abcam

ab52605

Anti-Importin 9/RANBP9 antibody [EP1353Y]

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	EP1353Y
Purification technique	Affinity purification Protein A
Concentration	0.156 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IHC-P

Tested

Species	Human
Dilution info	-
Notes	-

Predicted

Species	Mouse
Dilution info	-
Notes	-

WB

Tested

Species	Human
Dilution info	1/1000
Notes	-

Predicted

Species	Mouse
Dilution info	-
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1/1000
Notes	ab172730 - Rabbit monoclonal IgG, is suitable for use as an isotype control with this antibody.

Predicted

Species	Mouse
Dilution info	-
Notes	-

Target data

See full target information IPO9

Function	Nuclear transport receptor that mediates nuclear import of proteins, such as histones, proteasome and actin (PubMed:11823430, PubMed:30855230, PubMed:34711951). Serves as receptor for nuclear localization signals (NLS) in cargo substrates (PubMed:11823430). Is thought to mediate docking of the importin/substrate complex to the nuclear pore complex (NPC) through binding to nucleoporin and the complex is subsequently translocated through the pore by an energy requiring, Ran-dependent mechanism (PubMed:11823430). At the nucleoplasmic side of the NPC, Ran binds to the importin, the importin/substrate complex dissociates and importin is re-exported from the nucleus to the cytoplasm where GTP hydrolysis releases Ran (PubMed:11823430). The directionality of nuclear import is thought to be conferred by an asymmetric distribution of the GTP- and GDP-bound forms of Ran between the cytoplasm and nucleus (PubMed:11823430). Mediates the import of pre-assembled proteasomes into the nucleus; AKIRIN2 acts as a molecular bridge between IPO9 and the proteasome complex (PubMed:11823430, PubMed:34711951). Mediates the nuclear import of histones H2A, H2B, H4 and H4 (PubMed:11823430, PubMed:30855230). In addition to nuclear import, also acts as a chaperone for histones by preventing inappropriate non-nucleosomal interactions (PubMed:30855230). Mediates the nuclear import of actin (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.

Species reactivity
Rat: We have preliminary internal testing data to indicate this antibody may not react with this species.

Please contact us for more information.

Supplementary info

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

Activity summary	Importin 9 also known as RANBP9 or IPO9 is a nuclear transport receptor with a molecular mass of approximately 107 kDa. This protein facilitates the transport of molecules into the nucleus a process essential for cellular function. Importin 9 is expressed in various tissues and plays a significant role in shuttling proteins and some RNA species across the nuclear envelope. As a member of the importin family it interacts with nuclear localization signals on target proteins steering them through nuclear pore complexes.
Biological function summary	Importin 9 participates in intracellular transport by binding cargo proteins in the cytoplasm and transporting them into the nucleus. It operates as part of the larger nuclear transport complex which relies on the Ran GTPase system for direction and timing. Importin 9's role is pivotal in regulating gene expression and cell cycle activities as transported molecules often influence transcriptional activity within the nucleus. This regulation assists in maintaining normal cellular functions and adaptations to stress signals.
Pathways	Importin 9 is integral to the nucleocytoplasmic transport pathway essential for several cellular processes including the regulation of signal transduction and chromatin remodeling. Ran GTPase facilitates the release of cargo once Importin 9 reaches the nucleus while the protein Importin β plays a cooperative role in many pathways. Together they ensure the correct localization of proteins necessary for DNA replication and repair highlighting Importin 9's role in DNA-related processes.
Associated diseases and disorders	Dysfunction of Importin 9 links to neurological conditions and cancer. Abnormal regulation of nuclear transport may contribute to the pathogenesis of neurodegenerative diseases where Importin 9 collaborates with Tau protein in neuronal cells. In oncology altered Importin 9 activity has connections to tumorigenesis often involving the c-Myc protein where misregulated nuclear transport leads to uncontrolled cell proliferation and cancer progression.

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.

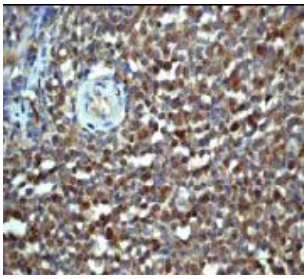
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In the unlikely event of one of our products not working as expected, you are covered by our product promise.

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Terms & Conditions.

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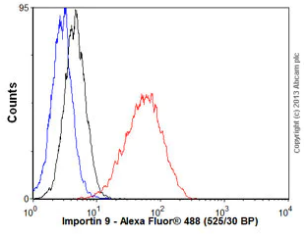
5 product images



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Importin 9/RANBP9 antibody [EP1353Y] (ab52605)

Importin 9/RANBP9 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-Importin 9/RANBP9 antibody

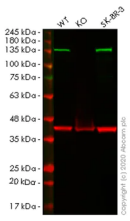
Immunohistochemical staining of paraffin-embedded human lymphoma using ab52605 at a dilution of 1/50.
Perform heat mediated antigen retrieval with citrate buffer pH 6 before commencing with IHC staining protocol.



Flow Cytometry (Intracellular) - Anti-Importin 9/RANBP9 antibody [EP1353Y] (ab52605)

Importin 9/RANBP9 Flow Cytometry (Intracellular) staining using rabbit Anti-Importin 9/RANBP9 antibody

Overlay histogram showing HeLa cells stained with ab52605 (red line). The cells were fixed with 80% methanol (5 min) and then permeabilized with 0.1% PBS-Tween for 20 min. The cells were then incubated in 1x PBS / 10% normal goat serum / 0.3M glycine to block non-specific protein-protein interactions followed by the antibody (ab52605, 1/1000 dilution) for 30 min at 22°C. The secondary antibody used was Alexa Fluor® 488 goat anti-rabbit IgG (H+L) (ab150077) at 1/2000 dilution for 30 min at 22°C. Isotype control antibody (black line) was rabbit IgG (monoclonal) (0.1µg/1x10^6 cells) used under the same conditions. Unlabelled sample (blue line) was also used as a control. Acquisition of >5,000 events were collected using a 20mW Argon ion laser (488nm) and 525/30 bandpass filter.



