

*Book Review***The Biology of Cancer**

By Robert A. Weinberg

864 pp., Garland Science, 2006, ISBN 0-8153-4076-1 £41.99 (paperback), ISBN 0-8153-4078-8 £89.99 (hardback)

Here, at last, we have a definitive textbook specifically devoted to the molecular and cell biology of cancer. This beautifully illustrated and expertly written text fills a gaping hole in the field and is without a shadow of doubt going to be the text of choice for the burgeoning number of undergraduate and postgraduate courses on cancer biology. Until now, students and teachers had to rely primarily on general cell biology textbooks and whilst there are a number of excellent texts in this area (for instance Alberts *et al*, Lodish *et al*, and Pollard & Earnshaw), some of which devote a chapter to cancer biology, the emphasis has always been on normal cell function and behaviour. Now we have an outstanding book that covers many of these same biological processes but, critically, from the perspective of how they are deregulated in cancer cells.

The author, Robert Weinberg, is one of the great pioneers of molecular oncology, participating in the discovery of both oncogenes and tumour suppressor genes. He has won many accolades for his research work and has written many authoritative journal reviews. The worldwide respect with which he is held in the academic and clinical cancer communities adds enormously to the value of this book. However, just as a great scientist is not always a great teacher, an author's name alone does not guarantee a great textbook. Hence, it is even more satisfying that this is truly an excellent read. The text has been prepared with obvious and great care; it flows naturally making it easy to follow new concepts and allowing the important messages from each section to be readily absorbed. I was pleased to see techniques and approaches that led to major discoveries are carefully explained in text and figures, but without these stories dominating the overall discussion of our current understanding. Readers are directed to seminal reviews in the bibliography sections of each chapter if they wish to delve more into the historical background. Original research articles are generally quoted in figure legends.

The book is divided into sixteen chapters that comprehensively cover all major processes involved in the production and development of human tumours. The opening chapter describing the basic structure, inheritance and expression of genes may be considered a little superfluous for most students who opt for a course in cancer biology, but the author obviously considered this a necessary prologue with cancer now firmly established as a complex genetic disease. There is then a very useful description in Chapter 2 of the classification of tumours according to their origins and characteristics, an area often overlooked by non-clinical students. The next seven chapters form the heart of the book and describe the positive (oncogenic; Chapters 3-6) and negative (tumour suppressor; Chapters 7-9) pathways that regulate cell

proliferation. There are then chapters devoted to cellular immortalization (Chapter 10), the complexity of genetic changes that ultimately lead to cancer (Chapter 11) and the reasons why cancer cells accumulate genetic damage at an elevated rate (Chapter 12). The book then moves on from considering cells individually to look at how benign masses of proliferating cells turn into malignant tumours with comprehensive descriptions of angiogenesis (Chapter 13), metastasis (Chapter 14) and tumour immunology (Chapter 15). Finally, there is an excellent last chapter with many informative examples looking at how the advanced knowledge of cancer cell biology described in this book is being put to use with the rational design of new anti-cancer therapeutics (Chapter 16).

Reassuringly, the standing of the author and the quality of the text have been expertly complemented with the lay-out and presentation. Garland Science have clearly mirrored this style on its tried and tested classic text *Molecular Biology of the Cell (MBoC)* by Alberts et al. I like that fact that within each chapter there are different running titles on the right-hand page that state the important conclusion of that section. Diagrams, photographs and models are colourful and neatly labelled. Pedagogical features include interesting and informative sidebars that add to, but do not interrupt, the main text, bullet-point summaries at the end of each chapter highlighting the key concepts covered, and a few "thought questions" to raise issues for discussion. However, students might feel that answers to these questions should have been provided at the back of the book!

As with most major texts, the book comes with a CD-ROM and media features. This contains all the figures in Powerpoint and jpeg formats, a collection of anecdotal sidebars, six short-movies and six mini-lectures that can be downloaded to an MP3 player. Of these, the most useful for teaching purposes is likely to be the simple-to-access Powerpoint figures arranged into a single file for each chapter. The movies, all originally designed for the sister *MBoC* text and with straightforward audio explanations, include some nice illustrations of how protein structure regulates function of key molecules such as p53 and ras and can provide useful interludes in lectures or be provided to students as web resources. The value of including the supplementary sidebars on the CD-ROM, as opposed to a hard-copy appendix of the book, was not clear to me.

There are other textbooks on cancer biology, but none that are so attractively presented and contain such a detailed coverage of the molecular and cell biology. I am certain that this book will quickly establish itself as a classic student text and I thoroughly recommend every student and teacher of a cancer biology course to rush out and buy this book immediately. It is also a very welcome manual for those of us working in cancer research, enabling us to brush up our knowledge in all areas of cancer biology and maybe even stimulate us to re-think some of the key questions that lie ahead.

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