

tures have greatly expanded. In immobilized enzyme systems, owing to the possibility of coupling chemical reactions to transport (diffusion) processes, highly organized spatio-temporal structures may occur. Hardt et al. present their theoretical analysis on a membrane-containing immobilized papain and they also show the possibility of signal propagation in the plane of the membrane. Kernevez develops a numerical analysis to solve the problems of optimal control or to identify unknown kinetic parameters in reaction-diffusion coupled processes. Lefever gives a stochastic model for the investigation of dissipative structures and proves that in the phosphofructokinase reaction dissipative structures may occur, which is a novel feature in the theory of glycolytic oscillations. Bunow and Colton claim, on the ground of a numerical analysis of a model system, that in the case of a pH sensitive, base or acid consuming or producing system,

if mass transport limitations are imposed, multiple steady states may appear.

In addition, there are articles about various themes, e.g., Monsan et al. deal with the mechanism of action of glutaraldehyde, Engasser and Horvath discuss the 'buffer shuttle mechanism', Gelff and Henry treat the performance of immobilized enzyme columns, etc.

Last but not least there are very useful review articles in this book, e.g., the one written by Porath about bioaffinity and hydrophobic chromatography, or the survey by Broun about the current trends in the field covered by the meeting. Thomas presents an excellent review of the results obtained with artificial enzyme membranes, including fundamental kinetic modelling, the new properties due to the membrane shape (active transport, memory, oscillation, etc.) and a survey of the applications.

Veronika Jancsik

*Laboratory Techniques in Biochemistry and Molecular Biology*

*Volume 4: Part 1. Chemical Modification of Proteins*

*Part II. Separation Methods for Nucleic Acids and Oligonucleotides*

Edited by T. S. Work and E. Work

North-Holland Publishing Company; Amsterdam, Oxford/American Elsevier; New York, 1976

xiii + 492 pages. Dfl. 130.00, \$ 51.95

A new methods-oriented book is always welcomed by scientists. Now, a new volume of the well-known series edited by Work and Work has become available. Volume 4 consists of two parts, both designated for day-to-day bench use.

The first part written by A. N. Glazer, R. J. Delange and D. S. Sigman is about the chemical modification of proteins. The authors give the reader a fairly broad view of the most valuable methods in protein chemistry and biochemistry. Protein and amino acid analysis is carefully reviewed on an up-to-date basis. Probably the most useful section is the detailed interpretation of the various methods concerning the modification of protein side-chains. The application range of the particular techniques is critically discussed and the descriptions are detailed enough to be used without

reference to the original papers. A special merit of this part is the review on the practical use of affinity and photoaffinity labels in protein chemistry.

The second part is entitled 'Separation Methods for Nucleic Acids and Oligonucleotides' written by H. Gould and H. R. Matthews. Nucleic acid research is still one of the most rapidly developing fields in molecular biology and it is difficult therefore to keep up with new methods. In an earlier volume of this series G. G. Brownlee summarized RNA sequencing methods which, of course, involve many separation techniques. It is a pity that this volume does not deal with some of the problems listed there because some powerful methods have been developed since the former book was written.

This review concentrates on the separation problems

of nonradioactive RNA. The different types of chromatographic and electrophoretic methods are very carefully described and a separate chapter deals with the choice of the proper method. The absence of newer methods of fractionation of oligonucleotides

and DNA fragments limits the usefulness of an otherwise excellent book.

The price of this volume is a bit too high, though the separate parts are available also in paperback form.

B. Sain

*Progress in Isoelectric Focusing and Isotachopheresis*

Edited by F. G. Righetti  
North-Holland Publishing Company; Amsterdam, 1975  
425 pages. Dfl. 120.00, \$ 47.85

This book covers the basic aspects as well as the recent developments of isoelectric focusing and isotachopheresis, two excellent analytical techniques of protein separation. The 31 lectures presented at the Third International Symposium on Isoelectric Focusing and Isotachopheresis are collected into three main parts:

- I. General Aspects and Methodology
- II. Application of Isoelectric Focusing
- III. Isotachopheresis.

