Free Rad. Res. Comms., Vol. 4, No. 3, pp. 197–199
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Printed in Great Britain

BOOK REVIEWS

"Superoxide and Superoxide Dismutase in Chemistry, Biology and Medicine",

edited by G. Rotilio, Elsevier Science Publishers, 1986, Amsterdam, New York, Oxford.

This book presents the proceedings of the 4th International Conference on Superoxide and Superoxide Dismutase held in Rome, Italy, 1–6 September 1985. Professor Rotilio and his Program Committee can be congratulated on the rapid production of a book containing 173 papers, generally presented as 4-page condensed communications with the most recent references. It is amazing to note the rapidity of the development of interest in the superoxide radical and its chemical, biological and medical ramifications. The book shows quite impressively that since the discovery of the enzymatic function of superoxide dismutase in 1969 by McCord and Fridovich many different disciplines have been fertilized with new activity. This pertains to studies spanning from protein structure to gene expression, from catalytic mechanisms to molecular evolution, from cell biology to pharmacology and medicine. As stated in the preface, the aim was to provide short and concise articles and to try to avoid all redundancies without being just a list of abstracts. This idea has gone through quite well.

It appears that the sections in the book are organized according to sessions in the meeting, providing the gist of the contributions for those who did not have the privilege of attending the meeting. Also, I suspect that many participants will need this book to grasp the full information that was provided, as conference attendees were probably unable to listen in on all contributions.

The sections are:

"Mechanisms of Oxy-Radical Reactions"
(37 papers)
"Enzyme Structure and Mechanisms"
(24 papers)
"Evolution and Biosynthesis of Superoxide Dismutase"
(19 papers)
"Cellular and Physiological Aspects of Oxy-Radicals and their Related Enzymes"
(45 papers)
"Pharmacological and Clinical Aspects of Superoxide and Superoxide Dismutase"
(48 papers)

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Peroxisomes in Biology and Medicine

edited by H D Fahimi and H Sies, Springer-Verlag, Berlin xviii + 470 pages

This volume is based upon the lectures that were given at an international symposium on "Peroxisomes in Biology and Medicine", held in Heidelberg during July 1986. The volume has thus appeared reasonably quickly, although the inevitable use of camera-ready copy has led to a few ugly differences in typeface. The reproduction of some of the electron micrographs is also poor.

After peroxisomes were discovered and characterized in the 1950s, there was a lull in interest until their important role in plant photorespiration was realized. "Animal biochemists" still largely ignored these important organelles, and it is only in the last few years that the key role played by peroxisomes in animal lipid metabolism has become clear, following from the seminal discovery in 1976 that liver peroxisomes have the metabolic capacity for β-oxidation of fatty acids. The present volume has thus appeared at an ideal time to summarize recent developments.

The first fourteen chapters review the role of peroxisomes in lipid synthesis and catabolism. Recent developments of our knowledge of the peroxisomal membrane are covered in the next six papers, which are followed by four papers on pathways of non-lipid metabolism within peroxisomes. There are fascinating sections on peroxisomes and drugs (with particular attention paid to peroxisome proliferators) and on the role of peroxisomal abnormalities in some human diseases. The final section of the book deals with the biogenesis of peroxisomes in plants and animals.

Despite the problems inherent in camera-ready, multi-author works, the present volume plays an important function in summarizing the rapid pace of recent development in our knowledge of peroxisomes. I thus recommend it highly.

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Free Radicals, Cell Damage and Disease

Edited by Catherine Rice-Evans, The Richelieu Press Limited, 30 Saint Mark Street, London. 1986, 313 Pages £48.00.

Many diseases have a free radical component attributable to oxygen free radicals. This is providing a powerful stimulus to research. So much output has appeared in recent years that to the making of books on free radicals, cell damage and disease there now seems to be no end. This book is a collection of 21 papers presented to a meeting of the Society for Free Radical Research, held at the Royal Free Hospital and School of Medicine, University of London, in December 1985. The problems addressed in the book comprise: iron, lipid peroxidation and cellular function; free radicals and lipid peroxidation in cancer; ethanol-induced cell damage and disease; oxygen radicals and red cell pathology; and free radical damage in diseased (*sic*) states. The material presented consists of ongoing research and discussion articles. Some patchiness is inevitable in this kind of multi-author work and it is unfortunate that not all sections have overview material to redress the balance and enhance the usefulness of the book. The most coherent and stimulating section is that on red blood cells which goes into fundamental questions of red cell biochemistry and pathology in relation to sickle cell disease, glucose-6-phosphate dehydrogenase deficiency and favism, thalassaemia, and malaria. The red blood cell is in many ways a neat model for oxygen free radical studies and this book gives it some thorough-going attention. Other sections of the book, however, can be perused with profit depending on the interests and enthusiasm of the reader.

This is a free radical book for those who read much. It can be recommended to anyone looking for the continually increasing perspectives or the state of problems in free radicals, cell damage and disease. The range of topics is a little selective, doubtless because of the exigencies of the meeting. Reperfusion damage, for instance, is treated only in relation to cold ischaemia of organs stored at low temperatures for transplantation even though this article has much on free radicals and ischaemia. Other comment would be niggardly. The book is definitely not run-of-the-mill oxygen free radical material. A pleasant feature is some unexpected material such as that on heat shock genes and heat shock proteins.

The book starts with a weighty motto from Hippocrates, which unfortunately has not been rendered into English. In a lighter vein it has a prefatory song from the well-known pen of Harold Baum. It has a sparse but helpful index. Altogether it is a useful endeavour and contribution to the free radical literature.

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