abcam

ab187026

Anti-RhoA + RhoC antibody [EPR18133]

Recombinant | RabMAb | 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	EPR18133
Purification technique	Affinity purification Protein A
Concentration	1.925 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IP

Tested

Species	Mouse
Dilution info	1/50
Notes	-

Expected

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

WB

Tested

Species	Mouse
Dilution info	1/2000
Notes	-

Species	Rat
Dilution info	1/2000
Notes	-

Species	Human
Dilution info	1/2000
Notes	-

ICC/IF

Tested

Species	Mouse
Dilution info	1/500
Notes	-

Expected

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

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1/400
Notes	-

Expected

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

IHC-P

Tested

Species	Mouse
Dilution info	1/1000
Notes	Perform heat-mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.

Species	Rat
Dilution info	1/1000
Notes	Perform heat-mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.

Species	Human
Dilution info	1/1000
Notes	Perform heat-mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.

Target data

See full target information RHOA

Function	Small GTPase which cycles between an active GTP-bound and an inactive GDP-bound state. Mainly associated with cytoskeleton organization, in active state binds to a variety of effector proteins to regulate cellular responses such as cytoskeletal dynamics, cell migration and cell cycle (PubMed:23871831). Regulates

a signal transduction pathway linking plasma membrane receptors to the assembly of focal adhesions and actin stress fibers (PubMed:31570889, PubMed:8910519, PubMed:9121475). Involved in a microtubule-dependent signal that is required for the myosin contractile ring formation during cell cycle cytokinesis (PubMed:12900402, PubMed:16236794). Plays an essential role in cleavage furrow formation. Required for the apical junction formation of keratinocyte cell-cell adhesion (PubMed:20974804, PubMed:23940119). Essential for the SPATA13-mediated regulation of cell migration and adhesion assembly and disassembly (PubMed:19934221). The MEMO1-RHOA-DIAPH1 signaling pathway plays an important role in ERBB2-dependent stabilization of microtubules at the cell cortex. It controls the localization of APC and CLASP2 to the cell membrane, via the regulation of GSK3B activity. In turn, membrane-bound APC allows the localization of the MACF1 to the cell membrane, which is required for microtubule capture and stabilization (PubMed:20937854). Involved in the reorientation of endothelial cells and their actin stress fibers in response to cellular mechantransduction-mediated activation by ARHGEF40 (By similarity). Regulates KCNA2 potassium channel activity by reducing its location at the cell surface in response to CHRM1 activation; promotes KCNA2 endocytosis (PubMed:19403695, PubMed:9635436). Acts as an allosteric activator of guanine nucleotide exchange factor ECT2 by binding in its activated GTP-bound form to the PH domain of ECT2 which stimulates the release of PH inhibition and promotes the binding of substrate RHOA to the ECT2 catalytic center (PubMed:31888991). May be an activator of PLCE1 (PubMed:16103226). In neurons, involved in the inhibition of the initial spine growth. Upon activation by CaMKII, modulates dendritic spine structural plasticity by relaying CaMKII transient activation to synapse-specific, long-term signaling (By similarity). Acts as a regulator of platelet alpha-granule release during activation and aggregation of platelets (By similarity). When activated by DAAM1 may signal centrosome maturation and chromosomal segregation during cell division. May also be involved in contractile ring formation during cytokinesis. (Microbial infection) Serves as a target for the yopT cysteine peptidase from Yersinia pestis, vector of the plague.

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

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	RhoA and RhoC also known as RAS homolog family member A and C are small GTPases. They play an essential role in regulating the actin cytoskeleton which impacts cell morphology motility and division. RhoA has a molecular mass of approximately 22 kDa. RhoC shares a similar size and structure. Both are expressed in various human tissues but they show higher expression in the brain lung and liver. These proteins can switch between an active GTP-bound state and an inactive GDP-bound state influencing cellular processes.
Biological function summary	The proteins RhoA and RhoC are key regulators in cell signaling pathways that coordinate cytoskeletal dynamics. They are integral parts of the Rho protein complex which includes other small GTPases like Rac1 and Cdc42. Through these interactions RhoA and RhoC influence cell cycle progression apoptosis and cellular transformations required during development and tissue repair. Their ability to control actomyosin contractility makes them significant for focal adhesion assembly and disassembly affecting cell movement.
Pathways	The activities of RhoA and RhoC are involved in the Rho signaling pathway and the Wnt signaling pathway. These pathways play an important role in guiding cellular architecture and communication. The Rho signaling pathway includes interactions with proteins like ROCK1 and ROCK2 which help modulate smooth muscle contraction and cell trophism. Meanwhile the Wnt signaling pathway involves cross-talk with β-catenin and influences cellular proliferation and growth pointing to RhoA and RhoC's involvement in these essential signal transduction processes.
Associated diseases and disorders	The dysregulation of RhoA and RhoC is linked with various cancers including breast and prostate cancer where they contribute to cancer cell invasion and metastasis. RhoA is also connected to cardiovascular disorders where abnormal Rho signaling can lead to hypertension due to its effect on vascular smooth muscle contraction. In the context of cancer these proteins often work alongside others like Ras which can exacerbate cellular transformation and tumorigenesis. Understanding these connections offers opportunities for targeted therapeutic interventions in these pathological conditions.

