



# Integrated Hematopathology

Morphology and FCI with IHC







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## Preface

Diagnostic hematopathology relies heavily on combining cytomorphology and histology with ancillary techniques, such as applying immunophenotyping and molecular/cytogenetic analysis. This book focuses on the applications of flow cytometric immunophenotyping (FCI) in combination with morphology for diagnostic hematopathology.

FCI is a particularly useful tool in diagnostic hematopathology. Virtually all types of specimens evaluated for hematolymphoid neoplasms (eg, peripheral blood, body fluids, bone marrow aspirates and core biopsies, fine needle aspirates, and fresh tissue biopsies) are suitable for FCI.

Of course, FCI represents only one useful tool used in diagnostic hematopathology and must never be interpreted without correlation with the cytomorphologic and histomorphologic features of each case. This comprehensive flow cytometry text appropriately covers, in depth, the technical aspects of FCI with a thorough coverage of the phenotypic markers, as well as the advantages and disadvantages of FCI. Subsequently, there is a detailed description of the phenotypic findings of normal peripheral blood, body fluids, bone marrow, and particularly lymphoid tissue elements, and then comprehensive discussions of FCI within the specific hematolymphoid neoplasms, mirroring the outline and

terminology of the 2008 WHO classification. Within each discussion of a specific hematolymphoid neoplasm is a discussion of the typical immunophenotypes, which are then illustrated in variant cases, both morphologically (eg, H&E images) and immunophenotypically (eg, color dot plots). These are then correlated with molecular and cytogenetic findings as is useful. There is incorporation of the discussions of the utility of FCI in the identification of clonal B cells, at the beginning of the discussion of the B-cell neoplasms; the identification of abnormal T cells and clonality of T cells by FCI, at the beginning of the discussion of the T-cell neoplasms, the identification of myeloblasts by FCI, at the beginning of the discussion of the AMLs; the identification of B and T lymphoblasts by FCI, at the beginning of the discussions of precursor B-cell neoplasms and precursor T-cell neoplasms, respectively; and the identification of features of dyserythropoiesis by FCI, at the beginning of the discussion of the myelodysplastic syndromes. This text also has separate chapters regarding the unique applications of FCI to the evaluation of fine needle aspirate specimens and body fluids.

Also provided is a CD companion to the text that contains the listmode files of selected cases that are found within the book. The listmode files may be viewed by individuals who already have access to the software as described in the instructions for use of the CD below.

## Using FACSDiva software

1. Open the Experiment that will contain the imported files
2. Files can be imported into an open Experiment only, either by opening an existing Experiment or create a new one
3. Change Area to Height for all parameters within the analysis template
4. Choose File > Import > FCS files
5. Locate the files you want to import in the dialog box that appears
6. Use the buttons in the dialog box to find the files to be imported
7. Select multiple files by holding down the Control key as you click the file names

## Using CellQuest software

1. Open FACS Convert
2. Locate files on the CD
3. Select All > Convert
4. Converted files will be located in the FACS Convert folder
5. Open an analysis template
6. Edit > Select All > Plots > Change Data File
7. Select file (inside the FACS Convert folder) > Open

