abcam

ab109009

Anti-Rab4 antibody [EPR3043] - Early Endosome Marker

Lab Essentials | 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	EPR3043
Purification technique	Affinity purification Protein A
Concentration	1.693 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IP

Tested

Species	Human
Dilution info	1/10 - 1/100
Notes	-

Expected

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

WB

Tested

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

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

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

IHC-P

Not recommended

Species	Mouse
Dilution info	-
Notes	Perform heat-mediated antigen retrieval before commencing with IHC staining protocol.

Species	Rat
Dilution info	-
Notes	Perform heat-mediated antigen retrieval before commencing with IHC staining protocol.

Species	Human

Dilution info	-
Notes	Perform heat-mediated antigen retrieval before commencing with IHC staining protocol.

ICC/IF

Tested

Species	Human
Dilution info	1/170 - 1/1000
Notes	-

Expected

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

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1/200
Notes	-

Expected

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

Target data

See full target information RAB4A

Function	The small GTPases Rab are key regulators of intracellular membrane trafficking, from the formation of transport vesicles to their fusion with membranes. Rabs

cycle between an inactive GDP-bound form and an active GTP-bound form that is able to recruit to membranes different sets of downstream effectors directly responsible for vesicle formation, movement, tethering and fusion (PubMed:15907487, PubMed:16034420). RAB4A is involved in protein transport (PubMed:29425100). Also plays a role in vesicular traffic. Mediates VEGFR2 endosomal trafficking to enhance VEGFR2 signaling (PubMed:29425100). Acts as a regulator of platelet alpha-granule release during activation and aggregation of platelets (By similarity).

Storage

Shipped at conditions	Conditional Ambient
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	-20°C
Storage information	Stable for 12 months at -20°C

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	Rab4 also known as Ras-related protein Rab-4A is a small GTPase with a molecular mass of approximately 24 kDa. This protein is expressed in various cell types predominantly in tissues with high endocytic activity. Rab4 primarily functions as an endosome marker cooperating with the endocytic machinery to regulate sorting and recycling of endosomes. It occupies key positions on early endosomes relevant to its role in vesicular trafficking and membrane transportation. Endosome staining typically identifies Rab4 as an essential component in understanding endocytosis dynamics.
Biological function summary	Rab4 coordinates the trafficking of cargo between endosomes and the plasma membrane. It usually forms part of a protein complex that governs the recycling pathway of internalized membrane proteins and lipids. Rab4 modulates various cellular processes by impacting the rapid recycling of receptors receptors often return to the cell surface in response to Rab4 regulation. This action is important for maintaining cellular homeostasis and efficient signal transduction serving as a checkpoint for receptor-mediated events.
Pathways	The protein plays significant roles in the endocytic recycling pathway and the insulin signaling pathway. Rab4's activity influences the trafficking cycle often interacting with other proteins such as Rab11 and Rab5 to ensure efficient cargo movement within cells. By facilitating swift endosome recycling Rab4 has a direct impact on intracellular signaling and trafficking pathways supporting a range of cellular activities. This concerted interaction accentuates its importance in managing endosomal traffic and maintaining cellular connectivity.
Associated diseases and disorders	Rab4 has implications in neurodegenerative disease and cancer. Abnormal Rab4 function disrupts endosomal signaling contributing to the pathogenesis of conditions like Alzheimer’s disease where it interacts with proteins such as amyloid precursor protein (APP). In cancer the dysregulation of Rab4-associated pathways affects tumor progression and metastasis. Rab4's connection with proteins like EGFR (Epidermal Growth Factor Receptor) indicates its potential role in altering cancer cell behaviors and resistance mechanisms making it a focus of interest in therapeutic approaches.

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

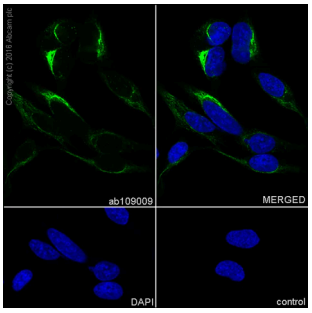
We do not recommend this combination. It is not covered by our product promise.

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.

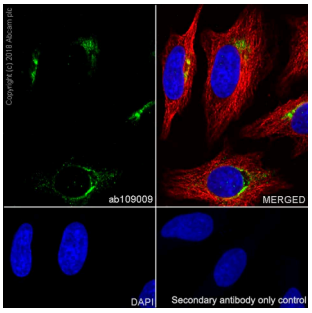
7 product images



Immunocytochemistry/ Immunofluorescence - Anti-Rab4 antibody [EPR3043] - Early Endosome Marker (ab109009)

Rab4 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Rab4 antibody

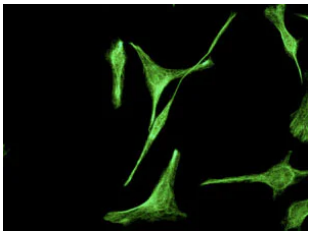
Immunocytochemistry/Immunofluorescence analysis of HeLa (Human epithelial cell line from cervix adenocarcinoma) labelling Rab4 with purified ab109009 at 1/250. Cells were fixed with 100% methanol and permeabilized with 0.1% triton X-100. ab150077 Goat anti rabbit IgG (Alexa Fluor® 488) at 1/1000 was used as the secondary antibody. Nuclei were counterstained with DAPI. PBS was used instead of the primary antibody as the negative control.



