

Preface

Hematopathology: Genomic Mechanisms of Neoplastic Diseases in the book series *Molecular and Translational Medicine* addresses our current knowledge of genomics as applied to the pathogenesis, diagnosis, prognosis, monitoring, and targeted therapy of hematologic malignancies. Hematology has been at the vanguard of the application of molecular technologies in diagnosis, classification, risk stratification, and use of molecularly defined therapeutic targets. These advances in molecular technologies, diagnostics, and gene-related therapy have seen an extraordinary rapid pace since the completion of the Human Genome Project. Hematology has integrated the discoveries of genomic lesions underlying hematologic malignancies and applied the tools of molecular pathology, making them essential in clinical practice.

The scope of this book is to keep pathologists and clinicians abreast of the rapid and complex changes in genomic medicine, as exemplified by the molecular pathology of leukemias and lymphomas. This is a timely opportunity to not only update physicians on the complexity of genomic abnormalities but also offer an integrated framework encompassing molecular diagnostics, the new WHO (World Health Organization) classification of hematologic neoplasms with focus on molecular pathology, prognostic value of molecular tests, and molecular monitoring of response to gene-targeted therapy.

The rapid pace of discovery, the explosion in genomic information, and the ever changing molecular technologies make it necessary to constantly update our knowledge and I hope that the readers will use this book as a practical resource and place it next to their microscope, in their laboratories or clinical offices.

The first two chapters should be helpful for practicing pathologists and for clinicians, providing overviews of molecular techniques and cytogenetics, both well established and new, as used in molecular hematology. Chapter 3 is a concise review of the new 2008 WHO classification, which integrates molecular abnormalities in the diagnosis of hematologic neoplasms. The following chapters offer comprehensive discussions of the molecular pathology of lymphoid and myeloid acute leukemias, the mature B-cell and T-cell lymphomas, the myeloproliferation neoplasms, chronic lymphocytic leukemia, overall representing the major diagnostic entities in neoplastic hematology.

The new fields of targeted therapy in hematologic malignancies and microRNAs as applied in hematologic malignancies are reviewed in the last two chapters and offer comprehensive discussions of the current state of these novel approaches.

I am extremely grateful to all the authors for their excellent contributions to this book; each chapter is an in-depth and thought-provoking update, as well as easily readable and practical.

In a specialty as exciting and rapidly evolving as Molecular Hematology, it is my hope that this will be just the first of many editions of this book. It will be interesting and challenging to see the progress in genomics in the next years and ask the question, Quo Vadis Hematology?

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<http://www.springer.com/978-1-60761-261-2>

Hematopathology

Genomic Mechanisms of Neoplastic Diseases

Crisan, D. (Ed.)

2011, XII, 360 p., Hardcover

ISBN: 978-1-60761-261-2

A product of Humana Press