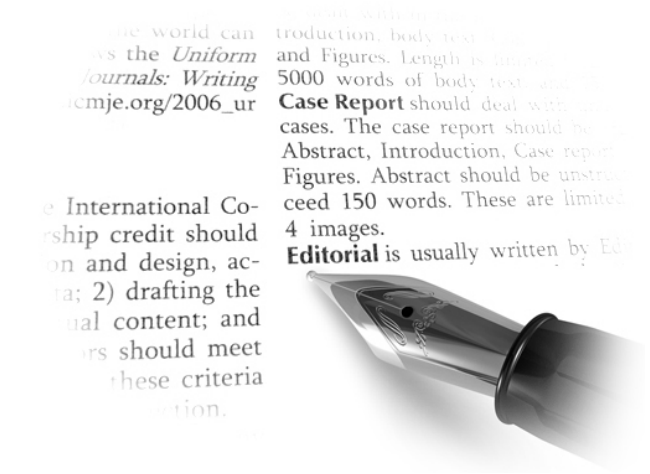

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Editorial

Phenotypic consensus markers for plasma cell myeloma

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The clinical relevance of flow cytometric immunophenotyping (FCM) has been established in the diagnosis, classification, and monitoring of disease in monoclonal gammopathies [1, 2]. Clinical application of FCM encompasses differential diagnosis of malignant plasma cell disorder from reactive plasmacytosis, identifying the progression risk in monoclonal gammopathy of undetermined significance and in asymptomatic plasma cell myeloma, and minimal residual disease detection [1, 3]. Although most of the plasma cells in patients with multiple myeloma are neoplastic myeloma cells, a small percentage of normal or reactive plasma cells remain, which are responsible for maintaining normal immune function [4]. Reactive plasma cells are characterized by low forward/side scatter (FSC/SCC) and high CD38 expression together with a CD19+/CD56- phenotype. On the contrary, neoplastic myeloma cells are CD19-/CD56+ or CD56-, with high FSC/SCC and relatively low CD38 expression [5-7].

The most commonly used antigens for the detection of neoplastic and normal plasma cells include CD19, CD56, CD20, CD117, CD28, CD33, CD27, CD81, CD31, CD39, CD40, CD44, cyclin D1, and CD34. It is impossible to define plasma cells as being phenotypically abnormal using only one test antigen either at diagnosis or after treatment, and there has been no study to identify the minimum requirements for reproducible detection of minimal residual disease [3]. According to the European Myeloma Network report, CD38, CD138, and CD45 should all be included in at least one tube for plasma cell identification and enumeration, and the primary gate should be based on CD38 vs. CD138 expression. The combined use of CD19 and CD56 was suggested as a minimal panel for the detection of abnormal plasma cells, which can be applicable to at least 90% of patients with multiple myeloma. A preferred panel that includes CD20, CD117, CD28, and CD27 was also suggested, which can be applicable to more than 95% of such patients [3].

In the current issue of the **Korean Journal of Hematology**, Jeong *et al.* report a simplified FCM panel for multiple myeloma [8]. The authors suggest that a simplified immunophenotypic panel, CD56/CD19/CD138 (CD38)/CD45, is useful for distinguishing neoplastic myeloma cells from reactive plasma cells at diagnosis and during follow-up of patients with multiple myeloma. They also demonstrate that the negative expression of CD19 is the most valuable tool for identifying neoplastic myeloma cells in these patients.

The construction of an immunophenotypic panel for the diagnosis and follow-up of multiple myeloma is a matter of choice in the clinical laboratory. From a practical point of view, it would be ideal if a simple but cost-effective panel were applicable to almost all cases. In this regard, the study by Jeong *et al.* provides a practical solution that can be used both for the primary gating and for the differentiation between neoplastic myeloma cells and reactive plasma cells. The usefulness of this simplified immunophenotypic panel should be evaluated in various applications for multiple myeloma.

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