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Nucleophosmin Antibody

Purified Mouse Monoclonal Antibody
Catalog # AO1001a

Product Information

Application	WB, IHC, ICC, E
Primary Accession	P06748
Reactivity	Human, Monkey
Host	Mouse
Clonality	Monoclonal
Clone Names	7H10B9
Isotype	IgG1
Calculated MW	32575
Description	Nucleophosmin (NPM), also named B23 or NO38, is a major nucleolar protein which is 20 times more abundant in tumor or proliferating cells than in normal resting cells. NPM has been implicated in several distinct cellular functions, including assembly and transport of ribosomes, cytoplasmic/nuclear trafficking, regulation of DNA polymerase alpha activity, centrosome duplication and molecular chaperoning activities. The NPM is also known for its fusion with the anaplastic lymphoma kinase (ALK) receptor tyrosine kinase. The NPM portion contributes to transformation by providing a dimerization domain, which results in activation of the fused kinase.
Immunogen	Purified recombinant fragment of human NPM (2-265) expressed in E. Coli.
Formulation	Ascitic fluid containing 0.03% sodium azide.

Additional Information

Gene ID	4869
Other Names	Nucleophosmin, NPM, Nucleolar phosphoprotein B23, Nucleolar protein NO38, Numatrin, NPM1, NPM
Dilution	WB~~1/500 - 1/2000 IHC~~1/200 - 1/1000 ICC~~N/A E~~N/A
Storage	Maintain refrigerated at 2-8°C for up to 6 months. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.
Precautions	Nucleophosmin Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	NPM1 (HGNC:7910)

Synonyms	NPM
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).
Cellular Location	Nucleus, nucleolus. Nucleus, nucleoplasm. Cytoplasm, cytoskeleton, microtubule organizing center, centrosome. Note=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. 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. Can shuttle between cytoplasm and nucleus (PubMed:38231884).

References

1. Morris SW, et al Science 1994 Mar 4; 263(5151):1281-4. 2. Yoneda-Kato N Oncogene 1996 Jan 18;12(2):265-75.

Images

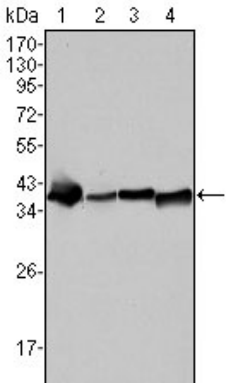


Figure 1: Western blot analysis using NPM mouse mAb against SMMC-7721 (1), HepG2 (2), Hela (3) and HEK293 (4) cell lysate.

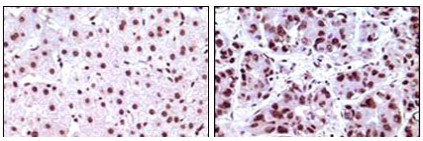


Figure 2: Immunohistochemical analysis of paraffin-embedded human liver carcinoma tissues, showing nuclear localization using NPM mouse mAb with DAB staining.

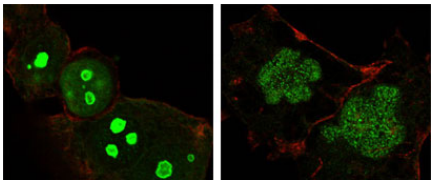


Figure 3: Confocal immunofluorescence analysis of Hela (left) and NTERA-2 (right) cells using NPM mouse mAb (green). Red: Actin filaments have been labeled with DY-554 phalloidin.

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