abcam

ab313370

Anti-KPNB1 antibody [EPR26137-52]

Recombinant | RabMAb | 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	EPR26137-52
Purification technique	Affinity purification Protein A
Concentration	0.525 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

ICC/IF

Tested

Species	Human
Dilution info	1/50
Notes	-

Species	Mouse

Dilution info	1/50
Notes	-

Expected

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

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1/500
Notes	-

Species	Mouse
Dilution info	1/500
Notes	-

Expected

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

IHC-P

Tested

Species	Human
Dilution info	1/10000
Notes	-

Species	Mouse
Dilution info	1/10000

Notes	-

Species	Rat
Dilution info	1/10000
Notes	-

WB

Tested

Species	Human
Dilution info	1/1000
Notes	-

Species	Mouse
Dilution info	1/1000
Notes	-

Species	Rat
Dilution info	1/1000
Notes	-

IP

Not recommended

Species	Human, Mouse, Rat
Dilution info	-
Notes	-

Target data

See full target information KPNB1

Function	Functions in nuclear protein import, either in association with an adapter protein, like an importin-alpha subunit, which binds to nuclear localization signals (NLS) in cargo substrates, or by acting as autonomous nuclear transport receptor (PubMed:10228156, PubMed:11682607, PubMed:11891849, PubMed:19386897, PubMed:20818336, PubMed:24699649, PubMed:7615630, PubMed:9687515).

Acting autonomously, serves itself as NLS receptor (PubMed:10228156, PubMed:11682607, PubMed:11891849, PubMed:19386897, PubMed:20818336, PubMed:24699649, PubMed:7615630, PubMed:9687515). Docking of the importin/substrate complex to the nuclear pore complex (NPC) is mediated by KPNB1 through binding to nucleoporin FxFG repeats and the complex is subsequently translocated through the pore by an energy requiring, Ran-dependent mechanism (PubMed:10228156, PubMed:11682607, PubMed:11891849, PubMed:19386897, PubMed:20818336, PubMed:24699649, PubMed:7615630, PubMed:9687515). At the nucleoplasmic side of the NPC, Ran binds to importin-beta and the three components separate and importin-alpha and -beta are re-exported from the nucleus to the cytoplasm where GTP hydrolysis releases Ran from importin (PubMed:10228156, PubMed:11682607, PubMed:11891849, PubMed:19386897, PubMed:20818336, PubMed:24699649, PubMed:7615630, PubMed:9687515). 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:10228156, PubMed:11682607, PubMed:11891849, PubMed:19386897, PubMed:24699649, PubMed:7615630, PubMed:9687515). Mediates autonomously the nuclear import of ribosomal proteins RPL23A, RPS7 and RPL5 (PubMed:11682607, PubMed:9687515). In association with IPO7, mediates the nuclear import of H1 histone (PubMed:10228156). In vitro, mediates nuclear import of H2A, H2B, H3 and H4 histones (By similarity). Imports MRTFA, SNAI1 and PRKCI into the nucleus (PubMed:11891849, PubMed:19386897, PubMed:20818336, PubMed:24699649). (Microbial infection) In case of HIV-1 infection, binds and mediates the nuclear import of HIV-1 Rev.

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

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	KPNB1 also known as importin beta plays hard role in nucleocytoplasmic transport. This large protein with a mass approximately 97 kDa shuttles proteins and ribonucleoproteins into the nucleus. KPNB1 expression occurs widely in many tissues reflecting its essential function in cell operations. As a solenoid protein KPNB1 structure allows flexibility needed for diverse interactions with cargo proteins and nuclear pore complexes.
Biological function summary	Importin beta facilitates the import of nuclear localization signal (NLS)-bearing proteins into the nucleus. KPNB1 forms a complex with importin alpha to mediate import processes. Importin alpha binds to the NLS-containing cargo while KPNB1 interacts with the nuclear pore complex. This system oversees important regulation of several cellular processes including signal transduction and cell cycle progression. The protein's role helps to organize cellular response to various stimuli maintaining cellular homeostasis.
Pathways	KPNB1 contributes to regulation in the nuclear import and export pathways. It tightly associates with Ran-GTPase a protein involved in the Ran pathway. This interaction supports directionality and specificity of energy-dependent nuclear transport. Additionally KPNB1 associates with proteins like NUP50 and NUP98 functioning as a gatekeeper at the nuclear pore complex by controlling cargo passage. Through these pathways KPNB1 balances cellular imports and exports critical for cell health and functionality.
Associated diseases and disorders	KPNB1 has links to cancer notably in tumorigenesis and cancer progression. Studies show aberrant KPNB1 expression affects the nuclear import machinery supporting cancer cell proliferation and survival. KPNB1 interacts with oncogenic proteins such as c-Myc influencing transcription regulation in tumor cells. Furthermore KPNB1 holds relevance in neurodegenerative diseases like Alzheimer's where impaired transport function contributes to pathological accumulation of proteins in neuronal cells.

