abcam

ab215978

Anti-PDGFR alpha + PDGFR beta antibody [Y92] - Low endotoxin, 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	Y92
Purification technique	Affinity purification Protein A
Specificity	Expression levels of the target protein vary with sample type and some optimisation may be required.
Concentration	1.026 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IHC-P

Tested

Species	Human
Dilution info	-
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	-

ICC/IF

Tested

Species	Mouse
Dilution info	-
Notes	-

Expected

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

IP

Tested

Species	Mouse
Dilution info	-
Notes	-

Expected

Species	Human, Rat

Dilution info	Use at an assay dependent concentration.
Notes	-

WB

Tested

Species	Mouse
Dilution info	-
Notes	For samples expressing low levels of PDGFR beta, the amount of lysate loaded may need to be increased to allow detection.

Species	Rat
Dilution info	-
Notes	For samples expressing low levels of PDGFR beta, the amount of lysate loaded may need to be increased to allow detection.

Species	Human
Dilution info	-
Notes	For samples expressing low levels of PDGFR beta, the amount of lysate loaded may need to be increased to allow detection.

Flow Cyt (Intra)

Tested

Species	Mouse
Dilution info	-
Notes	-

Expected

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

ELISA

Tested

Species	Human
Dilution info	-
Notes	Primary antibody concentration range: 1000 - 0 ng/mL.

Expected

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

Target data

See full target information PDGFRB

Function

Tyrosine-protein kinase that acts as a cell-surface receptor for homodimeric PDGFB and PDGFD and for heterodimers formed by PDGFA and PDGFB, and plays an essential role in the regulation of embryonic development, cell proliferation, survival, differentiation, chemotaxis and migration. Plays an essential role in blood vessel development by promoting proliferation, migration and recruitment of pericytes and smooth muscle cells to endothelial cells. Plays a role in the migration of vascular smooth muscle cells and the formation of neointima at vascular injury sites. Required for normal development of the cardiovascular system. Required for normal recruitment of pericytes (mesangial cells) in the kidney glomerulus, and for normal formation of a branched network of capillaries in kidney glomeruli. Promotes rearrangement of the actin cytoskeleton and the formation of membrane ruffles. Binding of its cognate ligands - homodimeric PDGFB, heterodimers formed by PDGFA and PDGFB or homodimeric PDGFD -leads to the activation of several signaling cascades; the response depends on the nature of the bound ligand and is modulated by the formation of heterodimers between PDGFRA and PDGFRB. Phosphorylates PLCG1, PIK3R1, PTPN11, RASA1/GAP, CBL, SHC1 and NCK1. Activation of PLCG1 leads to the production of the cellular signaling molecules diacylglycerol and inositol 1,4,5-trisphosphate, mobilization of cytosolic Ca(2+) and the activation of protein kinase C. Phosphorylation of PIK3R1, the regulatory subunit of phosphatidylinositol 3-kinase, leads to the activation of the AKT1 signaling pathway. Phosphorylation of SHC1, or of the C-terminus of PTPN11, creates a binding site for GRB2, resulting in the activation of HRAS, RAF1 and down-stream MAP kinases, including MAPK1/ERK2 and/or MAPK3/ERK1. Promotes phosphorylation and activation of SRC family kinases. Promotes phosphorylation of PDCD6IP/ALIX and STAM. Receptor signaling is down-regulated by protein phosphatases that dephosphorylate the receptor and its down-stream effectors, and by rapid internalization of the activated receptor.

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

ab215978 is the carrier-free version of ab32570.

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.

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.

What does low endotoxin mean?

Our low endotoxin, azide-free formats have low endotoxin level (1 EU/mg, determined by the TAL assay) and are free from azide, to achieve consistent experimental results in functional assays.

Supplementary info

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

Activity summary	PDGFR alpha and PDGFR beta are receptor tyrosine kinases also known as CD140a and CD140b. Both receptors have a molecular mass of about 180 kDa. PDGFR alpha is expressed in a variety of tissues including placenta astrocytes and

	vascular smooth muscle cells. PDGFR beta is more specific to fibroblasts smooth muscle cells and in the vascular system. These receptors bind platelet-derived growth factors (PDGFs) and become activated through dimerization and autophosphorylation.
Biological function summary	These receptors drive cellular processes like proliferation differentiation and migration. PDGFR alpha and beta operate as a significant part of a receptor complex. They modulate responses in mesenchymal cells and influence developmental pathways. In the vasculature system these receptors play roles in maintaining structure and function of blood vessels. Alterations in receptor activities can affect development of tissues and organs.
Pathways	PDGFR alpha and beta are key players in the PI3K-Akt signaling pathway and MAPK pathway. The activation of these pathways leads to cellular processes like survival and growth. PDGFR activity often interacts with other proteins such as SHP-2 RAS and Akt. These interactions contribute to the regulation of cellular responses to external growth signals embedding PDGFR in a web of intracellular cascade systems.
Associated diseases and disorders	PDGFRs have linkage to conditions like cancer and fibrotic diseases. Aberrant PDGFR alpha activity has connections to glioblastoma while PDGFR beta alterations often relate to systemic sclerosis. These receptors can work alongside proteins like VEGF and TGF-beta within these diseases. Their dysregulation leads to pathological angiogenesis and abnormal cell proliferation making them targets for therapeutic intervention.

