Hematologics Update Vol.

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CASE STUDY- ΔN:™ (Difference from Normal) Flow Cytometry Identifies Secondary Underlying Neoplastic Population That Would be Missed at Other Laboratories

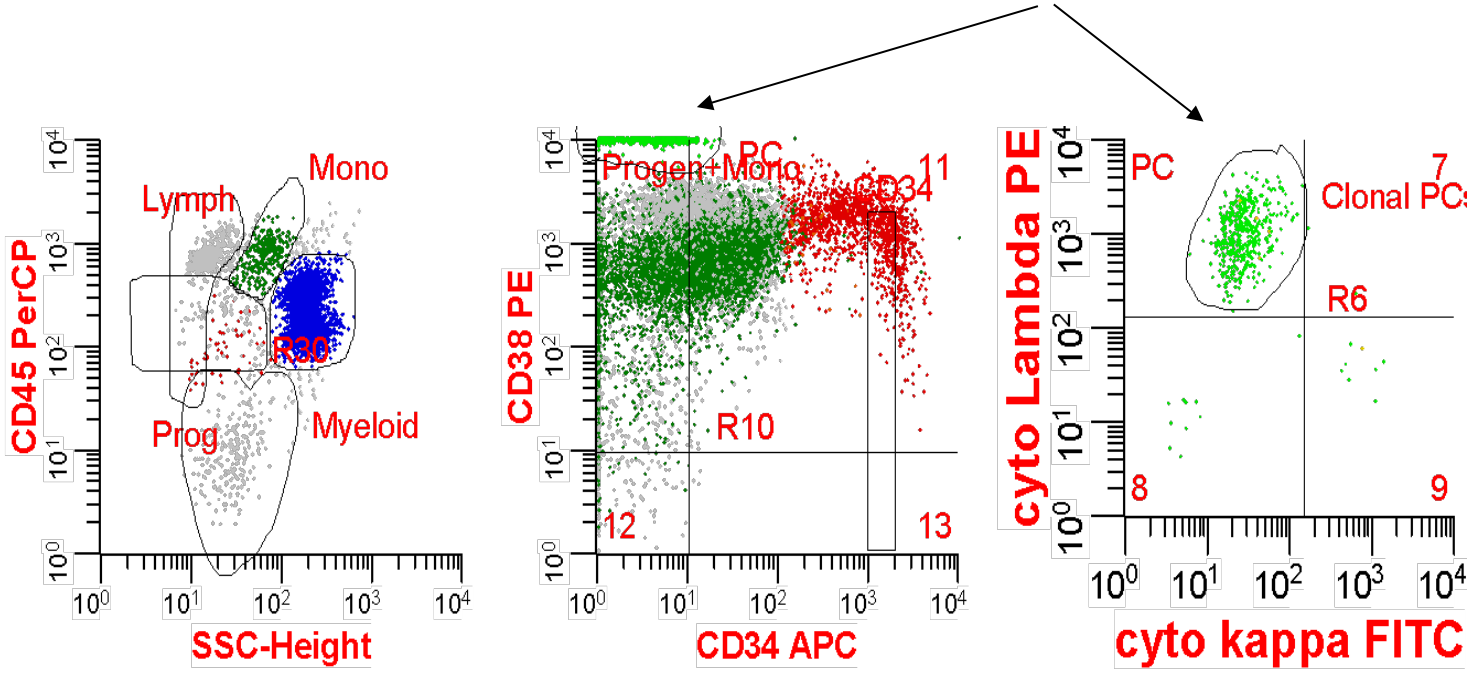
A bone marrow aspirate was sent to HematoLogics for **ΔN:™ Flow Cytometry** analysis to determine if there was **Measurable Residual Disease (MRD)** for AML. While flow cytometric analysis determined that there was no evidence of AML, it did identify an abnormal plasma cell population, indicating the presence of a plasma cell neoplasm. The Leukemia-Associated Immunophenotype (LAIP) used at other laboratories would have missed this second neoplastic process. LAIP is targeted to the AML cell population found at diagnosis, whereas **ΔN:™** looks for abnormalities in the entire composition of the bone marrow, in this case aberrant plasma cells.

ΔN:™ FLOW CYTOMETRY

Clinical History/Indications: A patient with a clinical history of acute myeloid leukemia (AML).

Analysis/Conclusions: The flow cytometric findings show no evidence of aberrant myeloid antigen expression or abnormal myeloblasts (estimated lower level of detection <0.02%). Monoclonal plasma cells are identified.

Flow Cytometric SSC/CD45 Differential: 11% lymphocytes, 5.5% monocytes, 75% myeloid forms (all stages of maturation), 1.4% lymphoblasts, 0.7% myeloblasts (expressing CD117) and **2.5% abnormal plasma cells**.



Reference:

Loken, MR, Brodersen, LE, Wells, DA (2019) Monitoring AML Response Using "Difference from Normal" Flow Cytometry; T.E.Druley, Minimal Residual Disease Testing, Current Innovations and Future Directions (pp 101-137). Springer International Publishing AG, Cham, Switzerland

Eidenschink Brodersen L, Gerbing RB, Alonzo TA, Pardo L, Alonzo TA, Paine D, et al. "Morphologic remission status is limited compared to ΔN flow cytometry: A Children's Oncology Group AAML0531 report. Blood Advances 2020 Oct; 4(20):5050-5061.