

Book Reviews

Anticancer Drug Development Guide. Preclinical Screening, Clinical Trials, and Approval, Second Edition. Beverly A. Teicher and Paul A. Andrews, Eds. Humana Press, Totowa, NJ. www.humanapress.com. 2004. 450 pp. +CD-ROM, \$165.00.

Vast numbers of molecules are screened in our search for agents that may prove of use in treating human cancers. Yet few of these molecules are able to pass the various hurdles to achieve approval for use as effective and safe therapeutic agents. In the second edition of *Anticancer Drug Development Guide: preclinical screening, clinical trials, and approval* the processes are critically reviewed by key exponents of the art.

Screening with *in vitro* models, including high-throughput screens and those based on the NCI human tumor cell line screens are reviewed in detail. The text then logically moves to a variety of *in vivo* models currently exploited in the development of anticancer agents. Clinical testing of anticancer agents includes the processes relevant to both the USA and Europe, including key regulatory issues in approval of cancer drugs.

The book is an invaluable resource for all those involved in anticancer drug development. It provides learned and detailed insight into the various stages. It is well referenced, providing an extensive resource base for more detailed analyses. The printed copy includes an ebook on a CD, ideal for the busy industrial scientist or academic who wants to be informed while on the move.

Barry H. Hirst
Institute for Cell & Molecular Biosciences
University of Newcastle upon Tyne
Medical school
Newcastle upon Tyne NE2 4HH, UK
barry.hirst@ncl.ac.uk

Suicide Gene Therapy. Methods and Reviews. Caroline J. Springer, Ed. (Methods in Molecular Medicine). Humana Press, Totowa, NJ. www.humanapress.com. 2003. 555 pp. \$145.00.

Dose limitation due to cytotoxicity to normal cells and re-occurrence of drug-resistant cancer cells under suboptimal dosages has been a major hurdle for an effective cancer treatment. Suicide gene therapy, or gene-directed enzyme prodrug therapy, has been increasingly recognized as a viable molecular approach to combat this limitation. Such a strategy is attractive because it enhances drug selectivity to cancer cells through a two-step, enzyme-based prodrug activation process that involves conversion of a non-toxic prodrug to a highly cytotoxic agent within the vicinity of tumor mass, therefore systemic toxicity avoided. Tumor specific production of an enzyme can be achieved through rational design such as local administration of gene vectors, tumor-targeted gene delivery,

or through regulated gene expression that is more active in tumor cells than in normal cells. What makes this system very unique is the discovery of a so-called bystander effect found in experimental models that a combined transfection/prodrug treatment usually leads to a much more profound killing of tumor cells beyond the tumor cells that are actually transfected. Many impressive *in vitro* and pre-clinical data were generated in the past decade and several clinical trials in various phases are ongoing.

With the concept of prodrug therapy firmly established, it is pleasant to see that Caroline J. Springer at the Institute of Cancer Research, UK has included a nice collection of articles, from a group of internationally known leaders in this field, in this book on suicide gene therapy. This collection contains many well-written, comprehensive and up-to-date reviews on major aspects of this therapeutic approach. Chapters 1, 2, 9 and 26 provide readers with a broad introduction as well as in-depth discussion on the basic biochemical and chemical principles on which this therapeutic strategy is based. Insightful discussion on the current status, and future directions of suicide gene therapy should help the readers quickly grasp a broad view on progress made in the past and where the field is heading. Chapters 3–6 provide readers with many gene delivery systems including bacterial, viral and non-viral vectors that are being used to introduce therapeutic genes to tumor cells. For those who are interested in getting into this field, but not particularly equipped with knowledge in molecular and experimental biology, this book provides some clearly described and detailed protocols. Chapters 10–15 and 27 describe many gene-prodrug pairs with detailed discussion on mechanism of action, pharmacological interactions between prodrug and enzyme, the interaction between metabolically activated drug and cells, and *in vitro* and *in vivo* applications of specific gene-prodrug combination. Chapters 16–20 detail some of the potential limitations associated with suicide gene therapy, and provide corresponding new strategies for further improvement. These strategies include re-engineering enzymes to make them more efficient (Chapter 16), using a combination of two different suicide gene therapy protocols to reduce the chance of developing drug resistance phenotype for cancer cells (Chapter 17) and a better understanding of the involvement of immune response essential to the bystander effect (Chapter 18), and exploiting the hypoxia responsive element as tumor specific transcription mechanism (Chapter 19) or gene expression activation specific to radiation therapy (Chapter 20). Chapter 21 describes an interesting 3-D multilayer culture system for *in vitro* evaluation on bystander effect. Chapters 22–24 provide three examples on how to conduct clinical studies using suicide gene therapy. Possible acute and chronic side effects associated with gene delivery vector systems, including potential immunological reaction to the vector itself, safety concerns on insertion mutation caused by integrative or non-integrative gene delivery systems, possible side effects on normal tissue on suicide gene therapy due to the diffusion of activated drugs or non-specific gene transfer to normal tissue are discussed in Chapter 25.

