



Phospho-EIF2AK2 (T446) Antibody

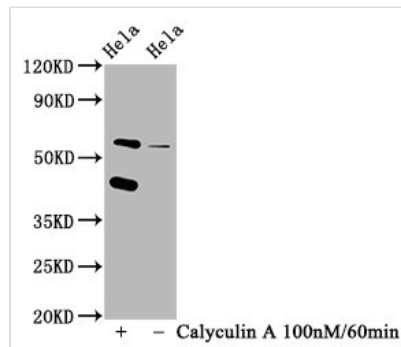
Product Code	CSB-RA007511A446pHU
Abbreviation	Interferon-induced, double-stranded RNA-activated protein kinase
Storage	Upon receipt, store at -20°C or -80°C. Avoid repeated freeze.
Uniprot No.	P19525
Immunogen	A synthesized peptide derived from Human Phospho-EIF2AK2 (T446)
Species Reactivity	Human
Tested Applications	ELISA, WB, IHC, IF; Recommended dilution: WB:1:500-1:5000, IHC:1:50-1:200, IF:1:20-1:200
Relevance	<p>IFN-induced dsRNA-dependent serine/threonine-protein kinase which plays a key role in the innate immune response to viral infection and is also involved in the regulation of signal transduction, apoptosis, cell proliferation and differentiation. 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). Inhibits viral replication via phosphorylation of the alpha subunit of eukaryotic initiation factor 2 (EIF2S1), this phosphorylation impairs the recycling of EIF2S1 between successive rounds of initiation leading to inhibition of translation which eventually results in shutdown of cellular and viral protein synthesis. Also phosphorylates other substrates including p53/TP53, PPP2R5A, DHX9, ILF3, IRS1 and the HHV-1 viral protein US11. 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. 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. 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. Can act as both a positive and negative regulator of the insulin signaling pathway (ISP). 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). Can regulate NLRP3 inflammasome assembly and the activation of NLRP3, NLRP1, AIM2 and NLRC4 inflammasomes. Can trigger apoptosis via FADD-mediated activation of CASP8. Plays a role in the regulation of the cytoskeleton by binding to gelsolin (GSN), sequestering the protein in an inactive conformation away from actin.</p>
Form	Liquid
Conjugate	Non-conjugated
Storage Buffer	Rabbit IgG in phosphate buffered saline , pH 7.4, 150mM NaCl, 0.02% sodium



azide and 50% glycerol.

Purification Method	Affinity-chromatography
Isotype	Rabbit IgG
Clonality	Monoclonal
Alias	Interferon-induced, double-stranded RNA-activated protein kinase, Eukaryotic translation initiation factor 2-alpha kinase 2, eIF-2A protein kinase 2, Interferon-inducible RNA-dependent protein kinase, P1/eIF-2A protein kinase, Protein kinase RNA-activated, PKR, Protein kinase R, EIF2AK2, PKR, PRKR
Immunogen Species	Homo sapiens (Human)
Research Area	Signal Transduction
Gene Names	EIF2AK2
Accession NO.	2F8

Image

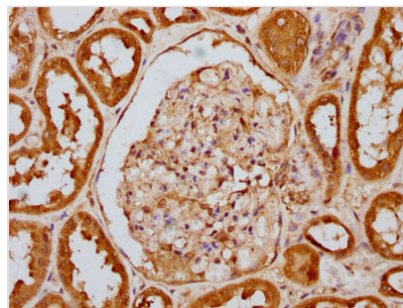


Western Blot

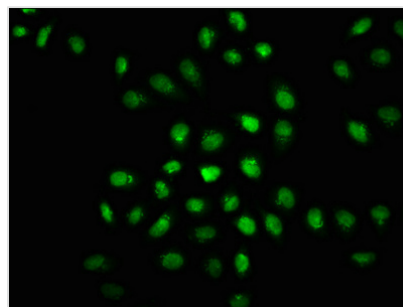
Positive WB detected in HeLa whole cell lysate (treated with Calyculin A or not)
All lanes Phospho-EIF2AK2 antibody at 1.25µg/ml

Secondary

Goat polyclonal to rabbit IgG at 1/50000 dilution
Predicted band size: 62 KDa
Observed band size: 62 KDa



IHC image of CSB-RA007511A446pHU diluted at 1:100 and staining in paraffin-embedded human kidney tissue performed on a Leica BondTM system. After dewaxing and hydration, antigen retrieval was mediated by high pressure in a citrate buffer (pH 6.0). Section was blocked with 10% normal goat serum 30min at RT. Then primary antibody (1% BSA) was incubated at 4°C overnight. The primary is detected by a biotinylated secondary antibody and visualized using an HRP conjugated SP system.



Immunofluorescence staining of HeLa cells (treated with 50mM Calyculin A for 30min) with CSB-RA007511A446pHU at 1:100, counter-stained with DAPI. The cells were fixed in 4% formaldehyde, permeabilized using 0.2% Triton X-100 and blocked in 10% normal Goat Serum. The cells were then incubated with the antibody overnight at 4°C. The secondary antibody was Alexa Fluor 488-conjugated AffiniPure Goat Anti-Rabbit IgG (H+L).

Description

CUSABIO cloned the DNA sequence encoding the phospho-EIF2AK2 (T446)



monoclonal antibody into the plasmid and then transfected into the cell line for expression. The product is the recombinant phospho-EIF2AK2 (T446) monoclonal antibody. It belongs to the rabbit IgG and is purified through the affinity-chromatography method. This EIF2AK2-pT446 antibody has been quality tested in ELISA, WB, IHC, and IF. It can recognize the human EIF2AK2 phosphorylated at Thr446 residue.

EIF2AK2, also known as PKR, plays an important role in the antiviral defense and cellular homeostasis by modulating mRNA translation. It detects dsRNA molecules produced during DNA and RNA virus replication and mounts a powerful antiviral response by inhibiting viral mRNA translation, causing infected cells to die. PKR is activated by the homodimerization and subsequent autophosphorylation on Thr446 and Thr451 after binding dsRNA.