Biomedical applications of the two methods are well treated both in routine diagnosis and in research: screening of human sera, sweat, isoenzymes in normal and pathological tissues, etc. A new approach, the separation of nucleic acids (mRNAs for  $\alpha$ - and  $\beta$ -globin chains) is reported, applications to the analysis of membrane and mitochondrial proteins and in separations of whole cells, subcellular particles, bacteria and viruses are presented. Problems due to extreme pH, artifacts and the stability of pH gradient are extensively discussed. Fortunately, the advantages as well as limitations and pitfalls of the methods are

presented in several papers. Particular emphasis is placed on the use of isoelectric focusing as a probe for interacting proteins.

A round table discussion is included on the fundamental and practical aspects of isoelectric focusing and isotachopheresis, containing valuable hints on ampholines, spacers, additives extreme pH, micro-methods and interacting molecules.

To make the symposium volume approach the value of a manual, a detailed list of the most important papers published in the field of isoelectric focusing and isotachopheresis and a subject index is added at the end of the book.

The publication of the material of this symposium is a 'fit for life' certificate of these excellent, however somewhat expensive analytical methods developed by LKB-Producter in the last ten years. The volume will be useful for people working in the fields of biochemistry, microbiology, cell biology and other related parts.

József Batke

Chapter. Dec 2009. Laboratory Techniques in Biochemistry and Molecular Biology. Gert-Jan Kremers. Joachim Goedhart. At first, the condition of magnetic separation is described for a single particle suspended in a stationary liquid. The description is based on a random walk model of diffusion and a motion of a small sphere in a viscous medium induced by the magnetic body force. Second, the condition is extended to a particle entrained in a laminar flow past the magnetic field source. A powerful method for identifying undetected proteins consists of revealing their presence by means of antibodies raised against synthetic peptides, the sequence to be synthesized being deduced from the nucleotide sequence of the protein gene. This comprehensive volume explores the numerous experimental techniques that must be mastered by researchers in plant biology, biochemistry and biotechnology. As the interest in biochemical and molecular methods of investigating physiological processes rises, there's a concurrent development of new, faster, and more sensitive experimental procedures, allowing us to explore the inner workings of animal and plant organisms. *Analytical Techniques in Biochemistry and Molecular Biology* guides the reader through these methodologies, beginning with the preparation of solutions

Chapter 9 MOLECULAR BIOLOGY I: STRUCTURES AND ANALYSIS OF NUCLEIC ACIDS. Chapter 10 MOLECULAR BIOLOGY II: RECOMBINANT DNA, MOLECULAR CLONING, AND ENZYMOLOGY. Chapter 11 PROTEIN PRODUCTION, PURIFICATION, AND CHARACTERIZATION. Appendix I: List of Software Programs and Web Sites Useful for Each Chapter. Assays for Nucleic Acids 72 D. Techniques for Sample Preparation 73 Dialysis 73 Ultrafiltration 74 Lyophilization and Centrifugal Vacuum Concentration E. Radioisotopes in Biochemistry 80 Origin and Properties of Radioactivity 80 Detection and Measurement of Radioactivity 85 Radioisotopes and Safety 90. Chapter 4 CENTRIFUGATION TECHNIQUES IN BIOCHEMISTRY 95 A. Basic Principles Analytical methods are the essential enabling tools of the modern biosciences. This book presents a comprehensive introduction into these analytical methods, including their physical and chemical backgrounds, as well as a discussion of the strengths and weakness of each method. It covers all major techniques for the determination and experimental analysis of biological macromolecules, including proteins, carbohydrates, lipids and nucleic acids. 5 Immunological Techniques 63. 6 Chemical Modification of Proteins and Protein Complexes 107. 7 Spectroscopy 131. 8 Light Microscopy Techniques Imaging 181. 35 Fluorescent In Situ Hybridization in Molecular Cytogenetics 917. 36 Physical and Genetic Mapping of Genomes 925. Paused You're listening to a sample of the Audible audio edition. Learn more. Chemical Modification of Proteins (Part I). Separation Methods for Nucleic Acids and Oligonucleotides (Part II). (=Laboratory Techniques in Biochemistry and Molecular Biology, Volume 4). Hardcover 1976. by A. N. / Gould, Hannah et. al. Glazer (Author). Be the first to review this item. See all formats and editions Hide other formats and editions. Amazon Price.