

Sample Case 1: AML MRD confirmed by FISH

“Different from Normal” Multidimensional Flow Cytometry Results

Specimen Type: Bone Marrow Aspirate

Clinical History/Indications: A xy year old patient with a clinical history of acute myeloid leukemia.

Analysis/Conclusions: The flow cytometric findings reveal an aberrant myeloblast population present at 0.04% of total non-erythroid cells (at the limit of detection, see comment), consistent with residual AML. Histopathologic, cytogenetic, and clinical data are required for complete interpretation.

Comment: Cell enrichment of the abnormal cell population by sorting the CD34 positive cells, followed by FISH studies is recommended.

Flow Cytometric SSC/CD45 Differential: 7.4% lymphocytes, 6.1% monocytes, 81% myeloid forms (all stages of maturation), 0.05% lymphoblasts, and 0.04% abnormal myeloid progenitor cells

Immunophenotypic Findings: Independent immunophenotypic analysis of the myeloblast population reveals abnormal surface antigen expression consisting of over expression of CD34, HLA-DR, heterogenous CD11b, dim CD38, dim CD117, increased CD64, CD33, CD13 and CD123. The myeloblasts lack expression of CD14, CD16, CD56, and all additional lymphoid antigens tested including CD19. The blasts are intermediate in size by light scatter. Total non-erythroid cells expressing CD34 are present at 0.7%

Flow Cytometric Sorted FISH Results

Specimen Type: Flow cytometric sorted CD34+ fraction from Bone Marrow Aspirate

Clinical History/Indications: A xy year old patient with a clinical history of acute myeloid leukemia. Flow cytometric findings reveal an aberrant myeloblast population present at 0.04% of total non-erythroid cells (at the limit of detection), consistent with residual AML

FISH (fluorescence in situ hybridization) Result: ABNORMAL Monosomy 7
nuc ish(D7S522,CEP7)x1[50/200] in CD34+ fraction

Interpretation:

- These findings are consistent with the presence of an aberrant CD34-positive cell population harboring monosomy 7.
- Clinical and hematopathology correlation is requested.

Interphase FISH (fluorescence in situ hybridization) was performed using the D7S522/CEP 7 probe set to assess the CD34+ flow cytometry sorted cell population for the presence of monosomy 7. During the analysis of 200 interphase cells with the D7S522/CEP7 probe set, a 1R1G pattern (see image) in 25% of the CD34+ cells examined, consistent with monosomy7.

FISH Analysis Summary:

Number of Cells Analyzed: 200

Cells Analyzed: Interphase

Probes Utilized: D7S486/Cen7

Source and Lot Number: Abbott, 436890

Control Probe Utilized: database