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.

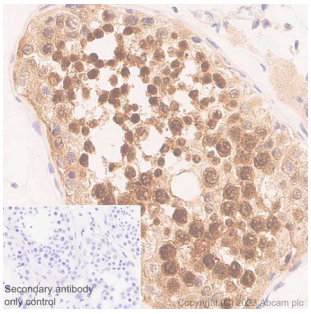
We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

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.

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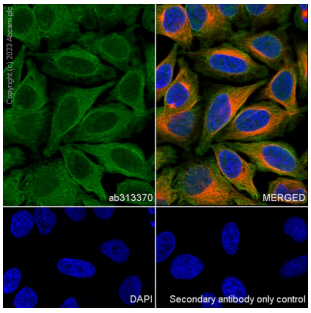
9 product images



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-KPNB1 antibody [EPR26137-52] (ab313370)

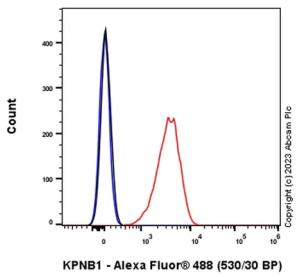
Immunohistochemical analysis of paraffin-embedded Human testis tissue labeling KPNB1 with ab313370 at 1/10000 (0.053 ug/ml) followed by a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection). Positive staining on human testis.The section was incubated with ab313370 for 30 mins at room temperature.The immunostaining was performed on a Leica Biosystems BOND® RX instrument Counterstained with Hematoxylin. Secondary antibody only control: Secondary antibody is a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection). Heat mediated antigen retrieval was performed with Tris-EDTA buffer (pH 9.0, Epitope Retrieval Solution2) for 20 mins

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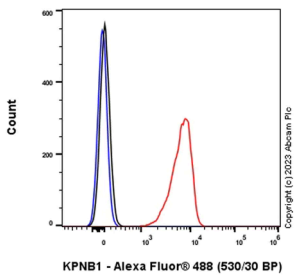
Immunocytochemistry/ Immunofluorescence - Anti-KPNB1 antibody [EPR26137-52] (ab313370)

Immunofluorescent analysis of 4% Paraformaldehyde-fixed, 0.1% TritonX-100 permeabilized HeLa (human cervical adenocarcinoma epithelial cell) cells labelling KPNB1 with ab313370 at 1/50 (10.5 ug/ml) dilution, followed by ab150081 Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) preadsorbed antibody at 1/1000 2 ug/ml dilution (Green). Confocal image showing cytoplasmic and nuclear staining in HeLa cell line.Image was taken with a confocal microscope(Leica-Microsystems, TCS SP8). is observed. ab195889 Anti-alpha Tubulin mouse monoclonal antibody - Microtubule Marker (Alexa Fluor® 594) was used to counterstain tubulin at 1/200 2.5ug/ml dilution (Red). The Nuclear counterstain was DAPI (Blue). Secondary antibody only control: Secondary antibody is ab150081 Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) preadsorbed at 1/1000 2 ug/ml dilution.



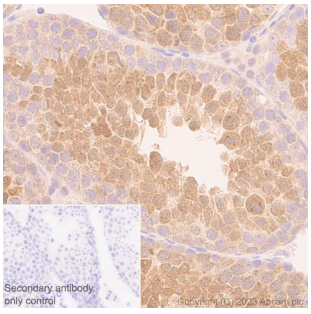
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Flow cytometric analysis of 4% paraformaldehyde fixed 90% methanol permeabilized HeLa (human cervical adenocarcinoma epithelial cell) cells labelling KPNB1 with ab313370 at 1/500 dilution (0.1 ug)/Red (Red) compared with a Rabbit monoclonal IgG (ab172730) (Black) isotype control and an unlabelled control (cells without incubation with primary antibody and secondary antibody) (Blue). A Goat Anti-Rabbit IgG (Alexa Fluor® 488, ab150081) at 1/5000 dilution was used as the secondary antibody.