Western blot - Anti-Importin 9/RANBP9 antibody [EP1353Y] (ab52605)

Importin 9/RANBP9 Western blot staining using rabbit Anti-Importin 9/RANBP9 antibody

Lanes 1-3: Merged signal (red and green). Green - ab52605. Red - loading control, ab8245 observed at 36 kDa.
ab52605 was shown to react with IPO9 in wild-type HeLa cells in western blot. Loss of signal was observed when knockout cell line ab265352 (knockout cell lysate ab257483) was used. Wild-type

and IPO9 knockout samples were subjected to SDS-PAGE. ab52605 and Anti-GAPDH antibody [6C5] - Loading Control (ab8245) were incubated overnight at 4°C at 1 in 1000 dilution and 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 10000 dilution for 1 hour at room temperature before imaging.
All lanes:
Western blot - Anti-Importin 9/RANBP9 antibody [EP1353Y] (ab52605) at 1/1000 dilution

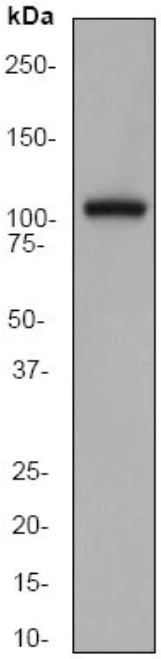
Lane 1:
Wild-type HeLa cell lysate at 20 µg

Lane 2:
IPO9 knockout HeLa cell lysate at 20 µg

Lane 2:
Western blot - Human IPO9 (Importin 9/RANBP9) knockout HeLa cell line (ab265352)

Lane 3:
SK-BR-3 cell lysate at 20 µg

Predicted band size: 116 kDa



Western blot - Anti-Importin 9/RANBP9 antibody [EP1353Y] (ab52605)

All lanes:
Western blot - Anti-Importin 9/RANBP9 antibody [EP1353Y] (ab52605) at 1/1000 dilution

All lanes:
Fetal brain lysate at 10 µg

Secondary

All lanes:
HRP-labelled goat anti-rabbit. at 1/2000 dilution

Predicted band size: 116 kDa

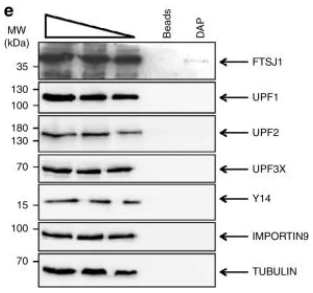


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Western blot - Anti-Importin 9/RANBP9 antibody [EP1353Y] (ab52605)

Importin 9/RANBP9 western blot using anti-Importin 9/RANBP9 antibody [EP1353Y] ab52605. Publication image and figure legend from Trzaska, C., Amand, S., et al., 2020, Nat Commun, PubMed 32198346.

ab52605 was used in this publication in western blot. This may not be the same as the application(s) guaranteed by Abcam. For a full list of applications guaranteed by Abcam for ab52605 please see the product overview.

DAP interferes with the activity of FTSJ1.a Determination by tandem mass spectrometry of the amino acid incorporated at the PTC position. Firefly luciferase from HEK293FT cells transfected with the Fluc-int-UGA construct was immunoprecipitated and digested with trypsin. The MS/MS

spectrum of the peptide containing the PTC position and the sequence determination are shown. The upper red and blue sequences indicate the amino acids validated, respectively, by detection of Nter and Cter peptide fragments (b and y ion series). Peptide fragments y6 and y7 clearly identify tryptophan (W) at the PTC position. The black peaks correspond to non-attributed mass-to-charge ratio (m/z) values. The green peaks are internal fragments that do not contain an extremity of the peptide. b The efficiency of UGA readthrough by DAP decreases with increasing amounts of FTSJ1 but not with increasing amounts of CTU1. Readthrough efficiency was determined by measuring luciferase activity in HeLa cells co-transfected with the firefly luciferase construct described in Fig. 1b and with increasing amounts of an expression vector for either FTSJ1 or CTU1 (0.5, 1, or 2 µg). The empty expression vector (E.v.) was used as control. The cells were then exposed to 0, 0.39, 0.78, 1.56, 6.25, 25, 100, 300, or 600 µM DAP for 24 h before measuring the luciferase activity. The experiment was performed twice and the results of both experiments (Exp1 and Exp2) are shown. c Western blot analysis of FTSJ1 and CTU1. d 2′-O-methylation analysis of tRNATrp, tRNASER, and tRNAGLN by RiboMethSeq. HeLa cells were incubated for 24 h with DMSO or with 25 µM DAP. A MethScore was attributed to each tRNA 2′-O-methylation in tRNA purified from HeLa cells treated with DAP (dark green histogram) or DMSO (light green histogram). The results of three independent experiments are indicated with the symbols square, point, or triangle. e Analysis of DAP affinity column eluates shows that DAP interacts with FTSJ1. HeLa-cell extract was incubated with DAP covalently bound to beads or with beads alone. Proteins bound to the columns were eluted with excess DAP and the eluates analyzed by western blot. A molecular weight marker is indicated to the left of each gel. p-values (p) were calculated using Student’ s t-test. Source data are provided as a Source Data file.

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