abcam

ab32147

Anti-Cdk2 antibody [E304]

Anti-Cdk2 antibody [E304] (ab32147) is a rabbit monoclonal antibody detecting CDK2 in **Western Blot, Flow Cytometry (Intra), IP, IHC-P, ICC/IF**. Suitable for **Human, Mouse, Rat**.

- KO validated for confirmed specificity
- Biophysical QC for unrivalled batch-batch consistency
- Over 230 publications
- Trusted since 2006

Recombinant | RabMAb | KO Validated | 20ul selling size

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	E304
Purification technique	Affinity purification Protein A
Epitope	The epitope is within the C-terminus of human Cdk2
Concentration	0.134 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IP

Tested

Species	Human
Dilution info	1/40
Notes	-

Expected

Species	Mouse, Rat
Dilution info	Use at an assay dependent concentration.
Notes	-

WB

Tested

Species	Mouse
Dilution info	1/1000 - 1/10000
Notes	-

Species	Rat
Dilution info	1/1000 - 1/10000
Notes	-

Species	Human
Dilution info	1/1000 - 1/10000
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	1/200
Notes	**For unpurified use at 1/100.**

Expected

Species	Mouse, Rat
Dilution info	Use at an assay dependent concentration.
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1/80
Notes	ab172730 - Rabbit monoclonal IgG, is suitable for use as an isotype control with this antibody.

Expected

Species	Mouse, Rat
Dilution info	Use at an assay dependent concentration.
Notes	-

IHC-P

Tested

Species	Human
Dilution info	1/50
Notes	Perform heat-mediated antigen retrieval before commencing with IHC staining protocol.

Expected

Species	Mouse, Rat
Dilution info	Use at an assay dependent concentration.
Notes	-

Target data

See full target information CDK2

Function

Serine/threonine-protein kinase involved in the control of the cell cycle; essential for meiosis, but dispensable for mitosis (PubMed:10499802, PubMed:10884347, PubMed:10995386, PubMed:10995387, PubMed:11051553, PubMed:11113184, PubMed:12944431, PubMed:15800615, PubMed:17495531, PubMed:19966300, PubMed:20935635, PubMed:21262353, PubMed:21596315, PubMed:28216226, PubMed:28666995). Phosphorylates CABLES1, CTNNB1, CDK2AP2, ERCC6, NBN, USP37, p53/TP53, NPM1, CDK7, RB1, BRCA2, MYC, NPAT, SUV39H1, EZH2 (PubMed:10499802, PubMed:10995386, PubMed:10995387, PubMed:11051553, PubMed:11113184, PubMed:12944431, PubMed:15800615, PubMed:19966300, PubMed:20935635, PubMed:21262353, PubMed:21596315, PubMed:24728993, PubMed:28216226). Triggers duplication of centrosomes and DNA (PubMed:11051553). Acts at the G1-S transition to promote the E2F transcriptional program and the initiation of DNA synthesis, and modulates G2 progression; controls the timing of entry into mitosis/meiosis by controlling the subsequent activation of cyclin B/CDK1 by phosphorylation, and coordinates the activation of cyclin B/CDK1 at the centrosome and in the nucleus (PubMed:18372919, PubMed:19238148, PubMed:19561645). Crucial role in orchestrating a fine balance between cellular proliferation, cell death, and DNA repair in embryonic stem cells (ESCs) (PubMed:18372919, PubMed:19238148, PubMed:19561645). Activity of CDK2 is maximal during S phase and G2; activated by interaction with cyclin E during the early stages of DNA synthesis to permit G1-S transition, and subsequently activated by cyclin A2 (cyclin A1 in germ cells) during the late stages of DNA replication to drive the transition from S phase to mitosis, the G2 phase (PubMed:18372919, PubMed:19238148, PubMed:19561645). EZH2 phosphorylation promotes H3K27me3 maintenance and epigenetic gene silencing (PubMed:20935635). Cyclin E/CDK2 prevents oxidative stress-mediated Ras-induced senescence by phosphorylating MYC (PubMed:19966300). Involved in G1-S phase DNA damage checkpoint that prevents cells with damaged DNA from initiating mitosis; regulates homologous recombination-dependent repair by phosphorylating BRCA2, this phosphorylation is low in S phase when recombination is active, but increases as cells progress towards mitosis (PubMed:15800615, PubMed:20195506, PubMed:21319273). In response to DNA damage, double-strand break repair by homologous recombination a reduction of CDK2-mediated BRCA2 phosphorylation (PubMed:15800615). Involved in regulation of telomere repair by mediating phosphorylation of NBN (PubMed:28216226). Phosphorylation of RB1 disturbs its interaction with E2F1 (PubMed:10499802). NPM1 phosphorylation by cyclin E/CDK2 promotes its dissociates from unduplicated centrosomes, thus initiating centrosome duplication (PubMed:11051553). Cyclin E/CDK2-mediated phosphorylation of NPAT at G1-S transition and until prophase stimulates the NPAT-mediated activation of histone gene transcription during S phase (PubMed:10995386, PubMed:10995387). Required for vitamin D-mediated growth inhibition by being itself inactivated (PubMed:20147522). Involved in the nitric oxide- (NO) mediated signaling in a nitrosylation/activation-dependent manner (PubMed:20079829). USP37 is activated by phosphorylation and thus triggers G1-S transition (PubMed:21596315). CTNNB1 phosphorylation regulates insulin internalization (PubMed:21262353). Phosphorylates FOXP3 and negatively regulates its transcriptional activity and protein stability (By similarity). Phosphorylates ERCC6 which is essential for its chromatin remodeling activity at DNA double-strand breaks (PubMed:29203878). Acts as a regulator of the phosphatidylinositol 3-kinase/protein kinase B signal transduction by mediating phosphorylation of the C-terminus of protein kinase B (PKB/AKT1 and PKB/AKT2), promoting its activation (PubMed:24670654).

