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Radiopharmaceuticals and Brain Pathophysiology Studied with Pet and Spect-

M. Diksic 1990-11-30 This book covers three major areas essential to in vivo biochemical studies with PET and SPECT: synthesis of radiopharmaceuticals,
biological modeling, and clinical applications. The book emphasizes advances in the synthesis of radiopharmaceuticals used in PET and SPECT studies of brain flow and oxidatative metabolism, in addition to biological modeling. The most widely used 2-deoxyglucose/2-fluorodeoxyglucose models are discussed, as well as models used in the quantitation of brain receptors. Other topics include a possible model for converting 6-[18F] fluorodopa images into the quantitative rate of dopamine synthesis, evaluations of technetium- and iodine-labeled blood flow tracers, and possibilities for using SPECT to measure other pathophysiological variables. This book will be a valuable reference source to students and specialists interested in these in vivo measurements.

**Diagnostic Nuclear Medicine** - Martin P. Sandler
2003 The gold standard text-reference Diagnostic Nuclear Medicine is now in its Fourth Edition—with a sharp clinical focus, a streamlined new single-volume format, and a very attractive price. Written by the top authorities in the specialty, this brand-new edition offers encyclopedic coverage of clinically relevant developments in nuclear medicine—including instrumentation, radiopharmaceuticals, and applications. Readers will find the latest on PET, molecular imaging, SPECT myocardial perfusion imaging, monoclonal antibody therapy, and the use of functional imaging studies in oncology. This edition has been trimmed from two volumes to one, so that readers can find exactly what they need quickly, without cross-checking between volumes.

**Handbook of Radiopharmaceuticals** - Michael J. Welch 2003-01-17
A comprehensive, authoritative and up-to-date reference for the newcomer to radiopharmaceuticals and those already in the field. Radiopharmaceuticals are used to detect and characterise disease processes, or normal biological function, in living
cells, animals or humans. Used as tracer molecules, they map the distribution, uptake and metabolism of the molecule in clinical studies, basic research or applied research. The area of radiopharmaceuticals is expanding rapidly. The number of PET centers in the world is increasing at 20% per year, and many drug companies are utilising PET and other forms of radiopharmaceutical imaging to evaluate products. * Readers will find coverage on a number of important topics such as radionuclide production, PET and drug development, and regulations * Explains how to use radiopharmaceuticals for the diagnosis and therapy of cancer and other diseases * The editors and a majority of the contributors are from the United States

Marihuana and Medicine-
Gabriel G. Nahas 1999-04-05
Leading physicians and scientists from around the world critically examine the pharmacological and molecular basis of the therapeutic properties of marihuana and its active ingredient, THC. They detail the broad array of marihuana's effects on brain function, the immune system, male and female reproductive functions, and cardiac and pulmonary functions, as well as evaluate its clinical applications in psychiatry, glaucoma, pain management, cancer chemotherapy, and AIDS treatment. Their studies indicate that marihuana persistently impairs the brain and reproductive function, and that marihuana smoke is more toxic and damaging to the lung than tobacco smoke. Marihuana and Medicine's reports of the latest findings on the pharmacological and molecular mechanisms of marihuana and of its clinical manifestations will be essential reading for physicians, psychiatrists, pharmacologists, health-care professionals, policy makers, public health officials, and attorneys.

