Abstract Only:

Intraclonal Heterogeneity in Concomitant Monoclonal Lymphocyte and Plasma Cell Populations: Combining Flow Cytometric Cell Sorting with Molecular Monoclonality Profiling

Barbara K. Zehentner, Monica E. de Baca, Denise A. Wells, Michael R. Loken.
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Abstract

Flow cytometric cell sorting combined with molecular gene rearrangement analysis can assist in further characterizing simultaneously occurring, phenotypically distinct, monoclonal B-lymphoid and monoclonal plasma cell populations that express immunoglobulin of the same light chain. We previously established monoclonality profiles for lymphoid and plasma cell populations of lymphoplasmacytic lymphoma (LPL) bone marrow aspirates by using flow cytometric cell sorting and subsequent monoclonal gene rearrangement analysis. Our findings demonstrated that related genetic processes are less likely than unrelated genetic processes. Here, we demonstrated the utility of cell sorting combined with gene rearrangement (both immunoglobulin IgH and IgK) and IgVH sequence analysis as well as plasma cell targeted fluorescence in situ hybridization analysis in clinical cases of presumed Waldenström macroglobulinemia/LPL in which multiple distinct B-cell and plasma cell populations were identified. Combining cell sorting with subsequent molecular analysis can provide proof of identical monoclonal genotype for Waldenström macroglobulinemia/LPL and nonidentical distinct lymphoid and plasma cell populations in the clinical setting. Understanding how many clonal processes (molecular profiles) are present can help guide patient monitoring throughout treatment and potentially identify patients with worse outcomes.