abcam

ab2811

Anti-KPNB1 antibody [3E9]

Anti-KPNB1 antibody [3E9] (ab2811) is a mouse monoclonal antibody detecting KPNB1 in **Western Blot, Flow Cytometry, IP, ICC/IF**. Suitable for **Human, Mouse, Rat**.

- Over 60 publications
- Trusted since 2003

Key facts

Isotype	IgG2a
Host species	Mouse
Storage buffer	Preservative: 0.05% Sodium azide Constituents: PBS
Form	Liquid
Clonality	Monoclonal
Clone number	3E9
Purification technique	Affinity purification Protein A
Concentration	1 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IP

Tested

Species	Human
Dilution info	-
Notes	-

Expected

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

Flow Cyt

Tested

Species	Mouse
Dilution info	1/100
Notes	ab170191 - Mouse monoclonal IgG2a, is suitable for use as an isotype control with this antibody.

Species	Rat
Dilution info	1/100
Notes	ab170191 - Mouse monoclonal IgG2a, is suitable for use as an isotype control with this antibody.

Species	Human
Dilution info	1/100
Notes	ab170191 - Mouse monoclonal IgG2a, is suitable for use as an isotype control with this antibody.

WB

Tested

Species	Human
Dilution info	1/5000
Notes	-

Expected

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

Notes	-

ICC/IF

Tested

Species	Mouse
Dilution info	1/1000
Notes	-

Species	Human
Dilution info	1/1000
Notes	-

Expected

Species	Rat
Dilution info	Use at an assay dependent concentration.
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	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

Notes

What is this antibody validated in?
Anti-KPNB1 antibody [3E9] (ab2811) is a mouse monoclonal antibody and is validated for use in Western Blot (WB), Flow Cytometry (Flow Cyt), Immunoprecipitation (IP), Immunocytochemistry/immunofluorescence (ICC/IF) in Human, Mouse, Rat samples.

What is the molecular weight of KPNB1?
Anti-KPNB1 [3E9] (ab2811) specifically detects a band for KPNB1 (UniProt: Q14974) at a molecular weight of 97kDa.

Trusted by the scientific community
Anti-KPNB1 [3E9] (ab2811) was first used in a scientific publication in 2003 and has been cited over 60 times in peer-reviewed journals.

Reviewed by scientists
Anti-KPNB1 [3E9] (ab2811) has over 15 independent reviews from customers.

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

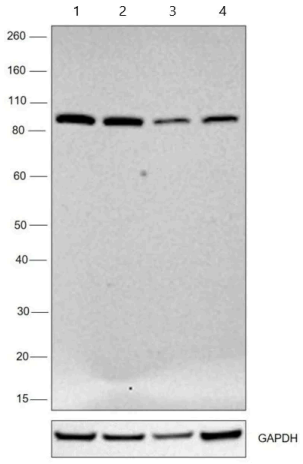
We do not recommend this combination. It is not covered by our product promise.

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.

11 product images



Western blot - Anti-KPNB1 antibody [3E9] (ab2811)

All lanes:
Western blot - Anti-KPNB1 antibody [3E9] (ab2811) at 1/5000 dilution

Lane 1:
HeLa (human epithelial cell line from cervix adenocarcinoma) whole cell lysate at 30 µg

Lane 2:
Caco-2 (human colorectal adenocarcinoma cell line) whole cell lysate at 30 µg

Lane 3:
HepG2 (human liver hepatocellular carcinoma cell line) whole cell lysate at 30 µg

Lane 4:
NIH/3T3 (mouse embryo fibroblast cell line) whole cell lysate at 30 µg

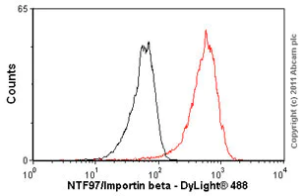
Secondary

All lanes:
Goat anti-Mouse IgG H+L (HRP) at 1/4000 dilution

Developed using the ECL technique.