The possibility that suicide gene therapy offers therapeutic

tic benefit with much reduced systemic toxicity opens a whole new frontier for fighting various cancers. It also provides many researchers with an opportunity to take a multidisciplinary approach toward cancer therapy. Overall, this is a well-organized book with lots of information on the subject. As suicide gene therapy is still at the experimental stage, let us hope that this book will bring in some new blood to this field as the Editor states in the beginning of the book.

Xiang Gao and Dexi Liu
Department of Pharmaceutical Sciences
School of Pharmacy
University of Pittsburgh
 527 Salk Hall, 3501 Terrace Street
 Pittsburgh, PA 15261
 dliu@pitt.edu

Gene and Cell Therapy. Therapeutic Mechanisms and Strategies. Second Edition, Revised and Expanded. Nancy Smyth Templeton, Ed. Marcel Dekker, Inc., Monticello, NY. www.dekker.com. 2004. 875 pp. \$175.00.

This book contains gene therapy broadly including current delivery systems and therapeutic strategies, disease targets, clinical trials and regulatory issues, and cell based therapies. This book includes topics in gene therapy and draws from many disciplines including molecular biology, genetics, immunology, chemistry biophysics, molecular imaging, pharmacology, and toxicology. Although this edition focuses on the authors' research efforts, it can be used as a textbook, due to diverse disciplines and basic concepts and hypothesis.

Part I is highly valuable for those who want to learn viral vectors with retroviral vectors, adenovirus vectors, adeno-associated virus vectors and lentiviral vectors. In addition, nonviral vectors, such as bacteria polyplex, lipid are discussed, as well as electrical delivery and gene gun technology. However, novel polymeric carriers and construction of effective plasmid DNA are missing in part I. In part II, other therapeutic strategies include ribozymes, antisense oligonucleotide and suicide gene therapy. These chapters review the status of past and present activities. The current hot subject, siRNA chapter was not included; although, it is briefly mentioned in the antisense oligo nucleotide section.

Part IV, discusses gene therapy for various diseases including hematopoietic disorder, cardiovascular, cancer, neurological disorder and others. These subjects can be one separate book. There is some overlapping with part V, although this emphasizes clinical trials more. In the cardiovascular area, large amount of works have been accomplished, especially in myocardial infarct. Abundant works in cancer gene therapy have been performed, especially in immunotherapy area. Due to limited pages, key important findings in this area are not covered, although an extensive list is given in the section of gene therapy for cancer. Diabetic gene treatment, which is missing, is an important area for the prevention of autoimmune induced diabetes and GLP-I plasmid delivery, etc.

Part V is interesting and includes clinical issues for cardiovascular gene therapy, cancer and Alzheimer's diseases.

These sections are written in short version, likely due to limited space, but several important issues, especially in regulatory aspects, are discussed. Part VI, cell based therapy and trials, needs many more pages to include current progress, such as myoblast, cardocytes and stem cell gene delivery. This book has 875 pages and it is too much already to include these topics.

The editor worked hard to include broad topics in one book. If this book were divided in two, first edition with mechanisms and in vitro and second edition with in vivo, diseases and clinical, then the two books would encompass more topics and it would be stronger. This reviewer enjoyed reading the book and found it to be of high quality and worthy.

Sung Wan Kim
University of Utah
 CCCD, Biomed. Polymers Res. Bldg.
 20 S 2030 East, Rm 205
 Salt Lake City, UT 84112-9452
 rburns@pharm.utah.edu

Protein Purification Protocols. 2nd Edition. Paul Cutler, Ed. (Methods in Molecular Biology, Volume 244) Humana Press, Totowa, NJ. www.humanapress.com. 2003. 484 pp. \$115.00.

This book is an excellent summary of the major methods available for purification of proteins and how to use them. Each chapter is clearly written and includes a balance of theory, practice, actual methods, and references. It is useful for beginners who are trying to determine an appropriate purification scheme and as a reference for those experienced in protein purification. The book begins with a practical introduction summarizing the key questions to consider when designing a protein purification scheme. The book then presents methods for preparing extracts from animal tissue, plant tissue, bacteria, and fungi. It includes methods for the concentration and purification of proteins and extracts including ultrafiltration, precipitation, and various chromatographic and gel based techniques. It reviews methods for protein lyophilization and storage as well as newer methods that have been developed for use in proteomics. These include two dimensional gel methods, prefractionation methods, and multi-dimensional chromatographic and mass spectrometry methods. The book concludes with summaries of considerations in therapeutic protein purification and purification process scale-up. The book is a useful addition to the protein purification literature and a handy reference for those interested in protein purification, characterization, protein processing, and formulation.

