Book Reviews

Formulation, Characterization, and Stability of Protein Drugs. Case Histories. Rodney Pearlman and Y. John Wang, Eds. Plenum Press, 233 Spring Street, New York, NY 10013. 1996. 432 pp., illustrations. $95.

The book contains excellent discussion of the developmental histories of various protein pharmaceuticals. This is especially valuable when one considers that a lot of valuable information about protein formulation and characterization is difficult to obtain because it is either treated as proprietary information by most industries or widely scattered in the literature and published for different objectives. As a result, available experience from other proteins is limited, and most scientists working on protein formulation have to work hard on each individual protein before understanding their critical problems (not to mention their solutions). This book will provide experience for readers who want to understand the potential problems a protein can pose and their associated solutions, which will potentially make their research in developing protein dosage forms more efficient.

M.F. Powell's compendium of protein pharmaceuticals and his theoretical analyses to understand general problems are the jewels of this book. The database will provide a tool for predicting chemically labile amino acid residues and designing appropriate strategies to develop stable formulations.

The proteins discussed in other chapters are well chosen because they cover different structural characteristics, different routes of delivery, and different problems that include solubility and stability. Analytical developments for understanding specific problems and approaches to solve them are well discussed within the context of pharmaceutical product development.

Overall, the book contains complete case histories which can be applied to other proteins to characterize protein structures, to predict potential problems based on structural information, to develop efficient developmental strategies for different proteins with different problems, and to achieve successful final dosage forms. It will be an invaluable resource for scientists working in this field.

Byeong Chang, Ph.D.
Pharmaceutics and Drug Delivery
Amgen, Inc.
Amgen Center, MS 8-1-A
Thousand Oaks, California 91320

Computer Techniques in Preclinical and Clinical Drug Development. Robert C. Jackson, Ed. CRC Press, Inc. Lewis Publishers, 2000 Corporate Blvd. N.W. Boca Raton, FL 33431. 1996. 238 pp., illustrations. $99.95.

This book provides the pharmaceutical scientists involved in drug development with very valuable information on the relevant computer applications. It covers many computer modeling techniques which are becoming increasingly important in most of the critical decision-making process in drug development.

The book starts with a good introduction which describes the application of computer modeling techniques in the various stages of drug development. Many examples of drug development problems are provided to give the readers a clear understanding regarding the importance and relevance of these computer techniques. The introduction also raised a question as to how mathematical modeling can improve the success rate of the drug development, and this question was addressed in depth both theoretically and practically in the subsequent chapters. Many techniques and discussion are presented in detail in the following chapters: physiologically based pharmacokinetic modeling, interspecies scaling, prediction of drug metabolism and toxicity, pharmacodynamic modeling, cytokinetic modeling, prediction of drug resistance and virtual clinical trial. When thoroughly reading through these chapters, the readers can clearly feel the mix of the author's extensive experience in drug development and his broad scientific knowledge. The author blended these two aspects very well and made the reading informative and enjoyable. The readers can also appreciate the discussion on the use of the database-integrated expert system in drug development. The rapidly expanding communication technology has made the biomedical research information more accessible, and therefore made it easier to build large drug development databases. The database-integrated expert systems will play more important roles in the future. In the present book, the expert systems for predictions of drug metabolism and drug toxicity are discussed. Although some topics could have been covered more extensively along with some case studies, such as the population pharmacokinetics, this book serves as an excellent resource for the applications of computer modeling techniques in preclinical and clinical drug development.

In the last decade, the computer applications in biomedical research have been both flourishing and successful. They have become an inevitable part in many stages of the drug development process. For those scientists who are interested in this area, I strongly recommend that this book be added to their personal libraries.

D. Robert Lu, Ph.D.
Department of Pharmaceutics
College of Pharmacy
University of Georgia
Athens, Georgia 30602

Drug Delivery Systems: Trends, Technologies and Market Opportunities. Volume I. Introduction, Physiology, Technologies and Markets. Volume II. Company Profiles. Pamela Bassett. International Business Communications, 225 Turnpike Road, Southborough, MA 01772-1749. 1996. vi, 217 pp., illustrations. Paper (Vol. I). xiv, 502 pp. Paper (Vol. II). $3,950.

This two-volume, highly comprehensive report was written to summarize the current status of drug delivery systems and those in development, so that potentially new technologies and new uses of existing technologies can be introduced to the

0724-8741/97/0400-0550$12.50/0

strategists and planners, as well as observers and analysts, in the pharmaceutical industry.