Predicted band size: 97 kDa

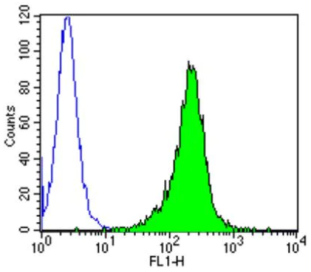
Observed band size: 97 kDa



Flow Cytometry - Anti-KPNB1 antibody [3E9] (ab2811)

KPNB1 Flow Cytometry staining using mouse Anti-KPNB1 antibody

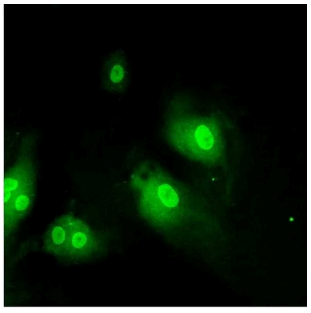
Overlay histogram showing Jurkat cells stained with ab2811 (red line). The cells were fixed with 4% paraformaldehyde (10 min) and then permeabilized with 0.1% PBS-Tween for 20 min. The cells were then incubated in 1x PBS / 10% normal goat serum / 0.3M glycine to block non-specific protein-protein interactions followed by the antibody (ab2811, 1/100 dilution) for 30 min at 22°C. The secondary antibody used was DyLight® 488 goat anti-mouse IgG (H+L) (ab96879) at 1/500 dilution for 30 min at 22°C. Isotype control antibody (black line) was mouse IgG2a [ICIGG2A] (ab91361, 2µg/1x10^6 cells) used under the same conditions. Acquisition of >5,000 events was performed. This antibody gave a positive signal in Jurkat cells fixed with methanol (5 min)/permeabilized in 0.1% PBS-Tween used under the same conditions.



Flow Cytometry - Anti-KPNB1 antibody [3E9] (ab2811)

KPNB1 Flow Cytometry staining using mouse Anti-KPNB1 antibody

Flow cytometry analysis of KPNB1 in Jurkat (Human T cell leukemia cell line from peripheral blood) cells (green) compared to an isotype control (blue). Cells were harvested, adjusted to a concentration of 1-5x10^6 cells/ml, fixed with 2% paraformaldehyde and washed with PBS. Cells were blocked with a 2% solution of BSA-PBS for 30 min at room temperature and incubated with ab2811 (1ug/test) for 40 min at room temperature. Cells were then incubated for 40 min at room temperature in the dark using a Dylight 488-conjugated secondary antibody and re-suspended in PBS for FACS analysis.



Immunocytochemistry/ Immunofluorescence - Anti-KPNB1 antibody [3E9] (ab2811)

KPNB1 Immunocytochemistry/ Immunofluorescence staining using mouse Anti-KPNB1 antibody

Immunofluorecent analysis of HMVEC (Human Lung Microvascular Endothelial cells) cells stained for KPNB1 using ab2811.

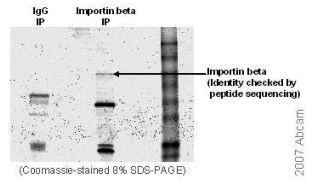
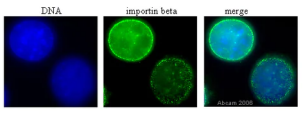


Image and protocol courtesy of Rosamaria Mangiacasale and Patrizia Lavia, University 'La Sapienza' CNR, Italy

Immunoprecipitation - Anti-KPNB1 antibody [3E9] (ab2811)

Immunoprecipitation of Importin beta, in HeLa (Human epithelial cell line from cervix adenocarcinoma) cells, using ab2811. Coomassie-stained 8% SDS-page gel was loaded with IP fractions obtained by incubating 2 mg of pre-cleared HeLa whole cell extracts with 4µg ab2811 or 4µg IgG (control). The Importin band (see arrow) was cut out of the gel and its identity confirmed by Mass Spectometry. Please refer to protocol tab for further experimental details.
All lanes:
Immunoprecipitation - Anti-KPNB1 antibody [3E9] (ab2811)

Predicted band size: 97 kDa

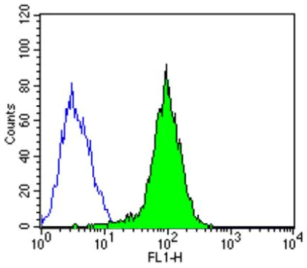


Immunocytochemistry/ Immunofluorescence - Anti-KPNB1 antibody [3E9] (ab2811)

This image is courtesy of Roberto Giambruno, Marilena Ciciarello and Patrizia Lavia

KPNB1 Immunocytochemistry/ Immunofluorescence staining using mouse Anti-KPNB1 antibody

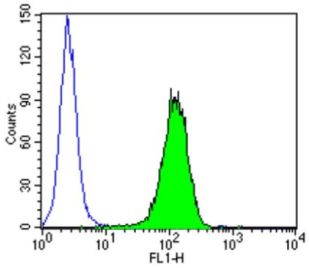
NIH/3T3 (Mouse embryo fibroblast cell line) cells were incubated for 4 minutes in PHEM/1%triton, washed for 2 minutes in 1x PHEM and fixed for 10 minutes at room temperature in 3.7% PFA containing 30mM sucrose. Following washing in PBS, the cells were incubated for 2 minutes in 100% Methanol at -20°C, then washed 3 times in PBS. The cells were then incubated with ab2811 (1/200) for 1 hour at room temperature. The image panel shows the nuclei stained with DAPI (blue) and the nuclear envalope and cytoplasm stained with ab2811 (green). 100x magnification.



Flow Cytometry - Anti-KPNB1 antibody [3E9] (ab2811)

KPNB1 Flow Cytometry staining using mouse Anti-KPNB1 antibody

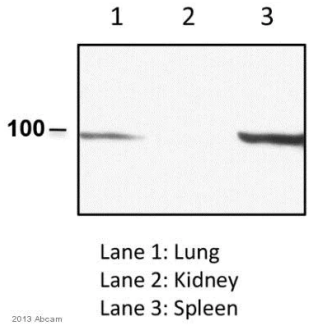
Flow cytometry analysis of KPNB1 in 3T3 cells (green) compared to an isotype control (blue). Cells were harvested, adjusted to a concentration of 1-5x10^6 cells/ml, fixed with 2% paraformaldehyde and washed with PBS. Cells were blocked with a 2% solution of BSA-PBS for 30 min at room temperature and incubated with ab2811 (1ug/test) for 40 min at room temperature. Cells were then incubated for 40 min at room temperature in the dark using a Dylight 488-conjugated secondary antibody and re-suspended in PBS for FACS analysis.



Flow Cytometry - Anti-KPNB1 antibody [3E9] (ab2811)

KPNB1 Flow Cytometry staining using mouse Anti-KPNB1 antibody

Flow cytometry analysis of KPNB1 in PC-12 (Rat adrenal gland pheochromocytoma cell line) cells (green) compared to an isotype control (blue). Cells were harvested, adjusted to a concentration of 1-5x10^6 cells/ml, fixed with 2% paraformaldehyde and washed with PBS. Cells were blocked with a 2% solution of BSA-PBS for 30 min at room temperature and incubated with ab2811 (1ug/test) for 40 min at room temperature. Cells were then incubated for 40 min at room temperature in the dark using a Dylight 488-conjugated secondary antibody and re-suspended in PBS for FACS analysis.



This image is courtesy of an anonymous customer review

Western blot - Anti-KPNB1 antibody [3E9] (ab2811)

All lanes:
Western blot - Anti-KPNB1 antibody [3E9] (ab2811) at 1/2000 dilution

Lane 1:
Mouse lung whole tissue lysate

Lane 2:
Mouse kidney whole tissue lysate

Lane 3:
Mouse spleen whole tissue lysate

Secondary

All lanes:
HRP-conjugated Goat anti-mouse IgG polyclonal at 1/5000 dilution

Developed using the ECL technique.

Performed under reducing conditions.

Predicted band size: 97 kDa

Observed band size: 97 kDa

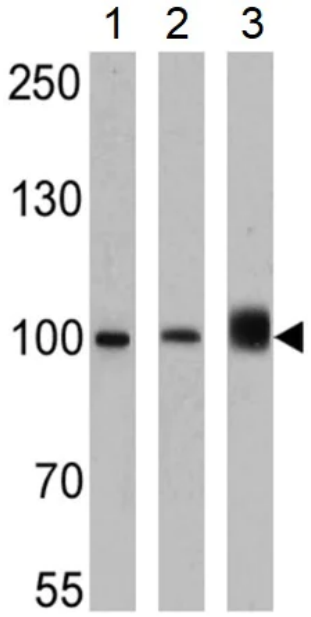
Exposure time: 3min



Immunocytochemistry/ Immunofluorescence - Anti-KPNB1 antibody [3E9] (ab2811)

KPNB1 Immunocytochemistry/ Immunofluorescence staining using mouse Anti-KPNB1 antibody

Immunolocalization of KPNB1 in PTK (Long-nosed potoroo epithelial kidney cell line) cells using ab2811.



Western blot - Anti-KPNB1 antibody [3E9] (ab2811)

All lanes:
Western blot - Anti-KPNB1 antibody [3E9] (ab2811) at 1/50 dilution

Lane 1:
U-251 MG (Human brain glioma cell line) whole cell lysate at 25 µg

Lane 2:
HepG2 (Human liver hepatocellular carcinoma cell line) whole cell lysate at 25 µg

Lane 3:
C6 (Rat glial tumor cell line) whole cell lysate at 25 µg

Secondary

All lanes:
HRP-conjugated secondary antibody

Predicted band size: 97 kDa

Observed band size: 100 kDa

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