abcam

ab236529

Anti-Podoplanin antibody [EPR22182]

Anti-Podoplanin antibody [EPR22182] (ab236529) is a rabbit monoclonal antibody detecting Podoplanin in **Western Blot, Flow Cytometry (Intra), Flow Cytometry, IP, IHC-P, mIHC**. Suitable for **Human**.

- Multiplex IHC validated on the Leica BOND® MAX using Opal reagents
- Biophysical QC for unrivalled batch-batch consistency

Recombinant | RabMAb | Advanced Validation | 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	EPR22182
Purification technique	Affinity purification Protein A
Concentration	0.311 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IP

Tested

Species	Human

Dilution info	1/30
Notes	-

WB

Tested

Species	Human
Dilution info	1/1000
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1/300
Notes	-

Flow Cyt

Expected

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

IHC-P

Tested

Species	Human
Dilution info	1/4000
Notes	Perform heat-mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.

mIHC

Tested

Species	Human
Dilution info	1/8000
Notes	-

Target data

See full target information PDPN

Function

Mediates effects on cell migration and adhesion through its different partners. During development plays a role in blood and lymphatic vessels separation by binding CLEC1B, triggering CLEC1B activation in platelets and leading to platelet activation and/or aggregation (PubMed:14522983, PubMed:15231832, PubMed:17222411, PubMed:17616532, PubMed:18215137). Interaction with CD9, on the contrary, attenuates platelet aggregation induced by PDPN (PubMed:18541721). Through MSN or EZR interaction promotes epithelial-mesenchymal transition (EMT) leading to ERZ phosphorylation and triggering RHOA activation leading to cell migration increase and invasiveness (PubMed:17046996, PubMed:21376833). Interaction with CD44 promotes directional cell migration in epithelial and tumor cells (PubMed:20962267). In lymph nodes (LNs), controls fibroblastic reticular cells (FRCs) adhesion to the extracellular matrix (ECM) and contraction of the actomyosin by maintaining ERM proteins (EZR; MSN and RDX) and MYL9 activation through association with unknown transmembrane proteins. Engagement of CLEC1B by PDPN promotes FRCs relaxation by blocking lateral membrane interactions leading to reduction of ERM proteins (EZR; MSN and RDX) and MYL9 activation (By similarity). Through binding with LGALS8 may participate in connection of the lymphatic endothelium to the surrounding extracellular matrix (PubMed:19268462). In keratinocytes, induces changes in cell morphology showing an elongated shape, numerous membrane protrusions, major reorganization of the actin cytoskeleton, increased motility and decreased cell adhesion (PubMed:15515019). Controls invadopodia stability and maturation leading to efficient degradation of the extracellular matrix (ECM) in tumor cells through modulation of RHOC activity in order to activate ROCK1/ROCK2 and LIMK1/LIMK2 and inactivation of CFL1 (PubMed:25486435). Required for normal lung cell proliferation and alveolus formation at birth (By similarity). Does not function as a water channel or as a regulator of aquaporin-type water channels (PubMed:9651190). Does not have any effect on folic acid or amino acid transport (By similarity).

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

What is this antibody validated in?
Anti-Podoplanin antibody [EPR22182] (ab236529) is a rabbit recombinant monoclonal antibody and is validated for use in Western Blot (WB), Flow Cytometry (Intra), Flow Cytometry (Flow Cyt), Immunoprecipitation (IP), Immunohistochemistry (IHC-P), Multiplex IHC (mIHC) in Human samples.

What is the molecular weight of Podoplanin?
Anti-Podoplanin [EPR22182] (ab236529) specifically detects a band for Podoplanin (UniProt: Q86YL7) at a molecular weight of 16kDa.

Trusted by the scientific community
Anti-Podoplanin [EPR22182] (ab236529) was first used in a scientific publication in 2018 and has been cited over 10 times in peer-reviewed journals.

Other related products
We have a range of other formats of antibody clone [EPR22182] also available for your convenience: ab236529, Carrier free - ab237033, Alexa Fluor® 647 - ab303715, Alexa Fluor® 488 - ab305116, PE - ab314406

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.

Trial sizes available!
Test your antibody or perform pre-screening before committing to a larger quantity. Sold in 20µl. Discover our selection of trial-size antibodies.