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

Product Specifications
Anti-Cdk2 antibody [E304] (ab32147) is a rabbit recombinant monoclonal antibody and is validated for use in Flow Cyt (Intra), ICC/IF, IHC-P, IP, WB in human, mouse and rat samples.
Anti-Cdk2 antibody [E304] (ab32147) specifically detects CDK2 (UniProt ID: P24941; Molecular weight: 34kDa) and is sold in 100 µL and 1 mL selling sizes.

Quality and Validation
Abcam's high quality manufacturing and validation processes ensure Anti-Cdk2 antibody [E304] (ab32147) has high sensitivity and specificity alongside high lot-to-lot consistency and reproducibility.
The specificity of Anti-Cdk2 antibody [E304] (ab32147) has been confirmed by testing in knockout samples.
Anti-Cdk2 antibody [E304] (ab32147) has been cited over 238 times in peer reviewed journals and is trusted by the scientific community.
Anti-Cdk2 antibody [E304] (ab32147) has 8 independent reviews from customers.

Related Products
Conjugation-ready, carrier free format available for antibody clone E304 - ab208697.
Antibody clone E304 is also available pre-conjugated to a variety of labels for your convenience - Alexa Fluor® 647, Alexa Fluor® 594, Alexa Fluor® 555, PE, APC, HRP, Alkaline Phosphatase, Alexa Fluor® 488, Alexa Fluor® 568, Alexa Fluor® 750 (ab206038, ab207858, ab208043, ab305638, ab305639, ab305640, ab308701, ab309676, ab312419, ab321583).

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

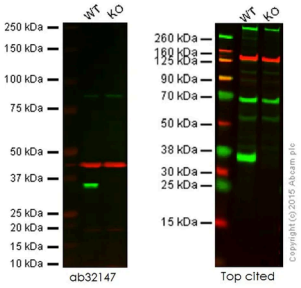
We do not recommend this combination. It is not covered by our product promise.

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.

15 product images



Western blot - Anti-Cdk2 antibody [E304] (ab32147)

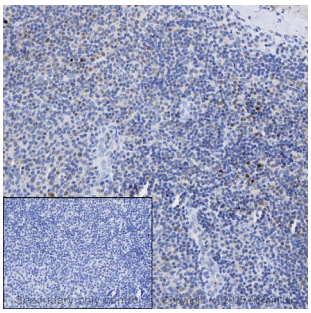
Cdk2 Western blot staining using rabbit Anti-Cdk2 antibody

Lanes 1: Wild-type HAP1 cell lysate (20 µg)
Lanes 2: CDK2 knockout HAP1 cell lysate (20 µg)

Lanes 1 - 2: Merged signal (red and green). Green - ab32147 observed at 34 kDa. Red - loading control, ab8226, observed at 42 kDa or ab18058, observed at 130 kDa.
This western blot image is a comparison between ab32147 and a competitor's top cited rabbit polyclonal antibody.

