

# PRODUCT INFORMATION



## Citrullinated Nucleophosmin (human, recombinant)

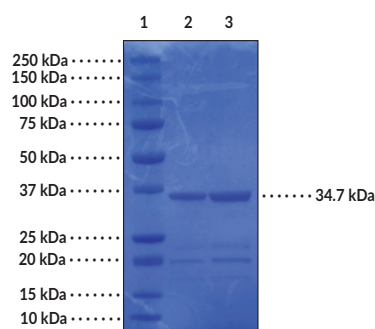
Item No. 37780

### Overview and Properties

**Synonyms:** NPM, NPM1, Nucleolar Phosphoprotein B23, Nucleolar Protein NO38, Numatrin,  
**Source:** Recombinant human N-terminal His-TEV-tagged NPM1 expressed in *E. coli* and citrullinated by PAD4  
**Amino Acids:** 2-294  
**Uniprot No.:** P06748  
**Molecular Weight:** 34.7 kDa  
**Storage:** -80°C (as supplied)  
**Stability:** ≥6 months  
**Purity:** ≥60% estimated by SDS-PAGE  
**Supplied in:** 50 mM HEPES, pH 7.8, with 150 mM sodium chloride and 10% glycerol  
**Protein Concentration:** *batch specific* mg/ml

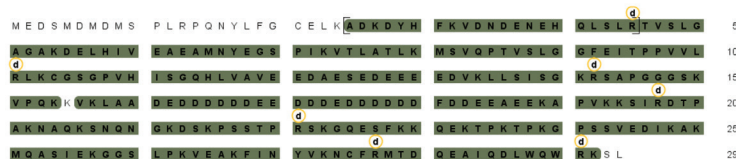
Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

### Images

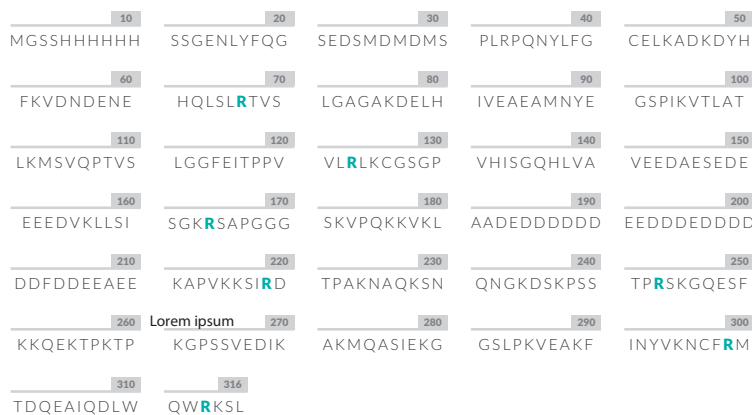


Lane 1: MW Markers  
 Lane 2: Citrullinated NPM1 (2 μg)  
 Lane 3: Citrullinated NPM1 (4 μg)  
**SDS-PAGE Analysis of Citrullinated Nucleophosmin.**

The target protein was detected with 91% sequence coverage:



Citrullinated Nucleophosmin: PTM mass spec profiling



Citrullinated Nucleophosmin (human, recombinant) (Item No. 37780): PTM mass spec profiling. The targeted protein was detected with 91% sequence coverage.

Citrullination sites shown are representative of typical results. Batch-to-batch variations may occur.

**WARNING**  
 THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

**SAFETY DATA**  
 This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

**WARRANTY AND LIMITATION OF REMEDY**  
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**CAYMAN CHEMICAL**  
 1180 EAST ELLSWORTH RD  
 ANN ARBOR, MI 48108 · USA  
 PHONE: [800] 364-9897  
 [734] 971-3335  
 FAX: [734] 971-3640  
 CUSTSERV@CAYMANCHEM.COM  
 WWW.CAYMANCHEM.COM

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## Description

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Nucleophosmin is a nucleolar phosphoprotein that is involved in diverse biological processes, including ribosome maturation, DNA repair, and mitotic spindle assembly.<sup>1</sup> It is highly post-translationally modified and composed of an oligomerization domain, which contains two nuclear export signals, three acidic domains, an intrinsically disordered region, which contains two nuclear localization signals, and a C-terminal RNA-binding domain.<sup>1,2</sup> Nucleophosmin is ubiquitously expressed and shuttles between the nucleolus and cytoplasm; however, alternative splicing of *NPM1* produces a variant that lacks the RNA-binding domain and nucleolar localization signal and is instead localized throughout the nucleus.<sup>1-3</sup> Nucleophosmin has histone- and protein chaperone activity and plays a role in ribosome assembly and export, centrosome duplication, cell cycle control, the stress response, and embryogenesis.<sup>1</sup> Nucleophosmin citrullinated by PAD4 increases p53 stability and radiation sensitivity in a thyroid cancer cell line exposed to radiation.<sup>4</sup> This product contains purified nucleophosmin (human, recombinant) (Item No. 37621) that has been modified with PAD4, which is subsequently depleted by affinity chromatography.

## References

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1. Cela, I., Di Matteo, A., and Federici, L. Nucleophosmin in Its interaction with ligands. *Int. J. Mol. Sci.* **21(14)**, 4885 (2020).
2. Okuwaki, M. The structure and functions of NPM1/Nucleophosmin/B23, a multifunctional nucleolar acidic protein. *J. Biochem.* **143(4)**, 441-448 (2008).
3. Cordell, J.L., Pulford, K.A., Bigerna, B., *et al.* Detection of normal and chimeric nucleophosmin in human cells. *Blood* **93(2)**, 632-642 (1999).
4. Na, J., Lee, C.-H., Chung, J.-K., *et al.* Overexpression of both human sodium iodide symporter (NIS) and BRG1-bromodomain synergistically enhances radioiodine sensitivity by stabilizing p53 through NPM1 expression. *Int. J. Mol. Sci.* **24(3)**, 2761 (2023).

CAYMAN CHEMICAL  
1180 EAST ELLSWORTH RD  
ANN ARBOR, MI 48108 · USA  
PHONE: [800] 364-9897  
[734] 971-3335  
FAX: [734] 971-3640  
CUSTSERV@CAYMANCHEM.COM  
WWW.CAYMANCHEM.COM