

regulatory properties of pyruvate carboxylase. The roles of the enzyme in various tissues and species is also discussed in the context of the regulatory properties determined for the isolated enzyme and the factors which influence the total level of enzyme activity present. In addition a chapter is devoted to disease states associated with decreased pyruvate carboxylase activity both in man and in other vertebrates.

A most valuable feature of the monograph is the very extensive tabulation of published data and the equally comprehensive reference list consisting of just over 1000 articles. As a consequence it will also serve as an extremely valuable reference source for the first phase of the studies on pyruvate carboxylase. In this respect its preparation at this time is opportune since much of the basic descriptive work on this enzyme is nearing completion

while little information is yet available either on the structure of the pyC gene in either prokaryotes or eukaryotes or on the detailed 3-dimensional structure of the protein. Elucidation of these latter aspects which constitute the next phase of studies on this enzyme are probably the only way in which many of the remaining problems and uncertainties will be resolved.

I shall certainly value my copy of the monograph as the definitive source of information on an enzyme in which I have a long-standing interest and have no hesitation in recommending it to other workers with similar inclinations. It is a fitting tribute to the late Professor Merton Utter to whom all of those who have worked on pyruvate carboxylase owe so much.

M.C. Scrutton

Progress in Protein-Lipid Interactions, Volume 2

Edited by A. Watts and J.J.H.H.M. De Pont

Elsevier, Amsterdam, 1986

344 pages. \$98.25, Dfl. 265.00

The interactions of lipids with membrane proteins are obviously important for the structure of the membrane. In addition they clearly modulate, and perhaps regulate, the behaviour of many of the proteins. In recent years, the study of these interactions has generated a good deal of activity and a certain amount of controversy. Progress has depended strongly on technical developments, and it is thus appropriate that this excellent book has a strong methodological flavour.

The first four chapters are concerned with the application of structural techniques: X-ray and neutron diffraction (Blaurock), NMR spectroscopy (Dreese and Dratz, and Oldfield et al.) and Fourier transform infrared spectroscopy (Mendelsohn and Mantsch). The short chapter by Oldfield and his colleagues describes their studies of bacteriorhodopsin by multinuclear NMR, which clearly differentiate 'surface' and 'buried' amino-acid residues. The remaining three chapters in this

section are broader reviews of the subject areas. Each includes sufficient introductory material to allow the reader unfamiliar with the specific technique to understand it in general terms, and reviews the information the technique has provided. All three are excellent reviews – clearly written, critical, and reasonably up-to-date. Until recently, the physical information available about lipid-protein interactions related almost entirely to the lipid component, and this is naturally reflected in these chapters. However, they also describe the recent work – notably by neutron diffraction and NMR of isotopically labelled species – which promises to provide much more detailed information on the way in which the lipid environment affects the protein.

The next three chapters are also largely methodological, but concerned with 'wet' biochemistry. Moller, Le Maire and Andersen discuss the use of non-ionic and bile salt detergents

in the solubilisation and reconstitution of membrane proteins. This is central to much of modern membranology, and the authors cover very clearly the principles underlying the choice of detergents, as well as methods for characterising the protein-detergent complexes and for reconstitution. Wirtz and his colleagues describe the properties of the phosphatidylcholine transfer or exchange protein and its uses in studying the transbilayer orientation of phospholipids and in altering the phospholipid composition of membranes, while Sandermann critically reviews alternative mechanisms for the cooperativity observed in lipid activation of enzymes.

Finally, there are two chapters on specific systems – Mato reviews the regulation of

phosphatidylethanolamine methylation, and Brodbeck gives a progress report on the detergent-soluble, or amphiphilic, acetylcholinesterase and its interactions with phospholipids and detergents.

Almost any biochemist, membranologist or not, with an interest in the molecular interactions underlying biological activity would find something of interest in this book. Those beginning to work in the field should find it a useful companion and guide to some of the important techniques. It is unfortunate that personal ownership of the book is virtually ruled out by the very high price, but biochemical libraries should be urged to buy it.

G.C.K. Roberts

Advances in Prostaglandin, Thromboxane and Leukotriene Research, Volume 15

Edited by O. Hayaishi and S. Yamamoto

Raven Press; New York, 1985

xxx + 746 pages. \$98.50

This large, expensive and well produced book deserves a place on the shelves of anybody involved in research in the eicosanoid field or related areas such as inflammation and PAF (platelet activating factor). It contains 191 invited summary papers from the cream of the participants at the November 1984 Prostaglandin Conference held in Kyoto (Japan). As such, the papers are almost all very brief (3 to 4 pages each), but benefit by being concise and to the point. Moreover, they have been properly typeset and well proof-read and are illustrated with adequate figures and experimental data. Taken all together, this means that the book covers an exceptionally wide area of this now very large subject.

It would be invidious to pick out individual papers or research groups for special comment, but it might be helpful to readers of this review if I mentioned that the strongest represented areas are as follows (number of mini-papers in brackets): assay methodologies, especially RIA and negative-

ion GC/MS (21); arachidonate release mechanisms, PI turnover (10); eicosanoid enzymology, including enzyme turnover, regulation of cellular expression (fundamental advances here), inhibitors and stimulators (emphasis these days predictably on the leukotriene pathway), modifications with pentanoic acid substitution (35); new analogues, medicinal chemistry (17); inflammation, cell proliferation and their involvement/modulation by eicosanoids, including the novel marine clavulones and punaglandins (21); kidney, hypertension, thrombosis and vasospasm (34 contributions); nervous system (11); reproduction (12); gastrointestinal, mainly cytoprotection (8); platelet activating factor (13).

This list may well appear somewhat indigestible, but I can assure you that in fact the diverse contents are on the whole very accessible, so much so that many of the papers could be recommended for students of the subject, rather than just for researchers. The book is also interesting because it shows

Amsterdam: Elsevier, 2005 481 p. ISBN: 0 444 51598 4 1 Multistep parametric processes in nonlinear optics, S.M. Saltiel, A.A. Sukhorukov, Y.S. Kivshar 1. 73 2 Modes of wave-chaotic dielectric resonators, H.E. T Nureci, H.G.L. Schwefel, Ph. Jacquod, A.D. Stone 75.137 3 Nonlinear and quantum optics of atomic and molecular fields, C.P. Search, P. Meystre 139.214 4 Watts A and de Pont JJHHM (eds) (1985) Progress in Protein-Lipid Interactions Vol. 1, Elsevier, Amsterdam. Google Scholar. Watts A (1981) Protein-lipid Interactions. Nature 294: 512. PubMed CrossRef Google Scholar. Watts A (1991) Magnetic Resonance Studies of Lipid-Protein Interfaces and Lipophilic Molecule Partitioning. In Molecular and cellular mechanisms of alcohol and anesthetics (E Rubin, KW Miller and SH Roth, eds). Annals of the New York Academy of Science 625: 653-669 Google Scholar. Watts A (ed) (1993) Protein Lipid Interactions. New Comprehensive Biochemistry series Vol. 25 Elsevier, Amsterdam. Google Scholar. Watts A and de Pont JJHHM (eds) (1986) Progress in Protein-Lipid Interactions Vol. 2, Elsevier, Amsterdam. Google Scholar.