Serotonin Receptors And Their Ligands

Unveiling the Magic of Words: A Overview of "**Serotonin Receptors And Their Ligands**"

In a global defined by information and interconnectivity, the enchanting power of words has acquired unparalleled significance. Their power to kindle emotions, provoke contemplation, and ignite transformative change is actually awe-inspiring. Enter the realm of "**Serotonin Receptors And Their Ligands**," a mesmerizing literary masterpiece penned with a distinguished author, guiding readers on a profound journey to unravel the secrets and potential hidden within every word. In this critique, we shall delve to the book is central themes, examine its distinctive writing style, and assess its profound effect on the souls of its readers.

Textbook of Drug Design and Discovery, Third Edition Tommy Liljefors 2002-07-25 Building on the success of the previous editions, Textbook of Drug Design and Discovery has been thoroughly revised and updated to provide a complete source of information on all facets of drug design and discovery for students of chemistry, pharmacy, pharmacology, biochemistry, and medicine. The book follows drug design from the initial lead identification through optimization and structure-activity relationship with reference to the final processes of clinical evaluation and registration. Chapters investigate the design of enzyme inhibitors and drugs for particular cellular targets such as ion channels and receptors, and also explore specific classes of drug such as peptidomimetics, antivirals and anticancer agents. The use of gene technology in pharmaceutical research, computer modeling techniques, and combinatorial approaches are also included.

Hybrid PET/MR Neuroimaging Ana M. Franceschi 2021-11-30 This book serves as a reference and comprehensive guide for PET/MR neuroimaging. The field of PET/MR is rapidly evolving, however, there is no standard resource summarizing the vast information and its potential applications. This book will guide neurological molecular imaging applications in both clinical practice and the research setting. Experts from multiple disciplines, including radiologists, researchers, and physicists, have collaborated to bring their knowledge and expertise together. Sections begin by covering general considerations, including public health and economic implications, the physics of PET/MR systems, an overview of hot lab and cyclotron, and radiotracers used in neurologic PET/MRI. There is then coverage of each major disease/systemic category, including dementia and neurodegenerative disease, epilepsy localization, brain tumors, inflammatory and infectious CNS disorders, head and neck imaging, as well as vascular hybrid imaging. Together, we have created a thorough, concise and up-to-date textbook in a unique, user-friendly format. This is an ideal guide for neuroradiologists, nuclear medicine specialists, medical physicists, clinical trainees and researchers.

Encyclopedia of Signaling Molecules 19??

Drug Selectivity Norbert Handler 2018-02-27 The book "Drug Selectivity - An Evolving Concept in Medicinal Chemistry" provides a current overview and comprehensive compilation for medicinal chemists that discusses the effects of aiming for multiple targets on the entire drug development process. The result is a broad survey of current and future strategies for drug selectivity in medicinal chemistry with theoretical but also practical aspects. Different strategies are presented and evaluated, such as various design approaches, merged multiple ligands, discovery technologies and a broad range of successful examples

of unselective drugs taken from all major disease areas. With its wide-ranging view of an emerging new paradigm in drug development, this handbook is of prime importance for every medicinal and pharmaceutical chemist.

Central and Peripheral 5-HT3 Receptors Michel Hamon 1992 Among the neurotransmitters, serotonin is undoubtedly the biogenic amine that gave rise to the greatest effort in pharmacological research over the last ten years. The 5-HT3 class of serotonin receptors occupies a privileged position, as selective antagonists acting at this receptor are potential anziolytics and antipsychotics, in addition to being useful as anti-nausea anti-emetic agents for cancer patients undergoing chemotherapy. Within this volume, the best specialists in the field summarize the biochemical, pharmacological, electrophysiological and functional properties of 5-HT3 receptors, together with the potential use of 5-HT3 ligands int he treatment of visceral dysfunctions, schizophrenia, anxiety and pain.

