

Book Reviews

Percutaneous Absorption. Drugs—Cosmetics—Mechanisms—Methodology, Third Edition, Revised and Expanded, Robert L. Bronaugh and Howard I. Maibach, Eds., Marcel Dekker, Inc., P.O. Box 5005, Monticello, NY 12701-5185, 1999. xxi, 955 pp., illustrations, \$225.00.

The newly-published third edition of this drug delivery classic contains an impressive collection of chapters on a diversity of topics relating to transport of molecules across the skin. Boasting 56 chapters, the book is divided into three sections: Mechanisms of Absorption, Methodology, and Drug and Cosmetic Absorption. The chapters include many tables and figures and are generally supported by extensive bibliographies.

The scope of different scenarios of percutaneous absorption discussed is broad, delving well beyond the most common case of drug delivery across standard models of human skin. There are multiple chapters on *in vitro*, animal and human studies which provide not only detailed discussion of experimental and analytical methods, but also summarize the important findings in the literature. In addition, transport through hair follicles, nails and neonatal skin are also considered in detail.

Using both overview formats and case studies, transdermal transport of drugs is considered from multiple facets. Both local/dermatological and systemic administration are discussed. Moreover, chapters also address absorption of fragrances, hair dyes, cosmetics, sunscreens and even compounds transferred from clothing into the skin. Especially for readers whose interests lie primarily in transdermal drug delivery, it should be a delight to learn about the many other fields which share a common interest in the skin's barrier properties.

Although in many ways the scope of the book is impressively comprehensive, it falls short in some areas. For example, half of the chapters list Howard Maibach as a co-author, indicating a limited breadth of views. Moreover, the extremely-important issue of *enhancing* percutaneous absorption receives only limited attention. Although, for example, iontophoresis, phonophoresis and inhibiting lipid biosynthesis are addressed, other topics, such as chemical enhancers, electroporation, laser and thermal poration and microneedles are not covered at all. This is presumably because the editors elected to limit coverage of these topics in an already large book and because many of the exciting advances in these fields have only been published in the last few years. Finally, as is usually the case in multi-author texts, this book lacks a cohesive message and does not guide the reader with a focused vision for the future.

Overall, this new edition of "Percutaneous Absorption," which is about 50% longer than the previous edition, makes important contributions to the field. As an extensive tome which captures much of what is important in skin permeation research, it belongs on the bookshelf of anyone with a serious interest in transdermal transport.

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Encyclopedia of Controlled Drug Delivery, Volumes I & II, Edith Mathiowitz, Ed., John Wiley & Sons, Inc., 605 Third Avenue, New York, NY 10158-0012, 1999. xix, 1549 pp., illustrations, \$495.00/set.

The history of controlled drug delivery is more than 30 years old and the area is entering into a new generation of drug delivery technology. It is highly timely to put together all the current controlled release technologies in the two-volume encyclopedia.

As the title "encyclopedia" implies, the contents of the books are arranged in an alphabetical order. The topics in the encyclopedia are chosen based on the general concepts, such as alcoholism, cancer, central nervous system, economic aspects of controlled drug delivery, microencapsulation, oral drug delivery, pharmacokinetics, and veterinary applications. Thus, one has to identify right keywords to find the topics of interest. Fortunately, there is extensive cross-referencing, and checking the index appears to be the best way to find information on more specific subjects. In this sense, it is rather inconvenient to find no index on Volume 1, as well as no table of contents showing all the alphabetical keywords in the beginning of each volume. For example, the topic of "spray drying" does not have a separate heading in the encyclopedia, but the index leads to two other headings: fabrication of controlled-delivery devices; and microencapsulation. Under those two headings, the topic of spray drying was quite adequately covered to provide enough information to appreciate the technique.

