543)). Exerts its antiviral activity on a wide range of DNA and RNA viruses including hepatitis C virus (HCV), hepatitis B virus (HBV), measles virus (MV) and herpes simplex virus 1 (HHV-1) (PubMed: [11836380](http://www.uniprot.org/citations/11836380), PubMed: [19189853](http://www.uniprot.org/citations/19189853), PubMed: [20171114](http://www.uniprot.org/citations/20171114), PubMed: [19840259](http://www.uniprot.org/citations/19840259), PubMed: [21710204](http://www.uniprot.org/citations/21710204), PubMed: [23115276](http://www.uniprot.org/citations/23115276), PubMed: [23399035](http://www.uniprot.org/citations/23399035)). Also involved in the regulation of signal transduction, apoptosis, cell proliferation and differentiation: phosphorylates other substrates including p53/TP53, PPP2R5A, DHX9, ILF3, IRS1 and the HHV-1 viral protein US11 (PubMed: [11836380](http://www.uniprot.org/citations/11836380), PubMed: [22214662](http://www.uniprot.org/citations/22214662), PubMed: [19229320](http://www.uniprot.org/citations/19229320)). In addition to serine/threonine-protein kinase activity, also has tyrosine-protein kinase activity and phosphorylates CDK1 at 'Tyr-4' upon DNA damage, facilitating its ubiquitination and proteosomal degradation (PubMed: [20395957](http://www.uniprot.org/citations/20395957)).

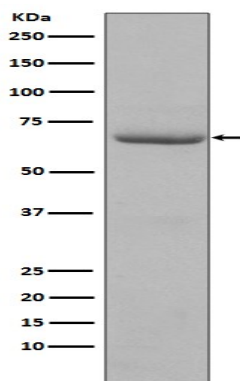
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target="_blank">20395957). Either as an adapter protein and/or via its kinase activity, can regulate various signaling pathways (p38 MAP kinase, NF-kappa-B and insulin signaling pathways) and transcription factors (JUN, STAT1, STAT3, IRF1, ATF3) involved in the expression of genes encoding proinflammatory cytokines and IFNs (PubMed:22948139, PubMed:23084476, PubMed:23372823). Activates the NF-kappa-B pathway via interaction with IKBKB and TRAF family of proteins and activates the p38 MAP kinase pathway via interaction with MAP2K6 (PubMed:10848580, PubMed:15121867, PubMed:15229216). Can act as both a positive and negative regulator of the insulin signaling pathway (ISP) (PubMed:20685959). Negatively regulates ISP by inducing the inhibitory phosphorylation of insulin receptor substrate 1 (IRS1) at 'Ser-312' and positively regulates ISP via phosphorylation of PPP2R5A which activates FOXO1, which in turn up-regulates the expression of insulin receptor substrate 2 (IRS2) (PubMed:20685959). Can regulate NLRP3 inflammasome assembly and the activation of NLRP3, NLRP1, AIM2 and NLRC4 inflammasomes (PubMed:22801494). Plays a role in the regulation of the cytoskeleton by binding to gelsolin (GSN), sequestering the protein in an inactive conformation away from actin (By similarity).

Research Area

Image Data



Western blot analysis of PKR phosphorylation expression in HeLa cell lysate treated with Calyculin A and TNF-alpha.

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Note

For research use only.