of neurons. The next three chapters deal with addiction, tolerance, and dependence. A detailed introduction into the problem of alcoholism including structural and kinetic features of alcohol- and acetaldehyde-dehydrogenases and their isozymes, and the correlation of various genotypes with alcoholism and consecutive disorders are given. Chapter 22 presents known polymorphic genes affecting nicotine metabolism and dopaminergic transmission and the potential benefit of future genome wide scans in tobacco addiction. Chapter 23 provides an excellent historic and pharmacologic overview on the opioid system. However, pharmacogenomics which would have included the impact of genomic variations is little discussed in this chapter. Differences between ethnic groups in drug metabolism, disposition, reasons for ethnic variations, molecular history of genetic polymorphisms, and their impact on public health (costs) and ethics are topics in chapter 24. Chapter 25 has some overlap with chapter 24 in ethnic aspects but then focuses on societal/ethical issues: pharmacogenomics will help to differentiate between human individuals based on genetic differences rather than dividing humans into different racial groups. Chapter 26 presents a "pharmacoproteomics" approach to unravel the molecular diversity of the human vasculature at the protein–protein interaction level by using a phage display random peptide library for the purpose of an individualized tissue specific targeted delivery. Finally, chapter 27 gives an extensive glossary including basic genetic terms and is a great help for newcomers in pharmacogenomics, and ends with helpful genomic resources on the World Wide Web.

In conclusion, experts describe – mostly very well and comprehensibly written – basically all facets of the exciting new discipline called pharmacogenomics. This book offers a wealth of highly actual information and can be emphatically recommended not only for those already working in pharmacogenomics but also for newcomers and life scientists who may intend to include pharmacogenomics in their research or teaching.

Matthias U. Kassack*
Pharmaceutical Institute, University of Bonn, Bonn, Germany

* Pharmaceutical Institute, University of Bonn, An der Immenburg 4, 53121 Bonn, Germany. Tel.: +49-228-735240; fax: +49-228-737929.
E-mail address: kassack@uni-bonn.de (M.U. Kassack).

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"Polymeric Biomaterials" 2nd Edition

Severian Dumitriu (Editor), Marcel Dekker, New York, Basel; 2002, 1184 pages, US$ 275; ISBN 0-8247-0569-6

Searching databases for polymeric biomaterials is cumbersome. Medline and Chemical Abstracts alone provide thousands of references, a 'success' that leaves people new to the field pretty much out in the rain. The vast amount of information available on these biomaterials must be ordered not only in regards to their chemical composition and physicochemical properties, but also according to their potential applications. This has become all the more necessary as polymer biomaterials are nowadays tailored substances that are fine-tuned to the needs of specific applications. 'Polymeric Biomaterials', edited by S. Dumitriu, is an attempt to bridge this gap between the multitude of publications in the field and the need for a careful introduction. An overview over the field is also provided for the more experienced reader. Where it was deemed necessary, the editor devoted whole chapters to individual material classes such as polysaccharides, silicones and biodegradable polymers. This is certainly important as these are substances with a tremendous amount of variability and, therefore, a plethora of applications. What I found most attractive besides these material based chapters, was contributions devoted to applications of well-defined materials. Although individual chapters typically focus on specific topics, they are related to major fields such as drug delivery, tissue engineering, gene therapy, prostheses and others. These individual chapters are well written and illustrated. The book has a detailed index so that searching for materials is comfortable. The book is certainly a useful tool for all those that would like an overview of the materials, as well as their potential applications. The price of US$ 275 seems a little bit high, but is still a good investment.

Achim Göpferich*
Department of Pharmaceutics, University of Regensburg, Regensburg, Germany

* Department of Pharmaceutics, University of Regensburg, D-93040 Regensburg, Germany. Fax: +49-941-9434807.
E-mail address: achim.goepferich@chemie.uni-regensburg.de (A. Göpferich).

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"Antimicrobial Pharmacodynamics in Theory and Clinical Practice"

C. Nightingale, T. Murakawa, P. Ambrose (Editors), Marcel Dekker, New York, Basel; 2001, 432 pages, $ 175; ISBN 0-8247-0561-0

The pharmacology of antimicrobial agents (AA) can be divided into two components: pharmacokinetic (PK) and pharmacodynamic (PD). Whereas PK parameters define the distribution of drug in serum and other compartments and elimination, PD parameters give information on the interaction between the AA and microorganism.