Development of Acetylcholine-binding Protein (AChBP) as a Biosensor for Serotonin Ligands Yeganeh Ataian 2018 Acetylcholine-binding protein (AChBP) is a water-soluble novel protein with a high sequence similarity (15-30% identity) to ligand-gated ion channel (LGIC) receptors. The crystal structure of AChBP is used to study the extracellular domain of the pentameric LGICs such as nicotinic acetylcholine receptors (nAChRs) and 5-hydroxytryptamine type 3 receptors (5-HT3Rs); and homology models have been developed to study receptor-ligand interactions. The 5-HT3 serotonin receptors are potential therapeutic targets for multiple nervous system disorders such as alcohol and drug dependence, anxiety, depression, schizophrenia, sleep, cognition, memory, and chemotherapy-induced and post-operative nausea and vomiting. Therefore, the ligands that target the 5-HT3Rs are considered powerful therapeutic agents. As such, 5-HT3 serotonin receptors have been the targets of drug discovery efforts. The main objective of the current protein engineering project was to develop a soluble serotonin-binding protein using AChBP, which would mimic the specificity of the native 5-HT3 serotonin receptor. Once developed, this soluble protein would be used as a model to design an array of receptors, which could be placed on biosensors for high-throughput drug screening (HTDS). The results of site-directed mutagenesis of AChBP demonstrated that mutation of certain AChBP residues to its equivalent in serotonin resulted in an increased affinity of AChBP for serotonin ligands, and that each individual mutation increased the affinity of AChBP to a certain degree. It indicates that this approach is going in the right direction but multiple mutations will probably be needed to get to an AChBP whose affinity is equivalent to wild-type serotonin. In addition, the most significant changes appeared to be in the C-loop as it produced the largest increase in affinity of AChBP for serotonin agonists. The results also support the proposed C-loop closure model for the receptor, and based on data presented here, a new alignment of the C-loop is suggested.

Serotonin and Sleep: Molecular, Functional and Clinical Aspects Jaime M. Monti 2008-03-04 This book focuses on the neuropsychopharmacology of serotonin and its role in sleep and wakefulness, presenting neurochemical, electrophysiological, and neuropharmacological approaches to understand the mechanisms of serotonin and related substances. Covering core and contemporary topics in the area, this volume is valuable for all researchers interested in interdisciplinary studies concerning drugs affecting the central nervous system.

5-HT2A Receptors in the Central Nervous System Bruno P. Guiard 2018-02-14 5-HT2A receptors are G-protein coupled receptors that are widely distributed throughout the brain, most notably on neuronal and glial cells. 5-HT2A receptors have been implicated in various central physiological functions including mood regulation, memory, sleep, nociception, eating, and reward behaviors, and they are also believed to control the cardiovascular system. This book provides a comprehensive overview of these receptors including sections on their properties and distribution, approaches for their study, their role in a number of brain functions and diseases, and their role as therapeutic targets.

Small Molecule Drugs for Treatment of Alzheimer‚Äôs Diseases Developed on the Basis of Mechanistic Understanding of the Serotonin Receptors 4 and 6 Katrine M. Qvortrup 2019 Alzheimer‚Äôs disease (AD)

