

Book Review

Oxygen Radicals in Biology and Medicine. M. G. Simic, K. A. Taylor, J. F. Ward, and C. von Sonntag, eds. Plenum Press, New York and London, 1988. Volume 49 of the Basic Life Sciences, xxiv + 1095 pp. ISBN 0-306-43021-5 \$139.50.

This timely treatise represents a compilation of the proceedings of the Fourth International Congress on Oxygen Radicals, held June 27–July 3, 1987 at the University of California at San Diego, La Jolla, California. It deals with a subject of substantial current interest, i.e., the possible deleterious role of oxygen radicals and their peroxidation products in a variety of pathological disorders such as aging, arthritis, carcinogenesis, atherosclerosis, broncho-pulmonary dysplasia, and other cardiovascular diseases.

The book begins with an excellent introduction to peroxidation and antioxidation mechanisms by the editors which provides the reader with the scope of future directions in this rapidly expanding field. Following this are the largely unedited presentations (176 papers) arbitrarily subdivided into 16 sections, covering a wide spectrum of interesting topics: kinetic and mechanisms (15 papers); generation of oxyradicals (7 papers); detection and measurements (8 papers); chemiluminescence (10 papers); free radicals and oxygen species in lipids (8 papers), in proteins (7 papers), in lipoproteins (6 papers) and in DNA (13 papers); P-450 (5 papers); oxidative stress (7 papers); antioxidant defense (12 papers); enzymatic defense (17 papers); pharmacology and toxicology (14 papers); neutrophils and phagocytosis (9 papers); ischemia-reperfusion (7 papers); cardiovascular system (10 papers); and general medicine (20 papers).

Like most multi-authored books of this type, it contains short reviews of the research done in the laboratories of the speakers with references to the relevant work published by their peers. The only flaw of this book is the unevenness in

the focus and quality of individual presentation and the somewhat misleading section headings. However, it compares favorably with other compilations of its kind. The authors are all internationally recognized researchers in the field. Most papers are concisely written provided with tables and graphs that are necessary to aid understanding of the data included. Also, most papers includes full subject titles so they can be used as valuable reference sources.

The major emphasis of this book is focused on the mechanism of the generation of free radicals and peroxy products in biosystems and on the adverse effects of these radicals and their peroxidation products in humans. In examining intriguing concepts such as the possible implications of protein oxidation in protein turnover, aging process, and oxygen toxicity, the discussions are very informative and provide the reader with new insight for the future development in this field.

This book also provides extensive coverage on the mechanism of agents that protect against free radicals and their peroxy products *in vitro* and *in vivo*. These agents includes natural antioxidants (glutathione, vitamin E, and β -carotene), antioxidants used in materials such as drugs and other free radicals scavengers, and antioxidant enzymes such as catalases, superoxide dismutases, and other peroxidases.

In conclusion, this book presents a critical and up-to-date review of oxygen radicals in biology and medicine. It certainly should be on the shelves of those engaged in work in this area. Furthermore, it should be included in the libraries of all pharmacy and medical schools.

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