abcam

ab185927

Anti-PI 3 Kinase catalytic subunit alpha/PIK3CA antibody [EP383Y] - BSA and Azide free

Recombinant | RabMAb | KO Validated

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	pH: 7.2 - 7.4 Constituents: PBS
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Carrier free	Yes
Clone number	EP383Y
Purification technique	Affinity purification Protein A
Concentration	1.038 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IP

Tested

Species	Human
Dilution info	-

Notes	-

Expected

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

WB

Tested

Species	Human, Mouse, Rat
Dilution info	-
Notes	-

IHC-P

Not recommended

Species	Mouse, Rat, Human
Dilution info	-
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	-
Notes	-

Expected

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

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	-
Notes	ab199376-Rabbit monoclonal IgG (Low endotoxin, Azide free), is suitable for use as an isotype control with this antibody.

Expected

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

Target data

See full target information PIK3CA

Function

Phosphoinositide-3-kinase (PI3K) phosphorylates phosphatidylinositol (PI) and its phosphorylated derivatives at position 3 of the inositol ring to produce 3-phosphoinositides (PubMed:15135396, PubMed:23936502, PubMed:28676499). Uses ATP and PtdIns(4,5)P2 (phosphatidylinositol 4,5-bisphosphate) to generate phosphatidylinositol 3,4,5-trisphosphate (PIP3) (PubMed:15135396, PubMed:28676499). PIP3 plays a key role by recruiting PH domain-containing proteins to the membrane, including AKT1 and PDPK1, activating signaling cascades involved in cell growth, survival, proliferation, motility and morphology. Participates in cellular signaling in response to various growth factors. Involved in the activation of AKT1 upon stimulation by receptor tyrosine kinases ligands such as EGF, insulin, IGF1, VEGFA and PDGF. Involved in signaling via insulin-receptor substrate (IRS) proteins. Essential in endothelial cell migration during vascular development through VEGFA signaling, possibly by regulating RhoA activity. Required for lymphatic vasculature development, possibly by binding to RAS and by activation by EGF and FGF2, but not by PDGF. Regulates invadopodia formation through the PDPK1-AKT1 pathway. Participates in cardiomyogenesis in embryonic stem cells through a AKT1 pathway. Participates in vasculogenesis in embryonic stem cells through PDK1 and protein kinase C pathway. In addition to its lipid kinase activity, it displays a serine-protein kinase activity that results in the autophosphorylation of the p85alpha regulatory subunit as well as phosphorylation of other proteins such as 4EBP1, H-Ras, the IL-3 beta c receptor and possibly others (PubMed:23936502, PubMed:28676499). Plays a role in the positive regulation of phagocytosis and pinocytosis (By similarity).

Storage

Shipped at conditions	Blue Ice
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	+4°C
Storage information	Do Not Freeze

Notes

ab185927 is the carrier-free version of ab40776.

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.

Conjugation ready
Our carrier-free antibodies are typically supplied in a PBS-only formulation, purified and free of BSA, sodium azide and glycerol. This conjugation-ready format is designed for use with fluorochromes, metal isotopes, oligonucleotides, and enzymes, which makes them ideal for antibody labelling, functional and cell-based assays, flow-based assays (e.g. mass cytometry) and Multiplex Imaging applications.

Use our conjugation kits for antibody conjugates that are ready-to-use in as little as 20 minutes with 1 minute hands-on-time and 100% antibody recovery: available for fluorescent dyes, HRP, biotin and gold.

Compatibility
This product is compatible with the Maxpar® Antibody Labeling Kit from Fluidigm, without the need for antibody preparation. Maxpar® is a trademark of Fluidigm Canada Inc.

Supplementary info

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

Activity summary	PI 3 kinase catalytic subunit alpha also known as PIK3CA or PI3K-alpha is a protein kinase with significant roles in cellular signaling. This protein has a mass of approximately 124 kDa and is part of the PI3 kinase family. PIK3CA is primarily expressed in various tissues including the liver breast and pancreas where it plays an important role in the regulation of cell growth and survival. The structure of PI3 kinase involves a complex of p110 catalytic subunits and p85 regulatory subunits which facilitate its enzymatic functions.
Biological function summary	The PIK3CA protein phosphorylates the inositol ring of phosphoinositides generating phosphatidylinositol (345)-trisphosphate (PIP3) a lipid second messenger involved in numerous signaling pathways. PIK3CA often acts within a complex interacting with regulatory subunits such as p85 to control its activity. The complex formation enhances its stability and localization to the cell membrane where it can exert its enzymatic actions effectively. In its biological capacity PIK3CA plays a role in cellular proliferation survival and metabolism.

