

Hitting the Mark

Drug Targeting. Organ-Specific Strategies. Edited by *Grietje Molema* and *Dirk K. F. Meijer*. (Series: Methods and Principles in Medicinal Chemistry, Vol 12. Series editors R. Mannhold, H. Kubinyi and H. Timmerman.) Wiley-VCH, Weinheim 2001. 381 pp., hardcover € 139.00.—ISBN 3-527-29989-0

The continuing search for improved treatments for debilitating and life-threatening diseases commonly follows one of three avenues: screening natural products to identify novel drugs, using medicinal chemistry to create improved drugs, or developing a targeting strategy (prodrugs and drug carriers) with the aim of increasing disease-specific drug targeting whilst minimizing normal tissue exposure. The modern concept of drug targeting was born out of the pioneering work of Paul Ehrlich. In the early 1900s Ehrlich imagined effective chemotherapy as a “magic bullet” speedily localizing in the offending target cells. The renaissance of interest in drug targeting during the last 30 years has led to an explosion in basic research and the transfer of drug-targeting strategies into routine clinical practice.

Apart from published collections of research papers, and books focused on a single aspect of targeting, there have been few books that set out to give an overview of the state of the art in the field. This excellent text fills that gap and it is a “must” for the bookshelves of academic and industrial research scientists active in the field. The clear pre-

sentational style (including many diagrams and summary tables) provides an excellent reference source for newcomers and graduate students alike. The basic concepts of drug targeting at both the cellular and subcellular levels are clearly introduced, and drug-targeting technologies are described with emphasis on recent clinical progress. Many challenges remain if the principles of drug targeting are to be widely applied outside cancer chemotherapy. These challenges are discussed eloquently with clear insight into the past development and current status of the field.

Some minor criticisms. Many chapters focus on specific topics, such as tumor targeting, pulmonary delivery, and colon targeting. Many readers will find these chapters comprehensive and informative. However, certain chapters are rather narrow as the authors have focused on their own research specialization—a limitation common to all such multi-author books. This inevitably leaves some gaps. There is little mention of passive tumor targeting based on the enhanced permeability and retention (EPR) effect, or passive targeting usually referred to as nonspecific macrophage capture. Antibody-mediated targeting and protein constructs for targeting, both of which have been slow to realize clinical benefits, are discussed at greater length than liposomes and polymer conjugates. Although the latter often rely on the less intellectually seductive idea of passive targeting as a means to improve therapeutic index, they have generated many more products in routine clinical use. Organizationally the book is sometimes disjointed. For example, the chapters describing tumor vasculature targeting and vasculature targeting in inflammatory disease might have been placed in series. It would have been advantageous to include the titles of papers in the bibliography. These are minor irritations. The book is excellent and well researched.

Besides the scientific critique, the chapters describing tools and techniques are particularly helpful. They include phage display technology, recombinant approaches for the generation of protein constructs, use of tissue slices in drug-targeting research, and pharmacokinetic and pharmacodynamic modeling. A welcome addition to the library!

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The Biochemistry of Cell Signalling. By *Ernst J. M. Helmreich*. Oxford University Press, Oxford 2001, 328 pp., softcover £ 29.95—ISBN 0-19-850820-4

Cellular signal transduction is a young branch of biochemistry which has rapidly grown in importance in the last ten years. It has become established in the university teaching programs in the area of biochemistry and biology, and as such this textbook written by Ernst J. M. Helmreich is a welcome aid.

The author does not claim to describe all the earlier investigations or imaginable dodges of signal transductions, rather he conveys the biochemical concepts that can be observed in the generation of the signals and their regulation. This is also reflected in regards to the content and the formal layout of the book. One signal pathway is not stoically worked through after another, instead the arrangement is oriented from a mechanistic and functional point of view. The first part, which covers about half of the book, presents in eight chapters the so-called machinery of cellular signals, and elucidates this using the most important examples. In the course of this, details and also many special cases are mentioned. In the three chapters each of the

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