Supplementary info

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

Activity summary	Podoplanin also known as gp36 and PDPN is a small transmembrane protein weighing approximately 36 kDa. It mainly expresses in lymphatic endothelial cells podocytes and various other tissues like the lung and kidney. It functions as a marker in mesothelial cells and is noticeable in histochemical studies such as mesothelioma using podoplanin staining in immunohistochemistry (IHC). Podoplanin emerges as an important tool in identifying lymphatic vessels and has significant roles in the development of certain tissues.
Biological function summary	The protein participates in maintaining the integrity of cell structures and lymphangiogenesis. This protein does not form part of a larger complex but actively interacts with different molecules. In lymphoid tissues podoplanin contributes to the proper formation of lymphatic channels and assists in platelet aggregation. These actions are pivotal in wound healing and protecting the epithelial cell layers in multiple organs.
Pathways	Podoplanin impacts the platelet activation pathway and the Lymphatic Vessel Development pathway. Its interaction with CLEC-2 (C-type lectin-like receptor 2) triggers downstream signaling leading to changes in platelet morphology and actin cytoskeleton reorganization. Podoplanin's activation of these pathways links it to key processes that include cell migration and tissue homeostasis TGF-beta interaction also represents a significant relationship within these pathways.
Associated diseases and disorders	Podoplanin has correlations with conditions like cancer specifically mesothelioma and squamous cell carcinoma. Dysregulation of podoplanin and its pathways may contribute to tumor progression and metastasis. In mesothelioma podoplanin interacts with other proteins like E-cadherin influencing cancer cell migration and adhesion. Its role in disease states highlights the importance of podoplanin IHC as a diagnostic tool aiding in the better understanding and identification of disease pathology.

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

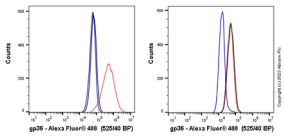
We do not recommend this combination. It is not covered by our product promise.

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



Flow Cytometry - Anti-Podoplanin antibody [EPR22182] (ab236529)

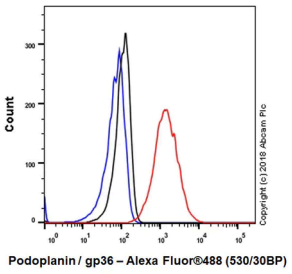
Podoplanin Flow Cytometry staining using rabbit Anti-Podoplanin antibody

Flow cytometry overlay histogram showing left U-87 MG positive cells and right negative HUVEC stained with ab236529 (red line). The cells were incubated in 1x PBS containing 10% normal goat serum to block non-specific protein-protein interaction followed by the antibody (ab236529) (1x 106 in 100µl at 1.0 µg/ml (1/500)) for 30min on ice.

The secondary antibody Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) preadsorbed was incubated at 1/4000 for 30min on ice

Isotype control antibody (black line) was Recombinant Rabbit IgG, monoclonal [EPR25A] - Isotype Control used at the same concentration and conditions as the primary antibody. Unlabelled sample (blue line) was also used as a control.

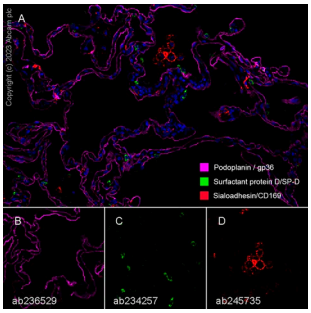
Acquisition of >5000 events were collected using a 50 mW Blue laser (488nm) and 525/40 bandpass filter.



Flow Cytometry (Intracellular) - Anti-Podoplanin antibody [EPR22182] (ab236529)

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

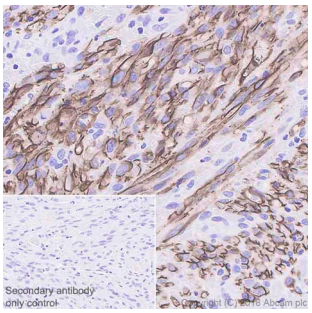
Intracellular flow cytometric analysis of 4% paraformaldehyde-fixed, 90% methanol-permeabilized U-87 MG (humanglioblastoma-astrocytoma epithelial cell line) cell line labeling Podoplanin with ab236529 at 1/300 dilution (red) compared with a Rabbit IgG, monoclonal [EPR25A] - Isotype Control (ab172730) (black) and an unlabeled control (cells without incubation with primary antibody and secondary antibody) (blue). Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) (ab150077) at 1/2000 dilution was used as the secondary antibody.



