abcam

ab32506

Anti-PKR antibody [Y117]

Anti-PKR antibody [Y117] (ab32506) is a rabbit monoclonal antibody detecting PKR in **Western Blot, Flow Cytometry (Intra), IP, IHC-P, ICC/IF**. Suitable for **Human**.

- KO validated for confirmed specificity
- Biophysical QC for unrivalled batch-batch consistency
- Over 20 publications
- Trusted since 2006

Recombinant | RabMAb | KO Validated

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	pH: 7.2 - 7.4 Preservative: 0.01% Sodium azide Constituents: PBS, 40% Glycerol (glycerin, glycerine), 0.05% BSA
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Clone number	Y117
Purification technique	Affinity purification Protein A
Specificity	This antibody does not cross-react with other GCN2 family members.
Concentration	0.656 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IP

Tested

Species	Human
Dilution info	1/80 - 1/100
Notes	-

WB

Tested

Species	Human
Dilution info	1/5000 - 1/20000
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	1/100
Notes	**For unpurified use at 1/250 - 1/500**

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	-
Notes	-

IHC-P

Tested

Species	Human
Dilution info	1/100
Notes	-

Target data

See full target information EIF2AK2

Function	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, PubMed:19189853, PubMed:19507191, PubMed:21072047, PubMed:21123651, PubMed:22381929, PubMed:22948139, PubMed:23229543). 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, PubMed:21123651, PubMed:22948139, PubMed: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, PubMed:19189853, PubMed:19840259, PubMed:20171114, PubMed:21710204, PubMed:23115276, PubMed: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, PubMed:19229320, PubMed:22214662). 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 proteasomal degradation (PubMed: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 pro-inflammatory 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).

Storage

Shipped at conditions	Conditional Ambient
Appropriate short-term storage duration	1-2 weeks

Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	-20°C
Aliquoting information	Upon delivery aliquot
Storage information	Avoid freeze / thaw cycle

Notes

What is this antibody validated in?
Anti-PKR antibody [Y117] (ab32506) is a rabbit recombinant monoclonal antibody and is validated for use in Western Blot (WB), Flow Cytometry (Intra), Immunoprecipitation (IP), Immunohistochemistry (IHC-P), Immunocytochemistry/immunofluorescence (ICC/IF) in Human samples.

What is the molecular weight of PKR?
Anti-PKR [Y117] (ab32506) specifically detects a band for PKR (UniProt: P19525) at a molecular weight of 62kDa.

Trusted by the scientific community
Anti-PKR [Y117] (ab32506) was first used in a scientific publication in 2006 and has been cited over 20 times in peer-reviewed journals.

Specificity confirmed
The specificity of Anti-PKR antibody [Y117] (ab32506) has been confirmed by Western blot testing in EIF2AK2 Knockout HAP1 cells.

Other related products
We have a range of other formats of antibody clone [Y117] also available for your convenience: ab32506, Alexa Fluor® 488 - ab207341, Alexa Fluor® 647 - ab207342, Carrier free - ab239817, PE - ab305722, APC - ab305723, HRP - ab305724, Alkaline Phosphatase - ab308756, Alexa Fluor® 594 - ab310471, Alexa Fluor® 555 - ab312001, Alexa Fluor® 568 - ab312477, Alexa Fluor® 750 - ab321606

Species reactivity
Mouse, Rat: We have preliminary internal testing data to indicate this antibody may not react with these species. Please contact us for more information.

Patented technology
Our RabMAb® technology is a patented hybridoma-based technology for making rabbit monoclonal antibodies. For details on our patents, please refer to RabMAb® patents.

What are the advantages of a recombinant monoclonal antibody?
This product is a recombinant monoclonal antibody, which offers several advantages including:

- High batch-to-batch consistency and reproducibility
- Improved sensitivity and specificity
- Long-term security of supply
- Animal-free batch production

For more information, read more on recombinant antibodies.