Pathways	The PI3K/Akt signaling pathway involves PIK3CA as an important mediator. This pathway is integral to numerous cellular processes including metabolism growth and survival. PIK3CA links closely with Akt a downstream protein kinase that propagates the signal initiated by PIP3 generation. The mTOR pathway is another critical route involving PIK3CA where it regulates translation and cellular growth. These pathways emphasize the importance of PIK3CA in maintaining cellular homeostasis and responding to external growth signals.
Associated diseases and disorders	Mutations and aberrations in PIK3CA associate with several cancers especially breast and colorectal cancers. The altered activity of PIK3CA can cause uncontrolled cell proliferation due to constant activation of the PI3K/Akt signaling pathway. This disrupts normal cellular apoptosis and fosters tumor growth. Additionally PIK3CA mutations are linked to certain genetic disorders such as PIK3CA-related overgrowth spectrum (PROS) where overactivation alters normal tissue growth and development. The interaction of PIK3CA with proteins like PTEN a tumor suppressor involved in cancer pathways also highlights its significance in oncogenic processes.

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

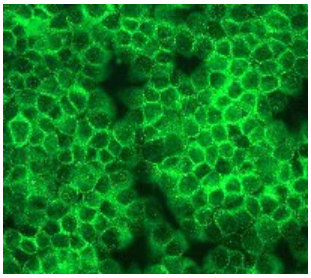
We do not recommend this combination. It is not covered by our product promise.

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.

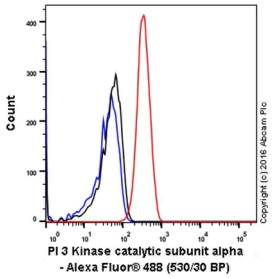
6 product images



Immunocytochemistry/ Immunofluorescence - Anti-PI 3 Kinase catalytic subunit alpha/PIK3CA antibody [EP383Y] - BSA and Azide free (ab185927)

PI 3 Kinase catalytic subunit alpha/PIK3CA Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-PI 3 Kinase catalytic subunit alpha/PIK3CA antibody

Immunocytochemistry/Immunofluorescence analysis of HeLa cells labelling PI 3 Kinase catalytic subunit alpha/PIK3CA with unpurified ab40776 at a dilution of 1/100.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab40776).



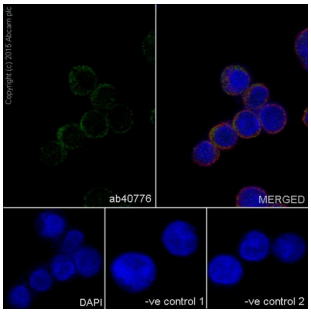
Flow Cytometry (Intracellular) - Anti-PI 3 Kinase catalytic subunit alpha/PIK3CA antibody [EP383Y] - BSA and Azide free (ab185927)

PI 3 Kinase catalytic subunit alpha/PIK3CA Flow Cytometry (Intracellular) staining using rabbit Anti-PI 3 Kinase catalytic subunit alpha/PIK3CA antibody

ab40776 staining PI 3 Kinase catalytic subunit alpha/PIK3CA in the human cell line Jurkat (human acute T cell leukemia) by intracellular flow cytometry. Cells were fixed with 4% paraformaldehyde, permiabilised with 90% methanol and the sample was incubated with the primary antibody at a dilution of 1/40. A goat anti rabbit IgG (Alexa Fluor® 488) at a dilution of 1/2000 was used as the secondary antibody.
Isoytype control: Rabbit monoclonal IgG (Black)

Unlabelled control: Cell without incubation with primary antibody and secondary antibody (Blue)

This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab40776).



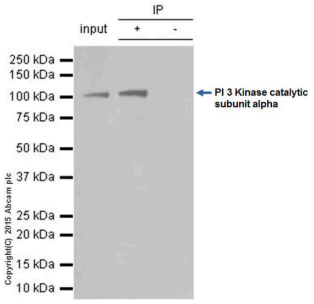
Immunocytochemistry/ Immunofluorescence - Anti-PI 3 Kinase catalytic subunit alpha/PIK3CA antibody [EP383Y] - BSA and Azide free (ab185927)

PI 3 Kinase catalytic subunit alpha/PIK3CA Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-PI 3 Kinase catalytic subunit alpha/PIK3CA antibody

This ICC/IF data was generated using the same anti-PI 3 Kinase catalytic subunit alpha/PIK3CA antibody clone, EP383Y, in a different buffer formulation (cat# ab40776).
Immunocytochemistry/Immunofluorescence analysis of Jurkat cells labelling PI 3 Kinase catalytic subunit alpha/PIK3CA with purified ab40776 at a dilution of 1/100. Cells were fixed with 4% paraformaldehyde and permeabilized with 0.1% Triton X-100. ab150077, an Alexa Fluor® 488-conjugated goat anti-rabbit IgG (1/1000) was used as the secondary antibody. DAPI (blue) was used as the nuclear counterstain. ab7291, a mouse anti-tubulin (1/1000) and ab150120, an Alexa Fluor® 594-conjugated goat anti-mouse IgG (1/1000) were also used.

