abcam

ab187027

Anti-RhoA antibody [EPR18134]

Anti-RhoA antibody [EPR18134] (ab187027) is a rabbit monoclonal antibody detecting RhoA in **Western Blot, Flow Cytometry (Intra), ICC/IF**. Suitable for **Human, Mouse, Rat**.

- KO validated for confirmed specificity
- Biophysical QC for unrivalled batch-batch consistency
- Over 90 publications

Recombinant | RabMAb | KO Validated | 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	EPR18134
Purification technique	Affinity purification Protein A
Concentration	1.324 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

WB

Tested

Species	Mouse
Dilution info	1/5000
Notes	-

Species	Rat
Dilution info	1/5000
Notes	-

Species	Human
Dilution info	1/5000
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	1/150
Notes	-

Expected

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

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1/200
Notes	-

Expected

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

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

What is this antibody validated in?
Anti-RhoA antibody [EPR18134] (ab187027) is a rabbit recombinant monoclonal antibody and is validated for use in Western Blot (WB), Flow Cytometry (Intra), Immunocytochemistry/immunofluorescence (ICC/IF) in Human, Mouse, Rat samples.

What is the molecular weight of RhoA?
Anti-RhoA [EPR18134] (ab187027) specifically detects a band for RhoA (UniProt: P61586) at a molecular weight of 22kDa.

Trusted by the scientific community
Anti-RhoA [EPR18134] (ab187027) was first used in a scientific publication in 2015 and has been cited over 90 times in peer-reviewed journals.

Specificity confirmed
The specificity of Anti-RhoA antibody [EPR18134] (ab187027) has been confirmed by Western blot testing in RHOA Knockout HEK293T cells.

Other related products
We have a range of other formats of antibody clone [EPR18134] also available for your convenience: ab187027, PE - ab212154, Carrier free - ab219371, Carrier free - ab271951, APC - ab310839, Alexa Fluor® 488 - ab310978, Alexa Fluor® 647 - ab311100, Alexa Fluor® 594 - ab311716, Alexa Fluor® 568 - ab312992, Alexa Fluor® 555 - ab313197

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	RhoA also known as Ras homolog family member A is a small signaling GTPase. It weighs approximately 21 kDa. This protein is a part of the Rho family which includes other members like RhoB and RhoC. RhoA is widely expressed in various tissues including the brain kidney liver and lungs. Mechanically RhoA functions as a molecular switch cycling between an active GTP-bound state and an inactive GDP-bound state. This activity regulates the organization of the actin cytoskeleton and influences cell shape attachment and motility.
Biological function summary	The role of RhoA extends to cell proliferation and differentiation. It is a component of the Rho-GTPase cycle interacting with numerous effectors to transmit signals from the cell membrane to the actin cytoskeleton. RhoA influences the assembly of stress fibers and focal adhesions. It plays a part in cellular adhesion and migration making it essential for development and wound healing processes. As a central player in these activities RhoA affects several cellular responses to external stimuli.
Pathways	Research places RhoA prominently in the regulation of the Rho-ROCK (Rho-associated protein kinase) pathway and the planar cell polarity pathway. The Rho-ROCK pathway contributes to cytoskeletal dynamics and cell contractility while the planar cell polarity pathway influences tissue architecture during embryonic development. RhoA interacts with G17A in these pathways coordinating activities such as smooth muscle contraction and neuronal growth. These interactions also involve cross-talk with other signals linked to GTPases like Rac1 and Cdc42.
Associated diseases and disorders	RhoA has connections to cancer progression and hypertension. In cancer RhoA regulates actin dynamics influencing tumor cell migration and invasion. It forms interactions with proteins such as p53 affecting apoptotic pathways and tumor suppression. In hypertension RhoA's role in smooth muscle contraction affects blood vessel tension and blood pressure regulation. Abnormal activity in the Rho-ROCK pathway contributes to these disorders highlighting the significance of RhoA in disease mechanisms.

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.

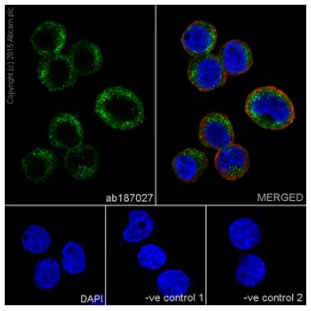
We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

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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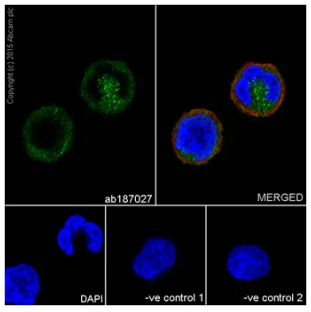
9 product images



Immunocytochemistry/ Immunofluorescence - Anti-RhoA antibody [EPR18134] (ab187027)

RhoA Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-RhoA antibody

Immunofluorescent analysis of 4% paraformaldehyde-fixed 0.1% Triton X-100 permeabilized Jurkat (Human T cell leukemia cells from peripheral blood) cells labeling RhoA with ab187027 at 1/150 dilution followed by Goat anti-rabbit IgG (Alexa Fluor® 488) (ab150077) secondary antibody at 1/1000 dilution (green). Confocal image showing cytoplasmic staining on Jurkat cell line 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 1/1000 dilution (red).
The negative controls are as follows:
1. ab187027 at 1/150 dilution followed by ab150120 (AlexaFluor®594 Goat anti-Mouse secondary) at 1/1000 dilution.
2. ab7291 (anti-Tubulin mouse mAb) at 1/1000 dilution followed by ab150077 (Alexa Fluor®488 Goat Anti-Rabbit IgG H&L) at 1/1000 dilution.