Product promise

Tested

We have tested this species and application combination and it works. It is covered by our product promise.

Expected

We have not tested this specific species and application combination in-house, but expect it will work. It is covered by our product promise.

Predicted

This species and application combination has not been tested, but we predict it will work based on strong homology. However, this combination is not covered by our product promise.

Not recommended

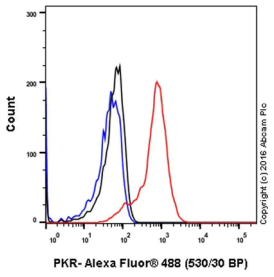
We do not recommend this combination. It is not covered by our product promise.

We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

In the unlikely event of one of our products not working as expected, you are covered by our product promise.

Full details and terms and conditions can be found here:
Terms & Conditions.

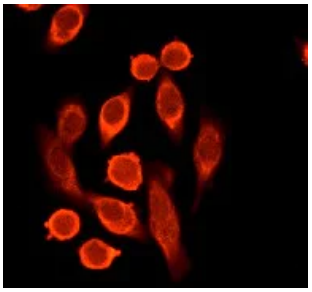
11 product images



Flow Cytometry (Intracellular) - Anti-PKR antibody [Y117] (ab32506)

PKR Flow Cytometry (Intracellular) staining using rabbit Anti-PKR antibody

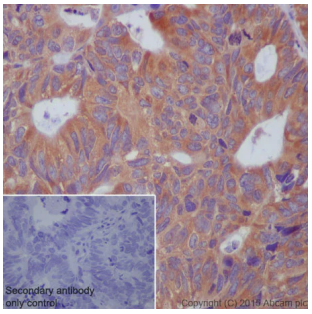
Intracellular Flow Cytometry analysis of MCF-7 (human breast carcinoma) cells labeling PKR with purified ab32506 at 1/20 dilution (10ug/ml) (red). Cells were fixed with 4% paraformaldehyde and permeabilised with 90% methanol. A Goat anti rabbit IgG (Alexa Fluor® 488) (1/2000 dilution) was used as the secondary antibody. Rabbit monoclonal IgG (Black) was used as the isotype control, cells without incubation with primary antibody and secondary antibody (Blue) were used as the unlabeled control.



Immunocytochemistry/ Immunofluorescence - Anti-PKR antibody [Y117] (ab32506)

PKR Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-PKR antibody

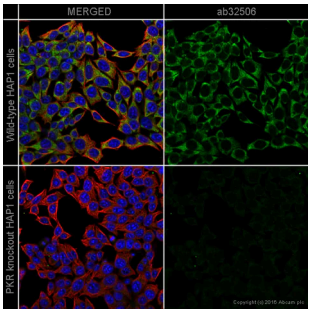
Immunofluorescent staining of HeLa cells using unpurified ab32506 at 1/250 dilution.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-PKR antibody [Y117] (ab32506)

PKR Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-PKR antibody

ab32506 staining PKR in human liver carcinoma tissue sections by Immunohistochemistry (IHC-P - paraformaldehyde-fixed, paraffin-embedded sections). Tissue was fixed with paraformaldehyde and antigen retrieval was by heat mediation in a EDTA buffer. Samples were incubated with primary antibody at a dilution of 1/100. A goat anti-rabbit IgG H&L (HRP) ab97051 was used as the secondary antibody at a dilution of 1/500.
Negative control 1: PBS in place of primary antibody.