is the most common form of dementia affecting millions of people worldwide and currently, the only possible treatment is the use of symptomatic drugs. Therefore, there is a need for new and disease-modifying approaches. Among the numbers of biological targets which are today explored in order to prevent or limit the progression of AD, the modulation of serotonin receptors the subtype 4 and 6 receptors (5-HT4R and 5-HT6R) has received increasing attention and has become a promising target for improving cognition and limit the amyloid pathology through modulation of the neurotransmitter system. A large number of publications describing the development of ligands for these serotonin receptors have emerged, and their pharmaceutical potential is now quite evident. However, 5-HT4R and 5-HT6R functionality is much more complex than initially defined. This chapter describes recent advances in the understanding of this modulation as well as the medicinal chemistry efforts towards development of selective 5-HT4R or 5-HT6R ligands.
Pharmacology of 5-HT6 receptors 2011-04-05 The serotonin 5-HT6 receptor represents a novel pharmacological target whose impact on physiopathology of CNS functions remains undetermined. Some receptor antagonists have been synthesized, and they show a modulatory role in learning and memory processes and food intake. The pharmacology of 5-HT6 receptor agonists is still under evaluation. However, both 5-HT6 antagonists and agonists seem to exert potential antidepressant activity. Recently, a second messenger system has been discovered. 5-HT6 receptor function is becoming more and more intriguing. Thus, the aim of the present book is to try to clarify the pharmacology of 5-HT6 receptors. Written by expert researchers Covers all published literature to date in the field of 5-HT6 receptors
Receptor Purification Gerald Litwack 1990-10-23 The purpose of these volumes is to provide a reference work for the methods of purifying many of the receptors we know about. This be comes increasingly important as full-length receptors are overexpressed in bacteria or in insect cell systems. A major problem for abundantly expressed proteins will be their purification. In addition to purification protocols, many other details can be found concerning an individual receptor that may not be available in standard texts or monographs. No book of this type is available as a compendium of purification procedures. Receptor Purification provides protocols for the purification of a wide variety of receptors. These include receptors that bind: neurotransmit ters, polypeptide hormones, steroid hormones, and ligands for related members of the steroid supergene family and others, including receptors involved in bacterial motion. The text of this information is substantial, so as to require its publication in two volumes. Consequently, a division was made by grouping receptors by the nature of their ligands. Thus, in Volume One there are contributions on serotonin receptors, adrenergic receptors, the purification of GTP-binding proteins, opioid receptors, neurotensin receptor, luteinizing hormone receptor, human chorionic gonadotropin receptor, follicle stimulating hormone receptor, thyro tropin receptor, prolactin receptor, epidermal growth factor receptor, platelet derived growth factor receptor, colony stimulating factor recep tor, insulin-like growth factor receptors, insulin receptor, fibronectin receptor, interferon receptor, and the cholecystokinin receptor.
Presynaptic Receptors and Neuronal Transporters S.Z. Langer 2013-10-22 Advances in the Biosciences, Volume 82: Presynaptic Receptors and Neuronal Transporters documents the proceedings of the Official Satellite Symposium to the IUPHAR 1990 Congress held in Rouen, France on June 26-29, 1990. The first part of this book deals with the extensive and still increasing list of presynaptic release-modulating auto and heteroreceptors, emphasizing the various subtypes of presynaptic receptors that are characterized by functional studies, both in vitro and in vivo, using a number of experimental approaches. The next chapters are devoted to the molecular pharmacology of presynaptic receptors, of which can interfere with G proteins and modify the activity of adenylate cyclase, guanylate cyclase, or protein kinase C. The purification and molecular biology of transporter systems, including cloning and sequencing of the neuronal sodium-ion coupled GABA transporter are also discussed. This compilation concludes with insights on the function of presynaptic receptors and neuronal transporters both in the periphery and in the CNS, as well as their ubiquitous locations and

physiological roles. This publication is a good reference for students and individuals researching on the presynaptic autoreceptors and neurotransmitters.

The Serotonin Receptors Bryan L. Roth 2008-08-17 A comprehensive, state-of-the-art review of our current understanding of the molecular and structural biology of 5-HT receptors and their potential use for drug discovery. The authors describe the anatomical, cellular, and subcellular distribution of 5-HT receptors and demonstrate a powerful approach to elucidating their physiological role using knockout mice in which the 5-HT receptors were deleted. They also review our understanding of the physiological role(s) of 5-HT receptors based mainly on studies performed in genetically engineered mice. Highlights include discussions of the behavioral phenotypes of 5-HT receptor knockout animals, the molecular biology and pharmacology of 5-HT receptors, and insights into the complexity of 5-HT receptor signal transduction.

Development of 99mTc Agents for Imaging Central Neural System Receptors D. V. S. Narasimhan 2004 Summarizes the work carried out by different research groups during a coordinated research programme. The research projects presented include the development and evaluation of serotonin receptor ligands, benzodiazepinic receptor ligands, dopamine receptor ligands, and the study of novel cores for Tc-99m labelling.