All lanes:
Western blot - Anti-Cdk2 antibody [E304] (ab32147)

Predicted band size: 34 kDa



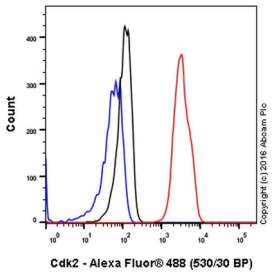
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Cdk2 antibody [E304] (ab32147)

Cdk2 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining of Human Tonsil tissue using rabbit Anti-Cdk2 antibody

Immunohistochemical analysis of formalin fixed paraffin embedded human tonsil labelling Cdk2 with ab32147 at a concentration of 1/ml. The immunostaining was performed on a Ventana DISCOVERY ULTRA (Roche Tissue Diagnostics) instrument with a OptiView DAB IHC Detection Kit. Heat mediated antigen retrieval was performed with DISCOVERY cell conditioning solution (CC1) 100°C, pH8.5 for 32mins.

ab32147 anti-Cdk2 antibody [E304] was incubated for 16mins at 37°C. Sections were counterstained with Hematoxylin II. Image inset shows absence of staining in secondary antibody only control.

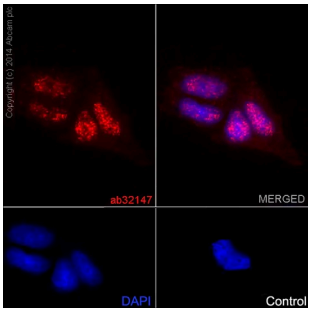
Customers are encouraged to optimise antigen retrieval conditions, antibody concentration, incubation times and temperature for best results in their own IHC assay workflow (automated and manual)



Flow Cytometry (Intracellular) - Anti-Cdk2 antibody [E304] (ab32147)

Cdk2 Flow Cytometry (Intracellular) staining using rabbit Anti-Cdk2 antibody

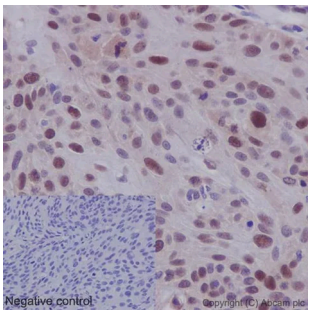
Intracellular Flow Cytometry analysis of HeLa (human cervix adenocarcinoma) cells labelling Cdk2 with purified ab32147 at 1/80 (red). Cells were fixed with 4% paraformaldehyde and permeabilised with 90% methanol. An Alexa Fluor® 488-conjugated goat anti-rabbit IgG (1/2000) was used as the secondary antibody. Black - Isotype control, rabbit monoclonal IgG. Blue - Unlabelled control, cells without incubation with primary and secondary antibodies.



Immunocytochemistry/ Immunofluorescence - Anti-Cdk2 antibody [E304] (ab32147)

Cdk2 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Cdk2 antibody

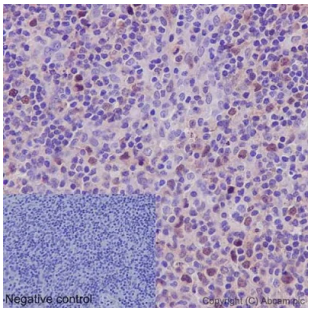
ab32147 staining Cdk2 in the HeLa cell line by ICC/IF (Immunocytochemistry/immunofluorescence). Cells were fixed with 4% Paraformaldehyde permeabilized with 0.1% Triton X-100. Samples were incubated with primary antibody (1/200). ab150078 (1/500) an Alexa Fluor® 555-conjugated Goat anti-rabbit IgG was used as the secondary antibody. Nuclei were counterstained with DAPI.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Cdk2 antibody [E304] (ab32147)

