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**Case Study: Diagnosis of MDS**

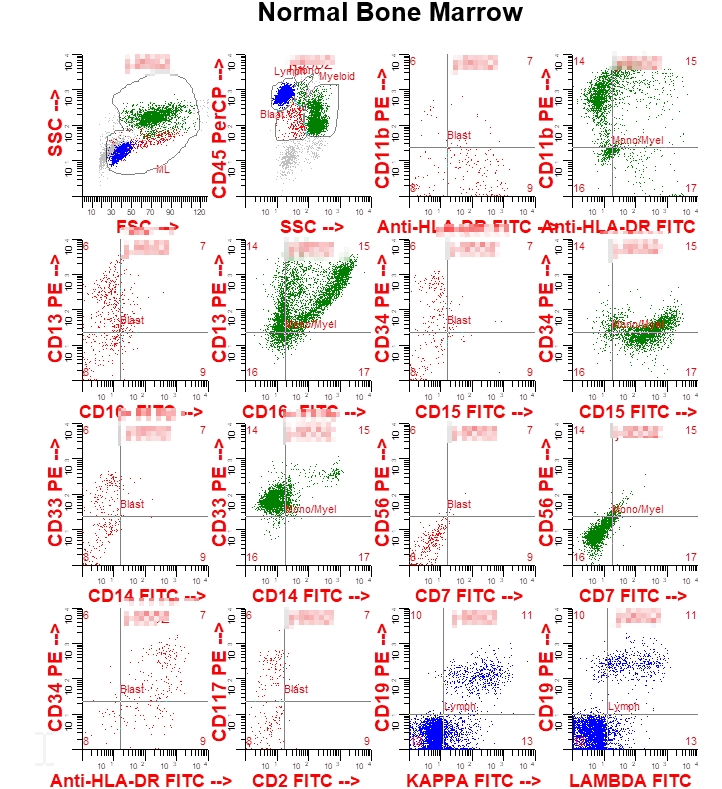
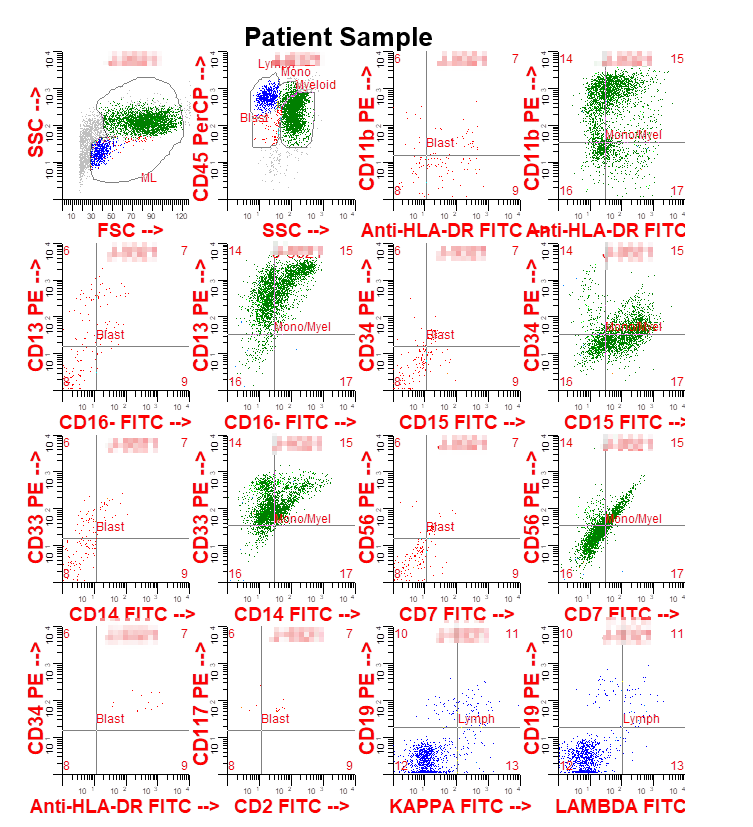
**This sample case highlights a patient with blasts <1%, pretreated for lung cancer that now has a high risk MDS (FCSS 4)**

This is a case demonstrating the clinical utility of combining **∆N:**™ (Difference from Normal) Myeloid Flow Cytometry and *cytogenetic* testing to identify the cause of pancytopenia. A XX-year-old patient with a clinical history of pancytopenia and an upper gastrointestinal bleed had been treated for lung and esophageal cancer. A bone marrow aspirate specimen was submitted for restaging.

**Flow Findings:** Analysis of the myeloid populations reveals hypogranularity with an asynchronous left shift in myeloid antigen expression. Monocytes also are asynchronous in antigen expression. In addition, a small population of myeloid cells expresses CD56. The myeloblast population expresses HLA-DR, heterogeneous CD34, CD13, CD33 and CD117. The lymphoblasts appear normal with the expected antigen expression. The mature lymphoid cells are heterogeneous with 22% polyclonal B lymphoid cells, 3.6% NK cells and 65% T cells. All these mature lymphoid cells express normal antigenic patterns. Total non-erythroid cells expressing CD34 are present at 0.3%.

**Analysis/Conclusions:** The **∆N:**™ flow cytometric findings reveal abnormal myeloid antigen expression (0.3%), with no evidence of increased myeloblasts, abnormal lymphoblasts, or lymphoma in the bone marrow. The MDS flow score for this patient is 4, myelomonocytic dyspoiesis in a high-risk category.

**Cytogenetics:** Karyotyping studies show abnormal karyotype with 12/20 cells showing t(17;20).

**Diagnosis:** **Consistent with refractory anemia with multilineage dysplasia (RCMD) with a poor risk factor** 

**The MDS ∆N:™ Flow Cytometry Score for this patient is a high risk 4**

**Best for Your Patient – Best for You**

**MDS Survival Rates Compared to Flow Cytometric Scoring System (FCSS)**

The Flow Cytometric Score was determined as published previously (Wells, et al, Blood, 2003). Survival rates were compared in three groups, with Mild/Normal (FCSS 1) patients having the best survival rates; Moderate (FCSS 2 or 3) showing a drop in survival; and Severe (FCSS 4 or higher) exhibited very poor survival rates, even when blasts are <5% (traditionally considered low risk). Patients with a high FCSS and <5% blasts had decreased survival, with an average of 6 months.

**∆N:™** Myeloid Flow Cytometry using the FCSS can add prognostic data to help make treatment decisions. Patients at higher risk for transfusion dependency can also be identified.



ChuS-C,et al.Flow cytometric scoring system as a diagnostic and prognostic tool in myelodysplastic syndromes. Leuk Res(2011),doi:10.1016/j.leukres.2011.02.016