abcam

ab99924

Biotin Anti-PDGFR alpha antibody [16A1]

Anti-PDGFR alpha antibody [16A1] conjugated to Biotin - suitable for flow cytometry, ICC, and reacts with human samples. Clone [16A1] is a mouse monoclonal antibody cited in 35 publications.

Key facts

Isotype	IgG1
Host species	Mouse
Conjugation	Biotin
Storage buffer	pH: 7.4 Preservative: 0.097% Sodium azide Constituents: PBS
Form	Liquid
Clonality	Monoclonal
Immunogen	Cell preparation containing Pdgfra protein. The exact immunogen used to generate this antibody is proprietary information. Database link P26618
Clone number	16A1
Purification technique	Size-exclusion chromatography
Specificity	recognizes CD140a / PDGF receptor alpha, the 170 kDa alpha chain of platelet derived growth factor receptor, which is widely expressed on a variety of mesenchymal derived cells and plays pro proliferative or anti proliferative roles in various tumours.
Purification notes	Purified by immunoaffinity chromatography (> 95% by SDS-PAGE) prior to conjugation.

Reactivity data

ICC/IF

Not recommended

Species	Human
Dilution info	-
Notes	-

Flow Cyt

Tested

Species	Human
Dilution info	1-2 µg/mL
Notes	ab18434 - Mouse monoclonal IgG1, is suitable for use as an isotype control with this antibody.

Target data

See full target information PDGFRA

Function

Tyrosine-protein kinase that acts as a cell-surface receptor for PDGFA, PDGFB and PDGFC and plays an essential role in the regulation of embryonic development, cell proliferation, survival and chemotaxis. Depending on the context, promotes or inhibits cell proliferation and cell migration. Plays an important role in the differentiation of bone marrow-derived mesenchymal stem cells. Required for normal skeleton development and cephalic closure during embryonic development. Required for normal development of the mucosa lining the gastrointestinal tract, and for recruitment of mesenchymal cells and normal development of intestinal villi. Plays a role in cell migration and chemotaxis in wound healing. Plays a role in platelet activation, secretion of agonists from platelet granules, and in thrombin-induced platelet aggregation. Binding of its cognate ligands - homodimeric PDGFA, homodimeric PDGFB, heterodimers formed by PDGFA and PDGFB or homodimeric PDGFC -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 PIK3R1, PLCG1, and PTPN11. 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. Phosphorylates PIK3R1, the regulatory subunit of phosphatidylinositol 3-kinase, and thereby mediates activation of the AKT1 signaling pathway. Mediates activation of HRAS and of the MAP kinases MAPK1/ERK2 and/or MAPK3/ERK1. Promotes activation of STAT family members STAT1, STAT3 and STAT5A and/or STAT5B. 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 duration	1-2 weeks
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	-20°C
Storage information	Avoid freeze / thaw cycle

Notes

The purified antibody is conjugated with Biotin-LC-NHS under optimum conditions. The reagent is free of unconjugated biotin.

Supplementary info

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

Activity summary	PDGFR alpha also known as platelet-derived growth factor receptor alpha is a cell surface receptor tyrosine kinase with a mass of approximately 123 kDa. It plays a mechanical role in transmitting signals across the cell membrane initiating cellular responses. PDGFR alpha is widely expressed in mesenchymal cells including fibroblasts and smooth muscle cells. Researchers frequently employ techniques such as PDGFRA IHC and PDGFRA staining to study the localization and expression levels in tissues.
Biological function summary	PDGFR alpha mediates cell proliferation survival and differentiation especially in embryonic development and wound healing. The receptor often forms a complex by dimerizing with itself or with PDGFR beta to activate intracellular signaling cascades. This process is initiated upon ligand binding which triggers autophosphorylation on tyrosine residues. The receptor is also recognized in the detection of PDGFRA with assays such as PDGFRA ELISA.
Pathways	PDGFR alpha significantly affects the MAPK and PI3K/AKT signaling pathways which regulate cellular growth and survival signals. Through these pathways PDGFR alpha interacts with related proteins like SHP-2 and PI3K contributing to signal transduction involved in cellular responses. This role links PDGFR alpha to important cellular processes via its kinase activity and signal integration.
Associated diseases and disorders	PDGFR alpha is implicated in conditions such as gastrointestinal stromal tumors (GISTs) and idiopathic pulmonary fibrosis (IPF). It connects to proteins such as KIT in GISTs where mutations cause aberrant receptor signaling leading to tumorigenesis. Aberrant PDGFR alpha signaling also associates with IPF a disorder characterized by increased fibroblast proliferation and fibrotic tissue formation.

These connections make PDGFR alpha a significant target for research and 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

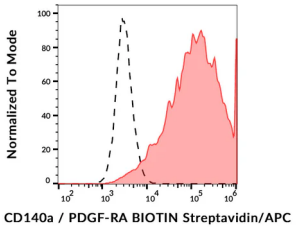
We do not recommend this combination. It is not covered by our product promise.

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.

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1 product image



Flow Cytometry - Biotin Anti-PDGFR alpha antibody [16A1] (ab99924)

PDGFR alpha Flow Cytometry staining of CD140a-transfected cells using mouse Anti-PDGFR alpha antibody

Flow cytometry analysis (surface staining) of CD140a in CD140a-transfected cells using ab99924 (concentration in sample 2 µg/ml) streptavidin APC (red-filled), with blank sample (black-dashed).

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