Cdk2 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-Cdk2 antibody

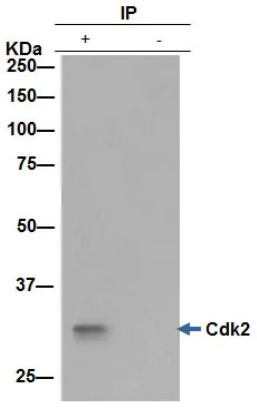
ab32147 staining Cdk2 in human squamous cell carcinoma of cervix tissue sections by Immunohistochemistry (IHC-P - paraformaldehyde-fixed, paraffin-embedded sections). Tissue was fixed and paraffin-embedded, antigen retrieval was by heat mediation in Tris/EDTA buffer pH9. Samples were incubated with primary antibody (1/50). An undiluted HRP-conjugated mouse anti-rabbit IgG was used as the secondary antibody. Tissue counterstained with Hematoxylin. PBS was used in the negative control rather than the Primary antibody.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Cdk2 antibody [E304] (ab32147)

Cdk2 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-Cdk2 antibody

ab32147 staining Cdk2 in human tonsil tissue sections by Immunohistochemistry (IHC-P - paraformaldehyde-fixed, paraffin-embedded sections). Tissue was fixed and paraffin-embedded, antigen retrieval was by heat mediation in Tris/EDTA buffer pH9. Samples were incubated with primary antibody (1/50). An undiluted HRP-conjugated mouse anti-rabbit IgG was used as the secondary antibody. Tissue counterstained with Hematoxylin. PBS was used in the negative control rather than the Primary antibody.



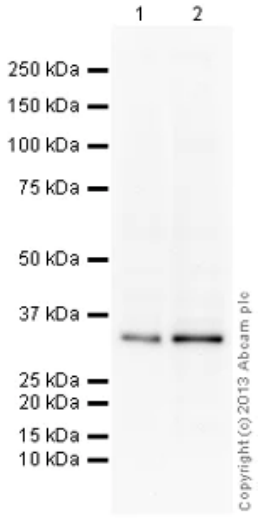
Immunoprecipitation - Anti-Cdk2 antibody [E304] (ab32147)

ab32147 (purified) at 1/40 immunoprecipitating Cdk2 from HeLa cells(Lane 1). Lane 2 - PBS. For western blotting, a HRP-conjugated anti-rabbit IgG, specific to the non-reduced form of IgG was used as the secondary antibody (1/1000).
Blocking buffer and concentration: 5% NFDM/TBST.

Diluting buffer and concentration: 5% NFDM /TBST.

All lanes:
Immunoprecipitation - Anti-Cdk2 antibody [E304] (ab32147)

Predicted band size: 34 kDa



Western blot - Anti-Cdk2 antibody [E304] (ab32147)

Cdk2 Western blot staining using rabbit Anti-Cdk2 antibody

This blot was produced using a 10% Bis-tris gel under the MOPS buffer system. The gel was run at 200V for 50 minutes before being transferred onto a Nitrocellulose membrane at 30V for 70 minutes. The membrane was then blocked for an hour using 5% Bovine Serum Albumin before being incubated with ab32147 overnight at 4°C. Antibody binding was detected using an anti-rabbit antibody conjugated to HRP, and visualised using ECL development solution.
All lanes:
Western blot - Anti-Cdk2 antibody [E304] (ab32147) at 1/1000 dilution

Lane 1:
HeLa (Human epithelial carcinoma cell line) Whole Cell Lysate (ab27252) at 10 µg

Lane 2:
HeLa (Human epithelial carcinoma cell line) Whole Cell Lysate (ab27252) at 20 µg

Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/10000 dilution

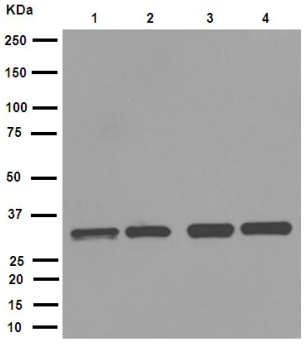
Developed using the ECL technique.

Performed under reducing conditions.

