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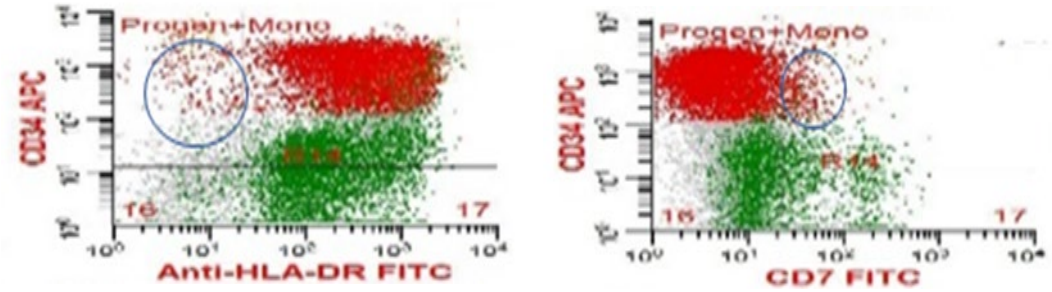
CASE STUDY – Integration of Technologies adds to Greater Confidence of Results

In this case study, a repeat bone marrow was submitted to HematoLogics for **ΔN:™** "Difference from Normal" **Flow Cytometry** analysis due to discrepant results from two other laboratories. The specimen was suboptimal due to it being submitted in EDTA (heparin is the preferred anticoagulant). A small abnormal myeloid population of only 0.1% was identified by ΔN:™ and was then confirmed by **RT-PCR specific for the RBM15/MKL1** mutation, which can be found in acute megakaryoblastic leukemia. HematoLogics is the only laboratory offering **ΔN:™ Flow Cytometry** and the most comprehensive quantitative RT-PCR test menu for MRD AML. By integrating technologies, HematoLogics provides increased confidence to help guide in treatment of your patients.

ΔN:™ FLOW CYTOMETRY

Clinical History/Indications: A patient with a clinical history of acute myeloid leukemia (AML-M7).

Analysis/Conclusions: The flow cytometric findings reveal an aberrant myeloid progenitor population present at 0.1% of total non-erythroid cells, consistent with residual AML.



MOLECULAR GENETICS

To confirm this low level of disease was indeed MRD, Hematologics ran **RT PCR for RBM15/MKL1** to increase confidence in the results.

Clinical History/Indications: A patient with a history of acute megakaryoblastic leukemia. Current flow cytometric findings reveal low-level residual disease.

Analysis/Conclusions:
The specimen tested positive for RBM15/MKL1 fusion transcripts, which are the molecular result of the t(1:22) translocation that predominantly occurs in infants with acute megakaryoblastic leukemia and has a NCN (normalized copy numbers) of 0.022 and that could be used to monitor leukemic cells during and after treatment (Ma et al., 2001; Ballerini et al., 2003).

Reference:
· Ballerini, P., Blaise, A., Mercher, T. et al. (2003). A novel real-time RT-PCR assay for quantification of OTT-MAL fusion transcript reliable for diagnosis of t(1;22) and minimal residual disease (MRD) detection. Leukemia 17, 1193–1196.
· Gabert J, Beillard E, van der Velden VH, Bi W, Grimwade D, Pallisgaard N, Barbany G, et al., (2003). Standardization and quality control studies of 'real-time' quantitative reverse transcriptase polymerase chain reaction of fusion gene transcripts for residual disease detection in leukemia - a Europe Against Cancer program. Leukemia 17(12):2318-2357.
· Ma Z, Morris SW, Valentine V, Li M, Herbrick JA, Cui X, Bouman D, Li Y, et al., (2001). Fusion of two novel genes, RBM15 and MKL1, in the t(1;22)(p13;q13) of acute megakaryoblastic leukemia. Nat Genet 28(3):220-1.