abcam

ab233762

Anti-Ran antibody [8D1H12]

Mouse Monoclonal RAN antibody. Suitable for Flow Cyt, WB, IHC-P and reacts with Human, Rat, African green monkey, Transfected cell lysate - Human samples. Cited in 2 publications. Immunogen corresponding to Recombinant Full Length Protein corresponding to Human RAN.

Image updates are in progress. Products remain available and covered by the Abcam Product Promise. Learn more.

Key facts

Isotype	IgG1
Host species	Mouse
Storage buffer	Preservative: 0.05% Sodium azide Constituents: PBS
Form	Liquid
Clonality	Monoclonal
Immunogen	Recombinant Full Length Protein corresponding to Human RAN. Database link P62826
Clone number	8D1H12
Purification technique	Affinity purification Protein G
Concentration	1 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

Flow Cyt

Tested

Species	Human
Dilution info	1/200 - 1/400

Notes	-

Expected

Species	Rat, African green monkey
Dilution info	Use at an assay dependent concentration.
Notes	-

Predicted

Species	Mouse, Chicken, Cow, Dog, Cynomolgus monkey, Orangutan
Dilution info	-
Notes	-

Not recommended

Species	Transfected cell lysate - Human
Dilution info	-
Notes	-

WB

Tested

Species	Human
Dilution info	1/500 - 1/2000
Notes	-

Species	Rat
Dilution info	1/500 - 1/2000
Notes	-

Species	African green monkey
Dilution info	1/500 - 1/2000
Notes	-

Species	Transfected cell lysate - Human
Dilution info	1/500 - 1/2000
Notes	-

Predicted

Species	Mouse, Chicken, Cow, Dog, Cynomolgus monkey, Orangutan
Dilution info	-
Notes	-

IHC-P

Tested

Species	Human
Dilution info	1/200 - 1/1000
Notes	-

Expected

Species	Rat, African green monkey
Dilution info	Use at an assay dependent concentration.
Notes	-

Predicted

Species	Mouse, Chicken, Cow, Dog, Cynomolgus monkey, Orangutan
Dilution info	-
Notes	-

Not recommended

Species	Transfected cell lysate - Human
Dilution info	-
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 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

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

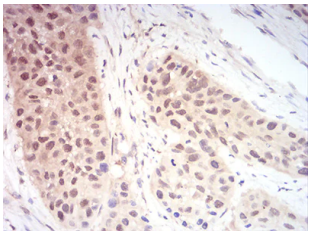
We do not recommend this combination. It is not covered by our product promise.

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.

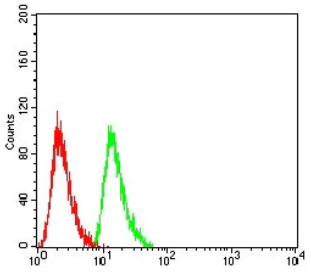
4 product images



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Ran antibody [8D1H12] (ab233762)

Ran Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using mouse Anti-Ran antibody

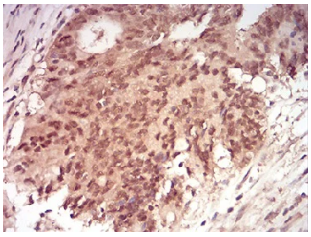
Paraffin-embedded human esophageal cancer tissue stained for Ran using ab233762 at 1/200 dilution in immunohistochemical analysis. DAB staining.



Flow Cytometry - Anti-Ran antibody [8D1H12] (ab233762)

Ran Flow Cytometry staining using mouse Anti-Ran antibody

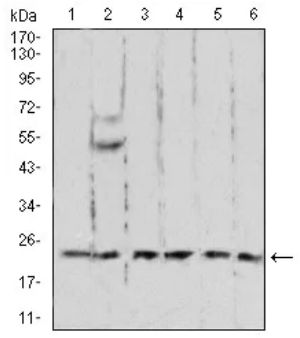
Flow cytometric analysis of HeLa (Human epithelial cell line from cervix adenocarcinoma) cells labeling Ran using ab233762 at 1/200 dilution (green) compared to a negative control (red).



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Ran antibody [8D1H12] (ab233762)

Ran Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using mouse Anti-Ran antibody

Paraffin-embedded human rectum cancer tissue stained for Ran using ab233762 at 1/200 dilution in immunohistochemical analysis. DAB staining.



Western blot - Anti-Ran antibody [8D1H12] (ab233762)

All lanes:
Western blot - Anti-Ran antibody [8D1H12] (ab233762) at 1/500 dilution

Lane 1:
A431 (human epidermoid carcinoma cell line) cell lysate

Lane 2:
C6 (Rat glial tumor cell line) cell lysate

Lanes 3 and 6:
Jurkat (human T cell leukemia cell line from peripheral blood) cell lysate

Lane 4:
HeLa (human epithelial cell line from cervix adenocarcinoma) cell lysate

Lane 5:
COS-7 (African green monkey kidney fibroblast-like cell line) cell lysate

Predicted band size: 24 kDa

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