

Book reviews

Methods in Biotechnology

Hans-Peter Schmauder (Editor), 255 pp., paperback; ISBN: 0 7484 0429 5

Originally published in German, this book has now become available to a wider readership due to the efforts of L.M. Schweizer who translated Schmauder's successful book, and M. Schweizer who compiled the English edition. Many specialists in the various areas of biotechnological research contributed to this book which describes basic techniques for biotechnology, experiments in classical microbiology, bioreactor technology, molecular biology techniques and down-stream technology. Each chapter is composed of more general parts concerning theory and requirements for the type of experiments to be carried out, and the description of the very experiments, presented in step by step protocols.

The first chapter entitled 'Basic Scientific Techniques' covers a vast array of methods, such as determination of culture broth components, viability tests, strain isolation and storage, protoplast preparation, isolation and manipulation of plasmids, blotting techniques, and polymerase chain reaction. The second chapter (Bioreactor Technology) is related to bioengineering issues, such as bioreactor design, mass transfer, biocatalyst kinetics, and rheology. In the following chapter, isolation techniques, including cell disruption, precipitation, product recovery, purification and analysis are discussed. A chapter on special techniques refers to microbial sensors, immunochemistry, monoclonal antibodies, and plant and animal cell culture. Helpful comments on planning, analysis and statistical evaluation of biotechnological experiments complete the book.

In their preface the authors state that it is an unusual approach to combine suggestions for experiments in the various fields of biotechnology in one book. In fact, this approach may be regarded as both the strength and the weakness of the book. It is true that each method is presented in a way that it can be followed in the laboratory. But not all experiments can be carried out in one and the same laboratory or department. Hence, the book is a valuable tool for lecturers teaching chemical engineering, biotechnology, microbiology, biochemistry and related topics and graduate students working at the lab bench. These may be inspired by the methods described in Schmauder's book which may have an impact on their own work and teaching,

whereas undergraduates may be frustrated or overwhelmed or both by the many experiments to be carried before becoming a 'real' biotechnologist. In any case, the book may help to make textbook knowledge more transparent, even for those who will not run all the experiments described in this fine book!

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Inhalation Delivery of Therapeutic Peptide and Proteins

A. Adjei, P. Gupta (Editors), Marcel Dekker, New York, USA, 1997, 952 pp., \$225.00, ISBN 0-8247-9780-9

This is the second book about pulmonary drug delivery out of the series 'Lung Biology in Health and Disease' which I have come across recently. Last year I reviewed Anthony Hickey's book 'Inhalation Aerosols: Physical and Biological Basis for Therapy', and now comes this new volume dealing specifically with pulmonary delivery of peptides and proteins. As with Hickey's book, this one is also a must for everyone working in the field.

This lengthy book is divided into eight parts. Part one provides a review of airway physiology and biomechanics. Functional performance criteria for peptide and protein delivery to the airway is also addressed. In Part two, some basic pharmaceutical concerns with the human proteins for drug delivery are discussed. Part three contains a number of case studies of peptide delivery to treat local lung disease. These include cyclosporines, interferons, and rhDNase. The accent lies here on the factors covering the choice of a particular aerosol dosage form. Part four has a similar structure to Part three, presenting case studies for systemic delivery of peptides and proteins by inhalation. The drugs included are insulin, granular side colony-stimulating factor and growth hormone. New developments in the field of gene delivery and transfer via the lung are discussed in Part five. We find here descriptions of lung

delivery with the adeno-viruses for treating cystic fibrosis. The effects of carrier systems on gene delivery, for example liposomes, are also discussed. Part six contains alternative technologies in pulmonary delivery, addressing the problems of nonozone-depleting propellants and dry powder inhalation aerosols. Two interesting chapters in this section cover modulated-release aerosols and alternative aerosols delivery systems. To conclude the book, Part seven presents a review of general guidelines for introducing peptide or protein aerosols on to the market.

Although in places of strong medical bias, this is a very valuable book which presents a vast source of information for respiratory protein delivery. Its usefulness in pharmaceuticals would even justify the rather steep price.

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Handbook of Pharmaceutical Granulation Technology (Drugs and the Pharmaceutical Sciences, Vol. 81)

D. Parikh (Editor), Marcel Dekker, New York, USA, 1997, 512 pp., ISBN 0-8247-9882-1

Clearly, the editor's intention with this book was to give a comprehensive account of granulation in the pharmaceutical industry. Despite the inevitable variation in standard in a multi-authored work the editor is to be congratulated for achieving his goal. This book contains everything of relevance to modern granulation technology, covering an appropriate amount of theory, as well as extensive descriptions of the industrial practice of producing granules. As far as teaching goes, this is an advanced text which is particu-

lar useful for the numerous diagrams of machines and apparatus in current use. It is also, however, useful for the researcher, who will find succinct descriptions of all the major granulation processes as well as the relevant granulation theory.

The book starts with a brief consideration on granulation theory, followed by a useful, if short, description of the major characterisation methods for actives and excipients. A brief discussion of the major binders and solvents used for granulation concludes this first part of the book, covering granulation theory. The following eight chapters make up the bulk of the book, and cover the major techniques of granulation. Thus we find here discussions of spray drying as an alternative granulation technique, roller compaction technology, high shear and low shear granulators, fluidized bed granulation, the inevitable single-pot processing, extrusion, and, not to be forgotten, the possibilities for continuous granulation. In all of these chapters I particularly like the extensive, accurate diagrams of the processing units, which are so often inadequately shown in other texts. The chapter on batch fluid bed granulation is particularly attractive in this regard.

The remainder of the book deals with characterisation techniques for the finished product bioavailability as well as regulatory issues.

This very good book can be recommended to all working in the research and development of solid dosage forms. It is an excellent source of reference and definitely belongs in every pharmaceuticals library.

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