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.

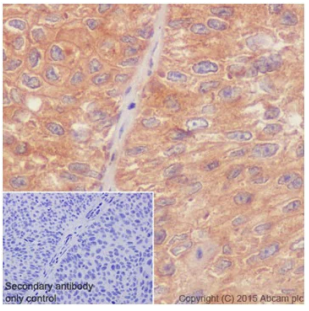
We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

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:
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10 product images

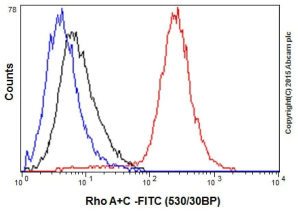


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-RhoA + RhoC antibody [EPR18133] (ab187026)

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

Immunohistochemical analysis of paraffin-embedded Human transitional cell carcinoma of bladder tissue labeling RhoA + RhoC with ab187026 at 1/1000 dilution, followed by Goat Anti-Rabbit IgG H&L (HRP) (ab97051) secondary antibody at 1/500 dilution. Cytoplasmic staining on cancer cells of transitional cell carcinoma of bladder is observed. Counter stained with Hematoxylin.
Negative control: Used PBS instead of primary antibody, secondary antibody is Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/500 dilution.

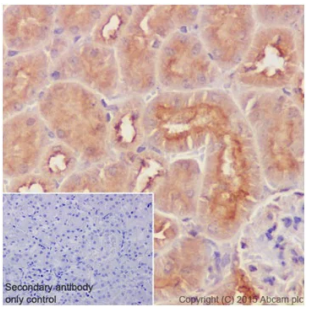
Perform heat mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.



Flow Cytometry (Intracellular) - Anti-RhoA + RhoC antibody [EPR18133] (ab187026)

RhoA + RhoC Flow Cytometry (Intracellular) staining using rabbit Anti-RhoA + RhoC antibody

Intracellular flow cytometric analysis of 2% paraformaldehyde-fixed Jurkat (Human T cell leukemia cells from peripheral blood) cells labeling RhoA + RhoC with ab187026 at 1/400 dilution (red) compared with a rabbit monoclonal IgG isotype control (ab172730; black) and a unlabelled control (cells without incubation with primary antibody and secondary antibody; blue). Goat anti rabbit IgG (FITC) at 1/150 dilution was used as the secondary antibody.

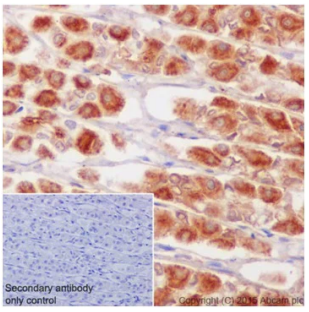


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-RhoA + RhoC antibody [EPR18133] (ab187026)

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

Immunohistochemical analysis of paraffin-embedded Mouse kidney tissue labeling RhoA + RhoC with ab187026 at 1/1000 dilution, followed by Goat Anti-Rabbit IgG H&L (HRP) (ab97051) secondary antibody at 1/500 dilution. Cytoplasmic staining on kidney tubules of mouse kidney is observed. Counter stained with Hematoxylin.
Negative control: Used PBS instead of primary antibody, secondary antibody is Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/500 dilution.

