

Polymers and Fighting Cancer

Chemistry and Pharmacology of Anticancer Drugs

By David E. Thurston.

CRC Press, Boca Raton 2006. 312 pp., hardcover \$ 159.95.—ISBN 978-0-8493-9219-1

Chemistry and Pharmacology of Anticancer Drugs is a noteworthy survey of the pharmacology of most anticancer agents presently in clinical use and of many agents still under development. The overview is unique in comparison with others provided by similar books on the market.

The book comes out at a peculiar time in the practice of clinical oncology, when classical cytotoxic chemotherapy approaches are rapidly going out of date despite their current widespread use. Drug therapies developed over the last 50 years have markedly improved the management of some cancer types, especially hematological malignancies, but the outcomes and side effects for treatment of the most common types of cancers remain unacceptable. Currently one out of three people in the western world still develop cancer sometime in their lives, and one in four die from the disease.

Nowadays, after 50 years of feverish cancer research efforts worldwide, the discovery of distinct biological pathways in cancer cells has led to improved therapies that are based on more specific targeting. Most of the current efforts of pharmaceutical companies is aimed at the clinical development of so-called target therapies. The author, a renowned scientist in cancer research and drug development, clearly does not fail to provide up-to-date information on this trend in today's pharmacology.

A book that covers such a large number of anticancer drugs, ranging from those in clinical use to those under basic research, is nearly impossible to write. Dr. Thurston has done so, howev-

er, thanks to his expertise in the field. Notably, within only ~300 pages, he additionally covers new research directions and fundamental concepts in the emerging areas of personalized medicine, such as oncogenomics and chemoprevention.

Dr. Thurston summarizes all these various topics with a mastery of balance. The fundamental causes of cancer, modes of its treatment, and the philosophy of cancer drug discovery are covered in the first chapter. Subsequent chapters deal specifically with anticancer drugs, classified by their common mechanism of action. The book provides molecular structures for each agent and discusses its history, chemistry, mechanism of action, structure–function relationships, relevant pharmacology, cytotoxicity, side effects, and formulation and dose-scheduling issues. Even drug failures and hazards are openly discussed. Warnings and simple but fundamental golden rules for clinicians are disseminated throughout all the chapters. A precise analytical index at the end makes all this information easily accessible.

The final few chapters are mostly dedicated to the future. The author is well aware of the fact that a book on cancer research could easily risk becoming outdated before its publication. He has thoroughly done his best to avoid this pitfall with the wit of a researcher, proposing open questions for upcoming research. I truly found these research hints a helpful distillation of experience in cancer pharmacology. A number of novel approaches and strategies for cancer targeting are analyzed. Promising agents under development are presented, and even natural compounds and biological agents are not forgotten. Dealing with aspects of cancer research currently en vogue, the book covers, quite appropriately, epigenetics. However, the immunology of tumors and immunotherapy is rather poorly covered. In this case only an overview is given, but it fails to

depict crucial points that have emerged very recently in the field. Tumor microenvironment cell diversities, stem cells, and cell subpopulations coming from the immune system of the host are continuing to be identified as strong contributors to carcinogenesis, and improved anticancer strategies should probably attempt to target all of them differentially.

The author claims his intention with this book is to contribute to the education of future generations of researchers, who will go on to discover more effective drugs and therapies. In fact, easy readability and directness make the book ideal for students. Its breadth of coverage makes it suitable for undergraduate and postgraduate courses in medicine, pharmacy, and related disciplines. The book is also an excellent starting point for cancer researchers, medicinal chemists, and other biomedical scientists. *Chemistry and Pharmacology of Anticancer Drugs* should also be an indispensable resource for the libraries of research institutes, universities, and hospitals.

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Dendrimers in Medicine and Biotechnology

By U. Boas, J. B. Christensen, and P. M. H. Heegaard.

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Dendrimers are a new class of polymers comprising hyper-branched compounds with diverse features. They are well-defined, have high degrees of molecular