Mark Tracy
Alkermes, Inc.
Formulation Development
 88 Sidney St.
 Cambridge, MA 02139
 mark.tracy@alkermes.com

Protein-Protein Interactions. Methods and Applications.

Haian Fu, Ed. Humana Press, Totowa, NJ. www.humanapress.com. 2004. 532 pp. \$125.00.

Protein-protein interactions are fundamental to normal physiology in all organisms. Proteins interact in a highly regulated manner to determine cell fate ranging from cell proliferation, differentiation, to death through control of DNA replication, RNA transcription, protein translation, macromolecular assembly, degradation, and signal transduction. In order to better understand these diverse biological processes as well as to identify potential targets for intervention of diseases, knowledge of methods for examining when and how protein-protein interactions occur and how they are controlled is crucial.

The book presents a collection of frequently employed techniques for identifying protein interaction partners, qualitative and quantitative methods for measuring protein-protein interactions in vitro or in vivo, monitoring protein-protein interactions as they occur in living cells and determining interaction interfaces. The book is divided into five parts. In Part One, an overview of the fundamentals of protein interaction is presented along with quantitative analysis of protein-protein interactions. In Part Two, a wide range of biochemical and biophysical methods for detecting and measuring protein-protein interactions in vitro is presented. Commonly used spectroscopic (e.g., Circular Dichroism, Nuclear Magnetic Resonance, Surface Plasmon Resonance), electrophoretic (e.g., Small-Zone Gel Filtration Chromatography, Fluorescence Gel Retardation Assay, Fluorescence Polarization Assay, Far Western Blot), and affinity matrix-based (e.g., Affinity Capillary Electrophoresis, Phage Display and Polyvalency) techniques are presented. In Part Three, popular methods for studying protein-protein interactions in heterologous cell systems, including various bacterial, yeast, and mammalian two-hybrid systems and co-immunoprecipitation studies are presented. In Part Four, state of the art methodologies to monitor protein-protein interactions in living cells are presented which allow the capture and visualization of protein-protein interactions as they occur. The methods presented include microscopic analysis of fluorescence resonance energy transfer (FRET), flow cytometric analysis of FRET, confocal microscopy for intracellular colocalization of proteins, mapping biochemical networks with protein-fragment complementation assays and in vivo protein cross-linking. The book ends with Part Five: Proteomic Based Approaches for studying protein-protein interactions. This section focuses on high-throughput methods and computational approaches for studying protein-protein interactions on a large scale and ends with a beginner guide to some of the valuable resources on the Internet that are relevant to the study of protein-protein interaction.

This book serves as an excellent reference for both basic and clinical researchers. The book provides a broad coverage from simple affinity-based assays to cutting edge technologies such as FRET and solid-phase isotope tagging-based mass spectrometry. The sections introduce the reader to basic theory and practical applications of these widely used assays. Representative methods are detailed along with notes and explanations for sensitive procedures and potential pitfalls. The book serves as an excellent resource for any scientist who

is interested in deciphering the functions of proteins in complex biological systems.

Jun F. (James) Liang

*Department of Chemistry and Chemical Biology
Stevens Institute of Technology
Castle Point on Hudson
Hoboken, NJ 07030
jliang2@stevens.edu*

Development and Evaluation of Drugs. From Laboratory through Licensure to Market.

Second Edition. Chi-Jen Lee, Lucia H. Lee, Cheng-Hsiung Lu. CRC Press, Boca Raton, FL. www.crcpress.com. 2003. 241 pp. \$189.95.

It takes about 10–15 years to develop a new drug and the process is very complex and multidisciplinary. This book, covering the drug development throughout the research phase, clinic trials and marketing, is used as a textbook in the graduate course at the National Institute of Health. The introductory chapter gives a very good historical overview of the discovery of drugs and the search for health since the dawn of mankind. The authors describe the never ending oscillation between two different points of view in medicine—prevention and treatment—which is a pressing issue today as it was 5000 years ago. The following chapters cover a great deal of ground and discuss many interesting topics. The last chapter gives a broad and interesting analysis of the challenging problems in the future and the global health problems. In this age of rapid changes it has become almost impossible to write a book, which is up to date with the most recent changes. Nevertheless, the book succeeds in giving a broad and solid account of the subject and gives a reader without a strong background in the area a good introduction into the field in a very concise and well-structured way.

Thomas Österberg

*Pfizer Health AB
Product & Process Development
Pfizer Global Manufacturing
SE-118 29 Stockholm
Sweden
thomas.osterberg@pharmacia.com*

Encyclopedia of Biomaterials and Biomedical Engineering,

Volumes 1 and 2. Gary E. Wnek and Gary L. Bowlin, Eds. Marcel Dekker, Inc., New York, NY. www.dekker.com. 2004. 1789 pp. \$420.00.