If a topic is covered under a separate heading, it is covered really well. It is very amusing and enlightening to see a picture of the Yanomano Indian tribe using the insufflator pipe for nasal administration (under the heading of Mucosal Drug Delivery, Nasal). Our current nasal administration technique may not be any better than the approach used by the Yanomano Indian tribe. Each topic was covered with great details and many figures and pictures. The presence of many pictures, which are by the way very well drawn and consistent in format throughout the volumes, makes it so easy to follow the contents. The editor must have gone through extensive work of standardizing the format of each chapter. Since the controlled drug delivery area has advanced so much and includes all the new disciplines, such as gene therapy and tissue engineering, it is rather imperative to have reference books such as the two-volume encyclopedia. These are the reference books that one must have for remaining competitive in the controlled drug delivery area.

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Freeze-Drying/Lyophilization of Pharmaceutical and Biological Products, Louis Rey and Joan C. May, Eds., Marcel Dekker, Inc., P.O. Box 5005, Monticello, NY 12701-5185, 1999. ix, 477 pp., illustrations, \$195.00.

The area of freeze drying of pharmaceutical products has been an active area of research for decades and is well covered in the scientific literature. However, until now there has not

been a comprehensive single-volume treatment of the subject encompassing both theoretical and practical considerations and focused specifically in the area of biological and pharmaceutical products. This volume fills that need with a well-conceived treatment of the subject, including contributions from some of the most respected authorities in the field. The unification of the classical literature in the field of freezing and freeze-drying with more recent applications in biological and biotechnology product development is a particularly timely and welcome addition to the literature.

There is one relevant area where I would have liked more coverage, namely the behavior of multi-component systems with respect to the issue of collapse and collapse temperature. I believe this classical material has an important bearing on the selection of both formulation components and freeze-drying parameters. However, that being said, I would still consider Freeze-Drying/Lyophilization of Pharmaceutical and Biological Products to be one of the best, if not the best, single-volume treatment of the subject. I believe this will become an important reference in the field of lyophilization of biological products.

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Bioadhesive Drug Delivery Systems. Fundamentals, Novel Approaches, and Development, Drugs and the Pharmaceutical Sciences, Volume 98, Edith Mathiowitz, Donald E. Chickering III, Claus-Michael Lehr, Eds., Marcel Dekker, Inc., 270 Madison Avenue, New York, NY 10016, 1999. xv, 670 pp., illustrations, \$195.00.

In the past twenty five years we have witnessed a tremendous increase of the number of publications in the field of bioadhesive and mucoadhesive systems used in drug delivery. From the pioneering work of Robinson and associates to the more advanced molecular and cellular approaches of the young generation of researchers working in the field, there is an emphasis on integration of principles of biochemistry, biology, physical chemistry, polymer science, and engineering.

This new book edited by Mathiowitz, Chickering and Lehr captures the latest developments in the field of bioadhesion analysis and provides carefully written chapters on both molecular and applied subjects of interest to all pharmaceutical scientists. Although multi-authored, this book offers a balanced presentation of the field. Subjects include a detailed presentation of the molecular and cellular fundamentals of bioadhesion, analysis of various modern methods of evaluation of bioadhesive behavior, and a wide range of in vitro and in vivo studies and systems utilizing bioadhesion.

I liked the book's completeness and I applaud the editors for their care in the preparation of this volume. The outstanding aesthetic appearance of the volume and the plethora of references make this one the book to have in the field of bioadhesive drug delivery. This book is highly recommended.

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Books Received

Analysis

Stability-Indicating HPLC Methods for Drug Analysis, Quanyun A. Xu and Lawrence A. Trissel. American Pharmaceutical Association, 2215 Constitution Avenue, N.W., Washington, DC 20037-2985, 1999. xiv, 389 pp. illustrations. \$125.00.

Resonance Energy Transfer, David L. Andrews and Andrey A. Demidov, Eds., John Wiley & Sons, Inc., 605 Third Avenue, New York, NY 10158-0012, 1999. xix, 468 pp., illustrations, \$219.00.

