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Preface

Kenneth C. Anderson, MD
Guest Editor

This issue of *Hematology/Oncology Clinics of North America* highlights the major advances in the biology of multiple myeloma (MM), which have markedly enhanced our understanding of disease pathogenesis and led to improved treatments and patient outcomes. Dr. Giovanni Tonon describes advances in our understanding of molecular pathogenesis, which have allowed for improved diagnosis, prognosis, and targeted therapies. Drs. Constantine Mitsiades and Suzanne Lentzsch review characterization of the role of the bone marrow (BM) microenvironment in tumor cell growth, survival, and drug resistance, and in mechanisms of bone disease in MM. These advances have allowed for development of in vitro models of the MM cell in its BM microenvironment, which have facilitated identification and validation of novel therapies targeting the MM cell, MM cell-host interaction, and BM milieu, as reviewed by Dr. Teru Hideshima. Finally, Dr. Mitsiades highlights advances in the genomics of MM in the BM, which have allowed for the generation of novel genetically-based preclinical in vivo models of MM.

Dr. Robert A. Kyle describes these advances in the oncogenomics of MM that have translated rapidly from the bench to bedside, which permit delineation of the pattern of genetic and clinical changes correlating with progression from normal to monoclonal gammopathy of undetermined significance to MM. These advances also have provided the framework for novel prognostic staging systems within MM, which are summarized by Dr. Rafael Fonseca. Novel therapies targeting the tumor cell in its BM microenvironment, including thalidomide, lenalidomide, and bortezomib, have now been validated in preclinical models and rapidly evaluated in derived clinical trials culminating in their Federal Drug Administration approval. Dr. S. Vincent Rajkumar summarizes how, already, these models have been integrated into the treatment

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paradigm of MM and have improved the extent and frequency of response in initial therapy in elderly patients who have MM. Importantly, Dr. Jean-Luc Harousseau describes their use as initial therapy prior to transplant and as maintenance treatment to prolong progression free and overall survival post-transplant. Dr. Efstathios Kastritis updates the use of these agents alone and in combination, and novel targeted therapies in the treatment of relapsed/refractory MM. Dr. Nikhil Munshi describes the advances in oncogenomics that also have allowed for improved immune therapies for MM, including both vaccine and adoptive immunotherapy. Finally, Drs. Joan Bladé and Angela Dispenzieri review advances in the recognition and mechanisms of disease complications, which have allowed for improved strategies for their avoidance and treatment.

This new biologically-based treatment paradigm targeting the tumor cell in its microenvironment has great promise to markedly improve patient outcome not only in MM, but also in other hematologic cancers and solid tumors as well.

Kenneth C. Anderson, MD
Jerome Lipper Multiple Myeloma Center
Department of Medical Oncology
Dana-Farber Cancer Institute
Harvard Medical School
44 Binney Street
Boston, MA 02115, USA

E-mail address: kenneth_anderson@dfci.harvard.edu