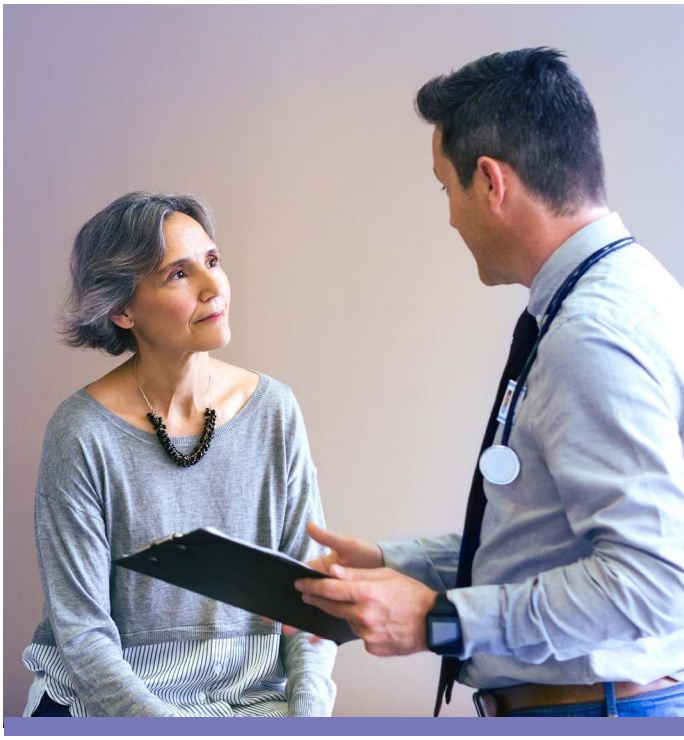
Xpert® NPM1 Mutation

*For **sensitive**, **fast**, and **on-demand** monitoring of NPM1 mRNA transcripts in AML patients*



The Facts

Acute myeloid leukemia (AML) is a heterogeneous disorder characterized by clonal expansion differentiation, and uncontrolled proliferation of myeloid progenitors (blasts) in peripheral blood and bone marrow.[1,2] It is the most common acute leukemia in adults and is known to have various Nucleophosmin (NPM1) exon 12 mutations.[1]

The NPM1 is one of the most common genetic abnormalities in AML, accounting for about 30% to 35% of cases.[3,4] The WHO identified NPM1 mutated AML as a distinct entity in 2017.[3] The determination of NPM1 mutation status has become essential for the molecular classification of AML. Established international organizations recommend definitive timepoints for monitoring NPM1 in AML patients.[5,6]

Across European countries, **the incidence is 3.5 cases per 100,000 population per year and the five-year survival is 17.5% approximately.**[1,7]

AML represents about **80% of acute leukemia in adults, with a median age at diagnosis of 67-68 years.**[1,7,8]

No International Standards for quantitation of the NPM1 mutation transcript for AML.

Xpert NPM1 Mutation

Effectiveness for your patients

Xpert NPM1 Mutation is an automated test for quantifying the amount of mutant NPM1 mRNA transcripts (types A, B, and D in exon 12) as a ratio of NPM1 Mutation/ABL1 with high sensitivity. The test is performed on the innovative GeneXpert® technology, which automates and integrates sample purification, nucleic acid amplification, and target sequence detection in simple or complex samples using real-time RTPCR and nested PCR assays in one automated cartridge.*

Dynamic range*
500% to 0.030% NPM1 Mutation/ABL1

Standardized results
Proprietary in-house RNA control materials in every lot

Time to result*
≤3 hours

Your needs	Our answers
Make the right decisions	**Facilitating the decision making process at critical moments thanks to the sensitivity and quality of the test:** **The test sensitivity meets clinical requirements:** – Dynamic range between between 500% to 0.030% NPM1 Mutation/ABL1* – Clinically demonstrated limit of detection (LoD) of 0.030%*
Improve patient's journey	The possibility of providing a **result in less than 3 hours following sample reception*** allows the early prediction of a relapse **to be quickly identified and monitor the treatment and care effectiveness.**
Answer patient's needs	Relapse remains the most common cause of treatment failure for AML patients.[9] **Timely monitoring ensures measurement of treatment response and detection of potential relapse.**[10]
Strengthen ease of access to monitoring	Thanks to an easy-to-use test integrated in a fully automated process (on demand or in series), 2 internal controls integrated into each cartridge, and standardized reports,* **results can be obtained and communicated to the patient under the same conditions and time, regardless of the setting where the test is performed.**

What are the recommendations?

- Methods with high clinical sensitivity and specificity adapted to the molecular laboratory workflow are required for the diagnosis, prognosis, and monitoring of AML.[10]
- **European LeukemiaNet recommends to perform baseline molecular assessment by quantitative polymerase chain reaction (qPCR) or droplet digital PCR (dPCR) to understand response to initial therapy, and facilitate MRD monitoring after treatment for patients with mutant NPM1 and core-binding factor (CBF)-AML.**[11]

* Instructions for use of the Xpert NPM1 Mutation (302-8304)

References:

1 Bocchia M, Carella AM, Mulè A, Rizzo L, Turrini M, Abbenante MC, Cairoli R, Calafiore V, Defina M, Gardellini A, Luzi G, Patti C, Pinazzi MB, Riva M, Rossi G, Sammartano V, Rigacci L. Therapeutic Management of Patients with FLT3 + Acute Myeloid Leukemia: Case Reports and Focus on Gilteritinib Monotherapy. Pharmgenomics Pers Med. 2022 Apr 22;15:393-407. doi: 10.2147/PGPM.S346688. PMID: 35496349; PMCID: PMC9041600.

2 Saultz JN, Garzon R. Acute Myeloid Leukemia: A Concise Review. J Clin Med. 2016 Mar 5;5(3):33. doi: 10.3390/jcm5030033. PMID: 26959069; PMCID: PMC4810104.Löwenberg B, Rowe JM. Introduction to the review series on advances in acute myeloid leukemia (AML). Blood. 2016 Jan 7;127(1):1. doi: 10.1182/blood-2015-10-662684. Epub 2015 Dec 10. PMID: 26660430.

3 Falini, B., Sciabolacci, S., Falini, L. et al. Diagnostic and therapeutic pitfalls in NPM1-mutated AML: notes from the field. Leukemia 35, 3113–3126 (2021). https://doi.org/10.1038/s41375-021-01222-4.

4 Kunchala P, Kuravi S, Jensen R, McGuirk J, Balusu R. When the good go bad: Mutant NPM1 in acute myeloid leukemia. Blood Rev. 2018; 32(3): 167-183. doi:10.1016/j.blre.2017.11.001.

5 Heuser M, Ofran Y, Boissel N, Brunet Mauri S, Craddock C, Janssen J, Wierzbowska A, Buske C. Acute myeloid leukemia in adult patients: ESMO Clinical Oractice Guidelines for diagnosis, treatment and follow-up. Annals of Oncology, Special Article, Vol. 31, Issue 6, June 2020, Pages 697-712. doi: https://doi.org/10.1016/j.annonc.2020.02.018.

6 National Comprehensive Cancer Network. NCCN Guidelines for Patients – Acute Myeloid Leukemia, 2022. https://www.nccn.org/patients/guidelines/content/PDF/aml-patient.pdf. Accessed on January 11, 2023.

7 Acute Myeloid Leukaemia: mapping the policy response to an acute cancer in France, Germany, Italy, Spain and the UK, The Economist Intelligence Unit Limited, December 2019.

8 De Kouchkovsky, I., Abdul-Hay, M. 'Acute myeloid leukemia: a comprehensive review and 2016 update'. Blood Cancer Journal 6, e441 (2016). https://doi.org/10.1038/bcj.2016.50.

9 Dillon R, Hills R, Freeman S, Potter N, Jovanovic J, Ivey A, Kanda AS, Runglall M, Foot N, Valganon M, Khwaja A, Cavenagh J, Smith M, Ommen HB, Overgaard UM, Dennis M, Knapper S, Kaur H, Taussig D, Mehta P, Raj K, Novitzky-Basso I, Nikolousis E, Danby R, Krishnamurthy P, Hill K, Finnegan D, Alimam S, Hurst E, Johnson P, Khan A, Salim R, Craddock C, Spearing R, Gilkes A, Gale R, Burnett A, Russell NH, Grimwade D. Molecular MRD status and outcome after transplantation in NPM1-mutated AML. Blood. 2020 Feb 27;135(9):680-688. doi: 10.1182/blood.2019002959. PMID: 31932839; PMCID: PMC7059484.

10 Hafez M, Ye F, Jackson K, Yang Z, Karp JE, Labourier E, Gocke CD. Performance and clinical evaluation of a sensitive multiplex assay for the rapid detection of common NPM1 mutations. J Mol Diagn. 2010 Sep;12(5):629-35. doi: 10.2353/jmoldx.2010.090219. Epub 2010 Jul 8. PMID: 20616361; PMCID: PMC2928427.

11 Döhner H, Wei AH, Appelbaum FR, Craddock C, DiNardo CD, Dombret H, Ebert BL, Fenaux P, Godley LA, Hasserjian RP, Larson RA, Levine RL, Miyazaki Y, Niederwieser D, Ossenkoppele G, Röllig C, Sierra J, Stein EM, Tallman MS, Tien HF, Wang J, Wierzbowska A, Löwenberg B. Diagnosis and management of AML in adults: 2022 recommendations from an international expert panel on behalf of the ELN. Blood. 2022 Sep 22;140(12):1345-1377. doi: 10.1182/blood.2022016867. PMID: 35797463.

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