

## Flow Cytometry Study Report

Patient: Patient Patient  
 Date of Birth: 00/00/00  
 Specimen ID: HP00-000

Date Collected: 00/00/00  
 Date Received: 00/00/00  
 Referring Physician: Doctor Doctor

### INTERPRETATION

Peripheral blood: Acute myeloid leukemia (see comment).

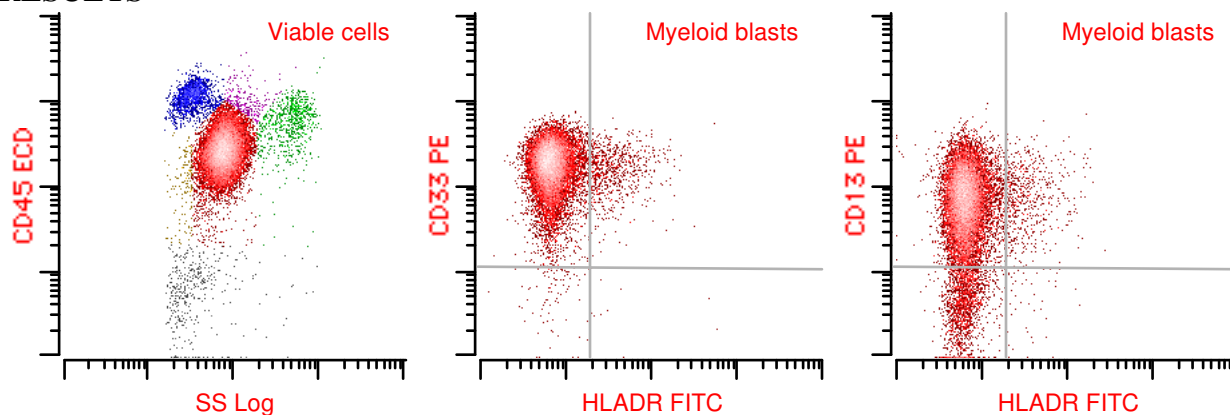
### COMMENT

Flow cytometry following erythroid lysis detected the presence of 86% bright CD34+ blasts with an abnormal myeloid immunophenotype. The vast majority of blasts is HLA-DR-negative and uniformly expresses low cytoplasmic MPO, low to intermediate CD13, intermediate to bright CD33 and CD117, and homogeneous CD38. Subsets of blasts express variable CD123, and CD64. Approximately 23% blats express CD135 (FLT3 receptor). The blasts also express low CD99 (MIC2), an antigen often positive in AML M1 or M3, myeloid sarcoma, and in HLA-DR-negative AML (see Ref.). The blasts do not show significant expression of CD90 (Thy-1), CD133, CD2, CD7, CD5, CD15, CD19, or CD56. Given the patient's history of MDS, the flow cytometry findings are consistent with the involvement by acute myeloid leukemia evolving from MDS in the WHO classification. Although bright expression of CD34 and no significant increase in side light scattering properties of the blasts speak against this being acute promyelocytic leukemia (APL), the absence of HLA-DR, presence of blasts with bilobed nuclei, and positive MPO stain on more than 60% blasts do not allow to exclude a possibility of a microgranular variant of APL. FISH studies to exclude t(15;17) is recommended. Definitive sub-classification of leukemia is best performed using cell counts on well-prepared bone marrow aspirate smears correlated with cytochemical and cytogenetic studies. Morphologic evaluation of the bone marrow will also help to determine if this patient's AML is associated with multilineage dysplasia. Close clinical follow up is recommended.

Ref: Zhang PJ, Barcos M. et al. Immunoreactivity of MIC2 (CD99) in acute myelogenous leukemia and related diseases. Mod Pathol. 2000 Apr;13(4):452-8.

CLINICAL: 59 year-old male with a history of MDS, now presenting with anemia and the WBC count of  $46 \times 10^3$  cells/mm<sup>3</sup>.