Multiplex immunohistochemistry - Anti-Podoplanin antibody [EPR22182] (ab236529)

Fluorescence multiplex immunohistochemical analysis of formalin/PFA-fixed paraffin-embedded Human lung tissue. Panel A: Merged staining of anti-Podoplanin / gp36 (magenta; Opal™690), anti-Surfactant protein D/SP-D (green; Opal™520) and anti-Sialoadhesin/CD169 (red; Opal™570) on human lung. Panel B: Anti-Podoplanin / gp36 stained on alveolar type I cells. Panel C: Anti-Surfactant protein D/SP-D stained on alveolar type II cells. Panel D: Anti-Sialoadhesin/CD169 stained on macrophages. The section was incubated in three rounds of staining: in the order of ab236529 and ab234257 for 30 mins, then ab245735 for 10 mins at room temperature. Each round was followed by a separate fluorescent tyramide signal amplification system. The immunostaining

was performed on a Leica Biosystems BOND® RX instrument with an Opal™ 4-color kit. Image acquisition was performed with Leica SP8 confocal microscope. Heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0, epitope retrieval solution 2) for 20 mins. Counterstained with DAPI.

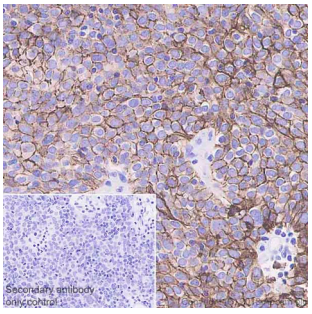


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Podoplanin antibody [EPR22182] (ab236529)

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

Immunohistochemical analysis of paraffin-embedded human Kaposi's sarcoma tissue labeling Podoplanin with ab236529 at 1/4000 dilution, followed by Goat Anti-Rabbit IgG H&L (HRP) Ready to use. Membranous and cytoplasmic staining in tumor cells of human Kaposi's sarcoma (PMID: 11950918) is observed. Counter stained with hematoxylin.
Secondary antibody only control: Used PBS instead of primary antibody, secondary antibody is Goat Anti-Rabbit IgG H&L (HRP) Ready to use.

Perform heat mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.

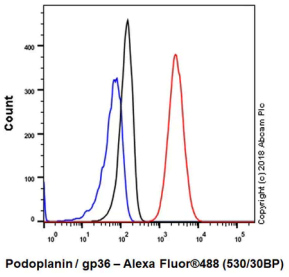


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Podoplanin antibody [EPR22182] (ab236529)

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

Immunohistochemical analysis of paraffin-embedded human mesothelioma tissue labeling Podoplanin with ab236529 at 1/4000 dilution, followed by Goat Anti-Rabbit IgG H&L (HRP) Ready to use. Membranous and weak cytoplasmic staining in tumor cells of human mesothelioma (PMID: 16670463) is observed. Counter stained with hematoxylin.
Secondary antibody only control: Used PBS instead of primary antibody, secondary antibody is Goat Anti-Rabbit IgG H&L (HRP) Ready to use.

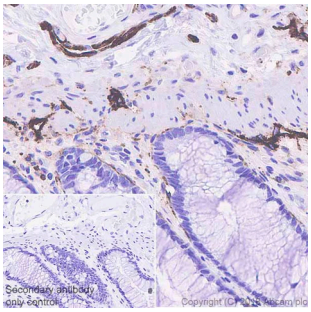
Perform heat mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.



Flow Cytometry (Intracellular) - Anti-Podoplanin antibody [EPR22182] (ab236529)

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

Intracellular flow cytometric analysis of 4% paraformaldehyde-fixed, 90% methanol-permeabilized U-2 OS (human bone osteosarcoma epithelial cell line) cell line labeling Podoplanin with ab236529 at 1/300 dilution (red) compared with a Rabbit IgG, monoclonal [EPR25A] - Isotype Control (ab172730) (black) and an unlabeled control (cells without incubation with primary antibody and secondary antibody) (blue). Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) (ab150077) at 1/2000 dilution was used as the secondary antibody.