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

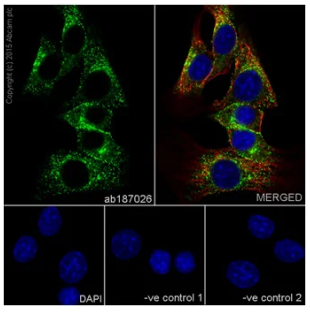


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-RhoA + RhoC antibody [EPR18133] (ab187026)

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

Immunohistochemical analysis of paraffin-embedded Rat stomach tissue labeling RhoA + RhoC with ab187026 at 1/1000 dilution, followed by Goat Anti-Rabbit IgG H&L (HRP) (ab97051) secondary antibody at 1/500 dilution. Cytoplasmic staining on epithelial cells of rat stomach is observed. Counter stained with Hematoxylin.
Negative control: Used PBS instead of primary antibody, secondary antibody is Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/500 dilution.

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

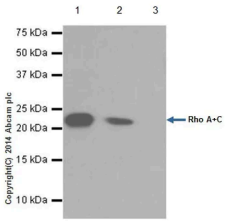


Immunocytochemistry/ Immunofluorescence - Anti-RhoA + RhoC antibody [EPR18133] (ab187026)

RhoA + RhoC Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-RhoA + RhoC antibody

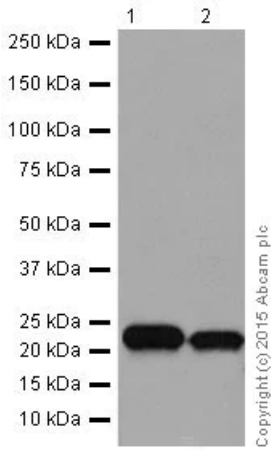
Immunofluorescent analysis of 4% paraformaldehyde-fixed, 0.1% Triton X-100 permeabilized NIH/3T3 (Mouse embryo fibroblast cells) cells labeling RhoA + RhoC with ab187026 at 1/500 dilution, followed by Goat anti-rabbit IgG (Alexa Fluor® 488) (ab150077) secondary antibody at

1/500 dilution (green). Confocal image showing cytoplasmic staining on NIH 3T3 cells is observed. The nuclear counter stain is DAPI (blue). Tubulin is detected with ab7291 (anti-Tubulin mouse mAb) at 1/1000 dilution and ab150120 (AlexaFluor®594 Goat anti-Mouse secondary) at 1/500 dilution (red).
The negative controls are as follows:
1. ab187026 at 1/500 dilution followed by ab150120 (AlexaFluor®594 Goat anti-Mouse secondary) at 1/500 dilution.
2. ab7291 (anti-Tubulin mouse mAb) at 1/1000 dilution followed by ab150077 (Alexa Fluor®488 Goat Anti-Rabbit IgG H&L) at 1/500 dilution.



Immunoprecipitation - Anti-RhoA + RhoC antibody [EPR18133] (ab187026)

Immunoprecipitation of RhoA + RhoC from 1mg of NIH/3T3 (Mouse embyro fibroblast cells) whole cell lysate achieved using ab187026 at 1/50 dilution.
Lane 1: Input: 10µg of NIH/3T3 whole cell lysate.
Lane 2: NIH/3T3 whole cell lysate following IP with ab187026.
Lane 3: Negative control: IP using Rabbit monoclonal IgG (ab172730) instead of ab187026 in NIH/3T3 whole cell lysates.
Western blot was performed using ab187026 at 1/1000 dilution.
VeriBlot for IP Detection Reagent (HRP) (ab131366) at 1/1500 was used for detection.
Blocking and dilution buffer and concentration: 5% NFDM/TBST. 30 second exposure.
All lanes:
Immunoprecipitation - Anti-RhoA + RhoC antibody [EPR18133] (ab187026)



Western blot - Anti-RhoA + RhoC antibody [EPR18133] (ab187026)

RhoA + RhoC Western blot staining using rabbit Anti-RhoA + RhoC antibody

5% NFDM/TBST: Blocking and diluting buffer.
All lanes:
Western blot - Anti-RhoA + RhoC antibody [EPR18133] (ab187026) at 1/2000 dilution

Lane 1:
Human fetal brain lysate at 10 mg/mL

Lane 2:
Human fetal kidney lysate at 10 mg/mL

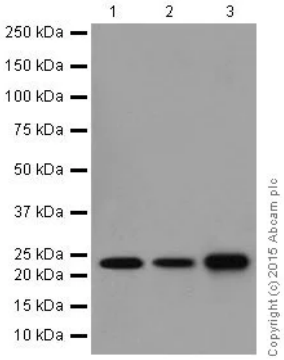
Secondary

All lanes:
Anti-Rabbit IgG (HRP), specific to the non-reduced form of IgG at 1/1000 dilution