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

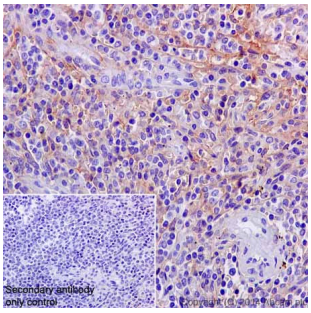
We do not recommend this combination. It is not covered by our product promise.

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.

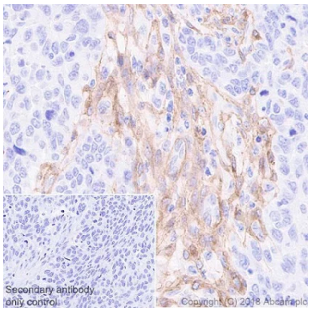
10 product images



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-PDGFR alpha + PDGFR beta antibody [Y92] - Low endotoxin, Azide free (ab215978)

PDGFR alpha + PDGFR beta Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-PDGFR alpha + PDGFR beta antibody

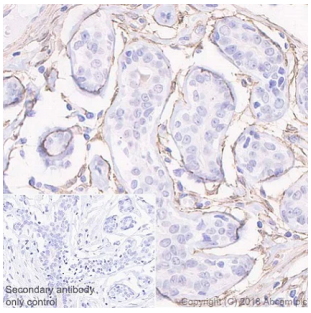
Immunohistochemical staining of paraffin embedded human spleen with purified ab32570 at a working dilution of 1/50. The secondary antibody used is ab97051, a HRP-conjugated goat anti-rabbit IgG (H+L), at a dilution of 1/500. The sample is counter-stained with hematoxylin. Antigen retrieval was perfomed using Tris-EDTA buffer, pH 9.0. PBS was used instead of the primary antibody as the negative control, and is shown in the inset.This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab32570).



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-PDGFR alpha + PDGFR beta antibody [Y92] - Low endotoxin, Azide free (ab215978)

PDGFR alpha + PDGFR beta Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-PDGFR alpha + PDGFR beta antibody

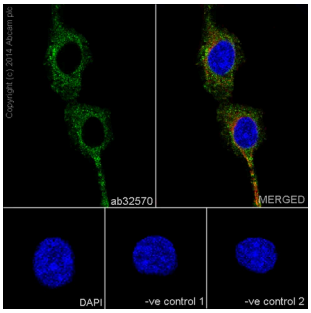
ab32570 staining PDGFR alpha + beta in human lung cancer tissue sections by Immunohistochemistry (IHC-P - paraformaldehyde-fixed, paraffin-embedded sections). Shows positive staining on stromal cells. Heat mediated antigen retrieval was performed using ab93684 (Tris/EDTA buffer, pH 9.0). Samples were incubated with primary antibody (1/500). An HRP-conjugated Goat anti-rabbit IgG (ready to use) was used as the secondary antibody. Counter stained with Hematoxylin.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab32570).



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-PDGFR alpha + PDGFR beta antibody [Y92] - Low endotoxin, Azide free (ab215978)

PDGFR alpha + PDGFR beta Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-PDGFR alpha + PDGFR beta antibody

ab32570 staining PDGFR alpha + beta in human breast tissue sections by Immunohistochemistry (IHC-P - paraformaldehyde-fixed, paraffin-embedded sections). Shows positive staining on stromal cells. Heat mediated antigen retrieval was performed using ab93684 (Tris/EDTA buffer, pH 9.0). Samples were incubated with primary antibody (1/500). An HRP-conjugated Goat anti-rabbit IgG (ready to use) was used as the secondary antibody. Counter stained with Hematoxylin.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab32570).

