abcam

ab129167

Anti-DIAPH1 antibody [EPR7948]

Recombinant | RabMAb | KO Validated

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	EPR7948
Purification technique	Affinity purification Protein A
Concentration	0.596 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IHC-P

Tested

Species	Mouse
Dilution info	1/50 - 1/100
Notes	-

Species	Rat

Dilution info	1/50 - 1/100
Notes	-

Species	Human
Dilution info	1/50 - 1/100
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	1/50
Notes	**For unpurified use at 1/100 - 1/250.**

Expected

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

WB

Tested

Species	Rat
Dilution info	1/1000 - 1/10000
Notes	-

Species	Human
Dilution info	1/1000 - 1/10000
Notes	-

Expected

Species	Mouse
Dilution info	Use at an assay dependent concentration.

Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1/50
Notes	-

Expected

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

Target data

See full target information DIAPH1

Function

Actin nucleation and elongation factor required for the assembly of F-actin structures, such as actin cables and stress fibers (By similarity). Binds to the barbed end of the actin filament and slows down actin polymerization and depolymerization (By similarity). Required for cytokinesis, and transcriptional activation of the serum response factor (By similarity). DFR proteins couple Rho and Src tyrosine kinase during signaling and the regulation of actin dynamics (By similarity). Functions as a scaffold protein for MAPRE1 and APC to stabilize microtubules and promote cell migration (By similarity). Has neurite outgrowth promoting activity. Acts in a Rho-dependent manner to recruit PFY1 to the membrane (By similarity). In hear cells, it may play a role in the regulation of actin polymerization in hair cells (PubMed:20937854, PubMed:21834987, PubMed:26912466). The MEMO1-RHOA-DIAPH1 signaling pathway plays an important role in ERBB2-dependent stabilization of microtubules at the cell cortex (PubMed:20937854, PubMed:21834987). It controls the localization of APC and CLASP2 to the cell membrane, via the regulation of GSK3B activity (PubMed:20937854, PubMed:21834987). 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, PubMed:21834987). Plays a role in the regulation of cell morphology and cytoskeletal organization. Required in the control of cell shape (PubMed:20937854, PubMed:21834987). Plays a role in brain development (PubMed:24781755). Also acts as an actin nucleation and elongation factor in the nucleus by promoting nuclear actin polymerization inside the nucleus to drive serum-dependent SRF-MRTFA activity (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

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	DIAPH1 also known as Diaphanous-related formin 1 operates mainly in actin polymerization and is critical for filament formation. It weighs approximately 140 kDa. DIAPH1 expresses in a variety of tissues including heart liver and kidney making it a target of interest in multiple biological contexts. The protein plays a role in maintaining proper cytoskeletal dynamics by regulating the assembly of actin filaments.
Biological function summary	DIAPH1 functions as part of the formin family which are important in cytoskeletal organization. It interacts with other proteins to initiate and elongate actin filaments often acting within larger protein complexes that control cellular morphology and movement. DIAPH1 contributes to muscle contraction cell

	division and cell migration highlighting its importance in cellular structure and dynamics.
Pathways	DIAPH1 plays a significant role in the Rho GTPase signaling pathway. This pathway connects to cytoskeleton remodeling impacting cell shape and movement. DIAPH1 associates with proteins like RhoA which regulates its activity. Additionally DIAPH1 influences the Wnt signaling pathway known for its involvement in cell proliferation and differentiation.
Associated diseases and disorders	DIAPH1 is connected to a form of sensorineural hearing loss and leukemia. Mutations in DIAPH1 can lead to autosomal dominant deafness as it affects the proper maintenance of actin structures in hair cells within the inner ear. The protein also interacts with genes linked to cancer development including those coding for p53 influencing tumorigenesis and cell cycle regulation.

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

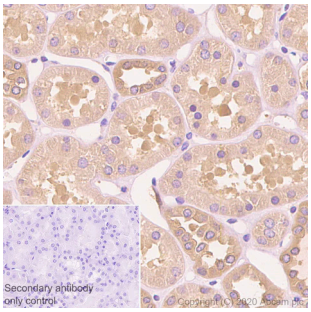
We do not recommend this combination. It is not covered by our product promise.

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.

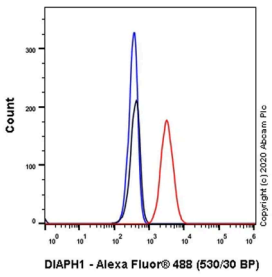
9 product images



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-DIAPH1 antibody [EPR7948] (ab129167)

DIAPH1 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-DIAPH1 antibody

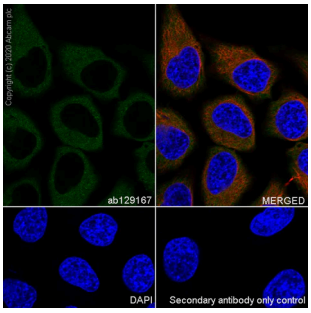
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of human kidney tissue sections labeling DIAPH1 with Purified ab129167 at 1/100 dilution (5.96 µg/mL). Heat mediated antigen retrieval using Bond™ Epitope Retrieval Solution 2 (pH 9.0). Rabbit specific IHC polymer detection kit HRP/DAB (ab209101) was used as the secondary antibody. Negative control: PBS instead of the primary antibody. Hematoxylin was used as a counterstain.



