

BOOK REVIEW**“CANCER THERAPY: MOLECULAR TARGETS IN TUMOR-HOST INTERACTIONS”**

Editor: Georg F Weber

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The selection of appropriate treatment regimens to manage cancer patients in both the adjuvant and neoadjuvant settings is a central challenge faced by medical oncologists. Currently, most cancer drugs in clinical use are compounds whose activities are believed to inhibit general biological processes essential for cancer cell survival, such as DNA replication (adriamycin, 5FU) and microtubule formation (taxanes). However, as these processes are also essential for the survival of non-malignant cells, a general difficulty faced in using these compounds lies in their non-selective nature, consequently leading to the risk of inducing significant and sometimes lethal drug-related toxicities. In addition, although these compounds have been shown to induce partial or complete remissions in a variety of cancer types, another challenge encountered in the use of these conventional compounds lies in the frequent emergence of drug-resistant tumours.

In the light of these clinical challenges, there has been intense interest in the cancer community to develop highly selective and tumour-specific therapeutics that can deliver maximal levels of cancer killing with minimal or reduced levels of toxicity. Critical to such efforts is the large body of basic knowledge we now possess describing the molecular differences between malignant and non-malignant cells. Indeed, we are already seeing the first wave of such molecularly-targeted compounds in the clinic, exemplified by examples such as trastuzumab (Herceptin) and imatinib (Gleevec), which target the ERBB2 receptor and BCR-ABL fusion oncogene, respectively. These initial compounds, however, are merely the “tip of the iceberg”, and a whole host of other compounds designed to thwart cancers at multiple levels are currently undergoing clinical development. This book, edited by Georg Weber, aims to provide a state-of-the-art review of ongoing efforts in this exciting area. This is a timely effort which should interest many different types of readers, ranging from students, basic and translational researchers, and medical oncologists interested in the future of cancer drug therapy.

Reflecting the complexity of cancer, the book is divided into multiple sections that cover different aspects of molecular cancer therapeutics, ranging from anti-angiogenic compounds, the blocking of metastasis, and cancer immunotherapy. Each chapter is contributed by a domain expert, and predictably, the different writing styles do make the book chapters rather uneven. As one example, the chapter by Thomas et al on the identification of cancer genes by differential display reads like a recipe list of molecular biology protocols that is not particularly informative and oddly antiquated, given the availability of more comprehensive gene expression profiling techniques such as microarrays. In contrast, the following chapter by Kaiser et al on the application of genomic information for tumour classification for prognostication and therapy selection is a pleasure to read. Filled with up-to-date references and a clear writing style, it is highly recommended for individuals who wish to get caught up with the fast emerging of cancer genomics. Another weakness of relying on multiple authors is a tendency for certain authors to dwell too much on their own research and to focus on minutiae, rather than providing a good overview of the major trends in that particular field. The book would definitely have benefited from more editorial intervention to make the quality of the chapters more consistent.

These quibbles aside however, there are in general more positives than negatives in the book. The chapter by Torsten et al on the essential role of integrin signaling in cancer is a very good review of this complex subject, as is Altucci et al's review of the use of retinoids in differentiation therapy for leukemia. One aspect I was glad to see in this book, which distinguishes it from other more basic science texts, is that many of the chapters do integrate both basic mechanisms with clinical relevance: each chapter

concludes with a discussion of on-going clinical trials. There is also a refreshing honesty in describing the many challenges and problems encountered in taking such promising compounds into the clinic. This is particularly true for the chapters on anti-angiogenesis and gene therapy, two areas that were once heralded in the lay press as potential “magic bullets” for cancer.

In conclusion, this book represents a worthwhile addition to the bookshelf of researchers and practitioners in the cancer field. There are a few areas I would have liked to see that are notably missing, such as the use of pharmacogenomic applications to customise treatment dosages for individual patients, and a discussion of recent work suggesting that cancer treatments should be redirected to target cancer stem cells rather than shrinking the overall tumour. Nevertheless, this book is still highly useful, and is enthusiastically recommended for cancer researchers and clinicians interested in having an insight into the potential future of oncologic treatment.

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