

BOOK REVIEW

OXIDATIVE DAMAGE AND REPAIR

Edited by K.J.A. DAVIES

Pergamon Press Ltd. Pp. 899, \$70.50, 1991

Free radical research is becoming increasingly important because of the link between many human diseases and the damage caused by free radicals and other reactive oxygen species (ROS). The exponential growth in free radical research is best exemplified by this 900-page book, edited by K.A. Davies and based on the oral presentations from the Fifth Biennial Meeting of the International Society for Free Radical Research (SFRR) on "Oxidative damage and repair" (Pasadena, 1989). In addition to the oral presentation papers, this book contains overview papers contributed by all session chairs of the meeting. With a total of 150 articles divided into 20 chapters, the topics cover essentially every aspect of free radical research. This book is well-organized and each article is reasonably short (average 6 pages including references) and clear-cut. Moreover, the overview articles preceding each chapter appear to be reasonably informative and are presented by highly knowledgeable scientists in individual fields.

As in many other edited books, many materials (such as reaction formulae, table and figure information) are often repeated in various chapters. However, most of the articles are sufficiently independent and are representative of important topics.

Among the many exciting topics are such as: specific expression of proteins by oxidative stress genes; nitric oxide and SOD toxicity in ischemia/reperfusion; new techniques of *in vivo* spin trapping; the antioxidant roles of several drugs in the treatment of arrhythmia, ischemia/reperfusion, open-heart surgery, and rheumatoid arthritis; the potential of antioxidant therapy in numerous disease states; and new advances that may help understand the biological consequences of free radical stress including cancer and aging. In addition, a seemingly old topic has become revived, that is, protein damage is now clearly demonstrated as one of the most important manifestation of free radical stress in biological systems. The damaged proteins may escape repair and degradation and become accumulated during aging. Equally, if not more, exciting is the advance in the knowledge of "DNA damage and repair." For example, several articles report the modification of gene expression by ROS and the delicate balance between ROS and antioxidants. However, the antioxidant protection appears to be incomplete, as Ames and associates (Chapter 5, pp. 181–187) have estimated that the total number of oxidative hits upon DNA per cell per day in man may be about 10^4 , and 10^5 in the rat.

There are several drawbacks of this edited book. One is that many articles are simply a short review rather than original papers, and there are even articles that have presented no tables and figures. Another one is that each article is of different print style, and most articles are not double-spaced. Some articles are so poorly printed that they may be eye-tiring for many readers.

It is somewhat disappointing that the INTRODUCTION chapter by the editor is not broadened to cover important topics that are not included in the book due to the page limit. For example, the issue of antioxidant supplementation is of particular concern to many scientists and the public. In fact, there was a heated debate about vitamin E supplementation beyond the RDA level among many society members in a luncheon discussion during the meeting. I believe that SFRR ought to draw more attention from nutritional scientists to the society and meetings such as this one. The public is eager to learn more about the new development in this area, and they deserve such information or scientific opinions. After all, much of the research work has been supported by tax money.

In general, this book is useful for research as a reference source and as an archive. This book can be particularly valuable for newcomers in free radical research for its wide spectrum of topics and its readability.

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