Structure of Fibrous Biopolymers. Colston Papers No. 26

Edited by E.D.T. Atkins and A. Keller
Butterworths; London, 1975
437 pages. £ 16.00

This book contains the proceedings of the Twenty-Sixth Symposium of The Colston Research Society of Bristol, held on 2–4 April 1974. The title is misleading, since the symposium was mainly concerned with the structure and function of collagen and mucopolysaccharides, though about one-third of the papers dealt with plant cell-wall polysaccharides, insect cuticle, starch, keratin and model polypeptides. There is nothing on, for example, nucleic acids, nucleoproteins, or muscle.

The standard of the individual contributions is variable, some are very short and presumably relied largely on slides that are not reproduced in the book. The editing is also somewhat variable, units vary through the book and even within a single paper. There is no subject or author index although quite a number of pages are devoted to, sometimes banal, discussion points and acknowledgements and thanks to the speakers and other.

The book opens with an excellent account of the life and times of W. T. Astbury, the father of structural studies of biopolymers, by his one-time colleague R. D. Preston. There is insufficient space to discuss all the other contributions so only those that particularly interested the reviewer will be mentioned. Atkins on the X-ray study of connective tissue polysaccharides, Phelps on the intercellular matrix and Mackie on plant cell-wall polysaccharides are all interesting. The papers on collagen and collagenous substances by Bailey, Miller, Walton, Keller, Baer and their colleagues provide an excellent account of the state of knowledge in 1974.

The books is well produced, the figures are good and there is a pleasing lack of typographical errors. It will be a useful reference volume on the field it covers, though an index would have helped greatly.

S. P. Datta

Chemical Modifications of Proteins

by A. N. Glazer, R. J. Delange and D. S. Sigman
North-Holland Publishing Company; Amsterdam, New York, 1975
iv + 205 pages. Dfl. 28.00, $ 11.75 (paper)

Studies of their chemical reactions have led to major advances in understanding proteins, the most versatile of biological molecules. This book provides a background for any potential protein chemist searching for a method or reagent suitable for his particular needs. In common with other members of this series, it emphasises experimental techniques. In some cases, methods are described in such detail that an experiment may be performed without recourse to the original literature. However, because of the diverse nature of proteins, adaptation of published methods is often required to yields a successful modification.

One section describes methods of amino acid analysis that resolve derivatives which are likely to be formed by common modifying reagents. In addition, it is occasionally necessary to detect and measure

naturally occurring derivatives such as the ϵ-*N*-methyllysines or residues containing covalently-bound oligosaccharide moieties. Common methods of end-group analysis and sequential degradation are described, although problems may arise when these are applied to peptides containing some types of modified amino acid residues.

Criteria for useful group-specific reagents vary according to requirements. For example, selectivity is not important when reaction of nucleophilic groups with cyclic anhydrides is undertaken purely to alter the solubility or electrophoretic mobility of proteins or peptides, but selectivity is generally an advantage when these reagents are used in amino acid sequence analysis. Chemicals commonly used for modification of either native or denatured proteins are classified according to the group or side-chain for which they are generally found to be appropriate, and due note is made for any lack of specificity when, for example, it may be essential to protect the outstandingly reactive side-chain of cysteine before further modification of other groups.

The protein environment may often confer great selectivity on certain residues and reasons for the successful site-specific modification with reagents, such as diisopropyl fluorophosphate and pyridoxal-5-phosphate, which do not bear a strong structural homology to natural ligands, are explained. The authors prefer affinity labels for site-specific modification because the chances of success are higher and, even if the reagent is unsuccessful, results provide the basis for design of other labels. On the other hand, much labour is required to synthesise affinity labels, whereas group-specific reagents can usually be purchased. Synthetic schemes for attaching certain types of reactive or photoactivatable groupings to affinity labels are described and some suggestions for analysing the often complex products formed from target residues are put forward.

An appendix contains details of methods used in the authors' laboratories for peptide resolution, plus a list of suppliers of resins and specific exo- and endopeptidases. The book is available as a soft-cover pocket edition and many laboratories will soon possess a well-thumbed copy.

D. G. Smyth

Analysis and Control of Immobilized Enzyme Systems

Edited by D. Thomas and J.-P. Kernevez
North-Holland/American Elsevier; Amsterdam, New York, 1976
viii + 306 pages. Dfl. 70.00, $ 27.50

This book presents the 23 contributions of the international symposium held in Compiègne in May 1975. It is mostly oriented towards the biomathematical, biophysical and biochemical approaches in studying immobilized enzyme systems. From the papers presented one can conceive that knowledge in this field helps us to understand real biological systems.

Those interested in immobilization techniques and in the characterization of certain preparations, can find some good articles about these topics. Richardson and Chen describe a technique for coupling enzymes to erythrocytes, Manecke and Vogt write about the covalent attachment of enzymes to a new carrier, crosslinked polyvinyl alcohol, Pansolli et al. treat the kinetics of fibre-entrapped glucose isomerase, Coulet et al. present their azide method for coupling enzymes to collagen supports and Barbotin puts forward electronmicroscopic studies on enzyme-membranes. Particularly interesting is the paper of Suzuki et al., who discuss their new results with enzyme–collagen membranes, including the enzyme fuel cells and the photocontrol of enzyme–collagen membrane activity.

In the last years the theories of dissipative struc-

Chemical Modifications of Proteins. by A. N. Glazer, R. J. Delange and D. S. Sigman North-Holland Publishing Company; Amsterdam, New York, 1975 iv t 205 pages. Dfl. 28.00, $ 11.75 (paper). Studies of their chemical reactions have led to major advances in understanding proteins, the most versatile of biological molecules. This book provides a back-ground for any potential protein chemist searching for a method or reagent suitable for his particular needs. In common with other members of this series, it emphasises experimental techniques. In some cases, methods are described in such detail that @inproceedings{Holland2014PosttranslationalMO, title={Post-translational modifications of caseins}, author={John W. Holland and Michael J. Boland}, year={2014} }. John W. Holland, Michael J. Boland. Published 2014. Chemistry. Caseins are phosphoproteins and constitute about 80% of the protein in milk. Caseins exhibit a high degree of heterogeneity as a result of post-translational modifications (PTMs). Phosphorylation of the Î±- and Î²-caseins and glycosylation of Îº-casein are the best-known modifications and are critical for the formation and stability of casein micelles. Îº-Casein has long been