Free Rad. Res. Comms., Vol. 15, No. 5, pp. 303–304
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BOOK REVIEW

PEROXIDASES IN CHEMISTRY AND BIOLOGY, Vols. 1 and 2
Edited by J EVERSE, K E EVERSE & M B GRISHAM
CRC Press, Boca Raton, Florida, 1991

These two attractive-looking volumes present a useful and up-to-date summary of current knowledge of peroxidase enzymes. Volume 1 begins with an excellent review of myeloperoxidase, by Klebanoff. This theme is continued with discussions of the active site chemistry of this enzyme (Hurst), its gene structure and biosynthesis (Johnson and Nauseef) and the properties of chloramines (Thomas and Learn). The properties of eosinophil peroxidase are thoroughly discussed by Henderson, and two chapers are devoted to lactoperoxidase (Thomas, Boseman, and Learn; Reiter and Perraudin). They contain particularly-useful discussion of its possible biological functions and of the origins and distribution of the thiocyanate ion.

Salivary (Tenovuo), thyroid (Magnussen), and uterine (Lyttle) peroxidase are thoroughly reviewed inthe next three chapters, with a good discussion of the likely eosinophilic origin of rat uterine peroxidase. The role of ovoperoxidase in the fascinating events following fertilization of sea-urchin eggs is discussed in detail by Deits and Shapiro. Spallholz and Boylan review the selenoprotein glutathione peroxidase enzymes and the deleterious consequences of selenium deficiency. In Chap. 13, the peroxidase activity of protaglandin H synthetase is reviewed (Marnett and Maddipati), with particular reference to its metabolism of drugs and toxins and the possibilities of their "bioactivation" to damaging products. Volume 1 ends with a clear summary of present knowledge of the peroxidase activities of hemoglobin and myoglobin (Grisham and Everse) and a comprehensive index.

Volume 2 is largely, but not entirely, devoted to peroxidases of plant origin. Dunford thoroughly reviews the structure and catalytic activities of horseradish peroxidase. This is complemented by Chap. 2, in which Campa describes the possible functions of plant peroxidases, especially their role in cell-wall biosynthesis and auxin metabolism. Bosshard, Anni, and Yonetani comprehensively review what is known about yeast cytochrome peroxidase. Chloroperoxidase is the subject of an excellent and detailed review (by Griffin) in the next chapter. Ascorbate peroxidase, an enzyme of key importance in chloroplast metabolism, forms the subject of Chap. 5 (by Dalton). He not only reviews what is known about the enzyme, but also admirably explains its likely physiological role. In Chap. 6, Van Huystee reviews what little is known about peroxidases from peanut plants.

Adams then reviews the chemical reactions catalyzed by microperoxidases and iron porphyrins. Chapters 8 and 9 return to a consideration of peroxidase chemistry. Meunier describes peroxidase-catalyzed demethylation reactions and Kanofsky provides an excellent review of singlet oxygen production by peroxidase-dependent reactions. Volume 2 ends with a discussion of the anti-tumor activity of peroxidases, and a comprehensive index.

Overall, these volumes are an excellent review of our current knowledge of peroxidase enzymes, and I recommend them highly. My only criticism is that the

quality of paper used is fairly low, and, in consequence, many of the figures have not reproduced well. To my mind, the contents (and price!) of the books justify better presentation. Nevertheless, they are a unique and valuable contribution to the literature.

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THE CELL BIOLOGY OF INFLAMMATION IN THE GASTRO-INTESTINAL TRACT

edited by T.J. Peters. Corners Publications, Hull, U.K. pp. xvii + 389. Price £39.00

This compact but excellent paperback book is based on the proceedings of an International Conference of the same name, held at King's College Hospital in September 1989. The editor, authors and publisher are all to be congratulated on the speed with which these well written papers have been assembled and published. To judge by the book's contents, it must have been an interesting conference.

Research into inflammatory bowel disease (IBD) has considerably broadened in its scope in the last 10 years, and no longer is the emphasis on the search for single causes (such as a specific microorganism) or on a straightforward pathogenetic mechanism such as induction by a single pro-inflammatory mediator. Rather, there has been a trend towards more basic mechanistic approaches to those cell biological processes which are relevant to intestinal mucosal well-being.

This shift is well illustrated by the breadth of this book's contents which range from tracer studies of intestinal permeability barriers (Bjarnason), normal and abnormal mucus biochemistry (Allen *et al.*; Rhodes), through free radical and eicosanoid involvement (Halliwell; Stenson; Rask-Madsen *et al.*) to the role of immune protection in maintaining gut integrity as revealed in human immunodeficiency diseases (Webster; Griffin *et al.*). There is also a keen sense that the normal biology of the macrophage (Keshav & Gordon) and other phagocytes (Wilkinson; Segal) and of lymphocytes (Watret & Ferguson; Marsh) requires further unravelling before their role(s) in intestinal pathophysiology can be pinpointed.

It is also obvious from the chapters by Macpherson *et al.* and by Hermon-Taylor that substantial progress can be expected from molecular biology approaches. These authors describe the altered expression of proto-oncogenes in gut diseases and the identification of mycobacterial DNA in isolates from Crohn's disease. It seems that these new techniques may provide answers to problems in IBD research (role of pre-malignant changes and involvement of sub-clinical infection) that had eluded detection using less powerful methods.

In the space available I have not been able to do full justice to all 20 chapters and the 16 accompanying poster abstracts. Suffice it to say that this book will appeal not only to gastroenterologists and IBDologists but to students of all aspects of the inflammatory response, in both laboratory and clinical research.

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