The Biology-Chemistry Interface. A Tribute to Koji Nakanishi, Raymond Cooper and John K. Snyder, Eds., Marcel Dekker, Inc., 270 Madison Avenue, New York, NY 10016, 1999. xv, 496 pp., illustrations, \$195.00.

Biomaterials and Polymers

Biomedical Materials—Drug Delivery, Implants and Tissue Engineering, Materials Research Society Symposium Proceedings Volume 550, Thomas Neenan, Michele Marcolongo and Robert F. Valentini, Eds., Materials Research Society, 506 Keystone Drive, Warrendale, PA 15086, 1999. xiii, 376 pp. illustrations. \$89.00.

Materials Science of the Cell, Materials Research Society Symposium Proceedings Volume 489, Bela Mulder, Christoph F. Schmidet, and Viola Vogel, Eds., Materials Research Society, 506 Keystone Drive, Warrendale, PA 15086, 1999. ix, 226 pp., illustrations, \$75.00.

Low Molecular Weight Heparin Therapy. An Evaluation of Clinical Trials Evidence, Monique Sarret, André Kher and Francis Toulemonde, Eds., Marcel Dekker, Inc., 270 Madison Avenue, New York, NY 10016, 1999. xi, 474 pp., illustrations, \$165.00.

Polysaccharide Applications. Cosmetics and Pharmaceuticals, Magda A. El-Nokaly and Helena A. Soini, Eds., Oxford University Press, College Marketing Department, 198 Madison Avenue, New York, NY 0157-2091, 1999. xv, 347 pp., illustrations, \$135.00.

Biological Performance of Materials Fundamentals of Biocompatibility, Jonathan Black, Third Edition, Revised and Expanded, Marcel Dekker, Inc., 270 Madison Avenue, New York, NY 10016, 1999. xii, 461 pp., illustrations, \$75.00.

(The field of biomaterials science and engineering is growing rapidly. This book provides a concise summary of the mutual responses between biomaterials and the body, and test methods for biological performance of biomaterials. Since many materials used in controlled drug delivery systems, including gene

delivery and tissue engineering, are all biomaterials, the ultimate successes on the development of novel drug delivery systems depend on their biocompatibility. This book presents a good starting point for dealing with the biocompatibility issue in pharmaceutical applications).

Interfacial Phenomena

Interfacial Forces and Fields. Theory and Applications, Surfactant Science Series Volume 85, Jyh-Ping Hsu, Ed., Marcel Dekker, Inc., P.O. Box 5005, Monticello, NY 12701-5185, 1999. xi, 671 pp., illustrations, \$225.00.

Colloid-Polymer Interactions. From Fundamentals to Practice, Raymond S. Farinato and Paul L. Dubin, Eds., John Wiley & Sons, Inc., 605 Third Avenue, New York, NY 10158-0012, 1999. viii, 417 pp., illustrations, \$115.00.

Surface Activity of Proteins. Chemical and Physicochemical Modifications, Shlomo Magdassi, Ed., Marcel Dekker, Inc., 270 Madison Avenue, New York, NY 10016, 1999. viii, 336 pp., illustrations, \$150.00.

(This book describes specific protein modification methods, such as enhancing hydrophobicity, increasing the negative charge by succinylation, deamidation, or phosphorylation, making protein-polysaccharide conjugates, and denaturing globular proteins. It also covers factors affecting applications of native and modified proteins).

Methods in Molecular Biology and Molecular Medicine

Gene Targeting Protocols, Eric B. Kniec, Ed., Humana Press Inc., 999 Riverview Drive, Suite 208, Totowa, NJ 07512, 1999. xv, 244 pp., illustrations, \$89.50.

(One of the most important features of gene targeting is the delivery of the construct into the nucleus of the cell. This book is about the use of gene targeting techniques to create experimental systems that help us understand biological processes at a genetic level. The topics covered are viral-based vectors, cationic lipids, polyethylenimine, electronic pulse delivery, electroporation, factors affecting vector uptake, and design of the DNA vector. Detailed information on materials and experimental methods are described for each technique).

DNA Vaccines. Methods and Protocols, Douglas B. Lowrie and Robert G. Whalen, Eds., Humana Press Inc., 999 Riverview Drive, Suite 208, Totowa, NJ 07512, 1999. xix, 520 pp., illustrations, \$99.50.

(This compendium provides explicit information on the essentials of "upstream" and "downstream" analysis, safety aspects, quality control, preparation of plasmid DNA, classical and genetic adjuvants, immunostimulatory properties of DNA, DNA formulations, antigen engineering, and novel applications of DNA vaccine methodology).

DNA Repair Protocols. Eukaryotic Systems, Daryl S. Henderson, Ed., Humana Press Inc., 999 Riverview Drive, Suite 208, Totowa, NJ 07512., 1999. xix, 641 pp., paper, illustrations, \$79.50.

Flavoprotein Protocols, Stephen K. Chapman and Graeme A. Reid, Eds., Humana Press Inc., 999 Riverview Drive, Suite

208, Totowa, NJ 07512., 1999. xii, 256 pp., paper, illustrations, \$79.50.

Drug Development. Molecular Targets for GI Diseases, Timothy S. Gaginella and Antonio Guglietta, Eds. Humana Press Inc., 999 Riverview Drive, Suite 208, Totowa, NJ 07512, 1999. ix, 278 pp., illustrations, \$125.00.

Identification and Expression of G Protein-Coupled Receptors, Kevin R. Lynch, Ed. John Wiley & Sons, Inc., 605 Third Avenue, New York, NY 10158-0012, 1998. xii, 222 pp., paper, illustrations, \$69.95.

Pharmaceutical Enzymes, Albert Lauwers and Simon Scharpé, Eds., Marcel Dekker, Inc., 270 Madison Avenue, New York, NY 10016, 1999. viii, 401 pp., illustrations, \$165.00.

(This book covers enzymes in the GI tract, chemical modification of enzymes for improved therapeutic effectiveness, and detailed assay methods for individual enzymes. The molecular, biochemical, experimental, and clinical data of the following enzymes are covered in the book: cysteine proteinases, bromelain, hyaluronidase, pancreatin, 1-asparaginase, glucocerebrosidase, deoxyribonuclease, and elastase).

Microparticulate Systems

Microspheres, Microcapsules & Liposomes, Volume 1: Preparation & Chemical Applications. Reza Arshady, Ed., Citus Books, 56B Nutcroft Road, London SE15 1AF, UK, 1999. xxii, 576 pp., illustrations, \$147.00.

Microspheres, Microcapsules & Liposomes, Volume 2: Medical & Biotechnology Applications. Reza Arshady, Ed., Citus Books, 56B Nutcroft Road, London SE15 1AF, UK, 1999. xxvi, 695 pp., illustrations, \$163.00.

(Selected topics include: (1) general concepts and criteria; (2) manufacturing methodologies; (3) micronization of pharmaceutical solids; (4) functional microspheres for biomedical applications; (5) microspheres for endovascular embolization; (6) radioactive and magnetic microcarriers for medical applications; (7) targeted delivery of microparticulate carriers; (8) stealth liposomes: a pharmaceutical perspective; (9) cationic liposomes for gene transfection; and (10) liposome-hydrogel hybrids: vaccine delivery and blood substrate potentials).

Controlled-Release Delivery Systems for Pesticides, Herbert B. Scher, Ed. Marcel Dekker, Inc., 270 Madison Avenue, New York, NY 10016, 1999. ix, 329 pp., illustrations, \$175.00.

(Controlled release formulations presented in this book are divided into four parts based on the size and geometry of the system: Microcapsules (1-100 μm); microparticles (1-100 μm); granules (0.2-2 mm); and other larger devices).