Immunocytochemistry/ Immunofluorescence - Anti-Rab4 antibody [EPR3043] - Early Endosome Marker (ab109009)

Rab4 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Rab4 antibody

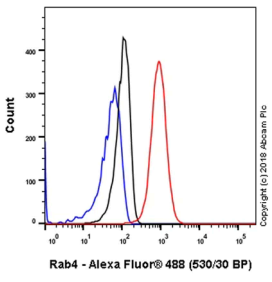
Immunocytochemistry/ Immunofluorescence analysis of HeLa (Human cervix adenocarcinoma epithelial cell) cells labeling Rab4 with Purified ab109009 at 1:170 dilution (10 µg/ml). Cells were fixed in 100% Methanol. Cells were counterstained with ab195889 Anti-alpha Tubulin antibody [DM1A] - Microtubule Marker (Alexa Fluor® 594) 1:200 (2.5 µg/ml). Goat anti rabbit IgG (Alexa Fluor® 488, ab150077) was used as the secondary antibody at 1:1000 (2 µg/ml) dilution. DAPI nuclear counterstain. PBS instead of the primary antibody was used as the secondary antibody only control.



Immunocytochemistry/ Immunofluorescence - Anti-Rab4 antibody [EPR3043] - Early Endosome Marker (ab109009)

Rab4 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Rab4 antibody

ab109009 at 1/500 dilution staining Rab4 in HeLa by Immunofluorescence.

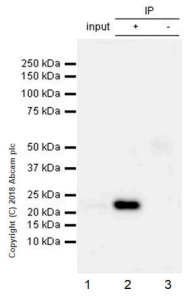


Flow Cytometry (Intracellular) - Anti-Rab4 antibody [EPR3043] - Early Endosome Marker (ab109009)

Rab4 Flow Cytometry (Intracellular) staining using rabbit Anti-Rab4 antibody

Intracellular Flow Cytometry analysis of HeLa (Human cervix adenocarcinoma epithelial cell) cells labeling Rab4 with Purified ab109009 at 1/200 dilution (1µg/ml) (red). Cells were fixed with 4% Paraformaldehyde. A Goat anti rabbit IgG (Alexa Fluorr® 488, ab150077) secondary antibody was

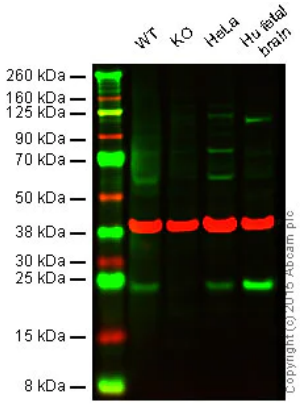
used at 1/2000. Isotype control - Rabbit monoclonal IgG (Black). Unlabeled control - Cell without incubation with primary antibody and secondary antibody (Blue).



Immunoprecipitation - Anti-Rab4 antibody [EPR3043] - Early Endosome Marker (ab109009)

ab109009 (purified) at 1:80 dilution (2µg) immunoprecipitating Rab4 in MCF7 whole cell lysate.
Lane 1 (input): MCF7 (Human breast adenocarcinoma epithelial cell) whole cell lysate 10µg
Lane 2 (+): ab109009 & MCF7 whole cell lysate
Lane 3 (-): Rabbit monoclonal IgG (ab172730) instead of ab109009 in MCF7 whole cell lysate
For western blotting, VeriBlot for IP Detection Reagent (HRP) (ab131366) was used for detection at 1:1000 dilution.
Blocking and diluting buffer: 5% NFDM/TBST.
All lanes:
Immunoprecipitation - Anti-Rab4 antibody [EPR3043] - Early Endosome Marker (ab109009)

Predicted band size: 24 kDa

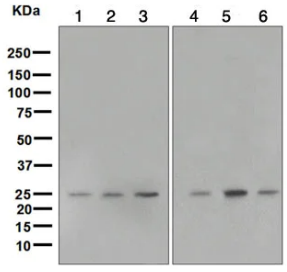


Western blot - Anti-Rab4 antibody [EPR3043] - Early Endosome Marker (ab109009)

Rab4 Western blot staining using rabbit Anti-Rab4 antibody

Lane 1: Wild-type HAP1 cell lysate (20 µg)
Lane 2: Rab4 knockout HAP1 cell lysate (20 µg)
Lane 3: HeLa cell lysate (20 µg)
Lane 4: Human fetal brain lysate (20 µg)
Lanes 1 - 4: Merged signal (red and green). Green - ab109009 observed at 24 kDa. Red - loading control, ab8245, observed at 37 kDa.
ab109009 was shown to specifically react with Rab4 when Rab4 knockout samples were used. Wild-type and Rab4 knockout samples were subjected to SDS-PAGE. ab109009 and ab8245 (loading control to GAPDH) were diluted 1/1000 and 1/2000 and incubated overnight at 4°C. 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 1/10000 dilution for 1 h at room temperature before imaging.
All lanes:
Western blot - Anti-Rab4 antibody [EPR3043] - Early Endosome Marker (ab109009)

Predicted band size: 24 kDa



Western blot - Anti-Rab4 antibody [EPR3043] - Early Endosome Marker (ab109009)

All lanes:
Western blot - Anti-Rab4 antibody [EPR3043] - Early Endosome Marker (ab109009) at 1/1000 dilution

Lane 1:
MCF7 cell lysate at 10 µg

Lane 2:
PC12 cell lysate at 10 µg

Lane 3:
Neuro 2a cell lysate at 10 µg

Lane 4:
293T cell lysate at 10 µg

Lane 5:
SH SY5Y cell lysate at 10 µg

Lane 6:
Human fetal brain lysate at 10 µg

Predicted band size: 24 kDa

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