

# NPM1

Concentrated and Prediluted Rabbit Polyclonal Antibody  
902-3281-030422

**BIOCARE**  
M E D I C A L

Available Product Formats				
Format	Catalog Number	Description	Dilution	Diluent
Concentrate	ACR 3281 A, C	0.1, 1.0 mL	1:100	Da Vinci Green
Predilute	APR 3281 AA	6.0 mL	Ready-to-use	N/A
UltraLine – For BenchMark	AVR 3281 G	6.0 mL	Ready-to-use	N/A
Q Series– For Leica BOND-III	ALR 3281 G7	7.0 mL	Ready-to-use	N/A

## Intended Use:

For Research Use Only. Not for use in diagnostic procedures.

## Summary and Explanation:

Nucleophosmin (NPM1), also known as B23 protein, resides primarily in the nucleus but shuttles between the nucleus and the cytoplasm during the cell cycle (1). NPM1 is involved in several biological processes, such as ribosome biogenesis, tumor suppression, nucleolar stress response, and cell apoptosis (1). NPM1 gene is translocated or mutated in various lymphomas and leukemias, forming fusion proteins (2). Approximately one-third of anaplastic large-cell non-Hodgkin's lymphomas were found to express a fusion between NPM1 and Anaplastic Lymphoma Kinase (ALK) (1,2). Studies show that about 50–60% of normal acute myeloid leukemia patients with normal karyotype carry *NPM1* mutations, which are characterized by cytoplasmic dislocation of the NPM1 protein (1).

NPM1 is overexpressed in various hematologic and solid tumor malignancies, overexpression may lead to the recurrence and advancement of cancer (1). Increased expression of NPM1 has been associated with colon cancer (3,4).

## Principle of Procedure:

Antigen detection in tissues and cells is a multi-step immunohistochemical process. The initial step binds the primary antibody to its specific epitope. After labeling the antigen with a primary antibody, a one-step or two-step detection procedure can be applied. A one-step procedure will feature an enzyme labeled polymer that binds the primary antibody. A two-step procedure will feature a linker antibody added to bind to the primary antibody. An enzyme-labeled polymer is then added to bind the linker antibody. These detections of the bound antibodies are evidenced by a colorimetric reaction.

**Source:** Rabbit polyclonal

**Species Reactivity:** Human; others not tested

**Clone:** N/A

**Isotype:** IgG

**Protein Concentration:** Call for lot specific Ig concentration.

**Epitope/Antigen:** NPM1

**Cellular Localization:** Nucleus

**Positive Tissue Control:** Skin, tonsil

## Known Applications:

Immunohistochemistry (formalin-fixed paraffin-embedded tissues)

**Supplied As:** Buffer with protein carrier and preservative

## Storage and Stability:

Store at 2°C to 8°C. The product is stable to the expiration date printed on the label, when stored under these conditions. Do not use after expiration date. Diluted reagents should be used promptly; any remaining reagent should be stored at 2°C to 8°C.

## Staining Protocol Recommendations (intelliPATH FLX® and manual use):

**Peroxide Block:** Block for 5 minutes with Peroxidized 1.

**Pretreatment:** Perform heat retrieval using Diva Decloaker. Refer to the Diva Decloaker data sheet for specific instructions.

**Protein Block (Optional):** Incubate for 5-10 minutes at RT with Background Punisher.

**Primary Antibody:** Incubate for 30 minutes at RT.

**Probe:** N/A

**Polymer:** Incubate for 30 minutes at RT with a tertiary polymer.

**Chromogen:** Incubate for 5 minutes at RT with Biocare's DAB – OR – Incubate for 5-7 minutes at RT with Warp Red.

**Counterstain:** Counterstain with hematoxylin. Rinse with deionized water. Apply Tacha's Bluing Solution for 1 minute. Rinse with deionized water.

## Staining Protocol Recommendations (intelliPATH FLX® and manual use) Cont'd:

### Technical Note:

This antibody, for intelliPATH FLX and manual use, has been standardized with MACH 4 detection system. Use TBS for washing steps.