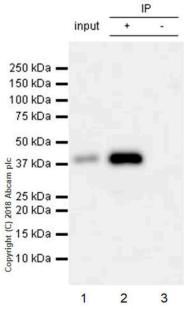


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Podoplanin antibody [EPR22182] (ab236529)

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

Immunohistochemical analysis of paraffin-embedded human colon tissue labeling Podoplanin with ab236529 at 1/4000 dilution, followed by Goat Anti-Rabbit IgG H&L (HRP) Ready to use. Positive staining in lymphatic endothelial cells of human colon (PMID: 28101903; PMID: 27798887) is observed. Counter stained with hematoxylin.
Secondary antibody only control: Used PBS instead of primary antibody, secondary antibody is Goat Anti-Rabbit IgG H&L (HRP) Ready to use.

Perform heat mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.



Immunoprecipitation - Anti-Podoplanin antibody [EPR22182] (ab236529)

Podoplanin was immunoprecipitated from 0.35 mg of U-2 OS (human bone osteosarcoma epithelial cell line) whole cell lysate with ab236529 at 1/30 dilution. Western blot was performed from the immunoprecipitate using ab236529 at 1/1000 dilution. VeriBlot for IP Detection Reagent (HRP) (ab131366), was used for detection at 1/5000 dilution.
Lane 1: U-2 OS whole cell lysate 10 µg (Input).

Lane 2: ab236529 IP in U-2 OS whole cell lysate.

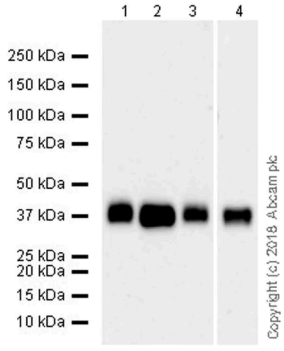
Lane 3: Rabbit monoclonal IgG (ab172730) instead of ab236529 in U-2 OS whole cell lysate.

Blocking and dilution buffer and concentration: 5% NFDM/TBST.

Exposure time: 30 seconds.

All lanes:
Immunoprecipitation - Anti-Podoplanin antibody [EPR22182] (ab236529)

Predicted band size: 16 kDa



Western blot - Anti-Podoplanin antibody [EPR22182] (ab236529)

Podoplanin Western blot staining using rabbit Anti-Podoplanin antibody

Blocking/Dilution buffer: 5% NFDM/TBST.
The molecular mass observed is consistent with what has been described in the literature (PMID: 10408868; PMID: 17279584).

All lanes:
Western blot - Anti-Podoplanin antibody [EPR22182] (ab236529) at 1/1000 dilution

Lane 1:
Human seminoma lysate at 20 µg

Lane 2:
Human tonsil lysate at 20 µg

Lane 3:
Human lymph node lysate at 20 µg

Lane 4:
Human stomach lysate at 20 µg

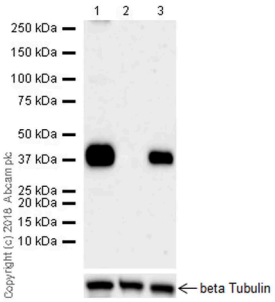
Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/100000 dilution

Predicted band size: 16 kDa

Observed band size: 38 kDa

Exposure time: 3min



Western blot - Anti-Podoplanin antibody [EPR22182] (ab236529)

Blocking/Dilution buffer: 5% NFDM/TBST.
The molecular mass observed is consistent with what has been described in the literature (PMID: 10408868; PMID: 17279584).

Negative control: HUVEC (PMID: 21920451).

All lanes:
Western blot - Anti-Podoplanin antibody [EPR22182] (ab236529) at 1/1000 dilution

Lane 1:
U-2 OS (human bone osteosarcoma epithelial cell line) whole cell lysate at 20 µg

Lane 2:
HUVEC (human umbilical vein endothelial cell line) whole cell lysate at 20 µg

Lane 3:
U-87 MG (human glioblastoma-astrocytoma epithelial cell line) whole cell lysate at 20 µg

Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/100000 dilution

Predicted band size: 16 kDa

Observed band size: 38 kDa

Exposure time: 3min

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