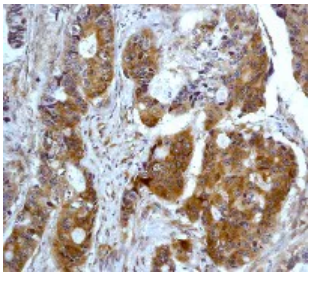


Immunocytochemistry/ Immunofluorescence - Anti-PKR antibody [Y117] (ab32506)

PKR Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-PKR antibody

ab32506 staining PKR in wild-type HAP1 cells (top panel) and PKR knockout HAP1 cells (bottom panel). The cells were fixed with 100% methanol (5min), permeabilized with 0.1% Triton X-100 for 5 minutes and then blocked with 1% BSA/10% normal goat serum/0.3M glycine in 0.1% PBS-Tween for 1h. The cells were then incubated with ab32506 at 1/400 dilution and ab7291 at 1ug/ml concentration overnight at +4°C, followed by a further incubation at room temperature for 1h with a goat secondary antibody to Rabbit IgG (Alexa Fluor® 488) (ab150081) at 2 µg/ml (shown in green) and a goat secondary antibody to Mouse IgG (Alexa Fluor® 594) (ab150117) at 2ug/ml (shown in pseudo-color red). Nuclear DNA was labelled in blue with DAPI.
This product also gave a positive signal under the same testing conditions in HAP1 cells fixed with 4% formaldehyde (10 min).

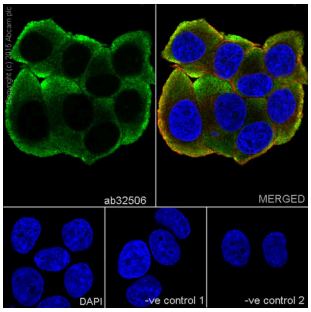
Image was taken with a confocal microscope (Leica-Microsystems, TCS SP8).



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-PKR antibody [Y117] (ab32506)

PKR Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-PKR antibody

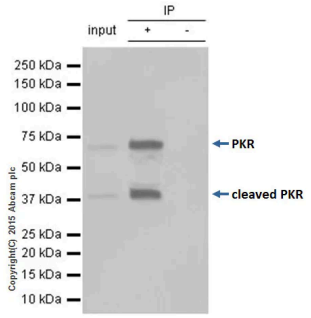
Immunohistochemical analysis of paraffin-embedded human colon carcinoma using unpurified ab32506 at 1/100 dilution.



Immunocytochemistry/ Immunofluorescence - Anti-PKR antibody [Y117] (ab32506)

PKR Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-PKR antibody

ab32506 staining PKR in MCF-7 (human breast carcinoma) cells by ICC/IF (Immunocytochemistry/immunofluorescence). Cells were fixed with 4% Paraformaldehyde and permeabilized with 0.1% Triton X-100. Samples were incubated with primary antibody at a dilution of 1/100. A goat anti rabbit IgG (Alexa Fluor® 488) (ab150077) was used as the secondary antibody. ab7291 and ab150120 were used as counterstains for primary antibody ab32506 and secondary antibody ab150077 respectively and DAPI was used as a nuclear counterstain.
Negative control 1: Rabbit primary antibody and anti-mouse secondary antibody (ab150120)
Negative control 2: Mouse primary antibody (ab7291) and anti-rabbit secondary antibody (ab150077)



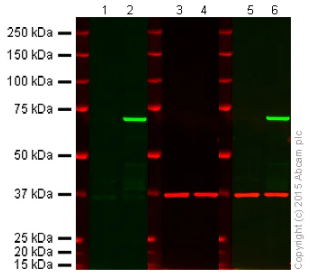
Immunoprecipitation - Anti-PKR antibody [Y117] (ab32506)

ab32506 immunoprecipitating PKR. 10µg of cell lysate was incubated with primary antibody at a dilution of 1/40 and VeriBlot for IP Detection Reagent (HRP) (ab131366) at a dilution of 1/10000.
Lane 1: HEK293 (human embryonic kidney) whole cell lysate (10ug)
Lane 2: HEK293 (human embryonic kidney) whole cell lysate
Lane 3: Rabbit monoclonal IgG (ab172730) instead of ab32506 in HEK293 (human embryonic kidney) whole cell lysate

All lanes:
Immunoprecipitation - Anti-PKR antibody [Y117] (ab32506)