## Staining Protocol Recommendations (Ventana BenchMark ULTRA):

AVR3281 is intended for use with the BenchMark ULTRA. Refer to the User Manual for specific instructions for use. Recommended protocol parameters are as follows:

**Template/Detection:** OptiView DAB IHC

**Pretreatment Protocol:** CC1 32 minutes

**Peroxidase:** Pre-Primary Peroxidase Inhibitor

**Primary Antibody:** 8 minutes, 36°C

## Staining Protocol Recommendations (Q Series – For Leica BOND-III):

ALR3281 is intended for use with the Leica BOND-III. Refer to the User Manual for specific instructions for use. Recommended protocol parameters are as follows:

**Protocol Name:** IHC Protocol F

**Detection:** Bond Polymer Refine

**HIER:** 10 min with ER1

**Peroxide Block:** 5 min

**Marker (Primary Antibody):** 15 min

**Post Primary:** 8 min

**Polymer:** 8 min

**Mixed DAB Refine:** 10 min

**Hematoxylin:** 5 min

## Limitations:

This product is provided for Research Use Only (RUO) and is not for use in diagnostic procedures. Suitability for specific applications may vary and it is the responsibility of the end user to determine the appropriate application for its use.

## Precautions:

1. This antibody contains less than 0.1% sodium azide. Concentrations less than 0.1% are not reportable hazardous materials according to U.S. 29 CFR 1910.1200, OSHA Hazard communication and EC Directive 91/155/EC. Sodium azide (NaN<sub>3</sub>) used as a preservative is toxic if ingested. Sodium azide may react with lead and copper plumbing to form highly explosive metal azides. Upon disposal, flush with large volumes of water to prevent azide build-up in plumbing. (Center for Disease Control, 1976, National Institute of Occupational Safety and Health, 1976) (5)

2. Specimens, before and after fixation, and all materials exposed to them should be handled as if capable of transmitting infection and disposed of with proper precautions. Never pipette reagents by mouth and avoid contacting the skin and mucous membranes with reagents and specimens. If reagents or specimens come into contact with sensitive areas, wash with copious amounts of water. (6)

3. Microbial contamination of reagents may result in an increase in nonspecific staining.

4. Incubation times or temperatures other than those specified may give erroneous results. The user must validate any such change.

5. Do not use reagent after the expiration date printed on the vial.

6. The SDS is available upon request and is located at <http://biocare.net>.

## Technical Support:

Contact Biocare's Technical Support at 1-800-542-2002 for questions regarding this product.

 Biocare Medical

60 Berry Drive

Pacheco, CA 94553

USA

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Tel: 800-799-9499 | [www.biocare.net](http://www.biocare.net) | Fax: 925-603-8080

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## References:

1. Chen Y, Hu J. Nucleophosmin1 (NPM1) abnormality in hematologic malignancies, and therapeutic targeting of mutant NPM1 in acute myeloid leukemia. *Ther Adv Hematol.* 2020;11:2040620719899818.
2. Falini B, Nicoletti I, Bolli N, et al. Translocations and mutations involving the nucleophosmin (NPM1) gene in lymphomas and leukemias. *Haematologica.* 2007 Apr;92(4):519-32.
3. Leal MF, Mazzotti TK, Calcagno DQ, et al. Deregulated expression of Nucleophosmin 1 in gastric cancer and its clinicopathological implications. *BMC Gastroenterol.* 2014 Jan 10;14:9.
4. Liu Y, Zhang F, Zhang XF, et al. Expression of nucleophosmin/NPM1 correlates with migration and invasiveness of colon cancer cells. *J Biomed Sci.* 2012 May 25;19(1):53.
5. Center for Disease Control Manual. Guide: Safety Management, NO. CDC-22, Atlanta, GA. April 30, 1976 "Decontamination of Laboratory Sink Drains to Remove Azide Salts."
6. Clinical and Laboratory Standards Institute (CLSI). Protection of Laboratory Workers from Occupationally Acquired Infections; Approved Guideline-Fourth Edition CLSI document M29-A4 Wayne, PA 2014.

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