Drug Abuse in the Decade of the Brain-Gabriel G. Nahas 1997 Life scientists have declared the 1990s to be the "Decade of the Brain."
Undoubtedly the most important organ, the brain is perhaps the least understood. Until recently, the proper methodology for exploring the basic functions of the brain were not available. However, the new era of computer technology brain imaging and molecular biology have given scientists the tools for studying previously hidden mechanisms of the brain which control thinking, emotions, and behavior. Along with this new knowledge, scientists have observed that drugs of abuse can alter these same brain functions in a profound and persistent manner. Drugs of abuse are widely used substances that differ in chemical nature but have a common property-creating dependence. Dependence is characterized by a stereotypical pattern of behavior oriented toward the search, acquisition, and ingestion of drugs of abuse with such frequency and in such quantity as to be harmful. This behavior is beyond the control of reason and will. Studies conducted during the "decade of the brain" or before, show that the clinically observed, dependent behavior induced by drugs of abuse result from neurophysiological and chemical alterations of complex brain mechanisms. These mechanisms involve the production and turnover of the brain neurotransmitters that carry information in the brain neurocircuitry, changes in brain metabolism and circulation, and alterations in the expression of DNA which programs the functions or the neuronal cell. This book describes a number of newly discovered basic brain mechanisms and the alterations caused by drugs of abuse. Contributions by top researchers in fields of radian biology, biochemistry, genetics, and pharmacology examine the new technological improvements for the measurement of brain function, metabolism, blood flow and drug elimination and report changes in brain biochemistry, including DNA expression, as they occur during drug abuse. Physicians and health professionals will benefit from a better understanding of the effects of drugs on the brain which will lead to more effective interventions for prevention.
and treatment. Highlights include: New knowledge about the brain New methods of investigation Opiates and the brain Marijuana and the brain Cocaine and the brain This book will be of interest to health professionals and program administrators involved in the education and treatment of substance abuse disorders, as well as physicians, nurses, psychiatric social workers, neuroscientists, and pharmacologists.

**Imaging of Brain Tumors with Histological Correlations**-Antonios Drevelegas 2002-07-10 This volume provides a thorough treatment of the diagnosis of brain tumors by correlating radiographic image features to the underlying pathology. Theoretical considerations and illustrations depicting common and uncommon imaging characteristics of various brain tumors are presented. All modern imaging modalities are used to complete a diagnostic overview of brain tumors with emphasis on recent advances in diagnostic neuroradiology. The book has been designed as a clinical tool for radiologists and other clinicians interested in the current diagnostic approach to brain tumors.

**Brain Imaging in Substance Abuse**-Marc J. Kaufman 2000-09-29 The last two decades have seen prodigious growth in the application of brain imaging methods to questions of substance abuse and addiction. Despite considerable advances in our understanding of the central effects of drugs provided by preclinical data, relatively little direct evidence was known of how substances of abuse affect the brain and other eNS processes in humans. Brain imaging techniques have allowed access to the human brain and enabled the asking of questions never before imagined. The positron emission tomography (PET) data of Volkow and her colleagues in the late 1980s, showing the uptake and time course of cocaine's binding in the human brain, revealed for
the first time the distinct sites of action of this drug. This work was extremely important because it showed clearly, through imaging a drug in the brain of a living human, that the time course of its action paralleled the behavioral state of "high." This study marked a turning point in our understanding of drug-brain-behavior interactions in humans. Many more investigations of drug effects on the structure and function of the human brain were soon to follow, leading to much better insights into brain systems. Brain imaging allowed for the direct assessment of structural and functional anatomy, biology, and chemistry in substance abusers.

**Sites of Drug Action in the Human Brain**-Anat Biegon 2020-02-06 Sites of Drug Action in the Human Brain uses the results of recent analyses of the regional brain distribution and binding pattern of drugs in the human brain. This new book specifically addresses drugs of abuse and treats the effects of various drugs on behavior and mood, as well as on metabolism and blood flow in the human brain. It also presents the methodological aspects of investigating the sites of drug action in the human brain. Because it focuses on the living human brain, this book differs from other books on the subject, which primarily use the results of postmortem studies. Sites of Drug Action in the Human Brain therefore provides valuable information on the clinical aspects of drug intoxication, addiction, and toxicity.

**Receptor Localization**-Marjorie Ariano 1998-07-16 The detection of neurotransmitter receptor locations and distribution densities within the central nervous system and peripheral tissues is receiving intense attention within the neuroscience research community. Neurotransmitter receptors, which receive the chemical signals sent from one neuron to another, are critical links in a highly complex information-processing chain. Pinpointing receptor sites and systems is
crucial for understanding neurological function as well as dysfunction. It is also essential for understanding how receptors process information when impacted by such substances as heroin or nicotine, or when affected by neurodegenerative disease. Receptor Localization: Laboratory Methods and Procedures is the first user-friendly guide to the latest techniques and approaches being employed to examine the localization of neurotransmitter receptors in the central nervous system and peripheral tissues. It covers detection methods that are applicable to a wide variety of receptor systems, ranging from genes and ligands to in vitro receptors in individuals; and to numerous receptor subtypes, such as nicotine, muscarine, tachykinins, dopamine, adenosine, and GABA. The standard laboratory "recipes" or "tricks" employed in these detection methods are fully discussed, as are the advantages and limitations of each procedure. With contributions from leading experts and extensively illustrated, this book: 

Discusses receptor ligand binding methods using irreversible and reversible compounds * Presents antireceptor antisera technology using synthetic peptides and fusion proteins at both the cellular and subcellular resolution levels * Examines molecular assessments of receptors * Describes in situ hybridization, reverse transcriptase-PCR, and fluorescent in situ transcription * Covers new visualization paradigms * Includes physiological analysis of receptor function, cellular detection in the brain slice, and cultured neurons * Discusses the use of PET and SPECT to assess in vivo receptor distributions in animals and humans 

Receptor Localization: Laboratory Methods and Procedures is an invaluable guide for researchers in the related fields of neurology, biochemistry, and pharmacology. Its lucid descriptions of new detection methods, inclusion of experimental examples, and emphasis on how these experimental approaches are applicable to particular
research areas will appeal to both the experienced researcher and novice investigator.

**Physiological Monitoring and Instrument Diagnosis in Perinatal and Neonatal Medicine** - William W. Hay, Jr 1995-07-28 Explains and illustrates the principles and application of commonly used technologies in perinatal and neonatal medicine.

**Targeted Molecular Imaging in Oncology** - E. Edmund Kim 2013-06-29 This volume is unique in reporting on strategies for the application of molecular targeted imaging agents such as antibodies, peptides, receptors and contrast agents in the biologic grading of tumors, differential diagnosis of tumors, prediction of therapeutic response and monitoring tumor response to treatment. It also includes updated information on the imaging of tumor angiogenesis, hypoxia, apoptosis and gene delivery as well as expression in the understanding and utility of tumor molecular biology for better cancer management.

**Moyamoya Disease Update** - Byung-Kyu Cho 2010-02-26 Moyamoya disease (MMD) was first reported as a new entity among vascular disorders in 1957. Named for the abnormal vascular networks found around the occluded distal internal carotid artery, it is the most common pediatric cerebrovascular disease in East Asia. In recent years large amounts of data on MMD have been collected and important investigations have been carried out in Japan and Korea, even as the pathophysiology of the disease remains to be discovered. This monograph covers a diversity of topics and presents a systematic compilation of the data and current status of MMD in clinical practice and basic research. With contributions by more than 70 authors, the book includes sections on genetics, computational analysis of hemodynamic shear stress, new imaging techniques, and endovascular
Neuroimaging II - Erin D. Bigler 2013-11-11 The focus of Volume I of the Handbook of Human Brain Function was on basic scientific principles of brain imaging as it relates to the study of human brain function. Once the scientific bases for a particular discipline are established, follow. Such is the status of brain imaging in the study of clinical applications human brain function. It is of interest to note that the 1952 Nobel Prize for Physics was awarded to Felix Bloch and Edward Purcell, who discovered that nuclei precessing in the radiofrequency range could emit a radiofrequency signal detected by a radio receiver. Their findings initiated a series of very basic research studies on the characteristics of nuclear magnetic resonance. It would take over 25 years of basic research before findings began to point toward truly biomedical applications. However, once realized, clinical applications became standard fare for nuclear magnetic resonance. The example of Bloch and Purcell's work in an area of very basic science expanding to clinical application has been repeated throughout the medical and neurological sciences. This type of progress is what drives science. As a benefit from these scientific advances, research, clinical, and diagnostic imaging from a variety of modalities, not just computerized tomography or magnetic resonance imaging, can be performed. This volume focuses on the clinical applications of various neuroimaging methods. Chapter 1 introduces the topic of clinical neuroimaging in the study of human brain function.

Molecular Imaging in Oncology - E. Edmund Kim 2012-12-06 This is a report on updated techniques, instrumentation and clinical
application of PET, MRI and MRS in cancer management.

Following Marshall Haith's seminal studies on early infant anticipation, this collection begins with a survey of current knowledge about the early development of expectations.

