abcam

ab45145

Anti-Aurora B antibody [EP1009Y]

Recombinant | RabMAb

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	EP1009Y
Purification technique	Affinity purification Protein A
Dissociation constant	5.5 x 10^{-11} M
Concentration	0.27 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

ICC/IF

Tested

Species	Human
Dilution info	1/20
Notes	For unpurified version use 1/100 - 1/150 dilution

IP

Tested

Species	Human
Dilution info	-
Notes	For unpurified version use at 1/20 dilution

WB

Tested

Species	Human
Dilution info	-
Notes	For unpurified version use at 1/50000 dilution

IHC-P

Tested

Species	Human
Dilution info	1/200
Notes	For unpurified version use at 1/250-500

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1/300
Notes	-

Target data

See full target information AURKB

Function	Serine/threonine-protein kinase component of the chromosomal passenger complex (CPC), a complex that acts as a key regulator of mitosis (PubMed:11516652, PubMed:12925766, PubMed:14610074, PubMed:14722118,

PubMed:29449677). The CPC complex has essential functions at the centromere in ensuring correct chromosome alignment and segregation and is required for chromatin-induced microtubule stabilization and spindle assembly (PubMed:11516652, PubMed:12925766, PubMed:14610074, PubMed:14722118, PubMed:26829474). Involved in the bipolar attachment of spindle microtubules to kinetochores and is a key regulator for the onset of cytokinesis during mitosis (PubMed:15249581). Required for central/midzone spindle assembly and cleavage furrow formation (PubMed:12458200, PubMed:12686604). Key component of the cytokinesis checkpoint, a process required to delay abscission to prevent both premature resolution of intercellular chromosome bridges and accumulation of DNA damage: phosphorylates CHMP4C, leading to retain abscission-competent VPS4 (VPS4A and/or VPS4B) at the midbody ring until abscission checkpoint signaling is terminated at late cytokinesis (PubMed:22422861, PubMed:24814515). AURKB phosphorylates the CPC complex subunits BIRC5/survivin, CDCA8/borealin and INCENP (PubMed:11516652, PubMed:12925766, PubMed:14610074). Phosphorylation of INCENP leads to increased AURKB activity (PubMed:11516652, PubMed:12925766, PubMed:14610074). Other known AURKB substrates involved in centromeric functions and mitosis are CENPA, DES/desmin, GPAF, KIF2C, NSUN2, RACGAP1, SEPTIN1, VIM/vimentin, HASPIN, and histones H1.4 and H3 (PubMed:11756469, PubMed:11784863, PubMed:11856369, PubMed:12689593, PubMed:14602875, PubMed:16103226, PubMed:21511733, PubMed:21658950). A positive feedback loop involving HASPIN and AURKB contributes to localization of CPC to centromeres (PubMed:21658950). Phosphorylation of VIM controls vimentin filament segregation in cytokinetic process, whereas histone H3 is phosphorylated at 'Ser-10' and 'Ser-28' during mitosis (H3S10ph and H3S28ph, respectively) (PubMed:11784863, PubMed:11856369). AURKB is also required for kinetochore localization of BUB1 and SGO1 (PubMed:15020684, PubMed:17617734). Phosphorylation of p53/TP53 negatively regulates its transcriptional activity (PubMed:20959462). Key regulator of active promoters in resting B- and T-lymphocytes: acts by mediating phosphorylation of H3S28ph at active promoters in resting B-cells, inhibiting RNF2/RING1B-mediated ubiquitination of histone H2A and enhancing binding and activity of the USP16 deubiquitinase at transcribed genes (By similarity). Acts as an inhibitor of CGAS during mitosis: catalyzes phosphorylation of the N-terminus of CGAS during the G2-M transition, blocking CGAS liquid phase separation and activation, and thereby preventing CGAS-induced autoimmunity (PubMed:33542149). Phosphorylates KRT5 during anaphase and telophase (By similarity). Phosphorylates ATXN10 which promotes phosphorylation of ATXN10 by PLK1 and may play a role in the regulation of cytokinesis and stimulating the proteasomal degradation of ATXN10 (PubMed:25666058).

Storage

Shipped at conditions	Conditional Ambient
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

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.

Supplementary info

This supplementary information is collated from multiple sources and compiled automatically.

Activity summary	Aurora B also known as Aurora kinase B or AURKB is a serine/threonine protein kinase with a molecular mass of approximately 39 kDa. This protein expresses across various cell types and tissues playing a critical role during cell division. It localizes to the centromeres during early mitosis and later associates with the central spindle and midbody. Aurora B is a component of the chromosomal passenger complex (CPC) which includes other proteins such as INCENP survivin and borealin essential for its function.
Biological function summary	Aurora B kinase functions to ensure proper chromosome alignment segregation and cytokinesis during mitosis and meiosis. It phosphorylates various substrates to facilitate processes like correction of kinetochore-microtubule attachments and regulation of the mitotic checkpoint. As a part of the CPC Aurora B acts in coordination with other proteins to control these cellular events ensuring that cells divide accurately and safely.
Pathways	Aurora B integrates into the cell cycle and mitotic pathways operating closely with the spindle assembly checkpoint. It interacts with proteins like CENP-A and CENP-E ensuring error-free chromosome segregation. Aurora B's activity within these pathways is critical for maintaining genomic stability and preventing aneuploidy a condition linked to improper chromosome number.
Associated diseases and disorders	Aurora B's malfunction associates with cancer and chromosomal instability. Overexpression or dysregulation of Aurora B kinase frequently occurs in several types of cancer contributing to tumorigenesis by promoting abnormal cell division.