Vol. I provides information on the trends in drug delivery industry and the basics of controlled release technologies, such as mechanisms of controlled drug delivery and routes of drug administration. The sections describing physiology and drug delivery technologies are rather weak (and probably less useful due to the lack of relevant references) for the pharmaceutical scientists but may be adequate for the target audience of this report.

The strength of these reports lies in the extensive description in Vol. II of the profiles of 71 companies specializing in drug delivery. Each company is analyzed to provide information on the financials, technology/research and development, current products and product pipeline, strategic alliances with other companies, intellectual property, management, employees, and facilities. Certainly all these information are important for the top managers in their decision making processes. Those scientists in the drug delivery area would also find Vol. II highly informative. I personally found that two sections on the technology/research and development, and the current products and product pipeline were very useful. Such information provides scientists with information on the right applications of a certain drug delivery technology. Furthermore, such information (or the lack of such information) can be used to develop new controlled release dosage forms for the drugs described in the therapeutic categories section in Vol. I. It is true that more information can be added, especially in the technology aspects in Vol. I. Collectively, however, the quantity of information presented in this two-volume report is unparalleled.

Haesun Park, Ph.D.
Purdue University
School of Pharmacy
West Lafayette, Indiana 47907

Managed Competition and Pharmaceutical Care. Dev S. Pathak and Alan Escovitz, Eds. The Haworth Press, Inc., 10 Alice St., Binghamton, New York 13904-1580. 1996. 169 pp., illustrations. $29.95.

This book is a compilation of papers that were originally presented at the 37th Annual Ohio Pharmaceutical Seminar in April, 1992. Although the term "managed competition" is used less frequently now than when these presentations were made, the underlying issues have changed very little. Each chapter of the book explores the implications that managed care and related regulatory initiatives have had, or are likely to have, on various stakeholders including pharmaceutical manufacturers, pharmacists, pharmacy benefit managers, payers and patients. Although parts of this book have become somewhat dated since 1992, taken in its entirety, the book represents a useful resource for anyone seeking to develop a better understanding of how regulatory and public policy strategies like managed competition come about, and how they are likely to affect the status quo of health care delivery and financing in the U.S.

Michael T. Rupp, Ph.D.
Purdue University
Department of Pharmacy Administration
West Lafayette, Indiana 47907

Fractal Aspects of Materials. Fereydoon Family, Paul Meakin, Bernard Sapoval, and Richard Wool, Eds. Materials Research Society, 9800 McKnight Road, Pittsburgh, PA 15237. xiii, 534 pp., 1995. illustrations. $71.

This book is about the applications of fractal concept to various disciplines ranging from bacterial growth phenomenon to corrosion of ceramic materials. It is a collection of the papers presented at the Symposium on Fractal Aspects of Materials by Materials Research Society in 1994.

The fractal dimension, which is a number used to represent the roughness, has been applied for characterizing the irregularity. Thus, finding the fractal dimension helps to establish relationships between the surface irregularity or morphology and material properties. In addition, the fractal concept has led scientists to more profound investigation on the kinetic or dynamic features of various materials and phenomena. Many examples in the book show that fractal analysis can be used to describe the nonequilibrium, instable processes which could not be handled easily by traditional statistical physics. The topics related to pharmaceutics include dendritic growth of crystals, characterization of surface textures using fractal methods, nucleation and subsequent growth of islands in submonolayer epitaxial processes, fractal structure of a porous cross-linked polymer resin and dynamical behavior of adsorbed solvents, concentration influence on diffusion limited cluster aggregation, and formation of complex bacterial patterns. In addition to these topics, Part VIII (consisting of 10 papers) of the book is particularly relevant to pharmaceutics. The section deals with dynamics of granular materials, i.e., granular flow, relaxation, convection, sedimentation, segregation, clustering, and mixing. Certainly, the information presented in this section can be used for the fractal analysis of pharmaceutical solid particles.

This book is not an introductory-level textbook. Because the book is simply a collection of papers presented at the symposium, the topics are not systematically organized. However, for those who are in the fractal area, this book is a valuable addition to update the current fractal research. This book is worthwhile reading through for the pharmaceutical scientists working on the characterization of the surface irregularity of pharmaceutical particulates and finding its relationship with material properties.