PET in the Aging Brain, An Issue of PET Clinics - Andrew B. Newberg 2010-06-22 PET imaging has shown its value in diagnosing diseases affecting older people. Most significantly this has been with regard to the diagnosis of Alzheimer’s disease and other forms of dementia. Parkinson’s disease is another condition in which PET has proved valuable. This issue also included articles on the uses of PET for diagnosing cerebrovascular disease and for assessing neuroplasticity.

Radiopharmaceutical Chemistry - Jason S. Lewis

2019-04-02 This book is a comprehensive guide to radiopharmaceutical chemistry. The stunning clinical successes of nuclear imaging and targeted radiotherapy have resulted in rapid growth in the field of radiopharmaceutical chemistry, an essential component of nuclear medicine and radiology. However, at this point, interest in the field outpaces the academic and educational infrastructure needed to train radiopharmaceutical chemists. For example, the vast majority of texts that address radiopharmaceutical chemistry do so only peripherally, focusing instead on nuclear chemistry (i.e. nuclear reactions in reactors), heavy element radiochemistry (i.e. the decomposition of radioactive waste), or solely on the clinical applications of radiopharmaceuticals (e.g. the use of PET tracers in oncology). This text fills that gap by focusing on the chemistry of radiopharmaceuticals, with key coverage of how that knowledge translates to the development of diagnostic and therapeutic applications.
radiopharmaceuticals for the clinic. The text is divided into three overarching sections: First Principles, Radiochemistry, and Special Topics. The first is a general overview covering fundamental and broad issues like “The Production of Radionuclides” and “Basics of Radiochemistry”. The second section is the main focus of the book. In this section, each chapter’s author will delve much deeper into the subject matter, covering both well established and state-of-the-art techniques in radiopharmaceutical chemistry. This section will be divided according to radionuclide and will include chapters on radiolabeling methods using all of the common nuclides employed in radiopharmaceuticals, including four chapters on the ubiquitously used fluorine-18 and a “Best of the Rest” chapter to cover emerging radionuclides. Finally, the third section of the book is dedicated to special topics with important information for radiochemists, including “Bioconjugation Methods,” “Click Chemistry in Radiochemistry”, and “Radiochemical Instrumentation.” This is an ideal educational guide for nuclear medicine physicians, radiologists, and radiopharmaceutical chemists, as well as residents and trainees in all of these areas.


PET/CT in Radiotherapy Planning-Sue Chua 2017-06-26 This pocket book offers a succinct but comprehensive overview of the role of PET/CT in radiotherapy planning. Individual chapters are devoted to specific application of the technique to particular tumor types, including non-
small cell lung, gastrointestinal, head and neck squamous cell, prostate, gynecological, and pediatric tumors. Helpful information is also presented on the practical implementation of PET/CT in routine oncological practice. Technical and logistical issues are discussed, and guidance provided on potential problems and pitfalls and available solutions. The book will be invaluable in assisting readers to exploit PET/CT's ability to significantly improve delineation of tumor tissue through the addition of metabolic information to structural imaging data, thereby avoiding unnecessary radiation injury and associated complications while enhancing therapeutic effects and minimizing the risk of marginal recurrences. It is published within the Springer series Clinicians’ Guides to Radionuclide Hybrid Imaging, compiled under the auspices of the British Nuclear Medicine Society.

Clinical Neurology of the Older Adult-Joseph I. Sirven

2008 Now in its Second Edition, this text is the most up-to-date reference on the evaluation and treatment of neurologic problems in older adults. The book is organized so that clinicians can quickly look up either a patient's symptom(s) or a disease, and includes medication charts and diagnostic algorithms. Psychosocial issues such as driving and long-term care options are also addressed. This edition has more information on EMG, evoked potentials, other clinical neurophysiologic procedures, brain imaging, PET scans for dementia screening, and functional imaging in patients with cognitive changes. Updated information on new antiparkinsonian agents and paraneoplastic syndromes is also included.

