

Oxy-Radicals in Molecular Biology and Pathology

UCLA Symposia on Molecular and Cellular Biology. New Series, Vol. 82

Edited by P.A. Cerutti, I. Fridovich and J. McCord

A.R. Liss; New York, 1988

xx + 586 pages. \$110 (£60 approx.)

This volume reports the proceedings of the Upjohn-UCLA Symposium on Oxy-Radicals in Molecular Biology and Pathology, held in Utah during January 1988. In general, I am not impressed by published conference proceedings, especially when they consist of camera-ready manuscripts of variable length and quality and when little attempt is made to report the discussion that took place at the meeting.

The present volume is guilty of both these sins. However, it is rather better than most published proceedings, for two reasons. The first is the excellent quality of many (not all) of the contributions. The second is that much of the work has yet to appear in the scientific literature.

The book is divided into eleven sections. Firstly, sources of, and targets for, the superoxide radical are discussed (3 papers). I particularly enjoyed the articles by Kontos (on endothelium-dependent relaxation and oxy-radicals) and McCord (on superoxide inactivation of creatine kinase). Section II discusses production of oxidants by activated phagocytes, although much of the work presented is already in the literature. Section III is devoted to mechanisms of oxidant injury, with several interesting papers on such topics as the ability of oxidants to stimulate mucin secretion, and on oxygen toxicity in yeast.

Section IV I found to be the best in the book, since it is devoted to a consideration of how the techniques of modern molecular biology have helped to clarify the chemistry and physiological role of SOD enzymes, and the authors are first-rate. Thus site-directed mutagenesis has clarified the role of Arg143 in the catalytic mechanism of copper, zinc SOD. Fridovich explained how the GSH/GSSG ratio may regulate transcription of

the MnSOD gene in *E. coli*. The yeast CuZnSOD gene has been cloned by Valentine et al. and *E. coli* mutants deficient in both SOD and catalase have been prepared and studied. Marklund et al. have cloned and characterized human EC-SOD, and Tovati discusses regulation of MnSOD in *E. coli*. The section also contains a useful 'discussion summary' by Steinman.

Section V is devoted to glutathione and glutathione peroxidase. It includes interesting chapters on isolation of the human glutathione peroxidase gene and its regulation by selenium, on the role of cell-to-cell contact in antioxidant protection by the sharing of cellular antioxidants, and on the ability of oxidants to disrupt intracellular Ca^{2+} homeostasis and to interfere with cytoskeletal organization. This section is followed by one on 'in situ measurement of free radicals', mostly devoted to ESR studies on radical generation in reperfused myocardium. It is a pity that other methods of detecting free radicals are almost totally ignored.

Section VII deals with 'xenobiotics and photosensitizers', and contains only three papers. I particularly enjoyed the article by Martin on dye-mediated intracellular photooxidations in *E. coli*. This leads on to section VIII, entitled 'oxidation of lipids', which contains little that is really new. Section IX is devoted to low-molecular-mass antioxidants, but contains only one review-style article! Section X, on oxy-radicals and cancer, is more interesting, I particularly enjoyed the paper of Cerutti et al. on oxidants as tumour promoters and protooncogene activation. The book ends with Section XI ('viral and other diseases'). It contains only one paper, an interesting speculative article by Peterhans et al. on the possible role of oxidants in viral diseases.

Despite my general dislike of 'meeting proceedings', I enjoyed this one, for the reasons set out at the end of my first paragraph. The book contains much useful new data, although it will swiftly become out of date as the literature catches

up. I recommend scientists who can easily get hold of a copy to do so, but not if they have to pay the \$110 themselves.

Barry Halliwell

Horizons of Biochemical Engineering

Edited by Shuichi Aiba

Oxford University Press; Oxford, 1988

x + 374 pages. £50.00

When a scientist or engineer has devoted the whole of his working life to his subject, it is pleasing to see his efforts acknowledged publicly. This work is a tangible demonstration by his friends of their recognition of Professor Aiba's major contribution to biochemical engineering. For those who have been involved in teaching and research of this subject, the book has a special value. In the first section, entitled Reflections, three distinguished biotechnologists, John Bu'Lock, Armin Fiechter and Nancy Millis give their views on biochemical engineering and related areas of biotechnology.

