abcam

ab52644

Anti-Nucleophosmin antibody [EP1848Y]

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	EP1848Y
Purification technique	Affinity purification Protein A
Concentration	0.351 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IHC-P

Tested

Species	Human
Dilution info	1/300
Notes	**For unpurified use at 1/100- 1/250.** Perform heat-mediated antigen retrieval before commencing with IHC staining protocol.

Not recommended

Species	Mouse, Rat
Dilution info	-
Notes	-

IP

Not recommended

Species	Human, Mouse, Rat
Dilution info	-
Notes	-

WB

Tested

Species	Human
Dilution info	1/1000 - 1/500000
Notes	-

Species	Mouse
Dilution info	1/1000 - 1/500000
Notes	-

Species	Rat
Dilution info	1/1000 - 1/500000
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	1/100

Notes	-

Expected

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

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1/40
Notes	ab172730 - Rabbit monoclonal IgG, is suitable for use as an isotype control with this antibody.

Expected

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

Target data

See full target information NPM1

Function	Involved in diverse cellular processes such as ribosome biogenesis, centrosome duplication, protein chaperoning, histone assembly, cell proliferation, and regulation of tumor suppressors p53/TP53 and ARF. Binds ribosome presumably to drive ribosome nuclear export. Associated with nucleolar ribonucleoprotein structures and bind single-stranded nucleic acids. Acts as a chaperonin for the core histones H3, H2B and H4. Stimulates APEX1 endonuclease activity on apurinic/apyrimidinic (AP) double-stranded DNA but inhibits APEX1 endonuclease activity on AP single-stranded RNA. May exert a control of APEX1 endonuclease activity within nucleoli devoted to repair AP on rDNA and the removal of oxidized rRNA molecules. In concert with BRCA2, regulates centrosome duplication. Regulates centriole duplication: phosphorylation by PLK2 is able to trigger centriole replication. Negatively regulates the activation of EIF2AK2/PKR and suppresses apoptosis through inhibition of EIF2AK2/PKR autophosphorylation. Antagonizes the inhibitory effect of ATF5 on cell proliferation and relieves ATF5-induced G2/M blockade (PubMed:22528486). In complex with MYC enhances the

transcription of MYC target genes (PubMed:25956029). May act as chaperonin or cotransporter in the nucleolar localization of transcription termination factor TTF1 (By similarity).

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

Species reactivity
Mouse, Rat: We have preliminary internal testing data to indicate this antibody may not react with these species. Please contact us for more information.

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	Nucleophosmin also known as NPM1 or B23 is a multifunctional nucleolar phosphoprotein with a molecular weight of approximately 37 kDa. It is highly expressed in the nucleolus of many human cells and is involved in various cellular

	processes. NPM1 aids ribosome biogenesis intracellular transport of ribosomal components and regulation of the centrosome. Its nucleocytoplasmic shuttling ability is due to its N-terminal domain which plays an important role in binding to nucleic acids and other proteins. Apart from these functions NPM1 acts as a histone chaperone and is important for maintaining genomic integrity.
Biological function summary	One of the central roles of NPM1 is its involvement in the regulation of cell growth and proliferation. NPM1 forms a complex with other nucleolar proteins affecting ribosome subunit assembly and transport. This protein also participates in the control of the ARF/p53 pathway by sequestering p53-regulating proteins which are essential for cell cycle control and apoptosis. Its interactions with proteins such as nucleolin and nucleophosmin-like proteins allow NPM1 to perform its functions in organizing the nucleolus and regulating responses to stress signals.
Pathways	The NPM1 protein is integrally involved in key cellular pathways like the regulation of the cell cycle and apoptosis. It directly interacts with pathways such as the ribosome biogenesis pathway and the p53 pathway. NPM1 has connections with proteins like ARF and MDM2 which play roles in retinoblastoma protein (pRb) regulation and in the control of tumor-suppressor activities. These pathways under NPM1's influence are critical for maintaining cellular homeostasis and ensuring proper cell cycle checkpoints.
Associated diseases and disorders	NPM1 mutations are commonly observed in acute myeloid leukemia (AML) where they affect the normal function of the protein leading to leukemogenesis. NPM1 is also linked to tumorigenesis through its impact on the p53 tumor suppressor pathway. Specifically alterations in NPM1 can disrupt the balance of other related proteins like ALK and p53 influencing the onset and progression of leukemia. Understanding the roles of NPM1 in these contexts is essential for developing targeted therapies to treat AML and other related disorders effectively.

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

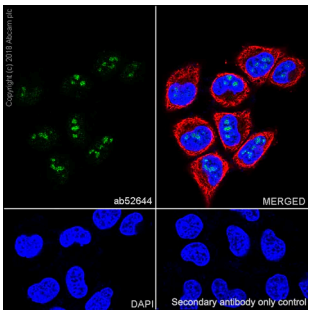
We do not recommend this combination. It is not covered by our product promise.

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.

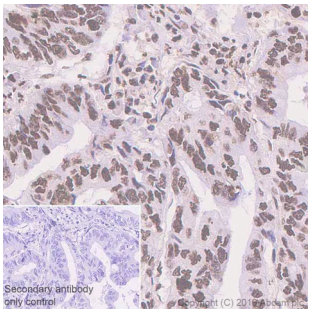
6 product images



Immunocytochemistry/ Immunofluorescence - Anti-Nucleophosmin antibody [EP1848Y] (ab52644)

Nucleophosmin Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Nucleophosmin antibody

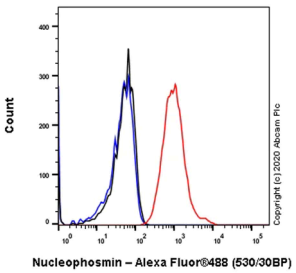
Immunocytochemistry/ Immunofluorescence analysis of HeLa (human cervix adenocarcinoma epithelial cell) cells labeling Nucleophosmin with purified ab52644 at 1/100 dilution (5 ©:g/ml). Cells were fixed in 4% paraformaldehyde and permeabilized with 0.1% Triton X-100. Cells were counterstained with ab195889 Anti-alpha Tubulin antibody [DM1A] - Microtubule Marker (Alexa Fluor® 594) 1/200 (2.5 ©:g/ml). Goat anti rabbit IgG (Alexa Fluor® 488, ab150077) was used as the secondary antibody at 1/1000 dilution (2 ©:g/ml) dilution. DAPI was used as nuclear counterstain. PBS instead of the primary antibody was used as the secondary antibody only control.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Nucleophosmin antibody [EP1848Y] (ab52644)

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

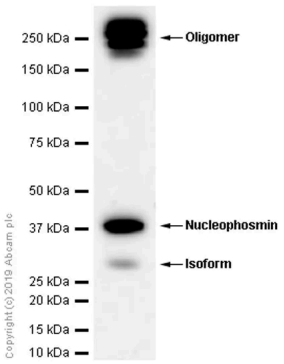
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of human cervical carcinoma tissue sections labeling Nucleophosmin with purified ab52644 at 1/300 dilution (1.14 µg/mL). Heat mediated antigen retrieval was performed using Bond™ Epitope Retrieval Solution 2 (pH 9.0). Rabbit specific IHC polymer detection kit HRP/DAB (ab209101) was used as the secondary antibody. Negative control: PBS instead of the primary antibody. Hematoxylin was used as a counterstain.
The immunostaining was performed on a Leica Biosystems BOND® RX instrument.



Flow Cytometry (Intracellular) - Anti-Nucleophosmin antibody [EP1848Y] (ab52644)

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

Intracellular Flow Cytometry analysis of HeLa (Human cervix adenocarcinoma epithelial cell) cells, labeling Nucleophosmin with Purified ab52644 at 1/40 dilution (10µg/mL) (Red). Cells were fixed with 4% Paraformaldehyde and permeabilised with 90% Methanol. A Goat anti rabbit IgG (Alexa Fluorr® 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).



Western blot - Anti-Nucleophosmin antibody [EP1848Y] (ab52644)

Nucleophosmin Western blot staining of HeLa (Human cervix adenocarcinoma epithelial cell) whole cell lysate using rabbit Anti-Nucleophosmin antibody

The band at 250kDa might be an oligomer and the band at 33kDa might be an isoform of NPM.
Blocking/Diluting buffer: 5% NFDM/TBST

All lanes:
Western blot - Anti-Nucleophosmin antibody [EP1848Y] (ab52644) at 1/2000 dilution

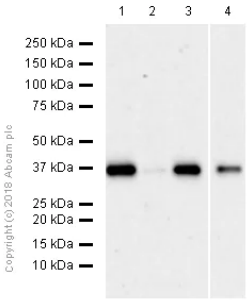
All lanes:
HeLa (Human cervix adenocarcinoma epithelial cell) whole cell lysate at 15 µg

Secondary

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

Predicted band size: 32 kDa

Observed band size: 250 kDa, 27 kDa, 33 kDa



Western blot - Anti-Nucleophosmin antibody [EP1848Y] (ab52644)

All lanes:
Western blot - Anti-Nucleophosmin antibody [EP1848Y] (ab52644) at 1/500000 dilution

Lane 1:
HeLa (Human cervix adenocarcinoma epithelial cell) whole cell lysate at 20 µg

Lane 2:
MEF (Mouse embryonic fibroblast) whole cell lysate at 20 µg

Lane 3:
3T3-L1 (Mouse embryonic fibroblast) whole cell lysate at 20 µg

Lane 4:
PC-12 (Rat adrenal gland pheochromocytoma) 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: 32 kDa

Observed band size: 37 kDa

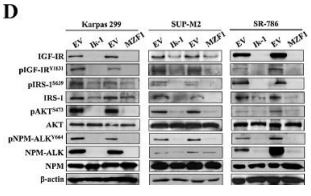


Image collected and cropped by CiteAb under a

Western blot - Anti-Nucleophosmin antibody [EP1848Y] (ab52644)

Nucleophosmin Western blot staining using rabbit Anti-Nucleophosmin antibody

Western Blotting using Anti-Nucleophosmin antibody [EP1848Y], ab52644. Publication image from Shi, P. et al., 2015, Mol Cancer, 25884514. Legend direct from paper.

Ik-1 and MZF1 decrease IGF-IR mRNA and protein levels and the phosphorylation of downstream targets. (A) Western blotting demonstrates increased expression levels of Ik-1 and MZF1 proteins at

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48 h after transfection into 3 NPM-ALK+ T-cell lymphoma cell lines. β-actin shows equal protein loading (−: transfection of EV; +: transfection of Ik-1 or MZF1). (B) Transfection of Ik-1 remarkably decreased IGF-IR mRNA levels in Karpas 299, SUP-M2, and SR-786 cell lines (*: < 0.0001 compared with EV). (C) Similarly, transfection of MZF1 induced a significant decrease in IGF-IR mRNA levels (*: < 0.0001 compared with EV). The results depicted in (B) and (C) represent the means ± SE of 3 experiments. (D) Western blotting shows that transfection of Ik-1 and MZF1 into Karpas 299, SUP-M2, and SR-786 cell lines induced marked downregulation of IGF-IR protein, which was associated with decreased pIGF-IR levels. Moreover, the decrease in IGF-IR/pIGF-IR expression levels was associated with decreased phosphorylation of important IGF-IR targets including IRS-1, AKT, and NPM-ALK. Whereas basal levels of AKT remained unchanged, notable decrease in IRS-1 protein was observed. The 3 web-based transcription factor search algorithms showed that Ik-1 and MZF1 could potentially bind the IRS-1 gene promoter. In contrast, searching these algorithms did not support potential binding of Ik-1 or MZF1 and the NPM gene promoter, where the expression of NPM-ALK protein is regulated at the transcriptional level. (E) In line with lack of potential binding/interaction between Ik-1 or MZF1 and the NPM gene promoter, a luciferase assay performed in R− cells shows that transfection of Ik-1 and MZF1 does not decrease the NPM promoter activity. The results represent means ± SE of 3 consistent experiments.

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