

## Book Reviews

**Treatment of Dementias. A New Generation of Progress.** Edited by Edwin M. Meyer, James W. Simpkins, Jyunji Yamamoto, and Fulton T. Crews. Plenum Press, New York and London, 1992, xiii + 533 pp., ISBN 0-306-44228-0.

Our understanding of the pathophysiology of the diseases of aging, particularly dementia and dementia of the Alzheimer type (AD), is advancing and the number of therapeutic modalities currently being investigated is increasing. Significant progress in molecular biology technology and improved animal models have, in part, been responsible for this increase in knowledge and potential therapies. Success in related areas such as drug delivery of proteins into the brain has also contributed to the investigation of new therapeutic modalities to treat dementias. Research results in these areas were presented at the Second Suncoast Workshop on the Neurobiology of Aging, held March 1-4, 1991 at Amelia Island Plantation, Florida. This book is a compilation of the presentations.

The book is divided into seven sections: cholinergic drugs in AD, growth factors in AD, phospholipids in AD, ion channel modulators in AD, CNS targeted delivery, normal aging, and animal models for AD. The evidence supporting the use of muscarinic agents as front-line treatment in AD as well as the use of centrally active anticholinesterases to enhance cholinergic transmission is reviewed first. The role of neurotrophins, particularly brain-derived nerve factor (BDNF), in the central nervous system and their potential use in neurodegenerative diseases such as AD, is evaluated next. In addition, factors that modulate the expression of trophic factors are discussed and hypotheses on the relationship among nerve growth factor (NGF), "killer" proteins, and ischemia are proposed. In subsequent sections, investigators present the membrane hypothesis of AD and data on phosphatidylserine stimulation of growth factors in both animal and humans. The efficacy of phosphatidylserine is assessed in patients with age-associated memory impairment (AAMI) and AD. Approaches to reverse age-associated memory impairment through modulators of neuronal ion channels, e.g., Nimodipine (a calcium channel blocker), beta-carboline (GABA<sub>A</sub> receptor modulator), and modulators of N-methyl-D-aspartate (NMDA) receptors are discussed. Novel methods of targeting drugs to the CNS such as prodrug formulations, liposomes, and chemical delivery systems are addressed, as well as the use of virosome envelopes as vectors for the delivery of macromolecules including genes into the CNS. Evidence for age-related alterations in physiological processes and brains of animals is presented. The final section explores the use of *in vitro* systems and *in vivo* models to enhance our understanding of the pathogenesis of dementias and AD.

This is a comprehensive compilation of pioneering research in the area of dementia and AD. Topics proceed from the molecular level to clinical trials in humans. Most of the research presented is preclinical; only one study in patients is presented. Even so, this is a well-balanced compendium of

major therapeutic approaches to the treatment of AD and goes beyond cholinergic agents and growth factors. The book is well organized, with a summary of major points beginning each section. This is also an excellent source for references on dementias and AD.

In addition to the lack of clinical trial results, the book has other flaws. Typographical errors are not corrected. The title font, formatting of subtopics, and reference format are inconsistent. In several sections, the chapters are from individuals in the same laboratory, with only the order of authors changed. In these cases, the information presented could have been condensed into one chapter. Despite these shortcomings, the book is an excellent resource and should be added to individual libraries.

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**Recent Advances in Pharmaceutical and Industrial Biotechnology.** Edited by A. Atilla Hincal and H. Suheyla Kas. Editions de Sante, Paris, 1993, 277 pp., ISBN 2-86411-063-6. 460 FF (paperback).

This book is a collection of the minutes of the 6th International Pharmaceutical Technology Symposium held on September 7-10, 1992, in Ankara, Turkey. It covers the basic principles of biotechnology, biotechnology-derived pharmaceuticals, and quality control of these products. It also includes some ethical and economic issues concerning pharmaceutical biotechnology. The various topics discussed in this symposium include proteins and peptides, biological response modifiers, vaccines, hormones, recombinant DNA technology, immunological drug delivery systems, quality control, safety, ethical, educational, and economical issues concerning these products. This book is comprised of a total of 20 lectures, which are divided into four parts.

Part 1 describes the basic principles of biotechnology. The first section, by W. Sadee, deals with the current direction of pharmaceutical biotechnology and the major challenges to its successful application to health care systems. The next section, by E. T. Papoutsakis, deals with the importance of animal cell culture in pharmaceutical biotechnology. A novel approach is discussed by Cohen *et al.* for immobilization of proteins, liposomes, and cells in ionotropic synthetic hydrogels. The last section in this part, by A. Fiechter, deals with the current progress in bioprocess development and noninvasive bioresearch concepts.

The second part deals with the different biotechnologically derived pharmaceuticals. All of these sections are descriptive with good illustrations. This part consists of seven lectures. The first lecture by J. Buchanan, deals with recombinant DNA-derived pharmaceuticals. The author nicely describes the chronological developments of pharmaceuticals derived by recombinant DNA technology. The next two lec-

tures deal with monoclonal antibody-directed delivery of liposomal monensin as a potentiator of ricin A immunotoxin (Singh *et al.*) and the *in vivo* diagnostic applications of monoclonal antibodies in cardiovascular diseases (Khaw *et al.*). Hofland *et al.* discuss the delivery of nucleic acids with liposomes and the various challenges encountered during their administration. The next section, by Maher *et al.*, deals with the production of human insulin, growth hormones, erythropoietin, calcitonin, gonadotropins, and a number of key hormones by biotechnological methods. The preclinical efficacy of perfluorocarbon emulsion and diaspirin cross-linked hemoglobin is discussed by Kaufman *et al.* The usefulness of biotechnology in the production of pharmaceuticals and antibiotics is justified with various illustrations by H. Gunduz.

Part 3 of this book describes the quality control and utilization of biotechnology-derived pharmaceuticals. The combination of these two issues affected the flow of the contents. It might have been better to incorporate the utilization of biotechnology-derived pharmaceuticals into Part 2 of this book. Physical properties and analytical aspects of peptides and proteins are described by Bayol *et al.* The next section deals with the quality control of biotechnology-derived pharmaceuticals by Otagiri. The last two sections describe the use of bacterial immunomodulators for the treatment of cancer (M. E. Klegerman) and targeted immunological drug delivery systems (M. J. Groves).

The last section of this book (Part 4) describes the regulatory aspects and future trends of biotechnology-derived pharmaceuticals. The present and future status of these

pharmaceuticals is presented by De Luca. This is an extremely well-written chapter and describes the different formulation development processes and the present and future status of biotechnology. The safety aspects of biotechnology are described by N. G. Alaeddinoglu, and the safety aspects of biotechnology from an industrial viewpoint by P. Zorzi-Morre. The legal, ethical, and economic issues relating to biotechnology (by Grachev) are discussed in the next chapter. The last section of this part, by Groves, deals with the importance of biotechnology education and its application in pharmacy.

The editors have done a nice job in organizing some important topics, presented by renowned scientists working in this area. The list of 31 related books at the end is very helpful for future reading. The subject index at the end of the book is fairly complete, and the references at the end of each chapter are current. The book is well edited, however, a number of typographical errors still exist. Some of the abbreviations used in the text are not appropriately spelled out. The inclusion of a glossary section at the end would have been beneficial. I can recommend this book to any readers and research scientists working in the area of pharmaceutical biotechnology.

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