Predicted band size: 62 kDa

Observed band size: 40 kDa, 68 kDa

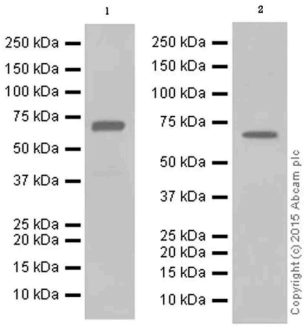


Western blot - Anti-PKR antibody [Y117] (ab32506)

PKR Western blot staining using rabbit Anti-PKR antibody

Lanes 1, 3 and 5: PKR knockout HAP1 cell lysate (20 µg)
Lanes 2, 4 and 6: Wild-type HAP1 cell lysate (20 µg)
Lanes 1 and 2: Green signal from target - ab32506 observed at 62 kDa
Lanes 3 and 4: Red signal from loading control - ab8245 observed at 37 kDa
Lanes 5 and 6: Merged (red and green) signal
ab32506 was shown to specifically react with PKR when PKR knockout samples were used. Wild-type and PKR knockout samples were subjected to SDS-PAGE. ab32506 and ab8245 (loading control to GAPDH) were diluted 1/10 000 and 1/2000 respectively and incubated overnight at 4°C. Blots were developed with Goat anti-Rabbit IgG H&L (IRDye® 800CW) preadsorbed (ab216773) and Goat anti-Mouse IgG H&L (IRDye® 680RD) preadsorbed (ab216776) secondary antibodies at 1/10 000 dilution for 1 h at room temperature before imaging.
All lanes:
Western blot - Anti-PKR antibody [Y117] (ab32506)

Predicted band size: 62 kDa



Western blot - Anti-PKR antibody [Y117] (ab32506)

PKR Western blot staining using rabbit Anti-PKR antibody

Purified format.
All lanes:
Western blot - Anti-PKR antibody [Y117] (ab32506) at 1/20000 dilution

Lane 1:
MCF-7 (human breast carcinoma) whole cell lysates at 20 µg

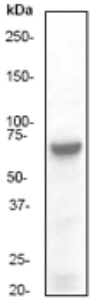
Lane 2:
HEK293 (human embryonic kidney) whole cell lysates at 20 µg

Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/100000 dilution

Predicted band size: 62 kDa

Observed band size: 68 kDa



Western blot - Anti-PKR antibody [Y117] (ab32506)

All lanes:
Western blot - Anti-PKR antibody [Y117] (ab32506) at 1/10000 dilution

All lanes:
MCF-7 cell lysate

Predicted band size: 62 kDa

Observed band size: 68 kDa

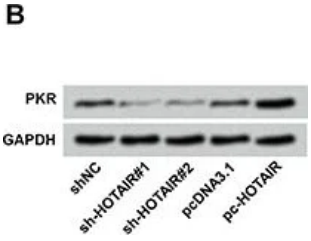


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Western blot - Anti-PKR antibody [Y117] (ab32506)

PKR Western blot staining using rabbit Anti-PKR antibody

PKR western blot using anti-PKR antibody [Y117] ab32506. Publication image and figure legend from Liu, G. & Zhang, W., 2018, Braz J Med Biol Res, PubMed 29898032.

ab32506 was used in this publication in western blot. This may not be the same as the application(s) guaranteed by Abcam. For a full list of applications guaranteed by Abcam for ab32506 please see the product overview.

Effect of HOTAIR on PKR expression; A, qRT-PCRrevealed overexpression of HOTAIR promoted the expression of PKR;B, Western blot analysis revealedoverexpression of HOTAIR promoted the expression of PKR. Data arereported as means±SD. *p<0.05; **p<0.01 (ANOVA). HOTAIR: HOXantisense intergenic RNA; PKR: RNA-dependent protein kinase; qRT-PCR:quantitative real-time polymerase chain reaction.

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