Book Reviews

Reactive Oxygen Metabolites. Chemistry and Medical Consequences. By Manfred K. Eberhardt. CRC Press, Boca Raton, FL. 2001. 591 pp. 16 × 24 cm. ISBN 0-8493-0891-7. $119.95.

At first glance this volume might be mistaken for an out-of-date text, mainly because of the manner in which the chemical structures are rendered. They are reminiscent of those used 30−50 years ago with almost no indication of stereochemistry or chirality. The references tend to support this impression, since more than one-third of the first 200 are from the 1970s. Furthermore, the formation of "lipofuscin" and the exhalation of pentane as markers of oxidative damage seem to date the text. From the *title*, one might have expected to find coverage of such topics as the mechanism of action of bleomycin in the oxidative cleavage of DNA or the oxidation of xenobiotics by P450 enzymes, but these are only mentioned in passing.

Much of the book is devoted to the chemistry of oxygen-derived radicals: superoxide and hydroxyl radicals as well as nitric oxide. Their formation and subsequent reaction with substrates, such as DNA, are also discussed. There is a lengthy chapter devoted to the possible role of such radicals in a variety of pathologies. Although the author presents a chapter on antioxidants, he finds little hope of their utility in helping to prevent heart disease and cancer or slowing the aging process:

"*The antioxidant defenses are, however, far from perfect, otherwise we wouldn't age or die. Epidemiological studies are hailed as medical breakthroughs if a certain vitamin or antioxidant lowers the risk of disease by 20−30%... In the meantime, the multivitamin industry is making billons selling something which at best does no harm, but at worst can be hazardous to our health.*"

On balance, this book does offer a reasonable introduction to radical chemistry that may be important in certain disease states. However, the presentation lacks a modern context, and the coverage does not appear particularly useful to practicing medicinal chemists.

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