Tonglei Li and Kinam Park, Ph.D.
Purdue University
School of Pharmacy
Department of Industrial and Physical Pharmacy
West Lafayette, Indiana 47907

Books Received

Analysis

Chromatographic Analysis of Pharmaceuticals. Second Edition. John A. Adamovics, Ed. Marcel Dekker, Inc. Cimarron Road, Monticello, NY 12701. 1997. x, 527 pp., illustrations. $165.

Pharmaceutical and Biomedical Applications of Capillary Electrophoresis. Susan M. Lunte and Donna M. Radzik, Eds. Elsevier Science Inc., 660 White Plains Road, Tarrytown, New York 10591-5153. 1996. x, 511 pp., illustrations. $135.

Surface Analytical Techniques for Probing Biomaterial Processes. John Davies, Ed. CRC Press, Inc. Lewis Publishers, 2000 Corporate Blvd. N.W. Boca Raton, FL 33431. 1996. 178 pp., illustrations. $99.95.
Contents

1. Total internal reflection fluorescence spectroscopy
2. Surface plasmon resonance immunoassays
3. Ellipsometry and dynamic contact angle analysis for protein adsorption

Biomaterials

Wound Closure Biomaterials. C.C. Chu, J. Anthony von Fraunhofer, and Howard P. Greisler, Eds. CRC Press, Inc. Lewis Publishers, 2000 Corporate Blvd. N.W. Boca Raton, FL 33431. 1997. vii, 400 pp., illustrations. $110.

Thin Films and Surfaces for Bioactivity and Biomedical Applications. Catherine M. Cotell, Anne E. Meyer, Steven M. Gorbatkin, and George L. Grobe III, Eds. Materials Research Society, 9800 McKnight Road, Pittsburgh, PA 15237. 1996. ix, 206 pp., illustrations. $65.

Herbal Medicine

The Honest Herbal. Varro E. Tyler, Ph.D., The Haworth Press, Inc., 10 Alice Street, Binghamton, NY 13904-1580. 1993. xviii, 375 pp., Paper. $19.95.

Herbs of Choice. Varro E. Tyler, Ph.D., The Haworth Press, Inc., 10 Alice Street, Binghamton, NY 13904-1580. 1994. xvi, 209 pp., Paper. $14.95.

Materials Science and Technology

Microporous and Macroporous Materials. Raul F. Lobo, Jeffrey S. Beck, Steven L. Squibb, David R. Corbin, Mark E. Davis, Lennox E. Iton, and Stacey I. Zones, Eds. Materials Research Society, 9800 McKnight Road, Pittsburgh, PA 15237. 1996. xiii, 551 pp., illustrations. $73.
Contents (selected)

1. Microporous and mesoporous materials, and porous polymers
2. Methods of studying porosity
3. Sol-gel synthesis and applications of porous metal oxides and nitrides

Hollow and Solid Spheres and Microspheres: Science and Technology Associated With Their Fabrication and Application. David L. Wilcox, Sr., Morris Berg, Thomas Bernat, David Kellerman, and Joe K. Cochran, Jr., Eds. Materials Research Society, 9800 McKnight Road, Pittsburgh, PA 15237. 1995. x, 296 pp., illustrations. $71.

Pharmaceutics

Aqueous Polymeric Coatings for Pharmaceutical Dosage Forms. Second Edition. James W. McGinity, Ed. Marcel Dekker, Inc. Cimarron Road, Monticello, NY 12701. 1997. xi, 582 pp., illustrations. $185.
Contents

1. Latex emulsions for controlled drug delivery
2. Aqueous film coating with ethylcellulose, poly(methyl methacrylate), and silicone elastomer latexes.
3. Process and formulation factors affecting drug delivery
4. Processing and equipment considerations for aqueous coatings.
5. Aqueous pseudolatex dispersions of biodegradable polymers.

Non-Viral Genetic Therapeutics. Advances, Challenges and Applications for Self-Assembling Systems. Bari Walsh, Ed. International Business Communications, IBC Library Series, 225 Turnpike Road, Southborough, MA 01772-1749. 1996. v, 250 pp., illustrations. Paper. $795. ($495 for academic and government institutions).

Preservative-Free and Self-Preserving Cosmetics and Drugs. Jon J. Kabara and Donald S. Orth, Eds. Marcel Dekker, Inc. Cimarron Road, Monticello, NY 12701. 1997. x, 274 pp., illustrations. $150.

Kinam Park
Book Review Editor
Purdue University
School of Pharmacy
West Lafayette, Indiana 47907