Neurobiology of Body Fluid Homeostasis Laurival Antonio De Luca Jr. 2013-10-01 A timely symposium entitled Body-Fluid Homeostasis: Transduction and Integration was held at Araraquara, São Paulo, Brazil in 2011. This meeting was convened as an official satellite of a joint gathering of the International Society for Autonomic Neuroscience (ISAN) and the American Autonomic Society (AAS) held in Buzios, Rio de Janeiro. Broad international participation at this event generated stimulating discussion among the invited speakers, leading to the publication of Neurobiology of Body Fluid Homeostasis: Transduction and Integration. Drawn from the proceedings and filled with rich examples of integrative neurobiology and regulatory physiology, this volume: Provides updated research using human and animal models for the control of bodily fluids, thirst, and salt appetite Explores neural and endocrine control of body fluid balance, arterial pressure, thermoregulation, and ingestive behavior Discusses recent developments in molecular genetics, cell biology, and behavioral plasticity Reviews key aspects of brain serotonin and steroid and peptide control of fluid consumption and arterial pressure The book highlights research conducted by leading scientists on signal transduction and sensory afferent mechanisms, molecular genetics, perinatal and adult long-term influences on regulation, central neural integrative circuitry, and autonomic/neuroendocrine effector systems. The findings discussed by the learned contributors are relevant for a basic understanding of disorders such as heat injury, hypertension, and excess salt intake. A unique reference on the neurobiology of body fluid homeostasis, this volume is certain to fuel additional research and stimulate further debate on the topic.

Handbook of the Behavioral Neurobiology of Serotonin Christian P. Muller 2009-12-30 Serotonin (5-hydroxytryptamine, often cited as 5-HT) is one of the major excitatory neurotransmitter, and the serotonergic system is one of the best studied and understood transmitter systems. It is crucially involved in the organization of virtually all behaviours and in the regulation of emotion and mood. Alterations in the serotonergic system, induced by e.g. learning or pathological processes, underlie behavioural plasticity and changes in mood, which can finally results in abnormal behaviour and psychiatric conditions. Not surprisingly, the serotonergic system and its functional components appear to be targets for a multitude of pharmacological treatments - examples of very successful drugs targeting the serotoninergic system include Prozac and Zoloft. The last decades of research have not only fundamentally expanded our view on serotonin but also revealed in much more detail an astonishing complexity of this system, which comprises a multitude of receptors and signalling pathways. A detailed view on its role in basal, but also complex, behaviours emerged, and, was presented in a number of single review articles. Although much is known now, the serotonergic system is still a fast growing field of research contributing to our present

understanding of the brains function during normal and disturbed behaviour. This handbook aims towards a detailed and comprehensive overview over the many facets of behavioural serotonin research. As such, it will provide the most up to date and thorough reading concerning the serotonergic systems control of behaviour and mood in animals and humans. The goal is to create a systematic overview and first hand reference that can be used by students and scholars alike in the fields of genetics, anatomy, pharmacology, physiology, behavioural neuroscience, pathology, and psychiatry. The chapters in this book will be written by leading scientists in this field. Most of them have already written excellent reviews in their field of expertise. The book is divided in 4 sections. After an historical introduction, illustrating the growth of ideas about serotonin function in behaviour of the last forty years, section A will focus on the functional anatomy of the serotonergic system. Section B provides a review of the neurophysiology of the serotonergic system and its single components. In section C the involvement of serotonin in behavioural organization will be discussed in great detail, while section D deals with the role of serotonin in behavioural pathologies and psychiatric disorders. The first handbook broadly discussing the behavioral neurobiology of the serotonorgic transmitter system Co-edited by one of the pioneers and opinion leaders of the past decades, Barry Jacobs (Princeton), with an international list (10 countries) of highly regarded contributors providing over 50 chapters, and including the leaders in the field in number of articles and citations: K. P. Lesch, T. Sharp, A. Caspi, P. Blier, G.K. Aghajanian, E. C. Azmitia, and others The only integrated and complete resource on the market containing the best information integrating international research, providing a global perspective to an international community Of great value not only for researchers and experts, but also for students and clinicians as a background reference