The Encyclopedia of Biomaterials and Biomedical Engineering summarizes the most important topics in these two very broad fields. The volumes are well organized and each section consistently presented the most important concepts of each topic. A limited amount of references per topic are presented but taken in its entirety each volume contains a wealth of very good references. The diagrams are clear and the rest of the figures highlight important developments in the field. This book can serve as a very good first reference for

researchers and students in the fields of Biomaterials and Biomedical Engineering.

Albena Ivanisevic
albena@purdue.edu

New Drug Development: Regulatory Paradigms for Clinical Pharmacology and Biopharmaceutics. C.G. Sahajwalla, Ed. Marcel Dekker, New York. www.dekker.com. 2004. 596 pp. \$175.00.

When the Food and Drug Administration (FDA) speaks, people listen. That is one reason why this book will be a big seller for Marcel Dekker. This book has 25 chapters on drug development, 24 of which were written or co-written by US or EU regulatory authorities. This book has the usual FDA disclaimer about the views presented being the author's and not the official policy of the FDA. Still, these are the people that make the policy so many will read this book to gain additional insight into their thinking.

The purpose of this book is to "serve as an introductory textbook to the pharmaceutical scientist, student, and researcher involved in new drug development" and, like others that have been recently published, focuses on the role of pharmacokinetics and biopharmaceutics in drug development. What makes this book interesting is its point of view. All other books like this one have had either an industrial or academic point of view. This book has primarily a regulatory point of view and could have easily turned into a re-hash of regulatory guidances. However, the material, while at times seems very familiar, was presented in a manner that was different and engaging.

This book has many of the chapters one would expect because of its nature: an introduction to drug development, analytical method validation, allometric scaling, drug-drug interactions, studies in special populations, and bioequivalence, for example. However, there are chapters not covered in other books like liposomal drug product characterization and the regulatory basis for clinical pharmacology, which presents an overview of the Code of Federal Regulations (CFR), FDA Guidances to Industry, and ICH Guidelines. Particularly interesting are the chapters on the animal efficacy rule (which I personally believe is a Pandora's box) which allows manufacturers to make label claims based only on animal efficacy data provided that sufficient safety data are available in humans and there is a thorough understanding of the drug's mechanism of action and the pathology of the disease. The animal efficacy rule was used in allowing ciprofloxacin to be used in the treatment of inhalational anthrax exposure.

This book places a strong emphasis on ICH guidelines, FDA Guidances, and the CFR. For example, the chapter on Biowaivers begins by introducing legal definitions related to bioequivalence and then moves into the CFRs that allow when biowaivers may be used. This makes for a very legalese approach to the topic. One issue with the FDA Guidances and ICH Guidelines is that these address particular problems which together form a mosaic. They do not form a path that a sponsor can follow, at the end of which they will have an approvable drug. Sadly, this book does not do that either—but to be fair, none of the books on this topic do either.

I think this book is highly complementary to other books

of its kind, largely due to its unique perspective on the topic. I had few criticisms of the book. In some of the chapters there are references to "section headings", e.g., "as described in Section 2.3.4 of this chapter" (p. 202), but none of the chapters are organized by section and there are references to tables that do not exist (p. 251). The index of the book was not very detailed and could have been more inclusive. Nevertheless, the chapters are readable, the figures are clear in reproduction, the result being a useful text that I believe meets its goal of being an introductory text to drug development from a pharmacokinetic-regulatory point-of-view.

Peter L. Bonate, PhD, FCP
ILEX Oncology
4545 Horizon Hill Blvd
San Antonio, TX 78229
pbonate@ilexonc.com

Applications of Pharmacokinetic Principles in Drug Development. Rajesh Krishna, Ed. Kluwer Academic/Plenum Publishers, New York, NY. www.wkap.nl. 2004. 550 pp. \$125.00.

This collection of chapters by scientists from industry, academia and the U.S. Food and Drug Administration presents an overview regarding the integration of pharmacokinetics, drug metabolism and pharmacodynamics in the successful development of new drugs. The book is dedicated to the memory of Wayne Colburn, a pharmaceutical scientist who was a key leader in drug development. Most chapters are comprehensively referenced and the topics are wide ranging, including one on information about special population studies in clinical development and on interspecies scaling. Surprisingly, the chapter on pharmacokinetic and pharmacodynamic modeling did not cite the seminal work of William Jusko or Meindert Danhof on indirect pharmacodynamic modeling. This book assumes a working knowledge of pharmacokinetic and pharmacodynamic theory and should be especially useful for pharmaceutical scientists and graduate students in medicine, pharmacy, pharmacology and biochemistry.

Raymond Galinsky
Purdue University
School of Pharmacy
Department of Industrial and Physical Pharmacy
West Lafayette, IN 47907
rgalinsk@iupui.edu

Books Received

Analytical Methods

A Handbook of Bioanalysis and Drug Metabolism. Gary Evans, Ed. CRC Press, Boca Raton, FL. www.crcpress.com. 2004. 390 pp. \$129.95.

