Mammalian Proteinases: A Glossary and Bibliography Volume 2 Exopeptidases

by J.K. McDonald and A.J. Barrett

Academic Press; London, Orlando, FL, 1986

357 pages. $34.00

The first volume, on the endopeptidases, appeared in 1980 and all of us who found that work to be an invaluable summary of this group of enzymes waited impatiently for the arrival of Volume 2 on the exopeptidases. It has, after a rather long interval, now arrived. The same format is maintained: each enzyme appears in an order based on the EC classification, the entry beginning with a brief summary of properties (distribution, usual substrates, inhibitors, molecular properties, etc.) with a few key references and then followed by a very substantial bibliography, including titles, listed year by year.

Volume 2, although apparently shorter than volume 1, in fact contains more text to cover its 50 exopeptidases than was needed for over a hundred endopeptidases. The main difference is that the summaries are considerably longer. What required barely a page for an endopeptidase now needs three or four pages. These minireviews contain much more detail, but it is arguable whether this is an improvement - too often the attempt to list all reported properties can easily confuse the reader where there are conflicting data. On these occasions, one could wish for a more critical and selective approach. The literature on peptidases, especially that of 10 or more years ago, abounds with papers purporting to describe a single activity which in reality was a mixture of several peptidases. There are, for example, many aminopeptidases present in crude extracts of mammalian tissues; some are integral membrane proteins, such as aminopeptidase N, while others, which may hydrolyse the same substrate, abound in the cytosol. To confuse matters further, autolysis during purification may release membrane-bound peptidases into the soluble fraction. Soluble alanylaminopeptidase is given a separate entry from microsomal alanylaminopeptidase (also known as aminopeptidase N) and some of its properties (e.g. the much greater sensitivity to puromycin) are correctly assignable to the cytosolic activity, but when the soluble one is described as a sialoglycoprotein it becomes clear that other properties apply to the autolysed membrane form, and at that point the reader becomes wary in accepting all the information at face value.

The nomenclature of the exopeptidases does not pose quite so many problems as do the endopeptidases, because they can usually be easily classified by their specificity (e.g. carboxypeptidase, dipeptidyl peptidase, etc.) and individual members of each class designated letters or numerals (carboxypeptidase A, dipeptidyl peptidase IV, etc.). The authors, however, advocate a system using prefixes based on the 'best' substrate, hence alanylaminopeptidase, prolyl carboxypeptidase, etc. Where there is an absolute requirement, as for example γ-glutamyl transpeptidase, this designation is wholly appropriate. But it becomes misleading where the requirements are by no means as stringent. Lysosomal alanylaminopeptidase hydrolyses N-terminal Ser-, His-, Lys- and Met-peptides at rates which are little different from the 'best' Ala-peptides. In other words, it is a general aminopeptidase and is therefore diminished by a restrictive name, just as some endopeptidases have suffered from misleading names such as 'enkephalinase'.

In spite of these criticisms and the six year gap which separates the two volumes, the volume on exopeptidases will be of great value to all research

workers who want a thumb nail sketch of an enzyme coupled with the chance to delve more deeply into the literature. Together, the two volumes provide a very useful means of quick reference and they will be even better if the authors can be persuaded to contemplate the task of preparing second editions in the not-too-distant future.

John Kenny

Chemistry and Biology of Pteridines 1986

Pteridines and Folic Acid Derivatives

Edited by B.A. Cooper and V.M. Whitehead

Walter de Gruyter; Berlin and New York, 1986

1050 pages. DM 380.00

As in many other fields researchers in the area of pteridines and folates have taken to having a specialised meeting on a regular basis. This book consists of a series of summaries of the work presented at the most recent of these four yearly meetings (Montreal, 1986).

The book is in six subsections with each containing one state of the art contribution of some 10–30 pages followed by individual contributions of four pages. The combining of contributions on pteridines and folate at the same conference is logical and worthwhile as far as the sections dealing with their chemistry is concerned. However, it would be helpful for somebody outside the area to know that the biochemistry and clinical aspects of these two areas have little to do with each other.

The Editors undertook to have the book published in the same year as the conference, to encourage those attending to present original and up to the minute material. Thus most of the material is original which makes this an extremely worthwhile text for those in this and related areas.

J.M. Scott

Biochemistry and Biology of Plasma Lipoproteins

Edited by A.M. Scanu and A.A. Spector

Marcel Dekker; New York, 1987

xii + 514 pages. $89.75 (USA and Canada), $107.50 (elsewhere)

This book, Volume 11 in a series on The Biochemistry of Disease, was prompted by 'the need for ready access to background material' and the 16 chapters by various contributors are based on a series of lectures 'with suitable updating' given to American graduate students in 1983.

An introductory chapter gives an overview of lipoprotein characteristics and metabolism but it is surprising that there is not a chapter devoted to the latter subject. Subsequent chapters give clear descriptions of lipoprotein biosynthesis, including regulation and extracellular proteolytic processing, the genetics of lipoproteins (not including the recent cloning of LDL) and membranes and transport. Three reviews of wide interest are the easily read and comprehensive ones on: Apo E in choles-

Volume 57, Issue 2. May 1990 , pp. 245-254. Prolidase activity of Lactococcus lactis subsp. cremoris AM2: partial purification and characterization. Mary Booth (a1), Vincent Jennings (a2), Ide NÃ Fhaolain (a2) and Gerard O'Cuinn (a2). (a1). Department of Biochemistry, University College Galway, Galway, Ireland. (a2). *Department of Life Sciences, Regional Technical College, Galway, Ireland. DOI: https://doi.org/10.1017/S0022029900026868.Â McDonald, J. K. & Barrett, A. J. 1986 Mammalian proteases, a glossary and bibliography Vol. 2, Exopeptidases. London: Academic Press. Meyer, J. & Jordi, R. 1987 Purification and characterization of X-prolyl-dipeptidyl-aminopeptidase from Lactobacillus lactis and from Streptococcus thermophilus. The major lysosomal proteinases are cathepsin D (an aspartic proteinase), and cathepsins B, H and L (all cysteine proteinases homologous with papain). They all have acid pH optima, but the acid pH of the interior of the lysosomes facilitates proteolysis not only by providing ideal conditions for the enzymes, but also by providing an environment in which many substrate proteins are partially unfolded.Â J . 221,445-452 McDonald,'J. K.& Barrett, A. J. (1984) Mammalian Proteases: a Glossary and Bibliography, vol. 2., Exopeptidases, Academic Press, London McDonald, J. K.& Hoisington, A. R. (1983) Fed. Proc. Fed.