

The fact that structural aspects are not addressed with the same lucidity as the physiological and physicochemical aspects of membrane transport and bioelectricity represents a limitation of the present edition. Only a scant description of the structure of ion channels, but not of ion pumps, is given, despite the striking advances made recently in this field using the tools of molecular biology. Nevertheless, these

drawbacks do not seriously detract from the overall high quality of the book.

In conclusion, I highly recommend this second edition as a valuable introductory textbook or as a reference book for non-specialists in the field.

Cecilia Hidalgo

Cell Adhesion. Fundamentals and Biotechnological Applications; Edited by M.A. Hjortso and J.W. Roos. Marcel Dekker, Inc. New York, 1994. xi + 273 pp. \$ 135.00. ISBN 0 8247 8945 8.

The adhesion of cells to each other and to their substratum is an important biological phenomenon that regulates their survival, proliferation, and metabolic activity. Cell adhesion is thus also a major consideration in numerous biotechnological processes, ranging from the production of pharmaceuticals in bioreactors to the sedimentation of bacteria during wastewater treatment. This book, volume 20 in the Bioprocess Technology Series, is intended for students and researchers in biochemical and biomedical engineering and strives to be a comprehensive reference for cell adhesion in a wide variety of biotechnology applications. The first few chapters of *Cell Adhesion* describe the kinetics of ligand–receptor interactions and mathematical models of cell adhesion phenomenon relevant to bioreactor design. Chapter 3 attempts to provide a broad overview of adhesion in

animal cell culture; however, a section on extracellular matrix proteins and their cell surface receptors is incomplete and out-of-date. Other chapters cover the immobilization of cultured plant cells, the application of cell aggregation and sedimentation in various biotechnological systems, the role of biofilm accumulation on solid substrata, and the preparation of inorganic and synthetic organic matrices for cell attachment. With only 288 pages (and at \$ 135) *Cell Adhesion* may be too brief to serve as a single-source reference for such a wide range of topics. Researchers in the field of cell adhesion may find it more useful to consult more detailed and up-to-date references on specific areas of cell adhesion.

Marian E. Durkin and Ulla M. Wewer

RNA Isolation and Analysis; Edited by P. Jones, J. Qiu and D. Rickwood, BIOS Scientific Publishers Ltd; Oxford. xi + 196 pp. \$ 35.00. ISBN 1 872748 37 6.

The importance of RNA in the origin of life and in numerous aspects of cellular gene expression, have turned RNA into a fashion molecule, investigated in an increasing number of laboratories. This book will provide a starting point for studying the RNA world. The first chapter provides a basic introduction to the structure, processing and function of RNA with an emphasis on eukaryotic mRNAs. The subsequent chapters describe a broad range of basic methodologies essential for handling of RNA in an experiment: isolation, quantitation, size and sequence characterization, and functional analysis. The final chapter gives a brief introduction to isolation of ribonucleoproteins (RNPs) such as ribosomes, polysomes, spliceosomes and heterogeneous nuclear RNPs (hnRNPs). Detailed and clearly written protocols are included for each method together with relevant background information, allowing the inexperienced scientist to evaluate critical parameters. Several alternative approaches are included, and advantages and

drawbacks for particular applications are discussed. The book may be used, not only as a protocol, but also as a textbook for understanding the behaviour of RNA within the cell as well as in the test tube. The authors cover most of the basic techniques performed in an RNA laboratory, but powerful methods, such as RNA footprinting, ligation of RNA transcripts by bridging DNA oligo, SELEX, NMR and X-ray crystallography, have not been included in the book. I also miss a more elaborate section on UV-cross linking of RNA to RNA and protein to RNA, in particular when using modified nucleotides to enhance the yield of cross links. The book is aimed toward students and researchers new in the RNA field, but more experienced researchers may also seek help from the book to update or optimize existing lab protocols.

Jørgen Kjems

Antimicrobial Peptides. Ciba Foundation Symposium 186. Edited by J. Marsh and J.A. Goode, Wiley & Sons, Chichester, 1994. viii + 283 pp. \$ 76.00. ISBN 0 471 95025 4.

The Symposium on Antimicrobial Peptides held in London in January 1994 was the first focused entirely on gene-encoded antimicrobial peptides, as aptly pointed out by the chairman Hans G. Boman in the opening remarks of this volume. The meeting brought together distinguished scientists whose investigations have led us to appreciate the rich variety of peptides utilized by animals and plants to kill microbes. When reading this volume, one will especially enjoy the contribution of these leading experts to the discussions that follow each paper, which include informal reports of unpublished experiments and colourful anecdotes. In fact, these lively discussions and the extra information they bring out are probably the most enjoyable part of the proceedings, having provided the participants with an opportunity to share their views in such areas as structure, function and biology of antimicrobial peptides.

Although the emphasis is on animal antimicrobial peptides, considered to be the primary defense agents of innate immunity, peptides produced by plants and microorganisms are also discussed. Larger animal antimicrobial proteins such as BPI and serprocidins are considered in separate chapters, as notable exceptions to what seems to be a 'peptide rule' for this effector mechanism of innate immunity. This volume thus provides a useful and up-to-date overview adequately covering the field.

The reader is introduced to the world of antimicrobial peptides through a brief historical account, tracing its roots to early investigations aimed at the identification of agents with a selective toxicity. Some of these studies led to the discovery of the microbial forerunners of the animal antimicrobial peptides. Among the microbial antibiotics, a distinction is made between those which are produced