Anti-Nucleophosmin antibody [FC82291] ab10530

Overview

Product name: Anti-Nucleophosmin antibody [FC82291]
Description: Mouse monoclonal [FC82291] to Nucleophosmin
Host species: Mouse
Tested applications: Suitable for: IP, IHC-P, ICC/IF, WB, ELISA
Species reactivity: Reacts with: Mouse, Rat, Donkey, Hamster, Cow, Dog, Human, African green monkey
Immunogen: Full length native protein (purified) (Rat).
Epitope: The epitope recognized by the antibody lies within the 68 amino acids at the C terminus of B23.
Positive control: NIH3T3 whole cell lysate.

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 or -80°C. Avoid freeze / thaw cycle.
Storage buffer: Preservative: 15mM Sodium Azide
Constituents: 1% BSA, 0.01M PBS, pH 7.4
Purity: Protein G purified
Clonality: Monoclonal
Clone number: FC82291
Isotype: IgG1

Applications

Our Abpromise guarantee covers the use of ab10530 in the following tested applications.
The application notes include recommended starting dilutions; optimal dilutions/concentrations should be determined by the end user.

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<td>Use at an assay dependent concentration.</td>
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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 phosphorylated, 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

Western blot image of ab10530 staining whole cell lysate of U2OS cells. The gel was blocked with 5% milk for 1 hour at 21°C. The primary antibody was diluted to 2 µg/ml and incubated for 12 hours at 4°C. A HRP conjugated goat anti-mouse antibody was used as the secondary.

Anti-Nucleophosmin antibody [FC82291] (ab10530) at 0.2 µg/ml + 3T3 cell lysate

Secondary
Anti-Mouse IgG (Fab)

Predicted band size: 33 kDa
**Western blot - Anti-Nucleophosmin antibody**

All lanes: Anti-Nucleophosmin antibody [FC82291] (ab10530) at 0.5 µg/ml

- **Lane 1**: HeLa cell lysate
- **Lane 2**: JURKAT cell lysate
- **Lane 3**: COS7 cell lysate
- **Lane 4**: NIH-3T3 cell lysate
- **Lane 5**: RAT2 cell lysate
- **Lane 6**: CHO cell lysate
- **Lane 7**: MDBK cell lysate
- **Lane 8**: MDCK cell lysate

**Secondary**

All lanes: Goat Anti-Mouse IgG-Peroxidase

**Predicted band size**: 33 kDa

Cell line lysate separated on SDS-PAGE, probed with ab10530 (0.5 µg/mL)

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**Immunocytochemistry/Immunofluorescence - Anti-Nucleophosmin antibody [FC82291] (ab10530)**

Immunocytochemistry/Immunofluorescence analysis of HeLa cells staining Nucleophosmin using ab10530 (dilution 1/500). Cells were fixed and permeabilized with methanol followed by methanol:acetone. Developed using Goat Anti-Mouse IgG, Cy3™ conjugate and counterstained with DAPI (blue) to stain nuclei.
ab10530 staining Nucleophosmin in immortalized Human trabecular meshwork cells by Immunocytochemistry/Immunofluorescence. Cells were PFA-fixed and permeabilized in 0.5% Triton X-100 prior to blocking in 3% BSA for 45 minutes at room temperature. The primary antibody was diluted 1/1000 in PBS/0.3% BSA and incubated with the sample for 2 hours. The secondary antibody was Cy3®-conjugated Donkey anti-Mouse polyclonal, diluted 1/1000.

ab10530 at 1/250 staining human colon cancer tissue sections by IHC-P. The tissue was formaldehyde fixed and a heat mediated antigen retrieval step in citrate buffer was performed. The tissue was then blocked with serum and incubated with the antibody for 30 minutes at 22°C. An HRP conjugated goat anti-mouse antibody was used as the secondary.

ab10530 staining Nucleophosmin in Mouse cystic kidney tissue sections by Immunohistochemistry (IHC-P - paraformaldehyde-fixed, paraffin-embedded sections). Tissue was fixed with formaldehyde and blocked with 1% serum for 30 minutes at 22°C; antigen retrieval was by heat mediation in a citrate buffer. Samples were incubated with primary antibody (1/2500 in blocking buffer) for 30 minutes at 22°C. A HRP-conjugated Goat anti-mouse polyclonal (1/400) was used as the secondary antibody.
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