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Product Information

Anti-Nucleolin–Atto 488
produced in rabbit, affinity isolated antibody

Catalog Number **N6288**

Product Description

Anti-Nucleolin is produced in rabbit using as immunogen a synthetic peptide corresponding to amino acid residues 2-17 of human nucleolin (GeneID: 4691) conjugated to KLH. The corresponding sequence differs by 4 amino acids in rat and mouse nucleolin, and by one amino acid in the rat homolog protein NRP (nucleolin related protein). The product is prepared by conjugation of the affinity purified Anti-Nucleolin antibody to Atto 488-NHS (λ_{ex} 500 nm; λ_{em} 522 nm), Catalog Number 41698, and the conjugate is purified by gel filtration to remove unbound Atto 488-NHS fluorophore.

Anti-Nucleolin–Atto 488 recognizes human, rat, and mouse nucleolin. Applications include the detection and localization of nucleolin by direct immunofluorescence.

Nucleolin, also known as C23, is the major nucleolar protein of exponentially growing eukaryotic cells. It is a ubiquitous, conserved multi-domain phosphoprotein found in all vertebrate species.[1-3]

Nucleolin contains a specific bipartite nuclear localization signal sequence and three different structural domains. The N-terminal domain consists of highly acidic regions separated by basic sequences and contains multiple phosphorylation sites. The central domain contains four RNA-binding domains (RBD or RRM), and the C-terminal domain (GAR or RGG) is rich in glycine, arginine and phenylalanine residues. It was suggested that the N- and C-terminal domains are involved in protein-protein interaction whereas the central domain is involved in specific interactions with nucleic acids.[3]

Nucleolin is a multifunctional protein involved in most steps of ribosome biogenesis. Nucleolin has been implicated in chromatin structure, rDNA transcription, rRNA maturation, ribosome assembly, cytokinesis, nucleogenesis, cell proliferation and growth, and nucleo-cytoplasmic transport. Nucleolin also exhibits autodegradation, DNA and RNA helicase activities, and DNA-dependent ATPase activity. Nucleolin multiple activities may be regulated by proteolysis, methylation, ADP-ribosylation, and phosphorylation by several kinases, including casein kinase II (CK2), $p34^{cdc2}$, and protein kinase C-ζ.[3, 4]

Although nucleolin is mainly localized in the nucleus, several reports indicate its presence at the cell surface of cultured tumor cells and endothelial cells of angiogenic vessels *in vivo*.[5-8] Nucleolin might function as a cell surface receptor for lipoproteins, viruses, extracellular matrix, growth factors and other molecules.[3-4] It has been found that nucleolin interacts with telomerase and that this interaction is critical for the nucleolar localization of telomerase.[9]

Reagent

Supplied as a solution in 0.01 M phosphate buffered saline, pH 7.4, containing 15 mM sodium azide as a preservative.

Antibody concentration: 1.5-3.0 mg/mL
Molar Ratio (F/P): 2-9

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

Storage/Stability

For continuous use, store at 2-8 °C for up to one month. For extended storage, freeze in working aliquots. Repeated freezing and thawing is not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use. Working dilution samples should be discarded if not used within 12 hours.

Note: Store product protected from light.

Product Profile

Immunofluorescence: a working antibody concentration of 0.5-1.0 µg/mL is recommended using human HeLa, rat NRK, and mouse 3T3 cells.

Note: In order to obtain the best results in various techniques and preparations, we recommend determining optimal working concentration by titration.

References

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