Handbook of Fillers, George Wypych, ChemTech Publishing, 38 Earswick Drive, Toronto-Scarborough, Ontario M1E 1C6, Canada, 1999. 416-265-1399 (fax), xx, 890 pp., illustrations, \$250.00.

(The second chapter of the book on sources of fillers, their chemical composition, properties, and morphology describes detailed information on each of 69 particulate fillers and 5

fibers. Other important chapters deal with physical and chemical properties of fillers and filled materials, effect of fillers on the mechanical and rheological properties of filled materials, testing methods in filled systems, fillers in different processing methods, and fillers in different products. The fillers used in pharmaceutical products as colorants, disintegrants, and glidants are all included in this book. While the majority of the fillers discussed in this book are for non-pharmaceutical applications, a wide variety of fillers and their creative applications will undoubtedly open up new perspectives on the roles of fillers. It is unbelievable that such an information extensive book like this was written by a single author).

Organic Chemistry

Organic Reactions, Volume 54, Leo A. Paquette, Engelbert Ciganek, Dennis Curran, Scott E. Denmark, Louis Hegedus, Michael J. Martinelli, Stuart W. McCombie, T.V. Rajanbabu, James H. Rigby, William R. Roush, Amos B. Smith, III, Peter Wipf, Robert Bittman, Jeffrey B. Press, Robert M. Joyce, Linda S. Press, Robert M. Moriarty, Adriana B. Pierini, Om Prakash, Roberto A. Rossi, and Ana N. Santiago, Eds., John Wiley & Sons, Inc., 605 Third Avenue, New York, NY 10158-0012, 1999. viii, 442 pp., illustrations, \$89.95.

Pharmacology

Instant Pharmacology, Kourosh Saeb-Parsy, Ravi G. Assomull, Fakhar Z. Khan, Kasra Saeb-Parsy and Eamonn Kelly. John Wiley & Sons, Inc., 605 Third Avenue, New York, NY 10158-0012, 1999. xiii, 349 pp., paper, illustrations. \$29.99.

Novel Aspects of Pain Management: Opioids and Beyond, Jana Sawynok and Alan Cowan, Eds., John Wiley & Sons, Inc., 605 Third Avenue, New York, NY 10158-0012, 1999. xi, 373 pp., illustrations, \$119.95.

Clinical Neurocardiology, Louis R. Caplan, J. Willis Hurst, and Marc I. Chimowitz, Eds., Marcel Dekker, Inc., P.O. Box

5005, Monticello, NY 12701-5185, 1999. vii, 498 pp., illustrations, \$195.00.

Psychiatric Treatment of the Medically Ill, Robert G. Robinson and William R. Yates, Eds., Marcel Dekker, Inc., P.O. Box 5005, Monticello, NY 12701-5185, 1999. xiv, 564 pp., illustrations, \$195.00.

Diet and Health. Scientific Perspectives, Walter J. Veith, Medpharm Scientific Publishers, Birkenwaldstraße 44, D-70101 Stuttgart, Germany, 1998. vi, 277 pp., illustrations, paper, \$49.95.

(The relationship between diet and degenerative diseases such as cancer, cardiovascular disease and osteoporosis is well established, but the best alternative lifestyle is still an issue of debate. This book is an attempt at correlating the scientific data regarding the causative agents in dietary related diseases, and also to provide an insight into the field of alternative lifestyle-from Preface).

Regulatory Aspects

New Drug Approval Process, Third Edition: The Global Challenge, Richard A. Guarino, Ed., Marcel Dekker, Inc., 270 Madison Avenue, New York, NY 10016, 1999. xxxiii, 520 pp., illustrations, \$185.00.

Toxicity Assessment Alternatives. Methods, Issues, Opportunities, Harry Salem and Sidney A. Katz, Eds., Humana Press Inc., 999 Riverview Drive, Suite 208, Totowa, New Jersey 07512., 1999. xiii, 262 pp., illustrations, \$99.50.

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