
Preface

Hematopoietic stem cells have been introduced to treatment of more than 40 diseases and are being used successfully, thanks to the developments in molecular techniques and biotechnology. Recognition of the histocompatibility complex and development of immunosuppressive drugs constitute the major steps leading to almost 50,000 transplants worldwide every year. However perfect donor–recipient matching requires typing at non-HLA loci and natural killer cell receptors too. The purpose of this book when published in 2007 was to gather molecular methods related to stem cell transplantation from hematopoietic stem cell molecular profiling to in vivo tracking, donor–recipient matching and post-transplant monitoring as well from molecular genetics to proteomics under one roof. In the following years, stem cells have become the core of regenerative medicine, and the scope of stem cell transplantation has expanded from transplantation of hematopoietic stem cells to transplantation of progenitors of many non-hematopoietic tissues, i.e., neurons, myocardium, bone, and cartilage. Furthermore today, differentiated cells can be de-differentiated to behave as embryonic stem cells. In this era, there is a need to update the first edition. Thus we have revised the continuously evolving transplantation immunology methods on HLA, minor-HLA, and Killer Immunoglobulin-Like Receptor Typing. In addition, new chapters on immunophenotyping and functional characterization of stem cells are included. Suffice to say, the authors are eminent experts in this field and we are grateful for their most valuable contributions. Also I need to acknowledge the editorial assistance of Dr. Pinar Yurdakul.

This book may serve as a guide in the application of molecular methods for routine or investigational purposes. As spoken by M. K. Atatürk 80 years ago in Ankara “The truest guide in life is Science.” We hope that the book will be a reference for scientists who are planning to start or are already advanced in stem cell transplantation studies. Every effort towards optimal use of stem cells will bring hope to patients who are in desperate need.

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