abcam

ab237703

Anti-RAB10 antibody [MJF-R23]

Anti-RAB10 antibody [MJF-R23] (ab237703) is a rabbit monoclonal antibody detecting RAB10 in **Western Blot, Flow Cytometry (Intra), IP, ICC/IF**. Suitable for **Human, Mouse, Rat**.

- KO validated for confirmed specificity
- Biophysical QC for unrivalled batch-batch consistency
- Over 20 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	MJF-R23
Purification technique	Affinity purification Protein A
Concentration	0.56 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1/600
Notes	-

Not recommended

Species	Mouse, Rat
Dilution info	-
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	1/500
Notes	-

Not recommended

Species	Mouse, Rat
Dilution info	-
Notes	-

IP

Tested

Species	Human
Dilution info	1/30
Notes	-

Expected

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

Notes	-

WB

Tested

Species	Human
Dilution info	1/1000
Notes	-

Species	Mouse
Dilution info	1/1000
Notes	-

Species	Rat
Dilution info	1/1000
Notes	-

Target data

See full target information RAB10

Function

The small GTPases Rab are key regulators of intracellular membrane trafficking, from the formation of transport vesicles to their fusion with membranes (PubMed:21248164). Rabs cycle between an inactive GDP-bound form and an active GTP-bound form that is able to recruit to membranes different set of downstream effectors directly responsible for vesicle formation, movement, tethering and fusion (PubMed:21248164). RAB10 is mainly involved in the biosynthetic transport of proteins from the Golgi to the plasma membrane (PubMed:21248164). Regulates, for instance, SLC2A4/GLUT4 glucose transporter-enriched vesicles delivery to the plasma membrane (By similarity). In parallel, RAB10 regulates the transport of TLR4, a toll-like receptor to the plasma membrane and therefore may be important for innate immune response (By similarity). Also plays a specific role in asymmetric protein transport to the plasma membrane (PubMed:16641372). In neurons, involved in axonogenesis through regulation of vesicular membrane trafficking toward the axonal plasma membrane (By similarity). In epithelial cells, regulates transport from the Golgi to the basolateral membrane (PubMed:16641372). May play a role in the basolateral recycling pathway and in phagosome maturation (By similarity). May play a role in endoplasmic reticulum dynamics and morphology controlling tubulation along microtubules and tubules fusion (PubMed:23263280). Together with LRRK2, RAB8A, and RILPL1, regulates ciliogenesis (PubMed:30398148). When phosphorylated by LRRK2 on Thr-73, binds RILPL1 and inhibits ciliogenesis (PubMed:30398148). Participates in the export of a subset of neosynthesized proteins through a Rab8-

Rab10-Rab11-dependent endososomal export route (PubMed:32344433). Targeted to and stabilized on stressed lysosomes through LRRK2 phosphorylation where it promotes the extracellular release of lysosomal content through EHBP1 and EHNP1L1 effector proteins (PubMed:30209220). (Microbial infection) Upon Legionella pneumophila infection promotes endoplasmic reticulum recruitment and bacterial replication. Plays a role in remodeling the Legionella-containing vacuole (LCV) into an endoplasmic reticulum-like vacuole.

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-RAB10 antibody [MJF-R23] (ab237703) is a rabbit recombinant monoclonal antibody and is validated for use in Western Blot (WB), Flow Cytometry (Intra), Flow Cytometry (Flow Cyt), Immunoprecipitation (IP), Immunocytochemistry/immunofluorescence (ICC/IF) in Human, Mouse, Rat samples.

What is the molecular weight of RAB10?
Anti-RAB10 [MJF-R23] (ab237703) specifically detects a band for RAB10 (UniProt: P61026) at a molecular weight of 22kDa.

Trusted by the scientific community
Anti-RAB10 [MJF-R23] (ab237703) was first used in a scientific publication in 2018 and has been cited over 20 times in peer-reviewed journals.

Specificity confirmed
The specificity of Anti-RAB10 antibody [MJF-R23] (ab237703) has been confirmed by Immunocytochemistry testing in RAB10 Knockout A549 cells.

Other related products
We have a range of other formats of antibody clone [MJF-R23] also available for your convenience: ab237703, Carrier free - ab238655, Alexa Fluor® 488 - ab302654, Alexa Fluor® 647 - ab302699, Alexa Fluor® 594 - ab302835, Alexa Fluor® 555 - ab306567, ab307296, Carrier free - ab307297

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.

Collaborations
This antibody was developed with support from The Michael J. Fox Foundation.

THE MICHAEL J. FOX FOUNDATION
FOR PARKINSON'S RESEARCH

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	RAB10 also known as RAB10 member RAS oncogene family is a small GTPase belonging to the RAB protein family. It has a molecular weight of approximately 24 kDa. RAB10 is ubiquitously expressed with higher levels observed in brain liver and lung tissues. It cycles between an active GTP-bound state and an inactive GDP-bound state regulating various membrane trafficking events within the cell. Its role extends to modulating the transport of proteins from the Golgi apparatus to the plasma membrane therefore influencing cellular logistics and function.
Biological function summary	RAB10 participates in vesicular trafficking and transport processes. It is part of the endosomal and exocytic complexes contributing to the sorting and delivery of cellular cargo. RAB10's activity affects the delivery of glucose transporter type 4 (GLUT4) to the plasma membrane impacting glucose uptake and metabolism. It also plays a critical role in the polarized transport of cargo in neuronal cells influencing neuronal signaling and function.
Pathways	RAB10 integrates into the insulin signaling and polarized epithelial cell transport pathways. Within these RAB10 cooperates with proteins like GLUT4 and the TBC1D4 a RAB GAP protein essential for GLUT4 vesicle translocation. These interactions ensure efficient response and coordination of cellular trafficking required for metabolic regulation and cellular growth processes.
Associated diseases and disorders	RAB10 shows connections to metabolic disorders and neurodegenerative diseases. Its role in glucose transporter trafficking links it to type 2 diabetes as improper GLUT4 trafficking disrupts glucose homeostasis. In the realm of neurodegenerative diseases proteins involved in neuronal transport and function such as APP and Tau may be influenced by RAB10-mediated pathways impacting

diseases like Alzheimer's disease. The ability of RAB10 to interact with numerous cellular partners places it as a significant contributor to cellular dysfunction observed in these 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

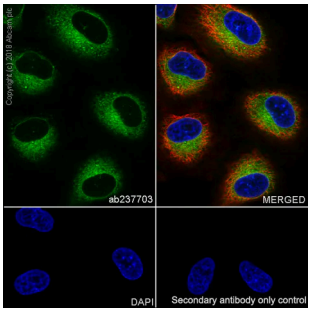
We do not recommend this combination. It is not covered by our product promise.

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:
Terms & Conditions.

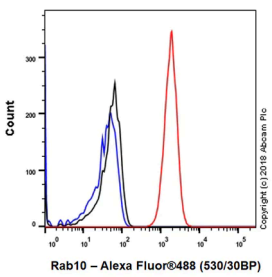
12 product images



Immunocytochemistry/ Immunofluorescence - Anti-RAB10 antibody [MJF-R23] (ab237703)

RAB10 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-RAB10 antibody

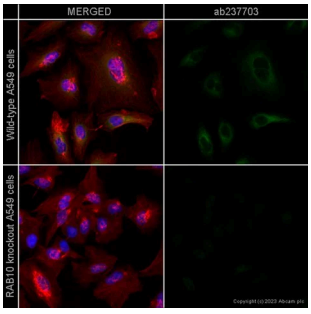
Immunofluorescent analysis of 4% paraformaldehyde-fixed, 0.1% Triton X-100 permeabilized A549 (human lung carcinoma cell line) cells labeling RAB10 (green) with ab237703 at 1/500 dilution, followed by AlexaFluor®488 Goat anti-Rabbit secondary (ab150077) at 1/1000 dilution. Confocal image showing cytoplasmic staining in A549 cells. The nuclear counter stain is DAPI (blue). Tubulin is detected with ab195889 Anti-alpha Tubulin antibody [DM1A] - Microtubule Marker (Alexa Fluor® 594) at 1/200 dilution (red).
Secondary antibody only control: Used PBS instead of primary antibody, secondary antibody is AlexaFluor®488 Goat anti-Rabbit secondary (ab150077) at 1/1000 dilution.



Flow Cytometry (Intracellular) - Anti-RAB10 antibody [MJF-R23] (ab237703)

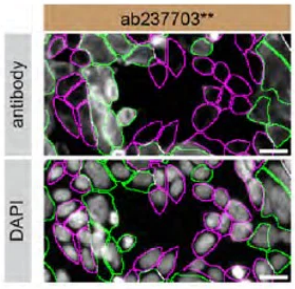
RAB10 Flow Cytometry (Intracellular) staining using rabbit Anti-RAB10 antibody

Intracellular flow cytometric analysis of 4% paraformaldehyde-fixed, 90% methanol-permeabilized A549 (human lung carcinoma cell line) cells labeling RAB10 with ab237703 at 1/600 dilution (red) compared with the rabbit monoclonal IgG (ab172730) isotype control (black) and an unlabelled control (cells without incubation with primary antibody) (blue). Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) (ab150077)at 1/2000 dilution was used as the secondary antibody.



Immunocytochemistry/ Immunofluorescence - Anti-RAB10 antibody [MJF-R23] (ab237703)

Immunofluorescent analysis of 4% paraformaldehyde-fixed, 0.1% saponin permeabilized RAB10 KO A549 (RAB10 knockout human lung carcinoma epithelial cell) (ab261868) labelling RAB10 (red) with ab237703 at 0.04 µg/ml, followed by Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) preadsorbed (ab150081) at 1/1000 dilution. The nuclear counter stain is DAPI (blue). Confocal image showing cytoplasmic staining in wild-type A549 cell line, and no staining in RAB10 KO A549 cell line. Images were acquired on the Perkin Elmer® Operetta HCA and a maximum intensity projection of 7 confocal planes is shown for the representative images.



Immunocytochemistry/ Immunofluorescence - Anti-RAB10 antibody [MJF-R23] (ab237703)

RAB10 Immunocytochemistry/ Immunofluorescence staining of HAP1 cells using rabbit Anti-RAB10 antibody

ab237703 was shown to react with RAB10 in wild-type HAP1 cells in immunocytochemistry with loss of signal observed in a RAB10 knockout cell line. Wild-type and knockout cells were mixed and pelleted at a 1:1 ratio on coverslips. The cells were fixed with 4% paraformaldehyde (15 min) then permeabilized with 0.1% Triton X-100 (10min) and then blocked with 1x PBS, 0.01% Triton X-100, 5% BSA, 5% NGS. The cells were then incubated with ab237703 at 1/500 dilution overnight at 4°C followed by a further incubation at room temperature for 1h with a goat anti-rabbit secondary antibody to (Alexa Fluor® 555) at 0.5 µg/ml. Acquisition of the green (wild-type), red (antibody staining) and far-red (knockout) channels was performed. Representative grayscale images of the red channel are shown. Wild-type and knockout cells are outlined with yellow and magenta dashed line, respectively. Schematic representation of the mosaic strategy used is shown on the bottom-right panel. Image was acquired with a Zeiss(LSM-880).

These data were provided by YCharOS Inc., an open science company with the mission of characterizing commercially available antibody reagents for all human proteins. Abcam and YCharOS are working together to help address the reproducibility crisis by enabling the life science community to better evaluate commercially available antibodies.

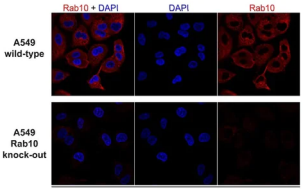
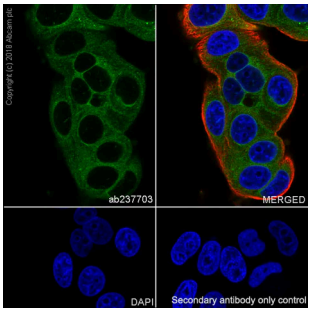


Image courtesy of Dr. Dario Alessi from

Immunocytochemistry/ Immunofluorescence - Anti-RAB10 antibody [MJF-R23] (ab237703)

RAB10 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-RAB10 antibody

Immunofluorescent analysis of 4% paraformaldehyde-fixed, 0.1% saponin permeabilized A549 wild-type and knock-out cells labeling RAB10 (red) with ab237703 at 0.5 µg/ml, followed by anti-Rabbit secondary at 1/1000 dilution. The nuclear counter stain is DAPI (blue).



Immunocytochemistry/ Immunofluorescence - Anti-RAB10 antibody [MJF-R23] (ab237703)

RAB10 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-RAB10 antibody

Immunofluorescent analysis of 4% paraformaldehyde-fixed, 0.1% Triton X-100 permeabilized MCF7 (human breast adenocarcinoma cell line) cells labeling RAB10 (green) with ab237703 at 1/500 dilution, followed by AlexaFluor®488 Goat anti-Rabbit secondary (ab150077) at 1/1000 dilution. Confocal image showing cytoplasmic staining in MCF7 cells. The nuclear counter stain is DAPI (blue). Tubulin is detected with ab195889 Anti-alpha Tubulin antibody [DM1A] - Microtubule Marker (Alexa Fluor® 594) at 1/200 dilution (red).
Secondary antibody only control: Used PBS instead of primary antibody, secondary antibody is AlexaFluor®488 Goat anti-Rabbit secondary (ab150077) at 1/1000 dilution.

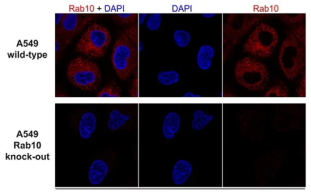
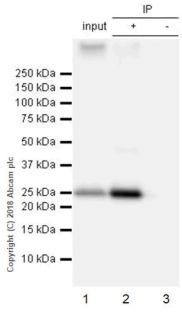


Image courtesy of Dr. Dario Alessi from University of Dundee

Immunocytochemistry/ Immunofluorescence - Anti-RAB10 antibody [MJF-R23] (ab237703)

RAB10 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-RAB10 antibody

Immunofluorescent analysis of 4% paraformaldehyde-fixed, 0.1% saponin permeabilized A549 wild-type and knock-out cells labeling RAB10 (red) with ab237703 at 0.5 µg/ml, followed by anti-Rabbit secondary at 1/1000 dilution. The nuclear counter stain is DAPI (blue).



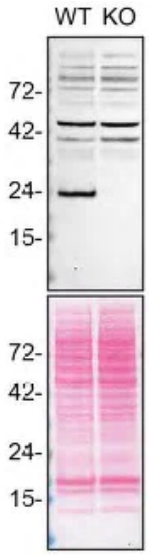
Immunoprecipitation - Anti-RAB10 antibody [MJF-R23] (ab237703)

RAB10 was immunoprecipitated from 0.35 mg A549 (human lung carcinoma cell line) whole cell lysate using ab237703 at 1/30 dilution. Western blot was performed on the immunoprecipitate using ab237703 at 1/1000 dilution. VeriBlot for IP Detection Reagent (HRP) (ab131366) at 1/5000 dilution was used for detection.
Lane 1: A549 whole cell lysate 10µg (input)
Lane 2: ab237703 IP in A549 whole cell lysate.
Lane 3: Rabbit IgG, monoclonal [EPR25A] - Isotype Control (ab172730) instead of ab237703 in A549 whole cell lysate.

Blocking and dilution buffer and concentration: 5% NFDM/TBST.
Exposure time: 3 seconds.

All lanes:
Immunoprecipitation - Anti-RAB10 antibody [MJF-R23] (ab237703)

Predicted band size: 22 kDa



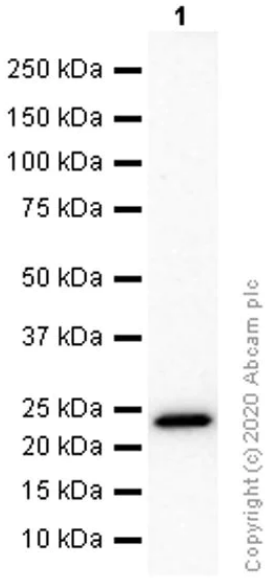
Western blot - Anti-RAB10 antibody [MJF-R23] (ab237703)

ab237703 was shown to react with RAB10 in wild-type HAP1 cells in Western blot with loss of signal observed in a RAB10 knockout cell line. Wild-type HAP1 and RAB10 knockout cell lysates were subjected to SDS-PAGE. Membranes were blocked in 5% milk in TBST for 1 hr before incubation with ab237703 overnight at 4 °C at a 1/1000 dilution. Blots were incubated with secondary antibodies at 0.2 µg/mL before imaging.

These data were provided by YCharOS Inc., an open science company with the mission of characterizing commercially available antibody reagents for all human proteins. Abcam and YCharOS are working together to help address the reproducibility crisis by enabling the life science community to better evaluate commercially available antibodies.
All lanes:
Western blot - Anti-RAB10 antibody [MJF-R23] (ab237703) at 1/1000 dilution

Lane 1:
Wild-type HAP1 lysate at 40 µg

Lane 2:
RAB10 knock-out HAP1 lysate at 40 µg



Western blot - Anti-RAB10 antibody [MJF-R23] (ab237703)

RAB10 Western blot staining of HCT 116 (Human colorectal carcinoma epithelial cell) whole cell lysate using rabbit Anti-RAB10 antibody

Blocking and diluting buffer and concentration: 5% NFDM/TBST
All lanes:
Western blot - Anti-RAB10 antibody [MJF-R23] (ab237703) at 1/10000 dilution

All lanes:
HCT 116 (Human colorectal carcinoma epithelial cell) whole cell lysate at 15 µg

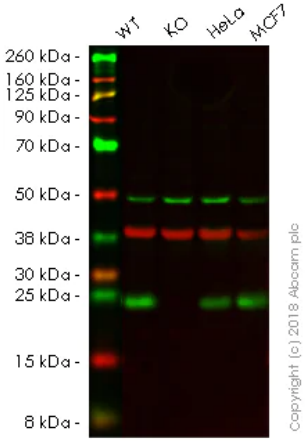
Secondary

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

Predicted band size: 22 kDa

Observed band size: 22 kDa

Exposure time: 180s



Western blot - Anti-RAB10 antibody [MJF-R23] (ab237703)

RAB10 Western blot staining using rabbit Anti-RAB10 antibody

Lanes 1 - 4: Merged signal (red and green). Green - ab237703 observed at 25 kDa. Red - loading control, ab8245, observed at 37 kDa.
ab237703 was shown to recognize RAB10 in wild-type A549 cells as signal was lost at the expected MW in RAB10 knockout cells. Additional cross-reactive bands were observed in the wild-type and knockout cells. Wild-type and RAB10 knockout samples were subjected to SDS-PAGE. ab237703 and ab8245 (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-RAB10 antibody [MJF-R23] (ab237703) at 1/1000 dilution

Lane 1:
Wild-type A549 (Human lung carcinoma cell line) whole cell lysate at 20 µg

Lane 2:
RAB10 knockout A549 (Human lung carcinoma cell line) whole cell lysate at 20 µg

Lane 2:
Western blot - Human RAB10 knockout A549 cell line (ab261868)

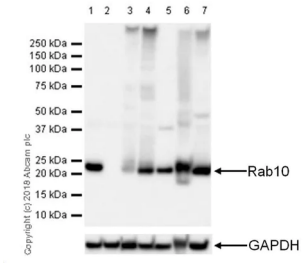
Lane 3:
HeLa (Human epithelial cell line from cervix adenocarcinoma) whole cell lysate at 20 µg

Lane 4:
MCF7 (Human breast adenocarcinoma cell line) whole cell lysate at 20 µg

Performed under reducing conditions.

Predicted band size: 22 kDa

Observed band size: 25 kDa



Western blot - Anti-RAB10 antibody [MJF-R23] (ab237703)

RAB10 Western blot staining using rabbit Anti-RAB10 antibody

Blocking/Diluting buffer and concentration: 5% NFDM/TBST
The WT and Rab10 KO A549 lysates were kindly provided by our collaborator Dr. Dario Alessi, University of Dundee.

All lanes:
Western blot - Anti-RAB10 antibody [MJF-R23] (ab237703) at 1/1000 dilution

Lane 1:
Wild-type A549 (human lung carcinoma epithelial cell line) whole cell lysate at 20 µg

Lane 2:
Rab10 knockout A549 whole cell lysate at 20 µg

Lane 3:
HeLa (Human cervix adenocarcinoma epithelial cell line) whole cell lysate at 20 µg

Lane 4:
MCF7 (human breast adenocarcinoma cell line) whole cell lysate at 20 µg

Lane 5:
NIH/3T3 (mouse embryo fibroblast cell line) whole cell lysate at 20 µg

Lane 6:
PC-12 (rat adrenal gland pheochromocytoma cell line) whole cell lysate at 20 µg

Lane 7:
C6 (rat glial tumor glial 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: 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'.