The bulk of the book is devoted to twenty-three technical chapters. These are grouped into five sections on physiology and kinetics; DNA technology; metabolites; measurement, control and design and finally environment. By far the largest is the fourth of those sections indicating the great need for more and improved measurements to allow better process control and more rigorous design. It is pleasing to see chapters not only on fashionable topics such as recombinant proteins, but also on insecticide production and degradation of

xenobiotics and cellulosic wastes.

The publisher's note on the cover refers to the book as an overview of the field of biochemical engineering. This is unfortunate because, although each chapter in general gives a good appraisal of a particular area, the book as a whole does not give a balanced view of biochemical engineering as little of it is devoted to downstream processing. This is particularly true of the section on DNA technology, in which much emphasis is placed on fermentation, whereas most of the biochemical engineering problems arise during protein isolation and recovery.

Nevertheless, the high quality of the papers and the book production make it well worth purchasing by any biotechnologist interested in biochemical engineering research. It is not a textbook, but it is to be hoped that academic institutions will include it in their libraries as it contains much of value to students of biochemical engineering and biotechnology.

M.D. Lilly

Monoclonal Antibodies in Diagnostic Immunohistochemistry

By Mark R. Wick and Gene P. Siegal

Marcel Decker; New York, 1988

654 pages. \$125.00 (USA and Canada); \$150.00 (elsewhere)

Since the beginning of this decade immunohistochemistry has had a major influence on the prac-

tice of diagnostic histopathology. Currently most histology laboratories perform some immuno-

2. Molecular Biology. QU 300] QH581.2 572.8--dc23 2014031818 Published by Garland Science, Taylor & Francis Group, LLC, an informa business, 711 Third Avenue, New York, NY 10017, US 3 Park Square, Milton Park, Abingdon, OX14 4RN, UK Printed in the United States of America 15 14 13 12 11 10 9 8 7 6 5 4 3 2. 1 Visit our website at <http://www.garlandscience.com> Julian Hart Lewis August 12, 1946â€”April 30, 2014 vii Preface Since the last edition of this book appeared, more than five million scientific papers have been published. There has been a parallel increase in the quantity of digital info Welcome to The Molecular Biology Institute At the Heart of the UCLA Community Founded by a Nobel Prize Winner with a Transformative Vision And Pioneer Research Faculty. Recent Publications. Type V Collagen in Scar Tissue Regulates the Size of Scar after Heart Injury. Published in the journal Cell.Â Jodi Nunnari, Ph.D. | Hosted by Catherine Clarke and Alexa Novales. February 4 @ 9:00 am - 10:00 am at Zoom. MBI Thursday Research Seminar â€œMitochondrial Behaviorâ€ Jodi Nunnari, Ph.D. Distinguished The underlying molecular biology of PAS is a complex process that requires further research; for ease, we have divided these processes into angiogenesis, proliferation, and inflammation/invasion. A number of diagnostic serum biomarkers have been investigated in PAS, including human chorionic gonadotropin (HCG), pregnancy-associated plasma protein-A (PAPP-A), and alpha-fetoprotein (AFP). They have shown variable reliability and variability of measurement depending on gestational age at sampling.Â Helena C. Bartels, James D. Postle, Paul Downey, Donal J. Brennan, "Placenta Accreta Spectrum: A Review of Pathology, Molecular Biology, and Biomarkers", Disease Markers, vol. 2018, Article ID 1507674, 11 pages, 2018. <https://doi.org/10.1155/2018/1507674>. Show citation. Molecular biology /mÉ™É`lÉ»kjÉŠlÉ™r/ is the branch of biology that concerns the molecular basis of biological activity in and between cells, including molecular synthesis, modification, mechanisms and interactions. The central dogma of molecular biology describes the process in which DNA is transcribed into RNA, then translated into protein. William Astbury described molecular biology in 1961 in Nature, as: