abcam

Product datasheet

Anti-Nucleophosmin antibody ab15440

5 Abreviews 25 References 4 Images

Overview

Product name	Anti-Nucleophosmin antibody
Description	Rabbit polyclonal to Nucleophosmin
Host species	Rabbit
Tested applications	**Suitable for:** IHC-P, WB, ICC/IF
Species reactivity	**Reacts with:** Mouse, Rat, Human, African green monkey
Immunogen	**This product was produced with the following immunogens:** Synthetic peptide corresponding to Human Nucleophosmin aa 23-38. Synthetic peptide corresponding to Human Nucleophosmin aa 226-240.
Positive control	WB: human HeLa, 293T, A431, A549, MCF7, U20S, K562, African green monkey COS7; mouse MEF, 3T3L1, C2C12; rat NRK. IHC-P: human kidney; ICC/IF: HeLa.
General notes	The Life Science industry has been in the grips of a reproducibility crisis for a number of years. Abcam is leading the way in addressing this with our range of recombinant monoclonal antibodies and knockout edited cell lines for gold-standard validation. Please check that this product meets your needs before purchasing. If you have any questions, special requirements or concerns, please send us an inquiry and/or contact our Support team ahead of purchase. Recommended alternatives for this product can be found below, along with publications, customer reviews and Q&As

Properties

Form	Liquid
Storage instructions	Shipped at 4°C. Store at +4°C short term (1-2 weeks). Upon delivery aliquot. Store at -20°C. Avoid freeze / thaw cycle.
Storage buffer	Preservative: 0.05% Sodium azide Constituents: 99% PBS, 0.1% BSA
Purity	Immunogen affinity purified
Clonality	Polyclonal
Isotype	IgG

Applications

The Abpromise guarantee Our **Abpromise guarantee** covers the use of ab15440 in the following tested applications.

The application notes include recommended starting dilutions; optimal dilutions/concentrations should be determined by the end user.

Application	Abreviews	Notes
IHC-P		1/200. Perform heat mediated antigen retrieval before commencing with IHC staining protocol.
WB	★★★★★ (4)	1/500 - 1/1000. Predicted molecular weight: 32 kDa.
ICC/IF	★★★★☆ (1)	1/100. Used at a dilution of 1/100 (see Abreview for further information).

Target

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).

Involvement in disease A chromosomal aberration involving NPM1 is found in a form of non-Hodgkin lymphoma. Translocation t(2;5)(p23;q35) with ALK. The resulting chimeric NPM1-ALK protein homodimerize and the kinase becomes constitutively activated.
A chromosomal aberration involving NPM1 is found in a form of acute promyelocytic leukemia. Translocation t(5;17)(q32;q11) with RARA.
A chromosomal aberration involving NPM1 is a cause of myelodysplastic syndrome (MDS). Translocation t(3;5)(q25.1;q34) with MLF1.
Defects in NPM1 are associated with acute myelogenous leukemia (AML). Mutations in exon 12 affecting the C-terminus of the protein are associated with an aberrant cytoplasmic location.

Sequence similarities Belongs to the nucleoplasmin family.

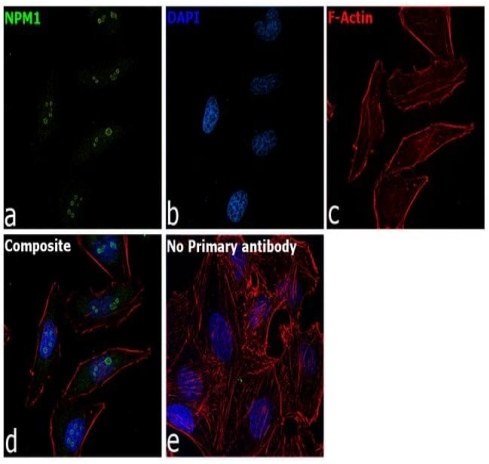
Post-translational modifications Acetylated at C-terminal lysine residues, thereby increasing affinity to histones.
ADP-ribosylated.
Phosphorylated at Ser-4 by PLK1 and PLK2. Phosphorylation at Ser-4 by PLK2 in S phase is required for centriole duplication and is sufficient to trigger centriole replication. Phosphorylation at Ser-4 by PLK1 takes place during mitosis. Phosphorylated by CDK2 at Ser-125 and Thr-199. Phosphorylation at Thr-199 may trigger initiation of centrosome duplication. Phosphorylated by CDK1 at Thr-199, Thr-219, Thr-234 and Thr-237 during cell mitosis. When these four sites are phosphorated, RNA-binding activity seem to be abolished. May be phosphorylated at Ser-70 by NEK2. The Thr-199 phosphorylated form has higher affinity for ROCK2. CDK6 triggers Thr-199 phosphorylation when complexed to Kaposi's sarcoma herpesvirus (KSHV) V-cyclin, leading to

viral reactivation by reducing viral LANA levels.
Sumoylated by ARF.

Cellular localization

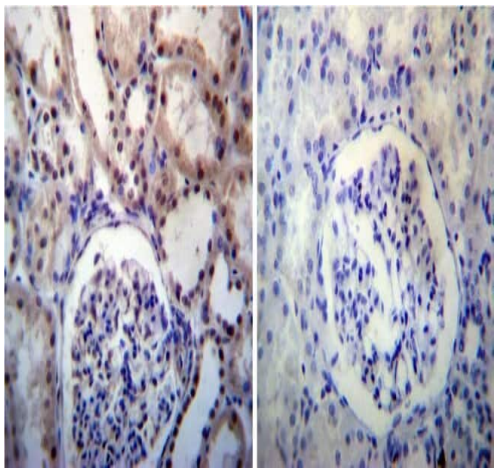
Nucleus, nucleolus. Nucleus, nucleoplasm. Cytoplasm, cytoskeleton, microtubule organizing center, centrosome. Generally nucleolar, but is translocated to the nucleoplasm in case of serum starvation or treatment with anticancer drugs. Has been found in the cytoplasm in patients with primary acute myelogenous leukemia (AML), but not with secondary AML. Can shuttle between cytoplasm and nucleus. Co- localizes with the methylated form of RPS10 in the granular component (GC) region of the nucleolus. Colocalized with nucleolin and APEX1 in nucleoli. Isoform 1 of NEK2 is required for its localization to the centrosome during mitosis.

Images



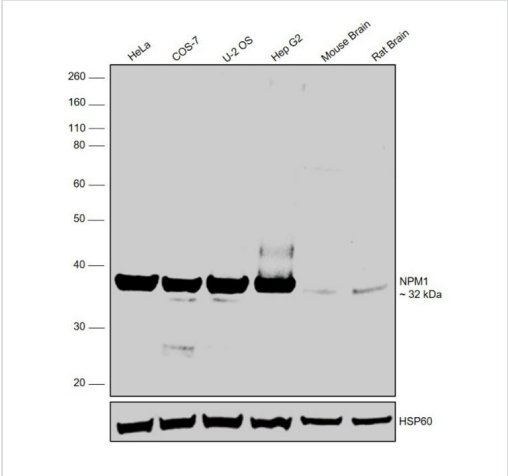
Immunocytochemistry/ Immunofluorescence - Anti-Nucleophosmin antibody (ab15440)

Immunocytochemistry analysis of 4% paraformaldehyde-fixed 0.1% Triton X-100 permeabilized HeLa cells staining nucleophosmin with ab15440 at 1/100 dilution and Goat anti-Rabbit IgG (H+L), Superclonal™ Recombinant Secondary Antibody, Alexa Fluor 488 conjugate at 1/2000 dilution (green). Nuclei were stained with ProLong™ Diamond Antifade Mountant with DAPI (blue); and F-actin was stained with Rhodamine Phalloidin (red). Negative control is using no primary antibody.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Nucleophosmin antibody (ab15440)

Immunohistochemical analysis of deparrafinized human kidney tissue staining nucleophosmin with ab15440 at 1/500 dilution, biotin-conjugated secondary antibody, SA-HRP and were counterstained with hematoxylin. Antigen retrieval method used was sodium citrate pH6



Western blot - Anti-Nucleophosmin antibody (ab15440)

All lanes : Anti-Nucleophosmin antibody (ab15440) at 1/750 dilution

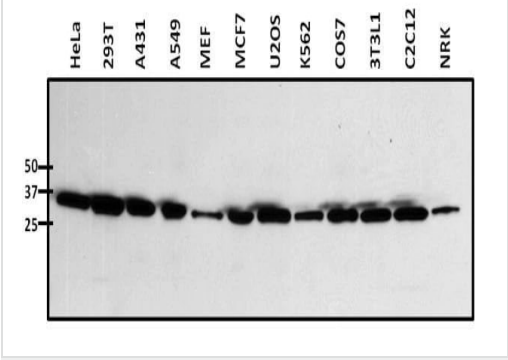
Lane 1 : Hela whole cell extract
Lane 2 : COS-7 whole cell extract
Lane 3 : U2OS whole cell extract
Lane 4 : HepG2 whole cell extract
Lane 5 : mouse brain tissue extract
Lane 6 : rat brain tissue extract

Lysates/proteins at 30 µg per lane.

Secondary
All lanes : Goat anti-Rabbit IgG (H+L), Superclonal™ Recombinant Secondary Antibody, HRP at 1/4000 dilution

Developed using the ECL technique.

Predicted band size: 32 kDa



Western blot - Anti-Nucleophosmin antibody (ab15440)

All lanes : Anti-Nucleophosmin antibody (ab15440) at 1/500 dilution

Lane 1 : HeLa whole cell lysate
Lane 2 : 293T whole cell lysate
Lane 3 : A431 whole cell lysate
Lane 4 : A549 whole cell lysate
Lane 5 : MEF whole cell lysate
Lane 6 : MCF7 whole cell lysate
Lane 7 : U20S whole cell lysate
Lane 8 : K562 whole cell lysate
Lane 9 : COS7 whole cell lysate
Lane 10 : 3T3L1 whole cell lysate
Lane 11 : C2C12 whole cell lysate
Lane 12 : NRK whole cell lysate

Lysates/proteins at 25 µg per lane.

Secondary
All lanes : goat anti-rabbit-HRP secondary antibody at 1/20000 dilution

Developed using the ECL technique.

Predicted band size: 32 kDa

Tris/Hcl gel used and proteins transferred to a PVDF membrane and blocked with 5% Milk/TBST.

Please note: All products are "FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC PROCEDURES"

Our Abpromise to you: Quality guaranteed and expert technical support

- Replacement or refund for products not performing as stated on the datasheet
- Valid for 12 months from date of delivery
- Response to your inquiry within 24 hours
- We provide support in Chinese, English, French, German, Japanese and Spanish
- Extensive multi-media technical resources to help you
- We investigate all quality concerns to ensure our products perform to the highest standards

If the product does not perform as described on this datasheet, we will offer a refund or replacement. For full details of the Abpromise, please visit **https://www.abcam.com/abpromise** or contact our technical team.

Terms and conditions

- Guarantee only valid for products bought direct from Abcam or one of our authorized distributors