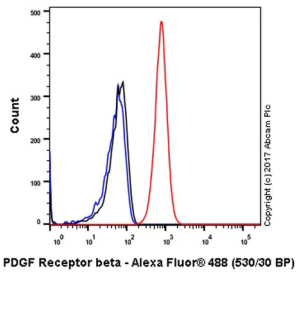


Immunocytochemistry/ Immunofluorescence - Anti-PDGFR alpha + PDGFR beta antibody [Y92] - Low endotoxin, Azide free (ab215978)

PDGFR alpha + PDGFR beta Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-PDGFR alpha + PDGFR beta antibody

Immunofluorescence staining of NIH/3T3 (Mouse embryo fibroblast cell line) cells with purified ab32570 at a working dilution of 1 in 100, counter-stained with DAPI. Tubulin was stained with mouse anti-tubulin at a dilution of 1/1000 (ab7291) and Alexa Fluor® 594 goat anti-mouse at a dilution of 1/500 (ab150120) . The secondary antibody was ab150077 Alexa Fluor® 488 goat anti rabbit, used at a dilution of 1 in 500. The cells were fixed in 4% PFA and permeabilized using 0.1% Triton X 100.
The negative controls are shown in the bottom middle and right hand panels - for the first negative control, purified ab32570 was used at a dilution of 1/200 followed by an Alexa Fluor® 555 goat anti-mouse antibody at a dilution of 1/500 and for the second negative control mouse primary antibody (ab7291) and anti-rabbit secondary antibody (ab15007) were used.

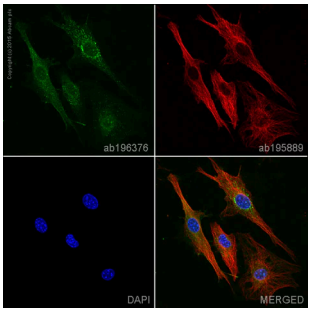
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab32570).



Flow Cytometry (Intracellular) - Anti-PDGFR alpha + PDGFR beta antibody [Y92] - Low endotoxin, Azide free (ab215978)

PDGFR alpha + PDGFR beta Flow Cytometry (Intracellular) staining using rabbit Anti-PDGFR alpha + PDGFR beta antibody

Intracellular Flow Cytometry analysis of NIH/3T3 (Mouse embryo fibroblast cell line) cells labeling PDGFR alpha +beta (red) with ab32570 at a 1/20 dilution. Cells were fixed with 4% paraformaldehyde and permeabilized with 90% methanol. A goat anti-rabbit IgG (Alexa Fluor® 488) (ab150077) was used as the secondary antibody at a 1/2000 dilution. Black - Rabbit monoclonal IgG (ab172730). Blue (unlabeled control) - Cells without incubation with primary and secondary antibodies.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab32570).



Immunocytochemistry/ Immunofluorescence - Anti-PDGFR alpha + PDGFR beta antibody [Y92] - Low endotoxin, Azide free (ab215978)

PDGFR alpha + PDGFR beta Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-PDGFR alpha + PDGFR beta antibody

Clone Y92 (ab215978) has been successfully conjugated by Abcam. This image was generated using Anti-PDGFR beta antibody [Y92] (Alexa Fluor® 488). Please refer to ab196376 for protocol details. ab196376 staining PDGFR alpha + beta in NIH3T3 cells. The cells were fixed with 100% methanol (5 min), permeabilised in 0.1% Triton X-100 for 5 minutes and then blocked in 1% BSA/10% normal goat serum/0.3M glycine in 0.1% PBS-Tween for 1h. The cells were then incubated with ab196376 at 1/50 dilution (shown in green) and ab195889, Mouse monoclonal [DM1A] to alpha Tubulin (Alexa Fluor® 594, shown in red) at 1/167 dilution overnight at +4°C. Nuclear DNA was labelled in blue with DAPI.
Image was taken with a confocal microscope (Leica-Microsystems, TCS SP8).

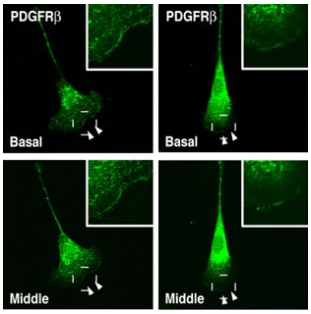
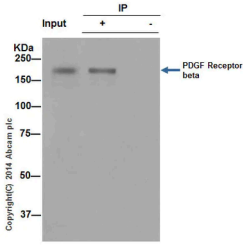


Image from Miyata M et al. J Biol Chem. 2009 Sep 4;284(36):24595-609. Epub 2009 Jul 9. Fig 1.; doi: 10.1074/jbc.M109.016436; September 4 2009 The Journal of Biological Chemistry 284 24595-24609.

Immunocytochemistry/ Immunofluorescence - Anti-PDGFR alpha + PDGFR beta antibody [Y92] - Low endotoxin, Azide free (ab215978)

Immunofluorescence analysis of NIH/3T3 (Mouse embryo fibroblast cell line) cells stimulated with PDGF, staining PDGFR alpha + beta with unpurified ab32570.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab32570).