Control 1: primary antibody (1/100) and secondary antibody, ab150120, an Alexa Fluor® 594-conjugated goat anti-mouse IgG (1/1000).

Control 2: ab7291 (1/1000) and secondary antibody, ab150077, an Alexa Fluor® 488-conjugated goat anti-rabbit IgG (1/1000).



Immunoprecipitation - Anti-PI 3 Kinase catalytic subunit alpha/PIK3CA antibody [EP383Y] - BSA and Azide free (ab185927)

ab40776 (purified) at a dilution of 1/20 immunoprecipitating PI 3 Kinase catalytic subunit alpha/PIK3CA in Jurkat whole cell lysate.
Lane 1 (input): Jurkat whole cell lysate (10µg)

Lane 2 (+): ab40776 + Jurkat whole cell lysate.

Lane 3 (-): Rabbit monoclonal IgG (ab172730) instead of ab40776 in Jurkat whole cell lysate.

For western blotting, VeriBlot for IP Detection Reagent (HRP) (ab131366), was used for detection at 1/1000 dilution.

Blocking buffer and concentration: 5% NFDM/TBST.

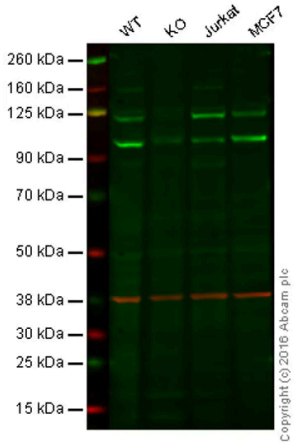
Diluting buffer and concentration: 5% NFDM /TBST.

This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab40776).

All lanes:
Immunoprecipitation - Anti-PI 3 Kinase catalytic subunit alpha/PIK3CA antibody [EP383Y] (ab40776)

Predicted band size: 124 kDa

Observed band size: 110 kDa



Western blot - Anti-PI 3 Kinase catalytic subunit alpha/PIK3CA antibody [EP383Y] - BSA and Azide free (ab185927)

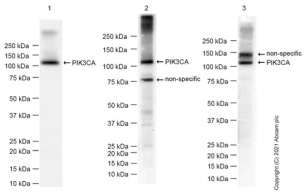
PI 3 Kinase catalytic subunit alpha/PIK3CA Western blot staining using rabbit Anti-PI 3 Kinase catalytic subunit alpha/PIK3CA antibody

This WB data was generated using the same anti-PI 3 Kinase catalytic subunit alpha/PIK3CA antibody clone, EP383Y, in a different buffer formulation (cat# ab40776).
Lane 1: Wild-type HAP1 cell lysate (20 µg)
Lane 2: PI 3 Kinase catalytic subunit alpha/PIK3CA knockout HAP1 cell lysate (20 µg)
Lane 3: Jurkat cell lysate (20 µg)
Lane 4: MCF7 cell lysate (20 µg)
Lanes 1 - 4: Merged signal (red and green). Green - ab40776 observed at 120 kDa. Red - loading control, ab8245, observed at 37 kDa.

ab40776 was shown to recognize PI 3 Kinase catalytic subunit alpha when PI 3 Kinase catalytic subunit alpha/PIK3CA knockout samples were used, along with additional cross-reactive bands. Wild-type and PI 3 Kinase catalytic subunit alpha/PIK3CA knockout samples were subjected to SDS-PAGE. ab40776 and ab8245 (loading control to GAPDH) were diluted to 1/1000 and 1/10000 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 1/10000 dilution for 1 hour at room temperature before imaging.

All lanes:
Western blot - Anti-PI 3 Kinase catalytic subunit alpha/PIK3CA antibody [EP383Y] (ab40776)

Predicted band size: 124 kDa



Western blot - Anti-PI 3 Kinase catalytic subunit alpha/PIK3CA antibody [EP383Y] - BSA and Azide free (ab185927)

PI 3 Kinase catalytic subunit alpha/PIK3CA Western blot staining using rabbit Anti-PI 3 Kinase catalytic subunit alpha/PIK3CA antibody

This data was developed using ab40776, the same antibody clone in a different buffer formulation. Blocking and diluting buffer and concentration: 5% NFDM/TBST.

ab40776 may detect non-specific signals due to sample batch variance.

All lanes:
Western blot - Anti-PI 3 Kinase catalytic subunit alpha/PIK3CA antibody [EP383Y] (ab40776) at 1/1000 dilution

Lane 1:
Batch 1 MCF7 (human breast adenocarcinoma epithelial cell) whole cell lysate at 20 µg

Lane 2:
Batch 2 MCF7 (human breast adenocarcinoma epithelial cell) whole cell lysate at 20 µg

Lane 3:
Batch 3 MCF7 (human breast adenocarcinoma epithelial cell) whole cell lysate at 20 µg

Secondary

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

Observed band size: 110 kDa

Exposure time: 180s

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