Advancing Nuclear Medicine Through Innovation-National Research Council 2007-09-11
Nearly 20 million nuclear medicine procedures are carried out each year in the United States alone to diagnose and treat cancers,
cardiovascular disease, and certain neurological disorders. Many of the advancements in nuclear medicine have been the result of research investments made during the past 50 years where these procedures are now a routine part of clinical care. Although nuclear medicine plays an important role in biomedical research and disease management, its promise is only beginning to be realized. Advancing Nuclear Medicine Through Innovation highlights the exciting emerging opportunities in nuclear medicine, which include assessing the efficacy of new drugs in development, individualizing treatment to the patient, and understanding the biology of human diseases. Health care and pharmaceutical professionals will be most interested in this book's examination of the challenges the field faces and its recommendations for ways to reduce these impediments.

**Molecular Imaging**

Shankar Vallabhajosula 2009-07-13

Radioisotope-based molecular imaging probes provide unprecedented insight into biochemistry and function involved in both normal and disease states of living systems, with unbiased in vivo measurement of regional radiotracer activities offering very high specificity and sensitivity. No other molecular imaging technology including functional magnetic resonance imaging (fMRI) can provide such high sensitivity and specificity at a tracer level. The applications of this technology can be very broad ranging from drug development, pharmacokinetics, clinical investigations, and finally to routine diagnostics in radiology. The design and the development of radiopharmaceuticals for molecular imaging studies using PET/MicroPET or SPECT/MicroSPECT are a unique challenge. This book is intended for a broad audience and written with the main purpose of educating the reader on various aspects including potential clinical utility, limitations of drug development, and regulatory compliance and approvals.
**Functional Neuroimaging in Child Psychiatry** - Monique Ernst 2000-10-12
An authoritative account of clinical and research applications of functional imaging techniques in child psychiatry.

**The Ischemic Penumbra** - Geoffrey A. Donnan 2007-04-13
The Ischemic Penumbra presents the current status of concepts and research on this topic and identifies the latest methods for clinicians to quickly and efficiently recognize viable cerebral tissue for enhanced stroke management. Focusing on state-of-the-science technologies and current trends, the book examines imaging strategies utilizing PET, SP.

**Medical Speech-Language Pathology** - Alex F. Johnson 2011-01-01
The second edition of Medical Speech-Language Pathology: A Practitioner's Guide presents the latest information on neurological communication disorders and swallowing and voice disorders in adults. The book features complete coverage of the pathophysiology of communication disorders, describing the underlying degenerative, neurogenic, and psychogenic causes of speech-language impairments. A thorough review of the theoretical issues involved provides practitioners with the conceptual framework needed to develop effective treatments that address both functionality and the quality of life of the patient. Features: Practical approaches to the diagnosis and management of common disorders such as aphasia, dysphagia, and more. Strategies for rehabilitating patients with conditions such as head and neck cancer and dementia. Comprehensive discussion of service delivery issues, such as the interface between speech-language pathology and psychiatry, and approaches to patient management in acute care and intensive care settings. Study questions at the end of each chapter--ideal for reviewing key concepts. Extensive lists of references to aid pursuit of topics in...
Clinical SPECT Imaging
Elissa Lipcon Kramer 1995

National Library of Medicine Current Catalog
National Library of Medicine (U.S.) 1991

Functional Neuroimaging
Robert W. Thatcher 1994 The 1990s have been designated by congress and the president as the decade of the brain, in part due to recognition of the expansion of knowledge and technology in the realm of neuroscience. Functional neuroimaging encompasses the technique of electrophysiology (EEG), magnetoencephalography (MEG), magnetic resonance imaging (MRI), and positron emission tomography (PET). Through these techniques, high resolution, 3 dimensional anatomical information can be obtained of the brain and it's functioning in normal and diseases states. Neuroscientists everywhere use neuroimaging in research, and these techniques are also used regularly by clinicians, and increasingly by biopsychologists. Given the increase in the number of techniques, and their diversity of applications, there is a need for a comprehensive volume to address both the technology and function of their use. Key Features *
Addresses the technical problems of image registration * Compares different approaches to inter-subject and intra-subject analysis * Explores the synergistic advantages of multivolume integration *
Divided into four sections devoted to relevant, timely issues