Predicted band size: 22 kDa

Observed band size: 22 kDa

Exposure time: 3min



Western blot - Anti-RhoA + RhoC antibody [EPR18133] (ab187026)

RhoA + RhoC Western blot staining using rabbit Anti-RhoA + RhoC antibody

5% NFDM/TBST: Blocking and diluting buffer.
All lanes:
Western blot - Anti-RhoA + RhoC antibody [EPR18133] (ab187026) at 1/2000 dilution

Lane 1:
HepG2 (Human liver hepatocellular carcinoma) whole cell lysate at 10 µg

Lane 2:
HeLa (Human epithelial cells from cervix adenocarcinoma) whole cell lysate at 10 µg

Lane 3:
Jurkat (Human T cell leukemia cells from peripheral blood) whole cell lysate at 10 µg

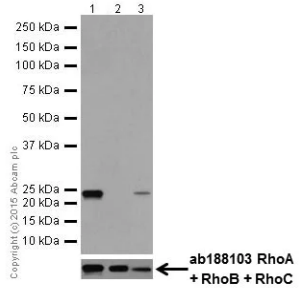
Secondary

All lanes:
Goat Anti-Rabbit IgG, (H+L),Peroxidase conjugated at 1/1000 dilution

Predicted band size: 22 kDa

Observed band size: 22 kDa

Exposure time: 1min



Western blot - Anti-RhoA + RhoC antibody [EPR18133] (ab187026)

RhoA + RhoC Western blot staining using rabbit Anti-RhoA + RhoC antibody

5% NFDM/TBST: Blocking and diluting buffer.
Exposure time: Lane 1: 30 seconds; lane 2 and 3: 3 minutes.

Human RhoA full length protein (ab101594) contains aa1-193 with His-Tag® at N-Terminus; Human RhoB full length protein (ab107139) contains aa1-193 with His-Tag® at N-Terminus; Human RhoC full length protein (ab98085) contains aa1-190 with His-Tag® at N-Terminus.

The affinity of ab187016 to RhoA is higher than to RhoC.

Lanes 1 - 2:
Western blot - Anti-RhoA + RhoC antibody [EPR18133] (ab187026) at 1/20000 dilution

Lane 3:
Western blot - Anti-RhoA + RhoC antibody [EPR18133] (ab187026) at 1/500 dilution

Lane 1:
Human RhoA full length protein at 0.01 µg

Lane 2:
Human RhoB full length protein at 0.01 µg

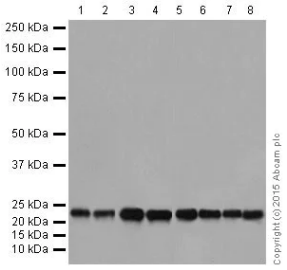
Lane 3:
Human RhoC full length protein at 0.01 µg

Secondary

All lanes:
Goat Anti-Rabbit IgG, (H+L),Peroxidase conjugated at 1/1000 dilution

Predicted band size: 22 kDa

Observed band size: 22 kDa, 24 kDa



Western blot - Anti-RhoA + RhoC antibody [EPR18133] (ab187026)

5% NFDM/TBST: Blocking and diluting buffer.
All lanes:
Western blot - Anti-RhoA + RhoC antibody [EPR18133] (ab187026) at 1/2000 dilution

Lane 1:
Mouse brain lysate at 10 µg

Lane 2:
Mouse kidney lysate at 10 µg

Lane 3:
Rat brain lysate at 10 µg

Lane 4:
Rat kidney lysate at 10 µg

Lane 5:
C6 (Rat glial tumor cells) whole cell lysate at 10 µg

Lane 6:
Raw264.7(Mouse macrophage cells transformed with Abelson murine leukemia virus) whole cell lysate at 10 µg

Lane 7:
PC12 (Rat adrenal gland pheochromocytoma) whole cell lysate at 10 µg

Lane 8:
NIH 3T3 (Mouse embyro fibroblast cells) whole cell lysate at 10 µg

Secondary

All lanes:
Goat Anti-Rabbit IgG, (H+L),Peroxidase conjugated at 1/1000 dilution

Predicted band size: 22 kDa

Observed band size: 22 kDa

Exposure time: 10s

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