Serotonin Receptors and their Ligands B. Olivier 1997-07-10 An international group of authors have produced an overview of the progress made in the medicinal chemistry of compounds (selectively) acting at serotonin receptors or serotonin transporters either as agonists, partial agonists or antagonists. Structure - affinity relationships and structure - activity relationships of agonists, partial agonists, and antagonists of 5-HT receptors and uptake sites, are discussed. Structure, sequence homology and the effect of site-directed mutations of 5-HT receptors and the reuptake site on the binding of ligands show the tremendous impact of molecular biology on medicinal chemistry research. Also discussed is the pharmacology and (potential) clinical applications of ligands for the 5-HT receptors and the reuptake site. By developing elegant techniques of cloning and expression of serotonin receptor subtypes, their mutants and chimeras, a unique opportunity was offered to study the binding mode of serotoninergic ligands to their receptors and transporters. The distribution, structure and homologies of serotonin receptor subtypes and the structure of the serotonin transporter are also taken into account. The (potential) therapeutic applications of ligands of the different subtypes are described. Altogether an excellent addition to the Pharmacochemical Library series.

Pharmacology of 5-HT6 Receptors Franco Borsini 2011 The serotonin 5-HT6 receptor represents a novel pharmacological target whose impact on physiopathology of CNS functions remains undetermined. Some receptor antagonists have been synthesized and they show a modulatory role in learning and memory processes and food intake. The pharmacology of 5-HT6 receptor agonists is still under evaluation. However, both 5-HT6 antagonists and agonists seem to exert potential antidepressant activity. Recently, a second messenger system has been discovered. 5-HT6 receptor function is becoming more and more intriguing. Thus, the aim of the present book is to try to clarify the pharmacology of 5-HT6 receptors. written by expert researchers covers all published literature to date in the field of 5-HT6 receptors

The Serotonin System Mark Tricklebank 2019-06-15 The Serotonin System: History, Neuropharmacology, and Pathology provides an up-to-date accounting on the physiology and pathophysiology of serotonin and the role it plays in behavioral functions. In addition, the book explores the potential roles of 5-HT1 in neurodevelopmental disorders and summarizes the history of the discovery and development of serotonergic

drugs for the treatment of neuropsychiatric disorders. This concise, yet thorough, volume is the perfect introduction to this critical neurotransmitter. It is ideal for students and researchers new to the study of behavior, neuropsychiatry or neuropharmacology, but is also a great resource for established investigators who want a greater perspective on serotonin. Examines the role of serotonin in physiological functions and neuropsychiatric disorders Provides in-depth knowledge on all aspects of the serotonin system Explores serotonergic receptors as targets for both current and new therapeutic compounds

Biomedical Aspects of Histamine Nancy Khardori 2010-09-30 Since its identification by Sir Henry H. Dale a century ago, histamine has become one of the most important multifunctional biogenic amines in the field of biomedicine. The pharmacological effects of histamine are mediated through four types of membrane histamine receptors; H1R, H2R, H3R and H4R, which are all heptahelical G-protein-coupled receptors. It has been known to play the broadest spectrum of activities in various physiological and pathological conditions including cell proliferation, differentiation, hematopoiesis, embryonic development, regeneration, wound healing, aminergic neurotransmission and numerous brain functions, secretion of pituitary hormones, regulation of gastrointestinal and circulatory functions, cardiovascular system, as well as inflammatory reactions, modulation of the immune response, endocrine function and homeostasis, and other important areas. This book is a compendium of the current state of established and investigational literature on Histamine, its receptors and their Agonists and antagonists. It provides a comprehensive overview of histamine biology in the field of biochemistry, cell biology, molecular biology, immunology, allergy, neurobiology, pharmacology, microbiology and reproductive biology. The first section on Histamine biology and physiology leads into subsequent sections on enzymology, pharmacology, regulation of the immune system and cell proliferation and role in allergic and other diseases including acid peptic diseases, inflammatory diseases, autoimmune and cancer diseases, nervous system, reproductive functions and hematopoiesis. The compilation of chapters in the book presents the most recent advances in histamine research and bridges the basic and clinical aspects of histamine biology.

