WHITEPAPER

# Meet the Marker: NPM1

BIOCARE MEDICAL

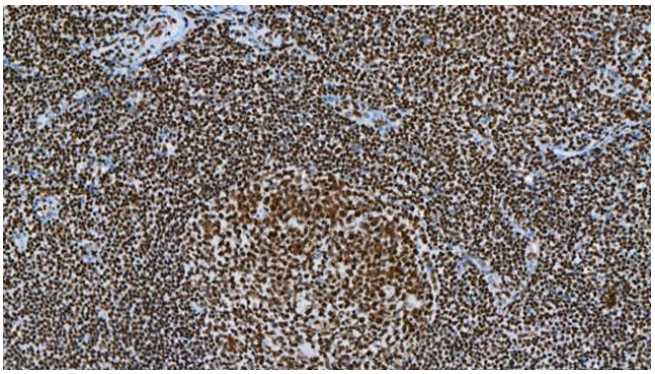
# Meet the Marker: NPM1

Nucleophosmin, also known as B23 or NPM1, is a protein found primarily inside the nucleolus, a spherical structure within the cell nucleus that is responsible for producing and assembling ribosomes.[1]

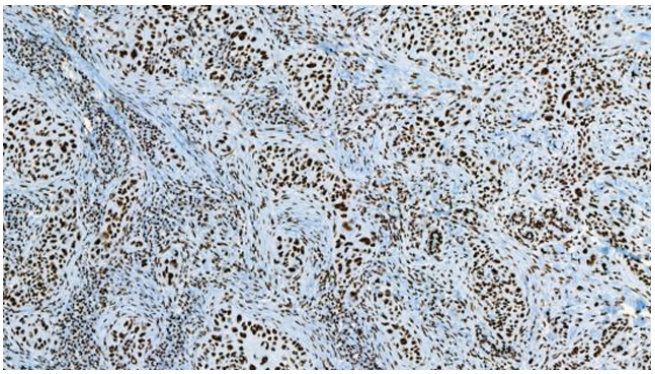
NPM1 shuttles back and forth between the nucleus and the cytoplasm, and this shuttling ability is critical for its postulated functions.[4] It is thought that NPM1 is involved in a diverse set of cellular processes, including ribosome formation, chromatin remodeling, DNA replication, DNA transcription, DNA repair, and the progression of the cell cycle.[4,6] Research has shown that NPM1 also keeps the tumor suppressor protein p14 Alternate Reading Frame (ARF) in its proper location and protects it from being broken down.[6]

NPM1 is mutated in various forms of lymphomas and leukemia.[1] While NPM1 moves between the nucleus and cytoplasm, it is predominantly localized in the nucleus.[6] Abnormal localization of NPM1 in the cell cytoplasm is observed in 50-60% of cases of acute myeloid leukemia.[1,2]

Overexpression of NPM1 enhances cell growth and division, and so cancerous cells generally exhibit elevated NPM1 expression.[4] NPM1 overexpression has been implicated in various blood cancers and solid tumor malignancies, including colon cancer.[1,6] This overexpression is also considered to be a potential marker for recurrence and progression of cancer.[1] High levels of NPM1 have been reportedly associated with gradient drug resistance in bladder cancer, lung cancer, hepatoma carcinoma, and breast carcinoma.[1]

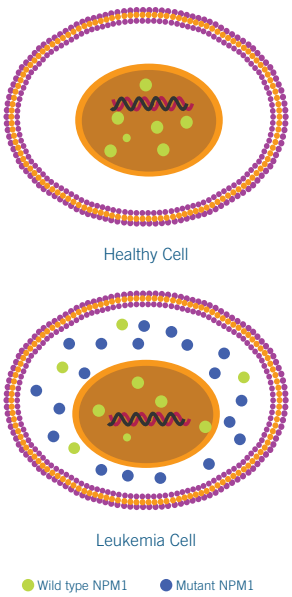


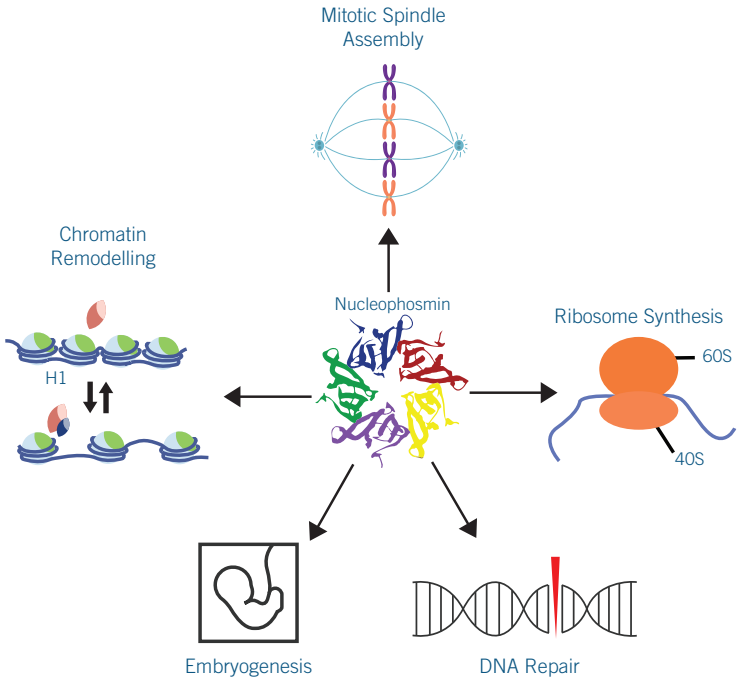
Tonsil stained with NPM1 antibody



Melanoma stained with NPM1 antibody

## Stain and Illustrations




To learn more about Biocare's NPM1 marker, please call 800-799-9499 or visit our website at biocare.net

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