Immunoprecipitation - Anti-PDGFR alpha + PDGFR beta antibody [Y92] - Low endotoxin, Azide free (ab215978)

ab32570 (purified) at 1/20 immunoprecipitating PDGFR alpha + beta in NIH/3T3 (Mouse embryo fibroblast cell line) (Lane 1 and 2). Lane 3 - PBS.
For western blotting a HRP-conjugated anti-rabbit IgG specific to the non-reduced form of IgG was used as the secondary antibody (1/1500).

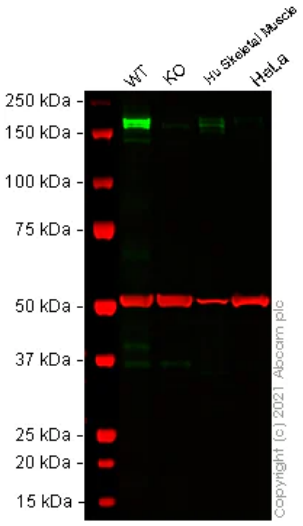
Blocking buffer and concentration: 5% NFDM/TBST.

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 (ab32570).

All lanes:
Immunoprecipitation - Anti-PDGFR alpha + PDGFR beta antibody [Y92] - C-terminal (ab32570)

Observed band size: 175 kDa



Western blot - Anti-PDGFR alpha + PDGFR beta antibody [Y92] - Low endotoxin, Azide free (ab215978)

PDGFR alpha + PDGFR beta Western blot staining using rabbit Anti-PDGFR alpha + PDGFR beta antibody

This data was developed using the same antibody clone in a different buffer formulation (ab32570).
Lanes 1 - 4: Merged signal (red and green). Green - ab32570 observed at 170 kDa. Red - loading control ab7291 (Mouse anti-Alpha Tubulin [DM1A]) observed at 55 kDa.

ab32570 was shown to react with PDGFRB in wild-type SH-SY5Y cells in Western blot with loss of signal observed in PDGFRB knockout cell line ab273749 (knockout cell lysate ab275523). Wild-type SH-SY5Y and PDGFRB knockout cell lysates were subjected to SDS-PAGE. Membranes were blocked in fluorescent western blot (TBS-based) blocking solution before incubation with ab32570 and ab7291 (Mouse anti-Alpha Tubulin [DM1A]) overnight at 4 °C at a 1 in 5000 dilution and a 1 in 20000 dilution respectively. Blots were incubated with Goat anti-Rabbit IgG H&L (IRDye® 800CW) preabsorbed (ab216773) and Goat anti-Mouse IgG H&L (IRDye® 680RD) preabsorbed (ab216776) secondary antibodies at 1 in 20000 dilution for 1 h at room temperature before imaging.

All lanes:
Western blot - Anti-PDGFR alpha + PDGFR beta antibody [Y92] - C-terminal (ab32570) at 1/5000 dilution

Lane 1:
Wild-type SH-SY5Y cell lysate at 30 µg

Lane 2:
Western blot - Human PDGFRB knockout SH-SY5Y cell lysate (ab275523) at 30 µg

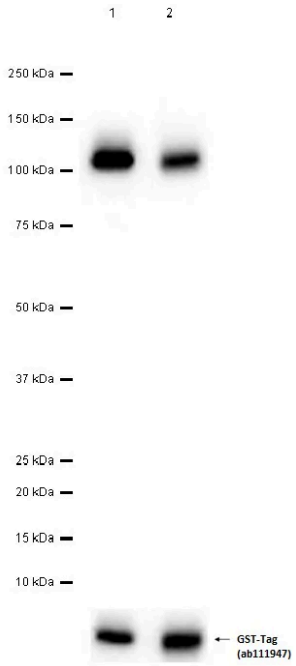
Lane 3:
Human Skeletal Muscle tissue lysate at 30 µg

Lane 4:
HeLa cell lysate at 30 µg

Performed under reducing conditions.

Predicted band size: 123 kDa

Observed band size: 170 kDa



Western blot - Anti-PDGFR alpha + PDGFR beta antibody [Y92] - Low endotoxin, Azide free (ab215978)

PDGFR alpha + PDGFR beta Western blot staining using rabbit Anti-PDGFR alpha + PDGFR beta antibody

This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab32570).
Blocking/Diluting buffer and concentration: 5% NFDM/TBST

All lanes:
Western blot - Anti-PDGFR alpha + PDGFR beta antibody [Y92] - C-terminal (ab32570) at 1/1000 dilution

Lane 1:
Western blot - Recombinant human PDGFR beta protein (GST tag N-Terminus) (ab60833) at 0.1 µg

Lane 2:
Western blot - Recombinant human PDGFR alpha protein (GST tag N-Terminus) (ab84797) at 0.1 µg

Secondary

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

Exposure time: 3s

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