

BOOK REVIEWS

The Retinoids, Biology, Chemistry, and Medicine

Second Edition, Ed. by M.B. Sporn, A.B. Roberts and De W.S. Goodman
Raven Press, New York. 1994. pp. 699, price US\$200.50

The first edition of this comprehensive treatise, which was published in 1984, has become during the intervening years the only significant all-embracing reference work on the subject of vitamin A and other retinoids. The remarkable advances in the field in the intervening decade have necessitated a radical revision of the reference text, which has been accomplished within the compass of a single volume which replaces the rather cumbersome two volume previous edition. The resultant book is one which will undoubtedly become the "gold standard" of reference works in this subject area. Thus the chemical synthesis of several hundred new retinoids has been accompanied by their being studied as potential chemotherapeutic agents. The demonstration that vitamin A plays a major role in the molecular mechanism of the control of gene expression has also necessitated review in the light of the clinical potential of manipulation of this function of vitamin A. It is also true that retinoids have had a major impact on the clinical practice of oncology and dermatology and that they continue to be studied in new areas of pharmacology and therapeutics.

This beautifully produced book is essentially a new book which sets out to be of interest both to basic scientists and to clinicians. In this objective it is likely to be very successful and many groups of basic and clinical scientists will find the book to be of absorbing interest. Thus, the basic structural and synthetic chemistry of the retinoids, and their analytical chemistry are given detailed treatment. The next two chapters cover the role of vitamin A in nutrition and the metabolism of retinol and retinoic acid together with a review of the proteins that are capable of binding these molecules. A comprehensive review is included of the nuclear receptors for retinoic acid, and their mechanism of action. Major sections of the book are devoted to the role of retinoids in vision and embryonic development, as well as the cell biology of the retinoids and their role in immunity. Following a chapter on the toxicology of retinoids, there are large sections devoted to the practical applications of retinoids in experimental and clinical oncology and dermatology.

This book sets out to be a comprehensive treatise and in this objective it is highly successful. There is little doubt that, like its predecessor, it will become the standard text, as well as providing a selected bibliography of each topic, and is an essential purchase for libraries as well as those with serious research interests in the retinoids.

A.T. Diplock
Department of Biochemistry and Molecular Biology
United Medical and Dental Schools
Guys Hospital
London SE1 9RT

Free Radicals: From Basic Science to Medicine

Edited by G. Poli, M. Albano and M.U. Dianzani

Molecular Biology Update Series

Birkhauser Verlag pp 528. Price: 148 SFr

This volume, dedicated to the memory of the late Trevor Slater, is essentially the Proceedings of the VI Biennial Meeting of the International Society for Free Radical Research held in Turin, Italy in June 1992. The meeting set out to cover virtually all areas of biological free radical research so that the resultant published proceedings are a fairly comprehensive text incorporating most significant areas of biomedical research involving free radical species.

The volume is set out in five sections which include free radicals-generation and mechanisms of damage, ageing, cancer, metabolic disorders and antioxidants. Each section embodies articles drawn from different sessions of the conference whose organisational structure appeared rather fragmented.

The first section on free radicals-generation and damage covers general aspects on mechanisms of free radical damage, lipid peroxidation, radiation and DNA damage and more specific papers on inflammation and H_2O_2 cytotoxicity, nitric oxide and regulation of gene expression in adaptation to oxidative stress. Although individual papers are for the most part interesting, they remain mostly a collection of separate articles with no interconnecting or overriding flow. The sections on ageing and cancer are well-represented by papers from the meeting whilst the section on metabolic disorders covers sessions from within the conference on free radicals and medicine which were subdivided into specific sessions devoted to various organs. Although most organs were covered in the conference (lung, kidney, nervous tissue, muscle, liver, eye, skin, red cells and heart), only the liver and aspects of vascular system pathology are covered in this section of the Proceedings.

The remaining section covers diverse aspects of antioxidants commencing with an overview of antioxidant defences in eucaryotic cells followed by several specific papers on vitamin E, β -carotene, flavonoids and glutathione. Medical applications of antioxidants and the problems posed by antioxidant intervention in disease are then discussed in subsequent papers.

The presentation of the book is quite good for a set of proceedings. Articles are well-set out and illustrated with each article in a similar print style. The presentations represent a collection of reviews and original articles and the book may be useful as a research source in the short term and archive. I did not find it particularly readable and although there has been a considerable attempt to be comprehensive, some areas such as metabolic disorders involving free radicals are poorly represented.

Dr Pat Evans

Pharmacology Group

Kings College London

The Development of Iron Chelators for Clinical Use

R.J. Bergeeron, G.M. Brittenham (Eds).

CRC Press: Boca Raton. 1994 pp 416

ISBN 0-8493-8679-9

The text of this book is a distillation of current thoughts and findings presented two years earlier at an international conference of the same name. Eighteen chapters are contributed by 58 authors and co-authors, covering useful introductions to iron metabolism, oxidative damage and chelation therapy, with more specific chelation topics dealing with siderophore formation and chelator design.

In an informative chapter, Hershko and colleagues remind us that iron chelators, originally introduced for the treatment of severe iron overload, are finding novel therapeutic uses for the treatment of non-iron overload conditions such as those in which iron-mediated oxidative stress is involved. Following on from this, a short but valuable contribution gives the background to biological iron-withholding systems, with a useful historical perspective. The incidence of malaria is increasing worldwide due to drug resistance of the parasite, and insecticide resistance of the mosquito. Iron chelators are effective anti-malarials *in vitro* and have been cautiously used in preliminary human clinical trials. The importance of developing, testing and using orally active iron chelators is obvious to those aware of the problems involved in the use of expensive, injectable siderophores such as desferrioxamine. A major part of the book is concerned with these considerations. This is a quality text that should provide a valuable reference source for information on biological iron chelation for many years to come.

John M.C. Gutteridge
Oxygen Chemistry Laboratory
Unit of Critical Care
Dept of Anaesthesia and Critical Care
Royal Brompton Hospital NHS Trust
Sydney Street
London SW3 6NP