The most frequent PD parameter determined is the minimum inhibitory concentration (MIC), which is the lowest concentration of AA which inhibits a defined bacterial culture after incubation for 18–24 h at a defined temperature in a defined medium. Per definition, MIC is a static parameter. Bacteria are exposed to unchanging antibiotic concentrations for the total time period of the experiment. In real life, when treating infections, the concentrations, however, change, depending on the PK of the drug given. When a bolus injection is given, the peak serum concentration (C_{max}) is generally well above the MIC. It is of interest to evaluate how bacteria behave under such concentrations (defined also as MOC = minimum optimal concentration, i.e. the highest concentration at which a maximum effect is observed) [1]. Since the classical work of Eagle, who had observed that penicillin concentrations well above the respective MIC enhanced the growth of some streptococci [2], it could be shown that such phenomena are also seen with drugs such as aminoglycosides, cephalosporines and quinolones. Depending on the elimination half-life, the serum concentration gradually decreases to levels below the MIC (the so-called subinhibitory levels or minimum active concentrations (MAC) or minimum partially active concentration (MPAC) [3]) and, after a certain period, bacteria will be unexposed to any AA until the next dose is given. During this period, when the level has fallen below the MIC and until the next dose is given, bacteria can recover from the 'toxic' effect of AA and start regrowing. In some instances, depending on the antibiotic and pathogen, the recovery period can vary from a few minutes to a few hours. This period is called post-antibiotic effect (PAE) [4].

Although during the early development of penicillin results on the PK/PD relationship were published, almost all attention in the 1960s until the early 1970s was directed towards research on the mechanism of resistance and MIC was almost the only PD parameter determined. In 1968 [5] and again in 1973 [6], Italian workers described a new in-vitro method which enabled the study of the behavior of bacteria when exposed to concentrations simulating a serum PK parameter. The availability of a simple new method increased the interest of the international scientific community in the relationship between PK and PD and most of the publications are on the behavior of bacterial pathogens.

The monography (edited by C.H. Nightingale, T. Murakawa and P.G. Ambrose) gives a good overview on the present status of the PK/PD discussion. Craig describes the most frequent PD parameters determined (MIC, minimum bactericidal concentration, bactericidal kinetic and PAE) using an aminoglycoside, a quinolone and a beta-lactam as examples and the differences in the mode of action between these most frequently prescribed antibiotics. This overview is supplemented by the chapter by Nightingale and Murakawa. Rypack, Allen and Hershberger give an almost complete overview of in-vitro models used to determine PD parameters; however, they fail to give credit to Sanfilippo who was the first to develop and describe such a model in recent years [5,6].

The second part of the monography deals in detail with PD of beta-lactams, aminoglycosides, quinolones, glycopeptides, the macrolide–lincosamide–streptogramin group of antibiotics, metronidazole, tetracyclines, antiviral and antifungal agents. Additional chapters discuss the feasibility of using the PK/PD relationship in selecting the antibiotic for treating a given infection and how clinical trials can be used to determine such a relationship. The literature citation at the end of each chapter is not uniform; some authors list the citations as they appear in the text, others list them in alphabetic order. Also not all citations are complete, e.g. Nightingale and Murakawa (Chapter two, page 39, citations nos. 18 through 23) do not provide complete titles for all of the citations.

Regulatory agencies have recognized the importance of PD, and detailed information on PD parameters is required for all new AA. The monography should be of interest to clinical pharmacologists, microbiologists, pharmacists, infectious disease specialists and scientists involved in the development of new AA. The individual chapters are written by internationally known specialists and provide detailed information on various PD parameters and the present status of the relationship between PK and PD as well as on how in vitro determined parameters can help predict the outcome of infections treated.

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Pramod M. Shah*, Hans Knothe
ZIM, Medizinische Klinik III, Schwerpunkt: Infektiologie, Klinikum der Johann Wolfgang Goethe-Universität, Frankfurt am Main, Germany

* Corresponding author. Klinikum der J.W. Goethe Universität, Zentrum der Inneren Medizin, Med. Klinik III/Schwerpunkt Infekt., Theodor-Stern-Kai 7, 60596 Frankfurt-am-Main, Germany. Fax: +49-69-63017717.
E-mail address: shah@em.uni-frankfurt.de (P. Shah).

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