The book is well organized, and nicely assembled with liberal use of clear diagrams, vector maps, tables, and where appropriate, novel data. There are three sections to the book: Part One deals with vectors and promoter systems; Part Two with neuro-oncology; and Part Three with disorders that affect the central nervous system (CNS) such as Parkinson's disease, stroke, and CNS storage diseases. The text begins with a description of retroviral vectors and their utility, including the use of regulatible promoters. The ability to regulate transgene expression with tissue or cell specificity by means of retroviruses is highly desirable, and the methodology of such systems is clearly described and well illustrated. As there are a number of clinical trials in progress today which utilize retroviral vectors for patients with brain tumors, this particular chapter gives exceptional background information for the interested reader. Subsequent chapters in Part One describe the advantages of using other vector systems such as adenoviral, HIV recombinate, adenoassociated viral, Epstein-Barr viral, and lentiviral vector. Each of these chapters is well balanced describing the potentials and pitfalls associated with each virus.

Of interest in this section, is a chapter on the HIV-1 ampercon. Replication of ampercon DNA in mammalian cells is mediated by the interaction of the HIV-1 sequences with proteins provided by the helper virus.

A chapter on the Epstein-Barr viral vectors is of interest because of the role that EBV plays in human disease such as lymphoma. The authors of this chapter have designed an efficacious, recombinate mini-EBV capable of expressing a thymidine kinase (TK) gene construct in EBV positive cells. As such, EBV vectors may be utilized in suicide gene therapy along with other vector types.

Interest has been accumulating recently in creating novel types of retroviral vectors derived from the human immunodificiency virus type one (HIV-1). The lentiviranie are a group of viruses that cause slowly progressive disorders resulting in chronic degenerative disease, of which HIV is the best characterized member. As the infection of non-dividing cells is a distinct challenge for the retroviral vectors, the use of lentiviral vectors has been shown to lead to efficient *in vivo* delivery integration and long term expression of transgenes in non-mitotic cells such as neurons. However, a major issue with this form of transfer relates to biosafety, an area which is being investigated with great vigor. Part One concludes with a description of brain specific promoters which will enable cell specific expression of genes in glial cells and neurons. A comprehensive listing of the different genes which can be utilized in this fashion in the CNS is listed.

Part Two of the book is devoted to neuro-oncology, and begins with a review of current treatment modalities for brain tumors. This is followed by chapters of experimental and clinical gene therapies for brain tumors including a description of the potentials of tumor suppresser gene therapy using gene transfer of cell cycle regulators such as p53, p16, or the retinoblastoma protein. As one of the major problems which continues to plague all gene therapy strategies is tumor targeting, a chapter is devoted in Part Two to delivering genetic material to brain tumors by modification of the blood brain barrier through osmotic disruption. This has become a potentially useful and efficacious means by which tumors can be targeted with higher efficiency.

Part Three of the book discusses the feasibility of gene therapy for neurological disorders. The chapters are devoted to overcoming the aging and degenerative process, Parkinson's disease, stroke, Huntington's disease, pain and lysosomal diseases. For quite some time, it has been recognized that gene therapy may be most appropriately applied to diseases caused by single gene defects as result from lysosomal diseases, but the chapters in Part Three dealing with gene therapy of Huntington's disease and Parkinson's are particularly well written and lucid.

This is an outstanding compendium of information for all neuroscientists alike, but especially those with an interest in neuro-oncology. The techniques described in the first part not only apply to brain tumors but can be utilized for the strategies involving complex neurological conditions as has been mentioned. This is the most comprehensive text to deal with the issues of gene therapy for neurological disorders and brain tumors.

Though in its infancy at present, gene therapy continues to capture the imagination of scientists and clinicians offering a ray of hope for diseases for which there is presently inadequate treatment. I predict that as this book rests in our libraries to serve as an authoritative text on gene therapy, we will shortly begin to see dramatic results from clinical trials which have been founded on the very principles of this book.

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MOLECULAR NEUROBIOLOGY OF PAIN. 1st Edition. 1997.Volume 9, IASP Series – "Progress of Pain Research and Management". Edited by David Borsook. Published by IASP Press. 369 pages. $C98.80

This book is the ninth volume in the "Progress in Pain Research Management" series published by the International Association for the Study of Pain (IASP). The purpose of the series is to provide high quality, low cost publications relevant to the problem of pain. The ninth volume in this series, Molecular Neurobiology of Pain, certainly meets the high quality, low cost criteria and provides an outstanding summary of this broad, complex and rapidly growing body of knowledge.

The book is divided into five parts and encompasses 18 chapters. The five parts include developmental aspects of sensory neurons, neurobiology of inflammation, neurobiology of nerve injury, neurobiology of receptor/ion channels involved in pain transmission, and molecular aspects of the future. The book is based on an October 1996 conference on molecular aspects of the neurobiology of pain that focused mainly on molecular mechanisms in peripheral nerves. In order to round off the topic for the book, additional chapters were added to address molecular mechanisms of pain in the central nervous system.

While there is some variability in chapter quality, most chapters follow a very similar and helpful template: chapters begin by indicating what the purpose of the chapter is; the body of each chapter is divided into short sections, and each is titled; and almost all chapters end with an easily understood summary, along with conclusions for the chapter. An informal conversational style of writing helps to soften much of the sting of the dry, neurobiological rhetoric. A most interesting section in chapter six "Transduction and Excitability in Nociceptors: Dynamic Phenomenon", describes the mechanism of cold transduction in normal individuals and in a different section, mechanisms of cold sensitivity in neuropathic pain. Chapter ten provides a particularly lucid and engaging description of mechanisms of tactile allodynia. The use of diagrams and tables throughout the book is liberal but helpful.

In summary, Molecular Neurobiology of Pain is a readable and authoritative reference book describing the current state of knowledge in peripheral and central mechanisms of pain. This book will likely prove most useful to students of neurophysiology and to researchers involved in the neuropharmacology of analgesia. Clinicians wishing to whet their appetite for the neurophysiological basis of neuropathic pain, particularly in peripheral nerve disorders, may be surprised at the depth of neurobiological information currently available to account for some of the many clinical accompaniments of neuropathic pain.

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THE LIFESPAN DEVELOPMENT OF INDIVIDUALS. 1997. By David Magnusson. Published by Cambridge University Press. 526 pages. $C58.44

Dr. David Magnusson has edited a textbook concerning the development of the individual. He describes this process as a "complex, multi-determined and integrated process which takes place progressively from conception to death. In this process, biological, mental and behavioral factors are involved on the individual side and social and physical factors operate in the environments which the individual encounters and has to deal with." Dr. Magnusson provides the reader with specific viewpoints, written by numerous authors, covering areas such as areal specialization of the developing neocortex, genes and environment, psychobiological development, neurotransmitter receptors, learning, memory and synaptic plasticity, cognitive development, language acquisition and the role of gonadal hormones in brain organization and function. There are further chapters on biology and culture, social behavior development, as well as the psychological, genetic and molecular biologic aspects of aging.

These chapters are interesting but, unfortunately, the supposed goal of this book, i.e., "to integrate the findings from the specialized areas, presented in this volume, and elsewhere, in order to form a holistic perspective" simply does not happen. We are provided with a massive amount of information and are left panting for someone to put it together and guide us. Dr. Magnusson whets our appetite in his forward by indicating "what is needed is a general model of homo and society ... which would ... serve as a common general theoretical framework for planning, implementation and interpretation of studies on the specific issues that are related to various aspects . . . across the lifespan." This model however is "in press" and we are left to determine it on our own. The writers all participated in a symposium sponsored by the Swedish Nobel Foundation, entitled "The Lifespan Development of Individuals: A Synthesis of Biological and Psychosocial Perspectives", held in Stockholm, in June 1994. The editor indicates that manuscripts submitted prior to the symposium were subsequently revised by the authors, apparently to take into consideration "the comments made during the discussions". This is not greatly reflected in the text which I read.

The amount of information presented is tremendous, dealing with lifespan issues which, as indicated, range from molecular to genetic to social levels. There is no question that any individual who deals in some ways with human health issues will benefit from the information presented, but the diversity is also quite daunting.

Baltes' and Graf's chapter on Psychological Aspects of Aging: Facts and Frontiers speculates about general strategies of mastery that can describe the effective management of life in the face of age associated losses. One such strategy mentioned is "selective optimization with compensation". Good or successful aging is noted to be based on the interplay between the three components of selection, optimization and compensation. Rubenstein, the famous pianist who played into his 80s is noted to have reduced the scope of his repetoire by playing fewer pieces and practiced more than during his youth. Thirdly, he used a special strategy, such as slowing down his play prior to fast segments, thus creating the impression of faster tempo.

One must utilize selection in deciding which chapters to read in The Lifespan Development of Individuals. Its strength is its attempt to place in one text varying viewpoints from the social, psychological and biological worlds. Its deficits are, despite the editor's best intentions, that the topics still remain rather disjointed, not well sewn together by a common thread.

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PRINCIPLES OF MEDICAL PHARMACOLOGY. 1998. Edited by Harold Kalant, Walter H.E. Roschlau. Published by Oxford University Press. 957 pages. $C85.95 approx.

This is the sixth edition of this highly regarded textbook that though multi-authored maintains a remarkably consistent literary style throughout. This is likely due to good communication between the editors and authors, who are for the most part faculty members of the University of Toronto. The illustrations are well proportioned and uniformly styled with legible legends. Another pleasant feature is the liberal use of boldface blue type to highlight key words or phrases throughout the text. Short case histories provide a clinical rational for the subject matter of each chapter and generic names of drugs are supplemented by the most common proprietary names. There are approximately twelve suggested readings at the end of each chapter that can be used as a source for more detailed references. The index is 16 pages in length and allows quick location of specific information.

The text begins with a 130-page section entitled General Principals of Pharmacology. Along with traditional items there is an excellent new chapter on signal transduction and second messengers. Following this substantial introduction are nine special sections. The one entitled Central Nervous System consisting of eleven chapters (55 pages) will be of particular interest to readers of this Journal. The first and major chapter in this section is entirely new and is an overview of the functional organization of the central nervous system. A series of 14 simple diagrams display the interconnecting pathways of the major CNS neurotransmitters from spinal cord to cerebral cortex while tables list the various receptor subtypes, ligands and their biological effects. Ten chapters that follow link various classes of drugs to neurological disorders. The chapter on agents modifying movement control includes a good review of medications employed in Parkinsonís disease. Another chapter discusses the pathophysiology of epilepsy demonstrating how the classification of epilepsy serves as a guide to the selection of the most appropriate antiepileptic drug. The section on antipsychotics provides a clear account of the receptor subtype profile of both classical and the newer atypical antipsychotics. Neurologists and neurosurgeons will also find the chapters on the autonomic nervous system and neuromuscular junction and spasticity to be concise accounts of current knowledge with a discussion of the latest medications.