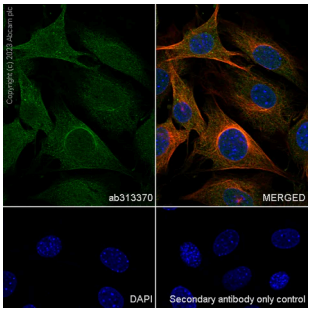
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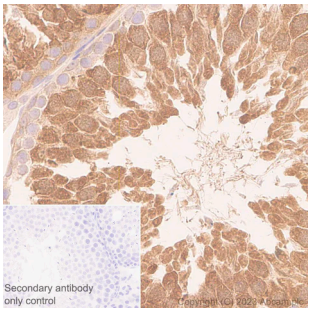
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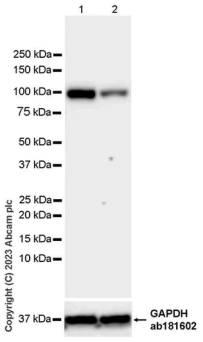
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Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-KPNB1 antibody [EPR26137-52] (ab313370)

Immunohistochemical analysis of paraffin-embedded Rat testis tissue labeling KPNB1 with ab313370 at 1/10000 (0.053 ug/ml) followed by a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection). Positive staining on rat testis.The section was incubated with ab313370 for 30 mins at room temperature.The immunostaining was performed on a Leica Biosystems BOND® RX instrument Counterstained with Hematoxylin. Secondary antibody only control: Secondary antibody is a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection). Heat mediated antigen retrieval was performed with Tris-EDTA buffer (pH 9.0, Epitope Retrieval Solution2) for 20 mins



Western blot - Anti-KPNB1 antibody [EPR26137-52] (ab313370)

Blocking and diluting buffer and concentration: 5% NFDM/TBST In Western blot, anti-GAPDH antibody (ab181602) loading control staining at 1/200000 dilution. Exposure time: 26 seconds
All lanes:
Western blot - Anti-KPNB1 antibody [EPR26137-52] (ab313370) at 1/1000 dilution

Lane 1:
HeLa (human cervical adenocarcinoma epithelial cell) transfected with scrambled siRNA control whole cell lysate at 10 µg

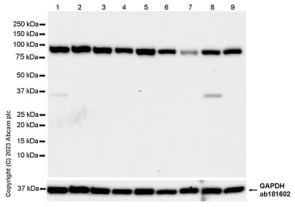
Lane 2:
HeLa transfected with siRNA specifically targeti KPNB1 whole cell lysate at 10 µg

Secondary

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

Observed band size: 97 kDa

Exposure time: 26s



Western blot - Anti-KPNB1 antibody [EPR26137-52] (ab313370)

Blocking and diluting buffer and concentration: 5% NFDM/TBST In Western blot, anti-GAPDH antibody (ab181602) loading control staining at 1/200000 dilution. Exposure time: 26 seconds
All lanes:
Western blot - Anti-KPNB1 antibody [EPR26137-52] (ab313370) at 1/1000 dilution

Lane 1:
NIH/3T3 (mouse embryonic fibroblast) whole cell lysate at 20 µg

Lane 2:
C6 (rat glial tumor glial cell) whole cell lysate at 20 µg

Lane 3:
PC-12 (rat adrenal gland pheochromocytoma cell) whole cell lysate at 20 µg

Lane 4:
HepG2 (human hepatocellar carcinoma epithelial cell) whole cell lysate at 20 µg

Lane 5:
Caco-2 (human colorectal adenocarcinoma epithelial cell) whole cell lysate at 20 µg

Lane 6:

SK-OV-3 (human ovarian cancer epithelial cell) whole cell lysate at 20 µg

Lane 7:
Human testis tissue lysate at 20 µg

Lane 8:
Mouse testis tissue lysate at 20 µg

Lane 9:
Rat testis tissue lysate at 20 µg

Secondary

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

Observed band size: 97 kDa

Exposure time: 26s

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