Predicted band size: 34 kDa

Observed band size: 34 kDa

Exposure time: 4min



Western blot - Anti-Cdk2 antibody [E304] (ab32147)

All lanes:
Western blot - Anti-Cdk2 antibody [E304] (ab32147) at 1/1000 dilution

Lane 1:
Jurkat cell lysate at 20 µg

Lane 2:
Hela cell lysate at 20 µg

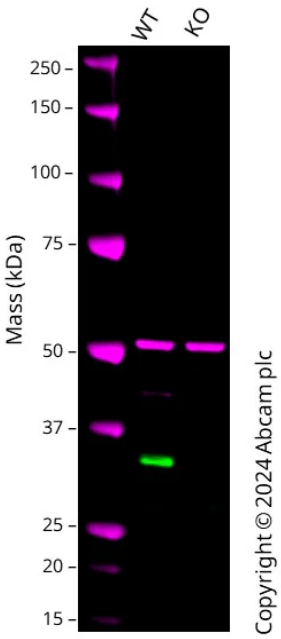
Lane 3:
K562 cell lysate at 20 µg

Lane 4:
293 cell lysate at 20 µg

Secondary

All lanes:
Goat Anti-Rabbit IgG, (H+L), HRP-conjugated at 1/1000 dilution

Predicted band size: 34 kDa



Western blot - Anti-Cdk2 antibody [E304] (ab32147)

Cdk2 Western blot staining using rabbit Anti-Cdk2 antibody

Western blot: Anti-CDK2 antibody [E304] (ab32147) staining at 1/2000 dilution, shown in green; Mouse anti-Alpha Tubulin [DM1A] (ab7291) loading control staining at 1/20000 dilution, shown in magenta. In Western blot, ab32147 was shown to bind specifically to CDK2. A band was observed at 34 kDa in wild-type MCF7 cell lysates with no signal observed at this size in CDK2 knockout cell line ab282628. To generate this image, wild-type and CDK2 knockout MCF7 cell lysates were analysed. First, samples were run on an SDS-PAGE gel then transferred onto a nitrocellulose membrane. Membranes were blocked in 3 % milk in TBS-0.1 % Tween® 20 (TBS-T) before incubation with primary antibodies overnight at 4 °C. Blots were washed four times in TBS-T, incubated with secondary antibodies for 1 h at room temperature, washed again four times then imaged. Secondary antibodies used were Goat anti-Rabbit IgG H&L 800CW and Goat anti-Mouse IgG H&L 680RD at 1/20000 dilution.
All lanes:
Western blot - Anti-Cdk2 antibody [E304] (ab32147)

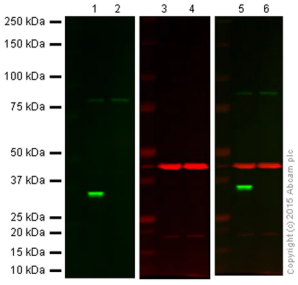
Lane 1:
Wild-type MCF7 cell lysate at 10 µg

Lane 2:
CDK2 knockout MCF7 cell lysate at 10 µg

Lane 2:
Western blot - Human CDK2 knockout (hetero) MCF7 cell line (ab282628)

Secondary

All lanes:
Goat anti-Rabbit IgG H&L 800CW and Goat anti-Mouse IgG H&L 680RD at 1/20000 dilution



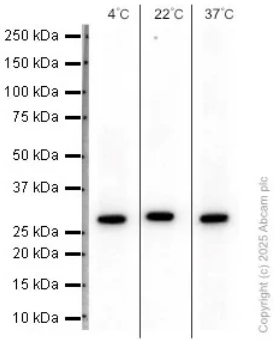
Western blot - Anti-Cdk2 antibody [E304] (ab32147)

Cdk2 Western blot staining using rabbit Anti-Cdk2 antibody

Lanes 1, 3 and 5: Wild-type HAP1 cell lysate (20 µg)
Lanes 2, 4 and 6: CDK2 knockout HAP1 cell lysate (20 µg)
Lanes 1 and 2: Green signal from target – ab32147 observed at 34 kDa
Lanes 3 and 4: Red signal from loading control – ab8226 observed at 42 kDa
Lanes 5 and 6: Merged (red and green) signal
ab32147 was shown to specifically react with CDK2 when CDK2 knockout samples were used. Wild-type and CDK2 knockout samples were subjected to SDS-PAGE. ab32147 and ab8226 (loading control to beta actin) were both diluted 1/1000 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-Cdk2 antibody [E304] (ab32147)

Predicted band size: 34 kDa



Western blot - Anti-Cdk2 antibody [E304] (ab32147)

Cdk2 Western blot staining of HeLa whole cell lysate using rabbit Anti-Cdk2 antibody