Flow Cytometry (Intracellular) - Anti-DIAPH1 antibody [EPR7948] (ab129167)

DIAPH1 Flow Cytometry (Intracellular) staining using rabbit Anti-DIAPH1 antibody

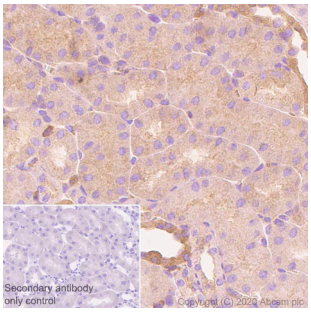
Intracellular Flow Cytometry analysis of HeLa (human epithelial cell line from cervix adenocarcinoma) cells labeling DIAPH1 with purified ab129167 at 1/50 dilution. Cells were fixed with 4% paraformaldehyde and permeabilised with 90% methanol. Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) (ab150077) at 1/2000 was used as the secondary antibody (red). Rabbit monoclonal IgG (ab172730) was used as the isotype control (black). Cells without incubation with primary and secondary antibodies were used as the unlabeled control (blue).



Immunocytochemistry/ Immunofluorescence - Anti-DIAPH1 antibody [EPR7948] (ab129167)

DIAPH1 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-DIAPH1 antibody

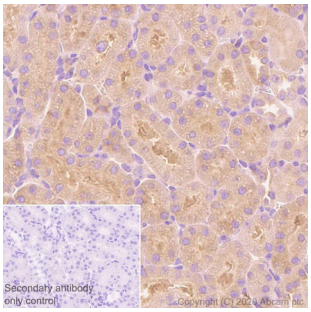
Immunocytochemistry analysis of HeLa (Human cervix adenocarcinoma epithelial cell) cells labeling DIAPH1 with Purified ab129167 at 1/50 dilution (10 µg/mL). Cells were fixed in 4% Paraformaldehyde and permeabilized with 0.1% tritonX-100. Cells were counterstained with ab195889 Anti-alpha Tubulin antibody [DM1A] - Microtubule Marker (Alexa Fluor® 594) 1/200 dilution (2.5 µg/mL). Goat anti rabbit IgG (Alexa Fluor® 488, ab150077) was used as the secondary antibody at 1/1000 dilution (2 µg/mL). DAPI (blue) was used as nuclear counterstain. PBS instead of the primary antibody was used as the secondary antibody only control.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-DIAPH1 antibody [EPR7948] (ab129167)

DIAPH1 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-DIAPH1 antibody

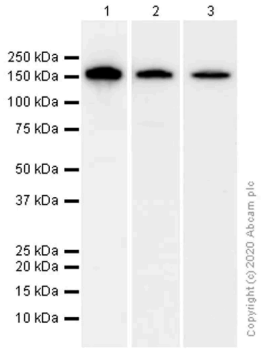
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of mouse kidney tissue sections labeling DIAPH1 with Purified ab129167 at 1/100 dilution (5.96 µg/mL). Heat mediated antigen retrieval using Bond™ Epitope Retrieval Solution 2 (pH 9.0). Rabbit specific IHC polymer detection kit HRP/DAB (ab209101) was used as the secondary antibody. Negative control: PBS instead of the primary antibody. Hematoxylin was used as a counterstain.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-DIAPH1 antibody [EPR7948] (ab129167)

DIAPH1 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-DIAPH1 antibody

Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of rat kidney tissue sections labeling DIAPH1 with Purified ab129167 at 1/100 dilution (5.96 µg/mL). Heat mediated antigen retrieval using Bond™ Epitope Retrieval Solution 2 (pH 9.0). Rabbit specific IHC polymer detection kit HRP/DAB (ab209101) was used as the secondary antibody. Negative control: PBS instead of the primary antibody. Hematoxylin was used as a counterstain.