A Practical Guide to Understanding the NMR of Polymers. Peter A. Mirau. John Wiley & Sons, Hoboken, NJ. www.wiley.com. 2004. 418 pp. \$94.95.

Analyzing Microarray Gene Expression Data. Geoffrey J. McLachlan, Kim-Anh Do and Christophe Ambroise. (Wiley Series in Probability and Statistics). John Wiley and Sons, Hoboken, NJ. www.wiley.com. 2004. 320 pp. \$89.95.

Analytical Method Validation and Instrument Performance Verification. Chung Chow Chan, Y.C. Lee, Herman Lam, Xue-Ming Zhang, Eds. John Wiley & Sons, Hoboken, NJ. www.wiley.com. 2004. 303 pp. \$89.95.

Atomic Force Microscopy. Biomedical Methods and Applications. Pier Carlo Braga, Davide Ricci, Eds. (Methods in Molecular Biology, Vol. 242). Humana press, Totowa, NJ. www.humanapress.com. 2003. 394 pp. \$115.00.

Chiral Separations. Methods and Protocols. Gerald Gübitz and Martin G. Schmid, Eds. (Methods in Molecular Biology, Volume 243). Humana Press, Totowa, NJ. www.humanapress.com. 2003. 432 pp. \$99.50.

Chromatography: Concepts and Contrasts, Second Edition. James M. Miller. John Wiley & Sons, Hoboken, NJ. www.wiley.com. 2004. 490 pp. \$94.50.

Illustrated Pocket Dictionary of Chromatography. Paul C. Sadek. John Wiley & Sons, Hoboken, NJ. www.wiley.com. 2004. 227 pp. \$54.95.

Isolation Technology: A Practical Guide, Second Edition. Tim Coles. CRC Press, Boca Raton, FL. www.crcpress.com. 2004. 221 pp. \$199.95.

Microbiological Assay for Pharmaceutical Analysis. A Rational Approach. William Hewitt. CRC Press, Boca Raton, FL. www.crcpress.com. 2003. 244 pp. \$229.95.

Principles and Reactions of Protein Extraction, Purification, and Characterization. Hafiz Ahmed. CRC Press, Boca Raton, FL. www.crcpress.com. 2004. 387 pp. \$129.95.

Protein NMR Techniques. Second Edition. A. Kristina Downing, Ed. (Methods in Molecular Biology, Volume 278). Humana Press, Totowa, NJ. www.humanapress.com. 2004. 487 pp. \$115.00.

Biomaterials

Absorbable and Biodegradable Polymers. Shalaby W. Shalaby and Karen J.L. Burg, Eds. CRC Press, Boca Raton, FL. www.crcpress.com. 2004. 289 pp. \$118.25.

Development and Control of Medicines and Medical Devices. Robin J. Harman. Pharmaceutical Press, Grayslake, IL. www.pharmpress.com. 2004. 258 pp. \$75.00.

Introduction to Polymeric Biomaterials. Reza Arshady, Ed. (The PBM Series Volume 1.) Citus Books, London, UK. 2003. 395 pp. \$244.00.

Six Sigma for Medical Device Design. Jose Justiniano and Venky Gopalaswamy. CRC Press, Boca Raton, FL. www.crcpress.com. 2004. 133 pp. \$249.95.

Synthetic Multivalent Molecules: Concepts and Biomedical Applications. Seok-Ki Choi. John Wiley & Sons, Hoboken, NJ. www.wiley.com. 2004. 418 pp. \$99.95.

The Structure of Biological Membranes, Second Edition. Philip L. Yeagle, Ed. CRC Press, Boca Raton, FL. www.crcpress.com. 2004. 540 pp. \$159.95.

Biotechnology

Directory of Approved Biopharmaceutical Products. Stefania Spada and Gary Walsh. CRC Press, Boca Raton, FL. www.crcpress.com. 2004. 317 pp. \$159.95.

Evolutionary Methods in Biotechnology. Clever Tricks for Directed Evolution. Susanne Brakmann and Andreas Schwienhorst, Eds. John Wiley & Sons, Hoboken, NJ. www.wiley.com. 2004. 214 pp. \$165.00 (CD included).

Cancer

Cancer Gene Therapy. David T. Curiel and Joanne T. Douglas, Eds. Humana Press, Totowa, NJ. www.humanapress.com. 2004. 489 pp. \$165.00.

Combination Cancer Therapy: Modulators and Potentiators. Gary K. Schwartz, Ed. (Cancer Drug Discovery and Development). Humana Press, Totowa, NJ. www.humanapress.com. 2004. 284 pp. \$135.00.

Handbook of Laboratory Animal Science, Second Edition. Jann Hau and Gerald L. Van Hoosier, Jr., Eds. (Volume III Animal Models). CRC Press, Boca Raton, FL. www.crcpress.com. 2004. 305 pp. \$80.96.

Mouse Models of Human Cancer. Eric C. Holland, Ed. John Wiley & Sons, Hoboken, NJ. www.wiley.com. 2004. 474 pp. \$195.00.

Medicinal Chemistry

Aspirin and Related Drugs. K.D. Rainsford, Ed. CRC Press, Boca Raton, FL. www.crcpress.com. 2004. 770 pp. \$149.95.

Carbocation Chemistry. George A. Olah and G.K. Surya Prakash, Eds. Wiley & Sons, Hoboken, NJ. www.wiley.com. 2004. 3939 pp. \$99.95.

Carbonic Anhydrase: Its Inhibitors and Activators. Claudiu T. Supuran, Andrea Scozzafava and Janet Conway, Eds. CRC Press, Boca Raton, FL. www.crcpress.com. 2004. 363 pp., \$139.95.

Drug Discovery for Nervous System Diseases. Franz F. Hefti. John Wiley & Sons, Hoboken, NJ. www.wiley.com. 2004. 319 pp. \$89.95.

Enzymes and Their Inhibition: Drug Development. H. John Smith and Claire Simons, Eds. (CRC Enzyme Inhibitors Series). CRC Press, Boca Raton, FL. www.crcpress.com. 2004. 308 pp. \$149.95.

Name Reactions in Heterocyclic Chemistry. Jie Jack Li, Ed. Wiley, Hoboken, NJ. www.wiley.com. 2004. 558 pp. \$125.00.

Optimization in Drug Discovery: In Vitro Methods. Zhengyin Yan and Gary W. Caldwell, Eds. (Methods in Pharmacology and Toxicology). Humana Press, Totowa, NJ. www.humanapress.com. 2004. 418 pp. \$135.00.

Progress in Medicinal Chemistry, Volume 42. F.D. King, G. Lawton and A.W. Oxford, Eds. Elsevier B.V., The Netherlands. www.elsevier.com. 2004. 393 pp. \$209.00.

Pseudo-Peptides in Drug Discovery. Peter E. Nielsen, Ed. John Wiley & Sons, Hoboken, NJ. www.wiley.com. 2004. 244 pp. \$125.00.

The Medicinal Uses of Cannabis and Cannabinoids. Geoffrey W. Guy, Brian A. Whittle and Philip J. Robson, Eds. Pharmaceutical Press, Grays Lake, IL. www.pharmpress.com. 2004. 488 pp. \$59.95.

Molecular Biology

Antisense Therapeutics, Second Edition. M. Ian Phillips, Ed. (Methods in Molecular Medicine). Humana Press, Totowa, NJ. www.humanapress.com. 2004. 327 pp. \$125.00.

Cell Migration: Developmental Methods and Protocols. Jun-Lin Guan, Ed. (Methods in Molecular Biology, Volume 294). Humana Press, Totowa, NJ. www.humanapress.com. 2004. 364 pp. \$99.50.

Cell Migration in Inflammation and Immunity. Methods and Protocols. Daniele D'Ambrosio, Francesco Sinigaglia, Eds. (Methods in Molecular Biology, Volume 239). Humana Press, Totowa, NJ. www.humanapress.com. 2004. 277 pp. \$99.50.

Mammalian Artificial Chromosomes. Methods and Protocols. Vittorio Sgaramella and Sandro Eridani, Eds. (Methods in Molecular Biology Volume 240). Humana Press, Totowa, NJ. www.humanapress.com. 2003. 269 pp. \$99.50.

Membrane Microdomain Signaling: Lipid Rafts in Biology and Medicine. Mark. P. Mattson, Ed. Humana Press, Totowa, NJ. www.humanapress.com. 2004. 214 pp. \$99.50.

Platelets and Megakaryocytes, Volume 1: Functional Assays. Jonathan M. Gibbins and Martyn P. Mahaut-Smith, Eds. (Methods in Molecular Biology, Volume 272). Humana Press, Totowa, NJ. www.humanapress.com. 2004. 385 pp. \$115.00.

Platelets and Megakaryocytes, Volume 2: Perspectives and Techniques. Jonathan M. Gibbins and Martyn P. Mahaut-Smith, Eds. (Methods in Molecular Biology, Volume 273). Humana Press, Totowa, NJ. www.humanapress.com. 2004. 503 pp. \$125.00.

Signal Transduction Protocols, Second Edition. Robert C. Dickson and Michael D. Mendenhall, Eds. (Methods in Molecular Biology, Volume 284). Humana Press, Totowa, NJ. www.humanapress.com. 2004. 327 pp. \$99.50.

When Cells Die II. A Comprehensive Evaluation of Apoptosis and Programmed Cell Death. Richard A. Lockshin and Zahra Zakeri, Eds. John Wiley & Sons, Hoboken, NJ. www.wiley.com. 2004. 549 pp. \$99.95.

Nanotechnology

Bionanotechnology: Lessons From Nature. David S. Goodsell. John Wiley & Sons, Hoboken, NJ. www.wiley.com. 2004. 337 pp. \$79.95.

Enabling Technology for MEMS and Nanodevices. Baltes, Brad, Fedder, Hierold, Korvink and Tabata, Eds. Wiley-VCH, Germany. www.wiley-vch.com. 2004. 427 pp. \$245.00.

Metal-Polymer Nanocomposites. Luigi Nicolais and Gianfranco Carotenuto, Eds. Wiley, Hoboken, NJ. www.wiley.com. 2004. 300 pp. \$99.95.

Microsystem Engineering of Lab-on-a-Chip Devices. Oliver Geschke, Henning Klank and Pieter Tellemann, Eds. Wiley-VCH, Germany. www.wiley-vch.de. 2004. 258 pp. \$99.95.

Pharmaceutical Manufacturing and Regulation

Compliance Handbook for Pharmaceuticals, Medical Devices, and Biologics. Carmen Medina, Ed. (Drugs and the Pharmaceutical Sciences, Vol. 136) Marcel Dekker, New York, NY. www.dekker.com. 2004. 666 pp. \$195.00.

Facility Validation: Theory, Practice, and Tools. Graham C. Wrigley. CRC Press, Boca Raton, FL. www.crcpress.com. 2004. 140 pp. \$149.95.

Good Pharmaceutical Manufacturing Practice: Rationale and

Compliance. John Sharp. CRC Press, Boca Raton, FL. www.crcpress.com. 2004. 503 pp. \$229.95.

Handbook of Pharmaceutical Manufacturing Formulations: Compressed Solid Products. Volume 1. Sarfaraz K. Niazi. CRC Press, Boca Raton, FL. www.crcpress.com. 2004. 296 pp. \$295.95.

Handbook of Pharmaceutical Manufacturing Formulations: Uncompressed Solid Products. Volume 2. Sarfaraz K. Niazi. CRC Press, Boca Raton, FL. www.crcpress.com. 2004. 203 pp. \$295.95.

Handbook of Pharmaceutical Manufacturing Formulations: Liquid Products. Volume 3. Sarfaraz K. Niazi. CRC Press, Boca Raton, FL. www.crcpress.com. 2004. 231 pp. \$295.95.

Handbook of Pharmaceutical Manufacturing Formulations: Semisolid Products. Volume 4. Sarfaraz K. Niazi. CRC Press, Boca Raton, FL. www.crcpress.com. 2004. 263 pp. \$295.95.

Handbook of Pharmaceutical Manufacturing Formulations: Over-the-Counter Products. Volume 5. Sarfaraz K. Niazi. CRC Press, Boca Raton, FL. www.crcpress.com. 2004. 337 pp. \$295.95.

Handbook of Pharmaceutical Manufacturing Formulations: Sterile Products. Volume 6. Sarfaraz K. Niazi. CRC Press, Boca Raton, FL. www.crcpress.com. 2004. 354 pp. \$295.95.

Microbiological Contamination Control in Pharmaceutical Clean Rooms. Nigel Halls, Ed. CRC Press, Boca Raton, FL. www.crcpress.com. 2004. 185 pp., \$199.95.

Research and Development Management in the Chemical and Pharmaceutical Industry. Peter Bamfield. (Second, Completely Revised and Extended Edition.) Wiley-VCH, Germany. www.wiley-vch.de. 2003. 269 pp. \$85.00.

Sterile Product Facility Design and Project Management, Second Edition. Jeffery N. Odum. CRC Press, Boca Raton, FL. www.crcpress.com. 2004. 373 pp. \$189.95.

The Challenge of CMC Regulatory Compliance for Biopharmaceuticals. John Geigert. Kluwer Academic/Plenum Publishers, New York. www.kluweronline.com. 2004. 350 pp. \$125.00.

The Selection and Use of Contract Research Organizations. Shayne C. Gad. Taylor & Francis, New York, NY. www.tandf.co.uk. 2003. 178 pp. \$95.00.

Pharmaceutics

Advanced Pharmaceutics. Physicochemical Principles. Chong-ju Kim. CRC Press, Boca Raton, FL. www.crcpress.com. 2004. 498 pp. \$149.95.

Chemical Reagents for Protein Modification, Third Edition. Roger L. Lundblad. CRC Press, Boca Raton, FL. www.crcpress.com. 2004. 339 pp. \$129.95.

Dictionary of Pharmacy. Dennis B. Worthen, Editor-in-Chief. The Haworth Press, Inc., Binghamton, NY. www.HaworthPress.com. 2004. 530 pp. \$39.95.

Freeze-Drying/Lyophilization of Pharmaceutical and Biological Products. Second Edition, Revised and Expanded. Louis Rey and Joan C. May, Eds. (Drugs and the Pharmaceutical Sciences, Vol. 137). Marcel Dekker, Inc., New York, NY. www.dekker.com. 2004. 613 pp. \$195.00.