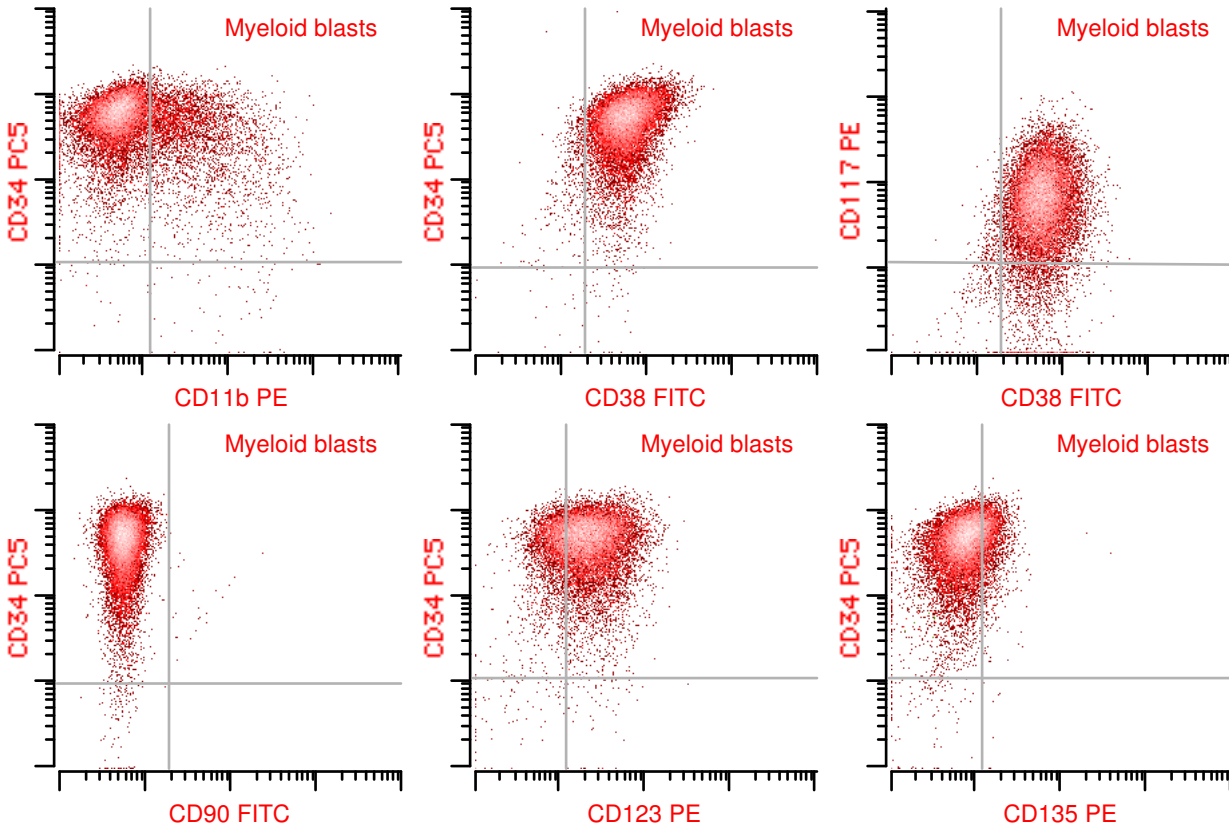
### RESULTS



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Immunophenotyping by flow cytometry after lysis of the erythroid cells reveals that the white blood cells consist of 86.5 % myeloid blasts (86.0 % CD34-positive blasts), 0.77 % lymphoid blasts, 3.4 % maturing myeloid forms, 1.1 % monocytes, and 8.2 % lymphocytes. The vast majority of abnormal blasts are negative for HLA-DR (95.9%), express low to intermediate CD13 (87.7%), cytoplasmic MPO (65%), intermediate to bright CD33 (99.4%) and CD117 (91.1%), and homogeneous CD38 (99.5%). Subsets of blasts express variable CD123 (82.8%), CD99 (59.71%) and CD135 (23.0%), and low CD64 (29.8%). The blasts do not express significant CD2, CD5, CD7, CD15, CD19, CD56, CD90, or CD133. The lymphocytes consist of 40.2 % B cells, 47.9 % T cells and 11.8 % NK cells. The B cells have a kappa:lambda ratio of 1.7 (normal 1-2).

The referring physician was notified of the results on 00/00/00.

Attending Pathologist  
DiaTech Oncology Corporation  
Phone: 514-398-5174  
Electronically signed on 00/00/00

The pathologist's signature on this report indicates that the case was personally reviewed and the findings confirmed by the attending pathologist. This test is used for clinical purposes and should not be regarded as investigational or for research use only. This test was developed and its performance characteristics determined by the DiaTech Clinical Pathology Laboratory. This laboratory is certified under CAP and CLIA-88 and is qualified to perform high complexity clinical testing. This test has not been cleared or approved by the U.S. Food and Drug Administration. The FDA has determined that such approval was not required.