

Preface

The last dozen years have witnessed an exciting and dramatic transformation in the pace, scope, and scale of medically focused research. The driving forces behind these changes are the elucidation of the sequence of the human genome, the development of powerful molecular-based technologies that generate massive quantities of data, and the creation of robust analytical tools required to analyze these vast data sets. Collectively, these developments have ushered us into the era of translational medicine. Translational medicine—and its corollary translational research—is making huge contributions towards our ability to understand, diagnose, and treat human disease, and it represents an incredibly exciting time to be engaged in clinically oriented research.

Translational medicine has strongly impacted virtually every facet of medicine, but its impact has been most noticed in the area of cancer. Within the field of cancer, the subspecialty of pediatric neoplasia has benefited as much as any by the advances brought forth from translational research. Unlike adult cancer, which has seen modest improvements in overall survival during the last 40 years, great improvements in survival and outcomes have been achieved in children with cancer. In fact, numerous researchers now focus on the health issues that arise in survivors of pediatric cancer.

One of the main reasons for the relative improvement in pediatric cancer survival is the ability to apply translational research to identify important prognostic and predictive biomarkers in children with cancer and employ specific treatment regimens centered on these biomarkers. The purpose of this volume is to describe many of these clinically important biomarkers and demonstrate their significance in the routine care of pediatric cancer patients. The authors of each chapter of this volume are leading international experts in their respective fields and able to provide important insights into the current and future direction of translational medicine in pediatric neoplasia. Their knowledge and understanding of the molecular mechanisms driving the formation and progression of pediatric cancer is presented in these chapters and serves as a useful resource for clinicians and scientists searching for a concise review and description of pediatric neoplasia. It has been a pleasure and privilege to work with these authors to develop this volume in the series Molecular and Translation Medicine.

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Pediatric Neoplasia

Advances in Molecular Pathology and Translational
Medicine

Mackinnon Jr, A.C. (Ed.)

2012, X, 270 p., Hardcover

ISBN: 978-1-62703-115-8

A product of Humana Press