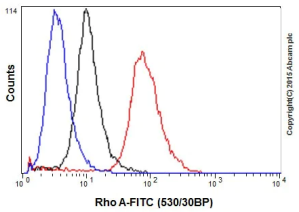


Immunocytochemistry/ Immunofluorescence - Anti-RhoA antibody [EPR18134] (ab187027)

RhoA Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-RhoA antibody

Immunofluorescent analysis of 4% paraformaldehyde-fixed 0.1% Triton X-100 permeabilized K562 (Human chronic myelogenous leukemia cells from bone marrow) cells labeling RhoA with ab187027 at 1/150 dilution followed by Goat anti-rabbit IgG (Alexa Fluor® 488) (ab150077) secondary antibody at 1/1000 dilution (green). Confocal image showing cytoplasmic staining on K562 cell line 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 1/1000 dilution (red).
The negative controls are as follows:
1. ab187027 at 1/150 dilution followed by ab150120 (AlexaFluor®594 Goat anti-Mouse secondary) at 1/1000 dilution.

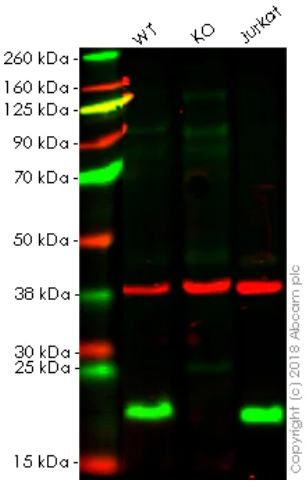
2. ab7291 (anti-Tubulin mouse mAb) at 1/1000 dilution followed by ab150077 (Alexa Fluor®488 Goat Anti-Rabbit IgG H&L) at 1/1000 dilution.



Flow Cytometry (Intracellular) - Anti-RhoA antibody [EPR18134] (ab187027)

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

Intracellular flow cytometric analysis of 4% paraformaldehyde-fixed HeLa (Human epithelial cells from cervix adenocarcinoma) cells labeling RhoA with ab187027 at 1/200 dilution (red) compared with a rabbit monoclonal IgG isotype control (ab172730; black) and a unlabeled control (cells without incubation with primary antibody and secondary antibody; blue). Goat anti rabbit IgG (FITC) at 1/500 dilution was used as the secondary antibody.



Western blot - Anti-RhoA antibody [EPR18134] (ab187027)

RhoA Western blot staining using rabbit Anti-RhoA antibody

Lanes 1 - 3: Merged signal (red and green). Green - ab187027 observed at 22 kDa. Red - loading control, ab9484, observed at 37 kDa.
ab187027 was shown to specifically react with RhoA in wild-type Hek293T cells as signal was lost in RHOA knockout cells. Wild-type and RHOA knockout samples were subjected to SDS-PAGE. ab187027 and ab9484 (Mouse anti-GAPDH loading control) were incubated overnight at 4°C at 1/1000 dilution and 1/20000 dilution respectively. Blots were developed 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 1/20000 dilution for 1 hour at room temperature before imaging.

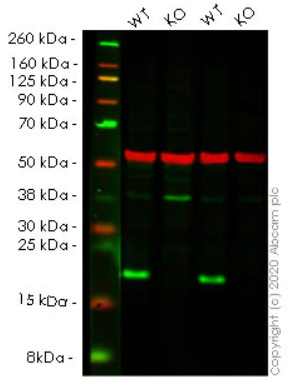
All lanes:
Western blot - Anti-RhoA antibody [EPR18134] (ab187027) at 1/1000 dilution

Lane 1:
Wild-type Hek293T whole cell lysate at 20 µg

Lane 2:
RHOA knockout Hek293T whole cell lysate at 20 µg

Lane 3:
Jurkat whole cell lysate at 20 µg

Predicted band size: 22 kDa



Western blot - Anti-RhoA antibody [EPR18134] (ab187027)

