

## Preface

THE SUBJECT OF THIS BOOK DEALS WITH CANCERS that affect children and young adults. Despite some improvements, many cancers remain dire diseases, and, as practicing oncologists, we feel a serious responsibility for seeking better treatments for our patients. This book aims to crystallize a central idea in our evolving field and, with that, renewed hope for patients seeking cures and scientists in search of fundamental understanding.

Developmental oncology concerns the causes of cancers that affect children and young adults, when they have not yet experienced the degree of cellular damage that inevitably accompanies our tissue regeneration and repair and is responsible for cancers as we age. Instead, cancers affecting children and young adults affect distinct populations of developing cells and tissues and occur in response to distinct biological processes that generate susceptible developmental cell states and induce somatic mutations in early life. In turn, these young-onset cancers require the development of specific therapeutic approaches to target their distinct origins and biology.

While several important books have been published on this subject over the years, we believe that recent discoveries have now recast cancers that affect children and young adults as fundamentally developmental in origin, with distinct therapeutic needs and opportunities. Thus, chapters in this book outline the central concept of developmental oncology, including mechanisms of genetic predisposition to young-onset cancers, their endogenous and exogenous somatic mutational processes, developmental and epigenetic regulation, and immune and tissue microenvironmental control. These principles explain the origins and mechanisms of pathogenesis of the most common cancers that affect children and young adults, such as leukemias and lymphomas, sarcomas, and nervous system tumors. Subsequently, the book turns its attention to the development of rational and precise therapies targeting the distinct biology of developmental cancers, including the development of combination therapies, immunologic, epigenetic, metabolic, and cellular therapies. Lastly, the book focuses on the unique demands of pediatric cancer drug development, and how this process may be enabled and accelerated.

We express our sincere gratitude to all our co-authors, and to Barbara Acosta, Richard Sever, and their colleagues at Cold Spring Harbor Laboratory Press for their commitment to scientific excellence and accessible publishing. While we could not include all contributors due to the finite constraints of a single book, we hope that *Developmental Oncology* is properly referenced to direct readers to additional knowledge in this dynamic field. This will be of interest to biologists, oncologists, and scholars in diverse scientific fields seeking to understand the fundamental causes of cancer in young people and to develop definitive therapies for their prevention and control.

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