

Book reviews

Drugs and the Pharmaceutical Sciences

Transport Processes in Pharmaceutical Systems, Gordon L. Amidon, Ping I. Lee, Elizabeth M. Topp (Eds.); Marcel Dekker, New York, 2000, ISBN 0-8247-6610-5, \$225

Gordon Amidon, Ping Lee and Elisabeth Topp have edited a very interesting and comprehensive volume in the 'Drugs and the Pharmaceutical Sciences' series under the title 'Transport Processes in Pharmaceutical Systems'. The book has been written by more than 30 authorities in the field of transport coming from Universities and Industry. Hence, it offers a balanced view from basic principles to applied aspects. The purpose of this book is to discuss those areas of transport phenomena that have direct relevance and application to the pharmaceutical sciences. It will not be of highest importance for readers working in the field of membrane transport from a physiological point of view. The book is divided into four sections. I: Introduction to Transport Processes; II: Biological Transport Processes; III: Transport Processes in Polymer Systems and IV: Heat and Mass Transport. The first two chapters focus on principles and analytical solutions to mass transfer. The next three chapters discuss pharmacokinetics – model structure and transport systems, experimental methods to evaluate diffusion coefficients and the dissolution of pharmaceuticals in simple and complex systems. Part II combines several chapters dealing with intestinal transport; one about cellular mechanisms of biological transport phenomena in the gastrointestinal tract, one about oral drug transport improvement via prodrugs, one on quantitative approaches to delineate passive transport mechanisms in intestinal and renal cell culture monolayers and one predicting oral drug absorption in humans. Only one chapter deals with physiology and pharmacology of drug transport at another important epithelium, the ocular epithelium. One might ask, why transport processes across epithelia such as placenta, blood–brain barrier etc. are largely neglected. The third part can be strongly recommended for students and researchers interested in technologies of drug delivery. It covers transport in polymer systems, hydrogels used for drug delivery, solids that affect transport and osmotic drug delivery systems. Again, carrier-mediated transport processes are underrepresented. There have been many different physiologically occurring carriers cloned recently that can be used for delivery of prodrugs, cationic drugs and others. The last part focuses on heat and mass transfer in freeze drying and hygroscopicity. Clearly, this book of 700 pages cannot be considered a primary source for students and researchers of

membrane transport. Nevertheless, it serves as a textbook and a reference for anyone interested in the mathematical and technological aspects of drug delivery. The quality of some figures is below standard.

R. Neubert*

*Martin-Luther-Universitat, Fachbereich Pharmazie,
Halle/Saale, Germany*

* Martin-Luther-Universitat, Fachbereich Pharmazie, Wolfgang-Lagenbeck-Straße 4, 06120 Halle/Saale, Germany. Tel.: +49-345-552-5000; fax: +49-345-552-7292.

E-mail address: neubert@pharmazie.uni-halle.de (R. Neubert).

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Medical Uses of Statistics

J. Bailar, F. Mosteller (Eds.), 2nd ed., ISBN 0-910133-36-0, \$65

This is a useful book for those who need or want to apply Biostatistics. It is especially suitable for researchers in the medical and pharmaceutical fields.

The book collects mainly articles that have appeared in the *New England Journal of Medicine*, and a few from other sources. The philosophy behind this collection is not to teach statistical calculations but the underlying ideas. It successfully attempts, as I understand it, to give the reader enough insight to know which statistical technique is appropriate for which problem. In addition, the book gives some hints on how to avoid errors and pitfalls before beginning a new study.

Medical Uses of Statistics consists of 23 chapters from different authors, the chapters being sensibly grouped together into five sections. One can read the sections, and even the single chapters, independently of the others. There are enough citations to standard textbooks and to the relevant literature. At this point, however, the only imperfection of the book is revealed: the citations do not go beyond 1992, i.e. the literature of the last 10 years is not incorporated.

To give a short description of the contents: Section 1 is on *Broad Concepts and Analytic Techniques* of statistics. It gives the reader some understanding of the ways of statistical thinking. Section 2, called *Design*, gives an overview of the main methods of clinical studies. Section 3, the largest one with seven chapters, deals with the *Analysis* of

the data. This section covers decision analysis of complex situations in the treatment of single patients as well as the right use of *P* values and specific techniques of analysis. Section 4 describes *Communicating Results*. This section contains a useful chapter on statistical consultation in clinical research, and an excellent chapter on importance of Beta, the type II error. This chapter would also fit into Sections 2 or 3. The last section (5) is on *Reviews and Meta-Studies*. It contains a chapter on medical technology assessment and two chapters on meta-analysis, i.e. assembling and simultaneously analysing information from different sources.

In conclusion, this book can strongly be recommended for beginners as well as for professionals, who prefer to have a lot of information bundled into one book rather than searching for every piece of information in the literature.

H. Ludwig*

*Institut für Pharmazeutische Technologie und
Biopharmazie, Universität Heidelberg,
Heidelberg, Germany*

* Gruppe Physikalische Chemie, Institut für Pharmazeutische Technologie und Biopharmazie, Universität Heidelberg, Im Neuenheimer Feld 346, D-69120 Heidelberg, Germany. Tel.: +49-6221-54-52-36/34; fax: +49-6221-54-59-60.

E-mail address: horst.ludwig@urz.uni-heidelberg.de (H. Ludwig).

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Drug Targeting Technology

Hans Schreier (Ed.), Marcel Dekker, New York, 294, ISBN 0-8247-0580-7, \$150

Volume 115, entitled 'Drug Targeting Technology' came out in Marcel Decker's renowned series of monographs on 'Drugs and the Pharmaceutical Sciences'. Twenty-five authors discuss in ten chapters one of the key issues of modern drug application, namely how to construct and fire the magic bullet, i.e. to target a given drug exactly to the place of its action.

The book contains three sections, each with two to five chapters. The first section discusses physical targeting approaches such as enteric targeting through enteric coating, new coating materials, pharmacokinetic considerations in

the design of pulmonary drug delivery systems and mechanisms involved in diffusion enhancement of topically applied drug formulations. The second section outlines chemical targeting approaches, such as drug targeting by retrometabolic design and neoglyco- and neopeptide albumins for cell-specific targeting of drugs to diseased livers. The final section focuses on gene therapy approaches using biological targeting approaches namely artificial viral envelopes, virus-liposome hybrids and modified targeting of viral vectors.

This new volume of 'Drugs and the Pharmaceutical Sciences' is a well written black and white illustrated book, which provides broad information about various targeting approaches in a mostly clear and user-friendly manner. Most chapters are presented to a high standard and therefore they accomplish their intention to discuss the important factors involved in drug targeting. However, considering the very broad scope of drug targeting, it becomes obvious, that not all aspects were treated adequately. On one hand, coating of solid dosage forms, which actually does not precisely fit into the definition of drug targeting is discussed in two chapters. On the other hand, some novel developments in drug targeting, such as immuno-liposomes or immuno-nanoparticles for targeting of the blood-brain barrier or tumor cells, which would have necessitated a separate chapter, are not mentioned. In the broader sense, physical targeting approaches where it is also used in this book in terms of local drug delivery and change of body drug distribution, drug delivery concepts, using e.g. polymers, should also have been included.

Nevertheless, in summary the book is a useful guide to many people working in the specified areas of drug targeting with a wealth of literature references.

A. Fahr*

*Institut für Pharmazeutische, Technologie und
Biopharmazie, Phillips-Universität Marburg,
Marburg, Germany*

* Institut für Pharmazeutische, Technologie und Biopharmazie, Phillips-Universität Marburg, 35037 Marburg, Germany.

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