This blot was produced using 4-20% SDS-PAGE containing 15 µg of HeLa whole cell lysate per lane at 150V for 1hr before being transferred onto a 0.45 µm PVDF membrane at 75V for 1hr. The membrane was then blocked for 1hr using 5% NFDM/TBST, then incubated with ab32147 (1/5000) at room temperature for 1hr. After being washed three times in TBST, the membrane was incubated with Peroxidase conjugated goat anti-rabbit IgG (H+L) (ab97051) at 1/20,000 dilution for 1hr at room temperature. The membrane was washed three times again. Then the signal was developed using the ECL technique.

ab32147 was stored at a range of temperatures (+4°C, +22°C, +37°C) for 1 week before being tested in WB. The image shows the band intensity remains relatively constant across all storage temperatures, demonstrating that antibody activity is not affected under these conditions. This data was generated as part of a structured antibody stability study supporting Abcam’ s transition from cold⊠chain to ambient shipping.

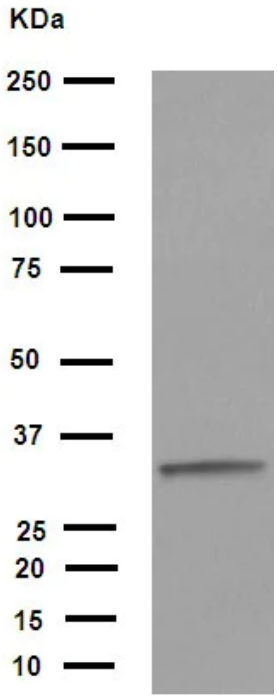
All lanes:
Western blot - Anti-Cdk2 antibody [E304] (ab32147) at 1/5000 dilution

All lanes:
HeLa whole cell lysate at 15 µg with NDFM/TBST

Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/20000 dilution

Exposure time: 10s



Western blot - Anti-Cdk2 antibody [E304] (ab32147)

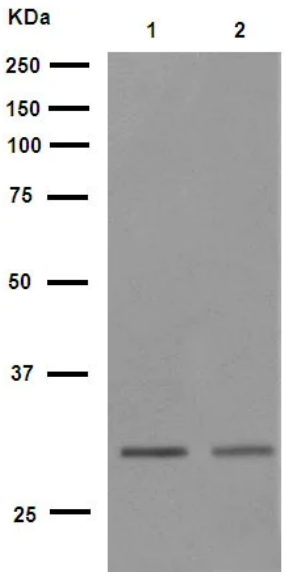
All lanes:
Western blot - Anti-Cdk2 antibody [E304] (ab32147) at 1/1000 dilution

All lanes:
NIH/3T3 cell lysate at 20 µg

Secondary

All lanes:
Goat Anti-Rabbit IgG, (H+L), HRP-conjugated at 1/1000 dilution

Predicted band size: 34 kDa



Western blot - Anti-Cdk2 antibody [E304] (ab32147)

All lanes:
Western blot - Anti-Cdk2 antibody [E304] (ab32147) at 1/5000 dilution

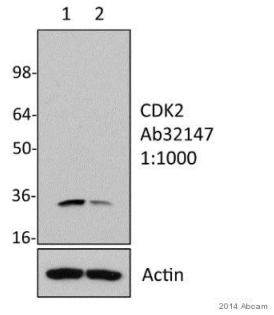
Lane 1:
C6 cell lysate at 10 µg

Lane 2:
PC-12 cell lysate at 10 µg

Secondary

All lanes:
Goat Anti-Rabbit IgG, (H+L), HRP-conjugated at 1/1000 dilution

Predicted band size: 34 kDa



This image is courtesy of a customer review submitted by Sonia Rocha

Western blot - Anti-Cdk2 antibody [E304] (ab32147)

All lanes:
Western blot - Anti-Cdk2 antibody [E304] (ab32147) at 1/1000 dilution

Lane 1:
Human osteosarcoma whole cell lysate - control, non-targeting siRNA at 20 µg

Lane 2:
Human osteosarcoma whole cell lysate - siRNA for CDK2 at 20 µg

Secondary

All lanes:
HRP-conjugated goat anti-rabbit IgG polyclonal at 1/2000 dilution

Developed using the ECL technique.

Performed under reducing conditions.

Predicted band size: 34 kDa

Observed band size: 34 kDa

Exposure time: 2s

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