Key Investigations in Leukemia

Test Code	Tests Name
Z774	ACUTE MYELOID LEUKEMIA (AML), CYTOGENETICS PANEL *t (8;21) or LSI ETO/AML1 * inv (16) (p13q22) or t(16;16) (p13;q22) or CBFB * t (15;17) or LSI PML/RARA * t(variable;11q23) ; MLL gene breakapart *Chromosome analysis, Hematological malignancy
Z535	AML CATEGORIZATION , PCR *PML RARA t(15;17)(q22;q12) GENE REARRANGEMENT *AML ETO t(8;21) GENE REARRANGEMENT *Inv 16 (p13 q22) /t(16;16)(p13;q22) GENE REARRANGEMENT
N045	AML ETO t(8;21)GENE REARRANGEMENT, PCR QUALITATIVE
N046	Inv 16 (p13q22) /t(16;16)(p13;q22) GENE REARRANGEMENT QUALITATIVE,PCR
Z836	LEUKEMIA DIAGNOSTIC COMPREHENSIVE PROFILE 1
Z837	LEUKEMIA DIAGNOSTIC COMPREHENSIVE PROFILE 2
Z528	LEUKEMIA DIAGNOSTIC COMPREHENSIVE PROFILE 3
Z269	LEUKEMIA DIAGNOSTIC PANEL: AML CHARACTERIZATION
Z662	LEUKEMIA GENETIC PROFILE ANY 6 MARKERS, PCR,QUALITATIVE Any 6 of the Following markers can be selected – BCR ABL, PML-RARA, AML-ETO, INV16, NPM1, FLT3,MLL-AF9,MLLAF4,MLL-ENL, t(12;21), t(1;19)
Z512	LEUKEMIA DIAGNOSTIC PANEL, CUSTOMIZED (ANY 10 MARKERS)
Z282	LEUKEMIA DIAGNOSTIC PANEL CLL/HCL/SLL(BASIC)

References:

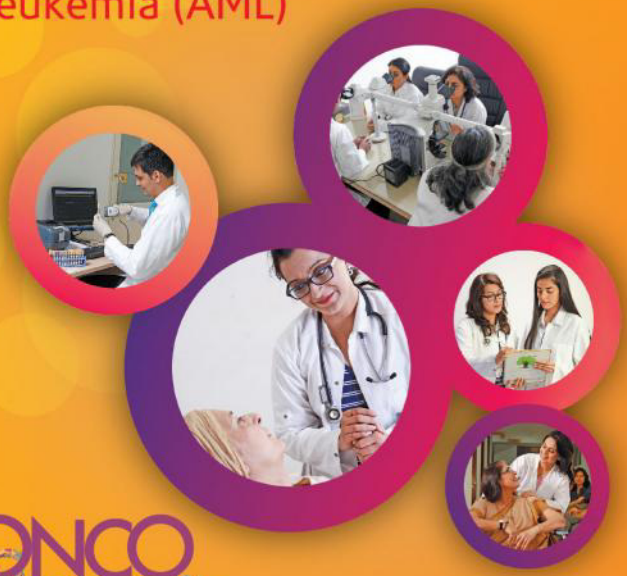
1. BLOOD, 19 MAY 2016 x VOLUME 127, NUMBER 20
2. American Journal of Hematology, Vol. 91, No. 1, January 2016
3. Version 2.2016, 06/29/16 © National Comprehensive Cancer Network, Inc. 2016

Dr Lal PathLabs

National Customer Care: 011-3988-5050

Corporate Office: 12th Floor, Tower B, SAS Tower, Medicity, Sec- 38, Gurgaon- 122 001, Haryana
Tel: 0124- 3016 500 | Fax: 0124- 42344668
National Reference Lab: Sector-18, Block-E, Rohini, New Delhi- 110 085
www.lalpathlabs.com
doctorfeedback@lalpathlabs.com
Follow us at www.facebook.com/lalpathlabs www.twitter.com/lalpathlabs

An overview of the diagnostic criteria for Acute Myeloid Leukemia (AML)



ONCO Pedia

Dr Lal PathLabs

National Customer Care: 011-3988-5050

Classification of Acute Myeloid Leukemia[2]

MRC	Cytogenetic abnormality	ELN Classification	Cytogenetic abnormality	NCCN Risk Stratification	Cytogenetics	Molecular abnormalities
Favourable	t(15;17)(q22;q21), t(8;21)(q22;q22), Inv(16)/t(16;16)(p13;q22)	Favourable	t(8;21)(q22;q22), Inv(16)/t(16;16)(p13;q22) NPM1-mutated and FLT3-ITD-wild type (Normal Karyotype), mutated CEBPα (Normal Karyotype)	Better risk Intermediate risk	Inv(16) or t(16;16) t(8;21) t(15;17) Normal Cytogenetics + 8 alone t(9;11) Other nondefined	Normal cytogenetics: NPM1 mutation in the absence of FLT3-ITD or isolated biallelic CEBPα mutation T(8;21), inv(16), t(16;16); with c-KIT mutation
Intermediate	Abnormalities not classified as favourable or adverse	Intermediate-1	NPM1-mutated and FLT3-ITD mutated (Normal Karyotype) NPMI-wild type and FLT3-ITD mutated (Normal Karyotype), NPMI-wild type and FLT3-ITD wild type (Normal Karyotype)	Poor risk	Complex (≥3 clonal chromosomal abnormalities), Monosomal Karyotype, -5, 5q-, 7, 7q- 11q23 - non t(9:11) Inv(3), t(3;3) t(6;9) t(9;22)	Normal Cytogenetics: with FLT3-ITD mutation
Adverse	abn(3q) [excluding t(3;5)], inv(3)/t(3;3)(q21;q26) add(5q), del(5q), -5, -7, add (7q)/del(7q), t(6,11)(q27;q23), t(10;11)(p11~13;q23), t(11q23) [excluding t(9;11) and t(11:19)] t(9;22)(q34;q11) -17/abn(17p), complex (≥ 4 unrelated abnormalities	Intermediate-2 Adverse	t(9;11)(p22;q23), cytogenetic abnormalities not classified as favourable or adverse inv(3)/t(3;3)(q21;q26), t(6;9)(p23,q34) t(v;11)(v;23),MLL rearranged -5 or del(5q), -7, abnormal(17p), Complex Karyotype			

Abn = abnormal; Inv = inversion.

The Medical Research Council (MRC)t, European Leukemia Net (ENL) and National Comprehensive Cancer Network (NCCN) Classifications of Acute Myeloid Leukemia.

2016 WHO recommendations for Acute Promyelocytic Leukemia

The most recent WHO classification of myeloid neoplasms and acute leukemia changed the definition of APL from the cytogenetic criteria of t(15;17) to the molecular definition of "APL with PML-RARA" to be inclusive of complex rearrangements that lead to a functional transcription factor.

Also as stated in the Published studies, there is a high frequency of FLT3 mutations in APL. In a systematic review including 11 studies, FLT3-ITD frequency in APL occurred in about 12% to 38% of cases and FLT3-TKD occurred in 2% to 20% of cases.[3]

2016 WHO Recommendations

WHO further expanded the recurrent genetic abnormalities to include two provisional categories: [3,1]

- A new provisional category of AML with BCR-ABL1 is added to recognize these rare de novo AML cases that may benefit from TKI therapy
- AML with RUNX1 is associated with a poorer prognosis