Index Nominum: International Drug Directory, 18th Edition. Swiss Pharmaceutical Society, Ed. CRC Press, Boca Raton, FL. www.crcpress.com. 2004. 1823 pp. \$239.95.

Journal of Pharmaceutical Sciences: Compendium of Reviews.

Elizabeth M. Topp, Ed. American Pharmacists Association, Washington, DC. www.pharmacist.com. 2004. 368 pp. \$39.95.

Lipospheres in Drug Targets and Delivery: Approaches, Methods, and Applications. Claudio Nustruzzi Ed. CRC Press, Boca Raton, FL. www.crcpress.com. 2004. 171 pp. \$169.95.

Pharmaceutical Excipients 2004. (Single-user version CD ROM). Raymond C. Rowe, Paul J. Sheskey and Siân C. Owen, Eds. Pharmaceutical Press, London, UK and APhA, Forrester Center, WV. 2004. \$299.95.

Photostability of Drugs and Drug Formulations, Second Edition. Hanne Hjorth Tønneson, Ed. CRC Press, Boca Raton, FL. www.crcpress.com. 2004. 435 pp. \$189.95.

Polymeric Gene Delivery: Principles and Applications. Mansoor M. Amiji, Ed. CRC Press, Boca Raton, FL. www.crcpress.com. 2004. \$179.95.

The British National Formulary, 48th Edition. Dinesh K. Mehta. Pharmaceutical Press, Grayslake, IL. www.pharmpress.com. 2004. 902 pp. \$29.95.

The Complete Drug Reference, Thirty-fourth Edition. Sean C. Sweetman, Ed. Pharmaceutical Press, Grayslake, IL. www.pharmpress.com. 2004. 2756 pp. \$375.00.

The Veterinary Formulary, Sixth Edition. Yolande Bishop, Ed. Pharmaceutical Press, Grayslake, IL. www.pharmpress.com. 2004. 566 pp. \$120.00.

Theory and Practice of Contemporary Pharmaceutics. Tapash K. Ghosh and Bhaskara R. Jasti, Eds. CRC Press, Boca Raton, FL. www.crcpress.com. 2004. 564 pp. \$69.95.

Transport Processes in Bubbles, Drops, and Particles. Second Edn. D. De Kee and R.P. Chhabra, Eds. Taylor & Francis, New York, NY. www.tandf.co.uk. 2002. 433 pp. \$175.00.

Pharmacotherapy

Handbook of SOPs for Good Clinical Practice, Second Edition. Celine M. Clive. CRC Press, Boca Raton, FL. www.crcpress.com. 2004. 270 pp. \$229.95.

Pharmacotherapy of Obesity: Options and Alternatives. Karl G. Hofbauer, Ulrich Keller and Olivier Boss, Eds. CRC Press, Boca Raton, FL. www.crcpress.com. 2004. 488 pp. \$149.95.

Toxicogenomics: Principles and Applications. Hisham K. Hamadeh and Cynthia A. Afshari, Eds. John Wiley & Sons, Hoboken, NJ. www.wiley.com. 2004. 361 pp. \$64.95.

Polymers

An Introduction to The Mechanical Properties of Solid Polymers, Second Edition. I.M. Ward and J. Sweeney. John Wiley & Sons, Hoboken, NJ. www.wiley.com. 2004. 382 pp. \$68.00.

Mission and Challenge of Polymer Science and Technology. K. Horie and A. Abe, Eds. (Macromolecular Symposia, 201). Wiley-VCH, Weinheim, Germany. www.wileyurope.com. 2004. 326 pp. \$175.00.

Polymers, the Environment and Sustainable Development. Ian Hamerton, Ed. John Wiley & Sons, Hoboken, NJ. www.wiley.com. 2004. 219 pp. \$185.00.

Synthetic Metal-Containing Polymers. Ian Manners. Wiley-VCH, Weinheim, Germany. www.wileyurope.com. 2004. 275 pp. \$189.00.

Others

Handbook of Nutrition and Immunity. M. Eric Gershwin, Penelope Nestel and Carl L. Keen, Eds. Humana Press, Totowa, NJ. www.humanapress.com. 2004. 365 pp. \$79.50.

Introduction to Weapons of Mass Destruction. Radiological, Chemical, and Biological. R. Everett Langford. John Wiley & Sons, Inc., Hoboken, NJ. www.wiley.com. 2004. 394 pp. \$89.95.

The Rexall Story: A History of Genius and Neglect. Mickey C. Smith. Haworth Press, Inc., Binghamton, NY. www.haworthpressinc.com. 2004. 175 pp. \$24.95 (soft), \$39.95 (hard).

Kinam Park
Book Review Editor
Purdue University
Departments of Pharmaceutics and Biomedical
Engineering
West Lafayette, IN 47907
kpark@purdue.edu