Lanes 1- 4: Merged signal (red and green). Green - ab187027 observed at 21 kDa. Red - Anti-alpha Tubulin antibody [DM1A] - Loading Control (ab7291) observed at 50 kDa.
ab187027 was shown to react with RhoA in wild-type HEK-293T cells in western blot. Loss of signal was observed when knockout cell line ab266592 (knockout cell lysate ab257637) was used. Wild-type HEK-293T and RHOA knockout HEK-293T cell lysates were subjected to SDS-PAGE. Membrane was blocked for 1 hour at room temperature in 0.1% TBST with 3% non-fat dried milk. ab187027 and Anti-alpha Tubulin antibody [DM1A] - Loading Control (ab7291) overnight at 4°C at a 1 in 5000 dilution and a 1 in 20000 dilution respectively. 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 in 20000 dilution for 1 hour at room temperature before imaging.
All lanes:
Western blot - Anti-RhoA antibody [EPR18134] (ab187027) at 1/5000 dilution

Lanes 1 and 3:
Wild-type HEK-293T cell lysate at 20 µg

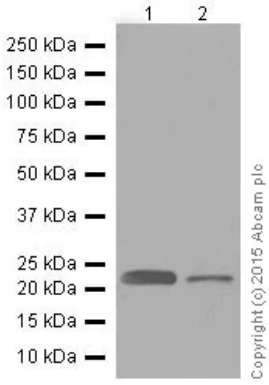
Lanes 2 and 4:
RHOA knockout HEK-293T cell lysate at 20 µg

Lane 2:
Western blot - Human RHOA knockout HEK-293T cell line (ab266592)

Performed under reducing conditions.

Predicted band size: 22 kDa

Observed band size: 21 kDa



Western blot - Anti-RhoA antibody [EPR18134] (ab187027)

5% NFDM/TBST: Blocking and diluting buffer.
All lanes:
Western blot - Anti-RhoA antibody [EPR18134] (ab187027) at 1/5000 dilution

Lane 1:
Human fetal brain lysate at 10 µg

Lane 2:
Human fetal kidney lysate at 10 µg

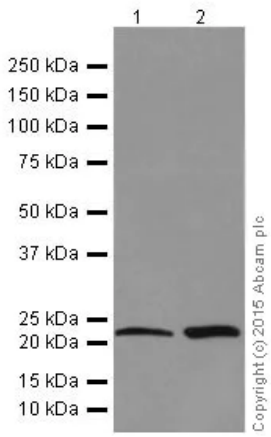
Secondary

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 antibody [EPR18134] (ab187027)

RhoA Western blot staining using rabbit Anti-RhoA antibody

5% NFDM/TBST: Blocking and diluting buffer.
All lanes:
Western blot - Anti-RhoA antibody [EPR18134] (ab187027) at 1/5000 dilution

Lane 1:
HeLa (Human epithelial cells from cervix adenocarcinoma) whole cell lysate at 20 µg

Lane 2:
HEK-293 (Human epithelial cells from embryonic kidney) whole cell lysate at 20 µg

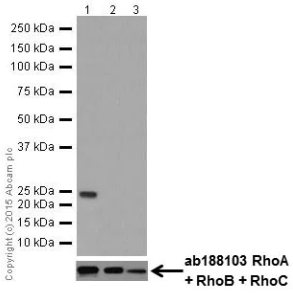
Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/1000 dilution

Predicted band size: 22 kDa

Observed band size: 22 kDa

Exposure time: 3min



Western blot - Anti-RhoA antibody [EPR18134] (ab187027)

RhoA Western blot staining using rabbit Anti-RhoA antibody

5% NFDM/TBST: Blocking and diluting buffer.
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.

All lanes:
Western blot - Anti-RhoA antibody [EPR18134] (ab187027) at 1/5000 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

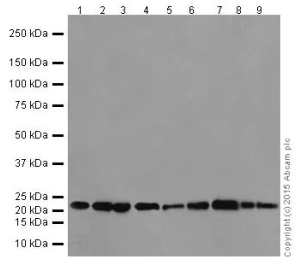
Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/1000 dilution

Predicted band size: 22 kDa

Observed band size: 22 kDa

Exposure time: 1s



Western blot - Anti-RhoA antibody [EPR18134] (ab187027)

RhoA Western blot staining using rabbit Anti-RhoA antibody

5% NFDM/TBST: Blocking and diluting buffer.
All lanes:
Western blot - Anti-RhoA antibody [EPR18134] (ab187027) at 1/5000 dilution

Lane 1:
Mouse brain lysate at 10 µg

Lane 2:
Mouse kidney lysate at 10 µg

Lane 3:
Mouse spleen lysate at 10 µg

Lane 4:
Rat brain lysate at 10 µg

Lane 5:
Rat kidney lysate at 10 µg

Lane 6:
Rat spleen lysate at 10 µg

Lane 7:
C6 (Rat glial tumor cells) whole cell lysate at 10 µg

Lane 8:
Raw264.7 (Mouse macrophage cells transformed with Abelson murine leukemia virus) whole cell lysate at 10 µg

Lane 9:
NIH/3T3 (Mouse embryo fibroblast cells) whole cell lysate at 10 µg

Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/1000 dilution

Predicted band size: 22 kDa

Observed band size: 22 kDa

Exposure time: 3min

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