Proteins such as p53 a well-known tumor suppressor often become functionally compromised when Aurora B activity is altered further advancing disease progression. Aurora B also holds implications in other disorders marked by faulty cell cycle regulation emphasizing its potential as a therapeutic target.

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

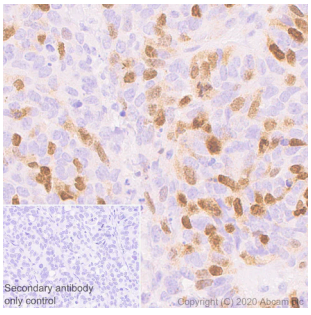
We do not recommend this combination. It is not covered by our product promise.

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.

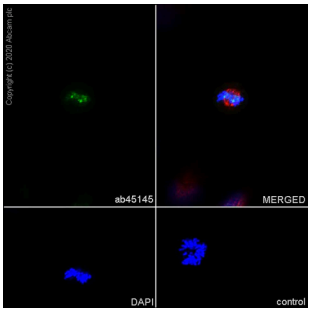
7 product images



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Aurora B antibody [EP1009Y] (ab45145)

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

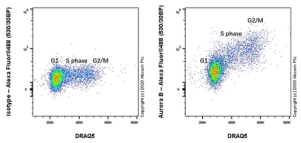
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of Human endometrium carcinoma tissue sections labeling Aurora B with purified ab45145 at 1/200 dilution (1.35 µg/mL). Heat mediated antigen retrieval using Bond™ Epitope Retrieval Solution 2 (pH 9.0). The immunostaining was performed on a Leica Biosystems BOND® RX instrument. Rabbit specific IHC polymer detection kit HRP/DAB (ab209101) was used as the secondary antibody. Negative control: PBS instead of the primary antibody. Hematoxylin was used as a counterstain.



Immunocytochemistry/ Immunofluorescence - Anti-Aurora B antibody [EP1009Y] (ab45145)

Aurora B Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Aurora B antibody

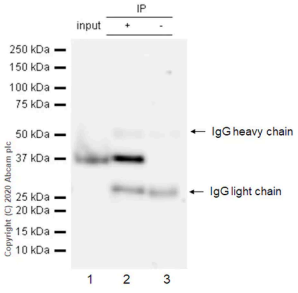
Immunocytochemistry analysis of HeLa (Human cervix adenocarcinoma epithelial cell) cells labeling Aurora B with Purified ab45145 at 1:50 dilution (5.4 µg/ml). Cells were fixed in 4% Paraformaldehyde and permeabilized with 0.1% tritonX-100. Cells were counterstained with ab195889 Anti-alpha Tubulin antibody [DM1A] - Microtubule Marker (Alexa Fluor® 594) 1:200 (2.5 µg/ml). Goat anti rabbit IgG (Alexa Fluor® 488,ab150077) was used as the secondary antibody at 1:1000 (2 µg/ml) dilution. DAPI (blue) was used as nuclear counterstain. PBS instead of the primary antibody was used as the secondary antibody only control.



Flow Cytometry (Intracellular) - Anti-Aurora B antibody [EP1009Y] (ab45145)

Aurora B Flow Cytometry (Intracellular) staining using rabbit Anti-Aurora B antibody

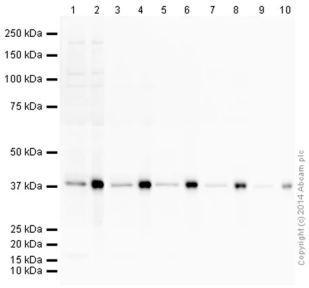
Intracellular Flow Cytometry analysis of HeLa (Human cervix adenocarcinoma epithelial cell) cells labeling Aurora B with Purified ab45145 at 1/300 dilution (0.1 µg/ml) (Red). Cells were fixed with 4% Paraformaldehyde and permeabilised with 90% Methanol. A Goat anti rabbit IgG (Alexa Fluor® 488 ,ab150077) secondary antibody was used at 1/2000. Isotype control - Rabbit monoclonal IgG (Left). Unlabeled control - /.