Western blot - Anti-DIAPH1 antibody [EPR7948] (ab129167)

All lanes:
Western blot - Anti-DIAPH1 antibody [EPR7948] (ab129167) at 1/1000 dilution

Lane 1:
HEK-293 (Human embryonic kidney epithelial cell) whole cell lysate at 20 µg

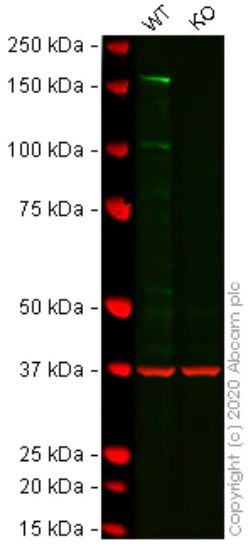
Lane 2:
Human brain lysate at 20 µg

Lane 3:
RAW 264.7 (Mouse Abelson murine leukemia virus-induced tumor macrophage) whole cell lysate at 20 µg

Secondary

All lanes:
Goat Anti-Rabbit IgG (HRP) with minimal cross-reactivity with human IgG at 1/2000 dilution

Predicted band size: 141 kDa



Western blot - Anti-DIAPH1 antibody [EPR7948] (ab129167)

DIAPH1 Western blot staining using rabbit Anti-DIAPH1 antibody

Lanes 1 - 2: Merged signal (red and green). Green - ab129167 observed at 155 kDa. Red - loading control ab8245 (Mouse anti-GAPDH antibody [6C5]) observed at 37kDa.
ab129167 was shown to react with DIAPH1 in wild-type HCT 116 cells in western blot with loss of signal observed in DIAPH1 knockout cell line ab273727 (DIAPH1 knockout cell lysate ab275252). Wild-type and DIAPH1 knockout HCT 116 cell lysates were subjected to SDS-PAGE. Membranes were blocked in 3% milk in TBS-T (0.1% Tween®) before incubation with ab129167 and ab8245 (Mouse anti-GAPDH antibody [6C5]) overnight at 4°C at a 1 in 1000 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 hour at room temperature before imaging.

All lanes:
Western blot - Anti-DIAPH1 antibody [EPR7948] (ab129167) at 1/1000 dilution

Lane 1:
Wild-type HCT116 cell lysate at 20 µg

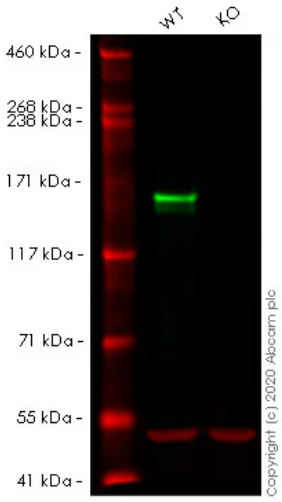
Lane 2:
DIAPH1 knockout HCT116 cell lysate at 20 µg

Lane 2:
Western blot - Human DIAPH1 knockout HEK-293T cell line (ab266120)

Performed under reducing conditions.

Predicted band size: 141 kDa

Observed band size: 155 kDa



Western blot - Anti-DIAPH1 antibody [EPR7948] (ab129167)

DIAPH1 Western blot staining using rabbit Anti-DIAPH1 antibody

Lanes 1- 2: Merged signal (red and green). Green - ab129167 observed at 150 kDa. Red - Anti-alpha Tubulin antibody [DM1A] - Loading Control (ab7291) observed at 50 kDa.
ab129167 was shown to react with DIAPH1 in wild-type HEK-293T cells in western blot. Loss of signal was observed when knockout cell line ab266120 (knockout cell lysate ab257411) was used. Wild-type HEK-293T and DIAPH1 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. ab129167 and Anti-alpha Tubulin antibody [DM1A] - Loading Control (ab7291) overnight at 4°C at a 1 in 1000 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-DIAPH1 antibody [EPR7948] (ab129167) at 1/1000 dilution

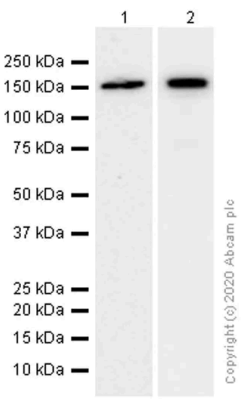
Lane 1:
Wild-type HEK-293T cell lysate at 20 µg

Lane 2:
Western blot - Human DIAPH1 knockout HEK-293T cell lysate (ab257411) at 20 µg

Performed under reducing conditions.

Predicted band size: 141 kDa

Observed band size: 150 kDa



Western blot - Anti-DIAPH1 antibody [EPR7948] (ab129167)

All lanes:
Western blot - Anti-DIAPH1 antibody [EPR7948] (ab129167) at 1/10000 dilution

Lane 1:
PC-12 (Rat adrenal gland pheochromocytoma) whole cell lysate at 20 µg

Lane 2:
MCF7 (Human breast adenocarcinoma epithelial cell) whole cell lysate at 20 µg

Secondary

All lanes:
Goat Anti-Rabbit IgG (HRP) with minimal cross-reactivity with human IgG at 1/2000 dilution

Predicted band size: 141 kDa

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