Molecular Basis of Neuropharmacology : A Foundation for Clinical Neuroscience Eric J. Nestler 2001-03-28 * The most up-to-date and comprehensive coverage of the relationship of brain function and neuroactive chemicals * Authors are world-known leaders in the field * Molecular Neuropharmacology is the hot topic in medicine

Serotonin: Molecular Biology, Receptors and Functional Effects FOZARD 2012-12-06 The Second IUPHAR Satellite Meeting on Serotonin was held under the auspices of the Serotonin Club in Basel, Switzerland in July 1990. The scope was wide, ranging from molecular biology through in vitro and in vivo pharmacology to new drug tools and their clinical signifi cance. There were three invited review lectures, by J. M. Palacios, D. I. Wallis and A. Kaumann, and S. Peroutka gave the first Serotonin Club Irvine H. Page Lecture. The rest of the oral programme was put together by the Scientific Organizing Committee based on volunteered research contributions. The invited review lecturers, the platform speak ers and selected poster contributors were invited to write up their contributions for inclusion in this volume. Most complied and this book is the result of their efforts. When instructing the authors prior to the meeting, we emphasized that selected new data should be put in the context of the literature findings. In this way we hoped to achieve topicality yet preserve the review perspective which facilitates its appreciation by the non-special ist. It was truly a pleasure to read the interesting papers which resulted and to prepare them for publication. We believe they convey to a remarkable degree the spirit of what was generally felt to be a highly stimulating exchange of information on matters serotonergic which took place in Basel last July.

Receptors and Ligands in Neurological Disorders Amar K. Sen 1988-06-02 This book summarises current studies which involve receptors and ligands in neurological disorders. The advance in the study of receptors in general enables investigators to explore the mechanism of action of psychotropic drugs and to minimise their side effects.

Receptor-Receptor Interactions: A New Intramembrane Integrative

Mechanism Kjell Fuxe 2015-12-30

Receptor Purification Gerald Litwack 2012-10-16 The purpose of these volumes is to provide a reference work for the methods of purifying many of the receptors we know about. This becomes increasingly important as full-length recep tors are overexpressed in bacteria or in insect cell systems. A major problem for abundantly expressed proteins will be their purification. In addition to purification protocols, many other de tails can be found concerning an individual receptor that may not be available in standard texts or monographs. No book of this type is available as a compendium of purification procedures. Receptor Purification provides protocols for the purification of a wide variety of receptors. These include receptors that bind: neurotransmitters, polypeptide hormones, steroid hormones, and ligands for related members of the steroid supergene family and others including receptors involved in bacterial motion. The text of this information is substantial so as to require its publica tion in two volumes. Consequently, a division was made by grouping receptors depending upon the nature of their ligands. Thus, in volume 1 there are contributions on serotonin receptors, adrenergic receptors, the purification of GTP-binding proteins, opioid receptors, neurotensin receptor, luteinizing hormone re ceptor, human chorionic gonadotropin receptor, follicle stimulat ing hormone receptor, thyrotropin receptor, prolactin receptor, epidermal growth factor receptor, platelet derived growth factor receptor, colony stimulating factor receptor, insulinlike growth factor receptors, insulin receptor, fibronectin receptor, interferon receptor, and the cholecystokinin receptor.

5-HT1A Agonists, 5-HT3 Antagonists and Benzodiazepines R. J. Rodgers 1991 Topics covered in this volume include benzodiazepine receptors and their ligands, effects of benzodiazepines and 5-HT(1A) agonists on learning and memory and physiological and pharmacological implications of specific effects of 5-HT(1A) agonists on rat sexual behaviour.