Nuclear Imaging in Drug Discovery, Development,
It is the purpose and business of the pharmaceutical industry to discover, develop, and make available drugs for the care of the sick. The purpose of universities and national laboratories is to provide people and scientific knowledge that can help in the process. This book presents the combined efforts of scientists from the drug industry, academic laboratories and national laboratories to describe advances in radiotracer technology in studies on experimental animals and living human beings. The authors believe that the technology is now ready for widespread application in the pharmaceutical industry. The goal of this book is to help bring this about. The field of Nuclear Medicine is based on the concept that, if treatment of disease is chemical, the patient’s diagnosis should be chemical. Anatomy and histopathology have been the principle basis for making a diagnosis. Histopathologic data suffer from being descriptive, subjective, not quantifiable, and based on the study of dead tissue. The era of histopathology as the dominant concept in medical practice is coming to an end. Histopathologic findings are often heterogeneous and a single biopsy will at times not reveal the true nature of the disease, such as the grading of malignancy. Far greater accuracy of staging of disease and in the planning of treatment is possible through chemistry, as well as by making possible a more suitable selection of a histological biopsy site.

**Proceedings of the ... International Workshop on Anesthetic Mechanism-1999**

**Targets, Tracers and Translation - Novel Radiopharmaceuticals Boost Nuclear Medicine-**
Gerald Reischl 2019-09-20

This is the fourth Special Issue in Pharmaceuticals within the last six years dealing with aspects of radiopharmaceutical sciences. It demonstrates the significant interest and increasing relevance to
ameliorate nuclear medicine imaging with PET or SPECT, and also radiotherapeutical procedures. Numerous targets and mechanisms have been identified and have been under investigation over the previous years, covering many fields of medical and clinical research. This development is well illustrated by the articles in the present issue, including 13 original research papers and one review, covering a broad range of actual research topics in the field of radiopharmaceutical sciences.

A History of Radionuclide Studies in the UK-Ralph McCready 2016-03-09 The British Nuclear Medicine Society celebrates its 50th Anniversary with this booklet, which reflects the research of many of the pioneers in the use of radionuclides for the diagnosis and therapy of human disease. Since 1949 there have been remarkable advances in radionuclide techniques and imaging equipment: from the first devices “home-made” in the many physics departments throughout the UK, to the sophisticated multimodality imagers now in everyday use in Nuclear Medicine. The BNMS has been instrumental in promoting the use of radionuclide techniques in the investigation of pathology by supporting and providing education, research and guidelines on the optimum use of radiation to help patients. The future of Nuclear Medicine is bright, thanks to improved imaging resolution, new radiopharmaceuticals, and new diagnostic and therapeutic techniques and procedures.

Diagnostic Nuclear Medicine- 1996

Head Injury and Postconcussive Syndrome- Matthew Rizzo 1996 A comprehensive reference with at least one chapter for anyone involved in any way with head injuries and the consequences, including designers of motor vehicles, surgeons, psychiatrists, and lawyers. Covers definitions, epidemiology, mechanisms, natural history, diagnostic
techniques, specific manifestations and treatments, neuropsychological considerations, and forensic issues. Among specific topics are driving behavior, neuroimaging in closed-head injuries, cervical pain syndrome, cognitive rehabilitation, and the detection of malingering in postconcussive syndrome. Annotation copyright by Book News, Inc., Portland, OR

**Research Awards Index-**
1978

**Synthesis and Applications of Isotopically Labelled Compounds, 1991-**E. Buncel 1992 The Fourth International Symposium on the Synthesis and Applications of Isotopes and Isotopically Labelled Compounds attracted some 400 scientists from over 20 countries. The scientific program consisted of three plenary lectures, 97 invited and contributed talks presented in 15 sessions on diverse topics, and 85 poster presentations. This proceedings volume covers the full texts of all the contributions, providing comprehensive, state-of-the-art information of interest to readers in chemistry, pharmacology, biochemistry and the medical sciences.

**Regional Therapy of Advanced Cancer-**Michael T. Lotze 1997

**Research Grants Index-**
National Institutes of Health (U.S.). Division of Research Grants 1975

**Principles and Practice of Nuclear Medicine-**Paul J. Early 1995 (1E 1985; *Select List Allied Health) Incl. planar imaging/ SPECT/PET/parathyroid imaging/adrenal gland/lab. application