Immunoprecipitation - Anti-Aurora B antibody [EP1009Y] (ab45145)

Purified ab45145 at 1/20 dilution (1µg) immunoprecipitating Aurora B in HeLa whole cell lysate.
Lane 1 (input): HeLa (Human cervix adenocarcinoma epithelial cell) whole cell lysate 10µg
Lane 2 (+): ab45145 + HeLa whole cell lysate.
Lane 3 (-): Rabbit monoclonal IgG (ab172730) instead of ab45145 in HeLa whole cell lysate.
VeriBlot for IP Detection Reagent (HRP) (ab131366) (1/1000 dilution) was used for Western blotting.
Blocking Buffer and concentration: 5% NFDM/TBST.
Diluting buffer and concentration: 5% NFDM/TBST.
Observed band size: 39 kDa
All lanes:
Immunoprecipitation - Anti-Aurora B antibody [EP1009Y] (ab45145)

Predicted band size: 39 kDa



Western blot - Anti-Aurora B antibody [EP1009Y] (ab45145)

Aurora B Western blot staining using rabbit Anti-Aurora B antibody

This blot was produced using a 4-12% 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 2% Bovine Serum Albumin before being incubated with ab45145 overnight at 4°C. Antibody binding was detected using an anti-rabbit antibody conjugated to HRP, and visualised using ECL development solution ab133406
Lanes 1 - 2:
Western blot - Anti-Aurora B antibody [EP1009Y] (ab45145) at 1/1000 dilution

Lanes 3 - 4:

Western blot - Anti-Aurora B antibody [EP1009Y] (ab45145) at 1/5000 dilution

Lanes 5 - 6:
Western blot - Anti-Aurora B antibody [EP1009Y] (ab45145) at 1/10000 dilution

Lanes 7 - 8:
Western blot - Anti-Aurora B antibody [EP1009Y] (ab45145) at 1/50000 dilution

Lanes 9 - 10:
Western blot - Anti-Aurora B antibody [EP1009Y] (ab45145) at 1/75000 dilution

Lanes 1, 3, 5, 7 and 9:
HeLa (Human epithelial carcinoma cell line) Whole Cell Lysate at 10 µg

Lanes 2, 4, 6, 8 and 10:
HeLa (Human epithelial carcinoma cell line) Whole Cell Lysate Nocodozole Stimulated at 10 µg

Secondary

All lanes:
Western blot - VHH Single Domain Anti-Rabbit IgG Fc (HRP) (ab191866) at 1/10000 dilution

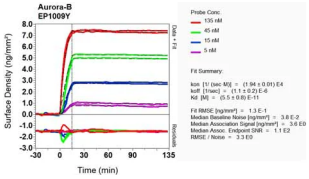
Developed using the ECL technique.

Performed under reducing conditions.

Predicted band size: 39 kDa

Observed band size: 39 kDa

Exposure time: 8min



OI-RD Scanning - Anti-Aurora B antibody [EP1009Y] (ab45145)

We have systematically measured KD (the equilibrium dissociation constant between the antibody and its antigen), of more than 840 recombinant antibodies to assess not only their individual KD values but also to see the average affinity of antibody. Based on the comparison with published literature values for mouse monoclonal antibodies, Recombinant antibodies appear to be on average 1-2 order of magnitude higher affinity.

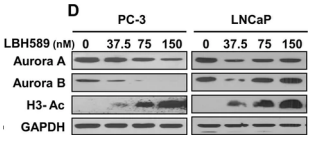


Image collected and cropped by CiteAb under a CC-BY license from the publication

Western blot - Anti-Aurora B antibody [EP1009Y] (ab45145)

Aurora B western blot using anti-Aurora B antibody [EP1009Y] ab45145. Publication image and figure legend from Chuang, M. J., Wu, S. T., et al., 2013, PLoS One, PubMed 24023871.

ab45145 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 ab45145 please see the product overview.

HDACI induced G2/M phase cell cycle and growth inhibition in prostate cancer cells via distinct mechanisms.(A) LBH589 had a dose-dependent effect on growth inhibition in prostate cancer cell lines. The cell lines were treated with 50, 75, 100, and 150 nM of LBH589. Cell survival was measured using MTT assay as described in the Materials and Methods section. Graphs compared the percentage of growth inhibition to vehicle control at 24 (upper) and 48 (lower) hours. (B) LBH589 induced G2/M cell cycle arrest. All cell lines were treated with LBH589 or vehicle control for 24 h. The cell cycles were analyzed by PI-staining and flow cytometry according to DNA content. The increased percentages of G2/M cells were compared to that of vehicle control. (C) LBH589 induced apoptosis in PC-3 and LNCaP cells. Both cell lines were treated with 75nM LBH589

or vehicle control for 24 (upper) and 48 (lower) h. The percentages of apoptotic cells were analyzed by counting the population of DNA fragmentation by flow cytometry. (D–E) HDACIs induced Aurora kinase degradation found in PC-3 but not in LNCaP. PC-3 and LNCaP cells were treated with different HDACIs at indicated concentrations of LBH589, SAHA and SBHA for 24 h and cell lysates were analyzed by western blot using the indicated antibodies. (F) Profile of proteins regarding progression of G2/M cell cycle. The cells were treated with different dosages of LBH589 for 24 h. The lysate was analyzed by western blot.

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