Novel Analogs of M-chlorophenylguanidine as 5-HT3 Receptor Ligands Katie Elizabeth Alix 2009 Serotonin receptors play a variety of functional roles in the body. Some indications and treatment claims for one of the classes of serotonin receptors, the 5-HT3 receptor family, include: anxiety, depression, chemotherapy- and radiation-induced emesis, constipation, irritable bowel syndrome, pain, drug addiction, and satiety control. A 5-HT3 receptor partial agonist, MD-354, served as a lead compound in the development of new 5-HT3 receptor ligands. Using halogenated analogs the study investigated their effect on binding to the 5-HT3 receptor. Conformationally-constrained analogs (quinazolines) were shown to be a novel class of 5-HT3 receptor antagonists. The log P values were determined for several analogs, and indicated that these ligands should be able to penetrate the blood-brain barrier. A homology model of the 5-HT3 receptor was built and the docking modes were assessed for these two series. Quinazolines were investigated for antidepressant properties using the mouse tail suspension test, and were shown to possess antidepressant-like activity.

Serotonin Receptors in Neurobiology Amitabha Chattopadhyay 2007-05-17 A number of developments spanning a multitude of techniques makes this an exciting time for research in serotonin receptors. A comprehensive review of the subject from a multidisciplinary perspective, Serotonin Receptors in Neurobiology is among the first books to include information on serotonin receptor knockout studies. With contributions from leading experts in their fields, the book explores serotonin receptors from a broad-based, multidisciplinary approach. The approaches described vary from molecular biological techniques to fluorescence microscopy and imaging, to genetic manipulation in animal models, providing a wide range of tools to study serotonergic phenomena. While each of these approaches has its own advantages and limitations, the synthesis of information and knowledge achieved from studies using multiple approaches will result in a comprehensive understanding of the underlying complex phenomena involved in serotonergic signaling and its implications in health and disease. The book provides an overall understanding of these receptors based on currently used methodologies and techniques. It describes specific experimental procedures that will be of use to researchers interested in addressing similar problems involving other G-protein-

coupled receptor signaling systems.

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Understanding Depression Yong-Ku Kim 2018-01-02 This book, in two volumes, focuses on contemporary issues and dilemmas in relation to depression. The aim is to equip readers with an up-to-date understanding of the clinical and neurobiological underpinnings of depression and their relation to clinical manifestations and the development of more effective treatments. This first volume is devoted specifically to biomedical and neurobiological issues. Detailed information is presented on a wide range of topics, including genetics, molecular and cellular biology, and aspects at the neural circuit and multicellular system levels. Readers will gain a deeper appreciation of the factors and interactions underlying individual variation in responsiveness to stress and vulnerability to depression, as well as a clear understanding of potential treatment targets and causes of treatment resistance based on the latest research. A concluding section considers progress towards precision psychiatry and gender and cultural differences in depression. The companion volume is dedicated to clinical and management issues in depression. Understanding Depression will be an excellent source of information for both researchers and practitioners in the field.

5-HT2C Receptors in the Pathophysiology of CNS Disease Giuseppe Di Giovanni 2010-11-30 Part of Springer's "The Receptors," series, this text is the first ever overview on the research of 5-HT2c receptors. 5-HT2c receptor research has been productive for twenty-five years, but recent years have seen an extraordinary increase in both amount produced and insight gained. 5-HT2c is a prominent central serotonin receptor subtype widely expressed within the central and the peripheral nervous system and is thought to play a key role in the regulation of numerous behaviors. This text covers the molecular, cellular, anatomical, biochemical and behavioral aspects of this receptor, highlighting its distinctive regulatory properties and the emerging functional significance of constitutive activity and RNA-editing in vivo. It also investigates the receptors' therapeutic potential in many diseases, treated individually in separate chapters, including depression, drug abuse, schizophrenia, eating disorders, Parkinson's disease, Prader-Willi Syndrome, Alzheimer's disease and epilepsy.

Serotoninergic Neurons and 5-HT Receptors in the CNS H.G. Baumgarten 2012-12-06 With contributions by numerous experts

5-HT3 Receptor Ligands and Their Effect on Psychomotor Stimulants Jessica Nicole Worsham 2008 Drug abuse and addiction are considered to be a result, at least in part, of the rewarding effects produced by increasing dopamine levels. 5-HT3 serotonin receptors have been shown to indirectly affect dopamine levels. