abcam

ab249192

Anti-Ran antibody [EPR10791(B)] - BSA and Azide free

Recombinant | RabMAb

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	pH: 7.2 - 7.4 Constituents: PBS
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Carrier free	Yes
Clone number	EPR10791(B)
Purification technique	Affinity purification Protein A

Reactivity data

ICC/IF

Tested

Species	Human
Dilution info	-
Notes	-

Expected

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

IP

Tested

Species	Human
Dilution info	-
Notes	-

Expected

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

WB

Tested

Species	Human, Mouse, Rat
Dilution info	-
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	-
Notes	-

Expected

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

Target data

See full target information RAN

Function	GTPase involved in nucleocytoplasmic transport, participating both to the import and the export from the nucleus of proteins and RNAs (PubMed:10400640, PubMed:17209048, PubMed:26272610, PubMed:27306458, PubMed:8276887, PubMed:8636225, PubMed:8692944, PubMed:8896452, PubMed:9351834, PubMed:9428644, PubMed:9822603). Switches between a cytoplasmic GDP- and a nuclear GTP-bound state by nucleotide exchange and GTP hydrolysis (PubMed:11336674, PubMed:26272610, PubMed:29040603, PubMed:7819259, PubMed:8636225, PubMed:8692944, PubMed:8896452, PubMed:9351834, PubMed:9428644, PubMed:9822603). Nuclear import receptors such as importin beta bind their substrates only in the absence of GTP-bound RAN and release them upon direct interaction with GTP-bound RAN, while export receptors behave in the opposite way. Thereby, RAN controls cargo loading and release by transport receptors in the proper compartment and ensures the directionality of the transport (PubMed:8896452, PubMed:9351834, PubMed:9428644). Interaction with RANBP1 induces a conformation change in the complex formed by XPO1 and RAN that triggers the release of the nuclear export signal of cargo proteins (PubMed:20485264). RAN (GTP-bound form) triggers microtubule assembly at mitotic chromosomes and is required for normal mitotic spindle assembly and chromosome segregation (PubMed:10408446, PubMed:29040603). Required for normal progress through mitosis (PubMed:12194828, PubMed:29040603, PubMed:8421051). The complex with BIRC5/survivin plays a role in mitotic spindle formation by serving as a physical scaffold to help deliver the RAN effector molecule TPX2 to microtubules (PubMed:18591255). Acts as a negative regulator of the kinase activity of VRK1 and VRK2 (PubMed:18617507). Enhances AR-mediated transactivation. Transactivation decreases as the poly-Gln length within AR increases (PubMed:10400640).

Storage

Shipped at conditions	Blue Ice
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	+4°C
Storage information	Do Not Freeze

Notes

ab249192 is the carrier-free version of ab155103.

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.

Conjugation ready

Our carrier-free antibodies are typically supplied in a PBS-only formulation, purified and free of BSA, sodium azide and glycerol. This conjugation-ready format is designed for use with fluorochromes, metal isotopes, oligonucleotides, and enzymes, which makes them ideal for antibody labelling, functional and cell-based assays, flow-based assays (e.g. mass cytometry) and Multiplex Imaging applications.

Use our conjugation kits for antibody conjugates that are ready-to-use in as little as 20 minutes with 1 minute hands-on-time and 100% antibody recovery: available for fluorescent dyes, HRP, biotin and gold.

Compatibility

This product is compatible with the Maxpar® Antibody Labeling Kit from Fluidigm, without the need for antibody preparation. Maxpar® is a trademark of Fluidigm Canada Inc.

Supplementary info

This supplementary information is collated from multiple sources and compiled automatically.

Activity summary	Ran also known as Ras-related nuclear protein is a small GTP-binding protein with a mass of approximately 24 kDa. It localizes mainly in the nucleus and cytoplasm of cells and is highly expressed in actively dividing cells including various types of tumors. Ran plays a mechanical role in nucleocytoplasmic transport by facilitating the transport of proteins and ribonucleic acids through the nuclear pore complex. This protein belongs to the Ras superfamily of small GTPases which cycle between active GTP-bound and inactive GDP-bound states.
Biological function summary	Ran is a central part of the nucleocytoplasmic transport complex and directly participates in the regulation of genome organization and cell cycle progression. Ran's GTP-bound state helps maintain nuclear import and export balance supporting chromatin condensation and mitotic spindle assembly. This protein's complex involvement in the chromosomal region maintenance highlights its importance in cellular homeostasis emphasizing its role in organisms' growth and development.
Pathways	The mechanical functions of Ran impact the Ran GTPase pathway known for regulating nucleocytoplasmic transport and mitotic spindle organization. In the

	Ran cycle the protein works closely with RCC1 its guanine nucleotide exchange factor and RanGAP1 the GTPase-activating protein. These interactions are essential during cell division particularly for spindle assembly. Ran also aligns with pathways involving importins and exportins affecting protein export and nuclear import rates vital for cellular cyclic processes.
Associated diseases and disorders	Ran has implications in cancer and neurodegenerative conditions. The protein's overexpression or dysfunction often correlate with various cancers due to its role in cell division and genetic material organization making it a focal point for cancer research. Additionally changes in Ran's regulatory pathways may influence neurodegenerative diseases by affecting nucleocytoplasmic transport in neurons. In these disorders Ran interacts with proteins such as CRM1 and others involved in the transport machinery highlighting its potential as a therapeutic target.

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

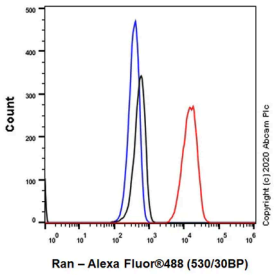
We do not recommend this combination. It is not covered by our product promise.

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.

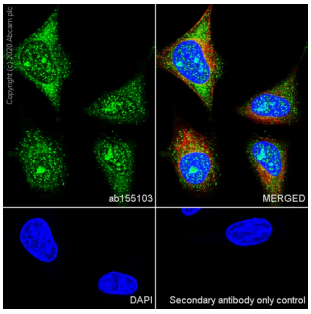
5 product images



Flow Cytometry (Intracellular) - Anti-Ran antibody [EPR10791(B)] - BSA and Azide free (ab249192)

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

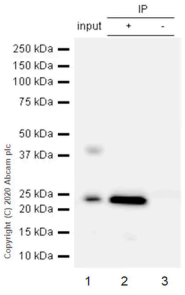
Intracellular Flow Cytometry analysis of HeLa (Human cervix adenocarcinoma epithelial cell) cells labeling Ran with purified ab155103 at 1/100 dilution (10 µg/mL) (Red). Cells were fixed with 4% Paraformaldehyde and permeabilised with 90% Methanol. A Goat anti rabbit IgG (Alexa Fluor® 488, ab150077) 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).
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab155103).



Immunocytochemistry/ Immunofluorescence - Anti-Ran antibody [EPR10791(B)] - BSA and Azide free (ab249192)

Ran Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Ran antibody

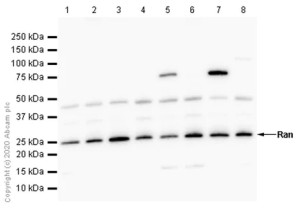
Immunocytochemistry/ Immunofluorescence analysis of HeLa (Human cervix adenocarcinoma epithelial cell) cells labeling Ran with purified ab155103 at 1/100 dilution (10 µg/mL). Cells were fixed in 100% Methanol and permeabilized with None. Cells were counterstained with ab195889 Anti-alpha Tubulin antibody [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 (blue) was used as nuclear counterstain. PBS instead of the primary antibody was used as the secondary antibody only control.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab155103).



Immunoprecipitation - Anti-Ran antibody [EPR10791(B)] - BSA and Azide free (ab249192)

Purified ab155103 at 1/50 dilution (2 µg) immunoprecipitating Ran in HeLa whole cell lysate.
Lane 1 (input): HeLa (Human cervix adenocarcinoma epithelial cell) whole cell lysate 10 µg
Lane 2 (+): ab155103 + HeLa whole cell lysate.
Lane 3 (-): Rabbit monoclonal IgG (ab172730) instead of ab155103 in HeLa whole cell lysate.
VeriBlot for IP Detection Reagent (HRP) (ab131366) (1/1000 dilution) was used for Western blotting.
Blocking Buffer and concentration: 5% NFDM/TBST.
Diluting buffer and concentration: 5% NFDM/TBST.
Observed band size: 24 kDa
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab155103).
All lanes:
Immunoprecipitation - Anti-Ran antibody [EPR10791(B)] (ab155103)

Predicted band size: 24 kDa, 43 kDa



Western blot - Anti-Ran antibody [EPR10791(B)] - BSA and Azide free (ab249192)

We are unsure how to define the extra bands. This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab155103).
Lanes 1, 2, 3, 5, 6, 7 and 8:
Western blot - Anti-Ran antibody [EPR10791(B)] (ab155103) at 1/1000 dilution

Lane 4:
Western blot - Anti-Ran antibody [EPR10791(B)] - BSA and Azide free (ab249192) at 1/1000 dilution

Lane 1:
HepG2 (Human hepatocellular carcinoma epithelial cell) whole cell lysate at 20 µg

Lane 2:
LoVo (Human colorectal adenocarcinoma epithelial cell) whole cell lysate at 20 µg

Lane 3:
Jurkat (Human T cell leukemia T lymphocyte) whole cell lysate at 20 µg

Lane 4:
HeLa (Human cervix adenocarcinoma epithelial cell) whole cell lysate at 20 µg

Lane 5:
C6 (Rat glial tumor glial cell) whole cell lysate at 20 µg

Lane 6:
Raw 264.7 (Mouse Abelson murine leukemia virus-induced tumor macrophage) whole cell lysate at 20 µg

Lane 7:
PC-12 (Rat adrenal gland pheochromocytoma) whole cell lysate at 20 µg

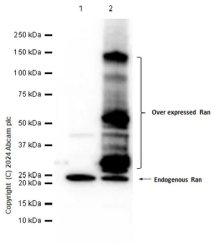
Lane 8:
NIH/3T3 (Mouse embryonic fibroblast) whole cell lysate at 20 µg

Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/20000 dilution

Predicted band size: 24 kDa

Observed band size: 24 kDa



Western blot - Anti-Ran antibody [EPR10791(B)] - BSA and Azide free (ab249192)

This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab155103). Blocking/Diluting buffer and concentration 5% NFDM/TBST The bands observed at 30kDa, 60kDa and 150kDa should be monomer, dimer and polymer respectively.
All lanes:
Western blot - Anti-Ran antibody [EPR10791(B)] (ab155103) at 1/1000 dilution

Lane 1:
HEK-293T transfected with an empty vector whole cell lysate at 20 µg

Lane 2:

HEK-293T transfected with a human Ran expression vector containing a Flag tag whole cell lysate at 20 µg

Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/20000 dilution

Observed band size: 24 kDa, 30 kDa, 60 kDa, 150 kDa

Exposure time: 7s

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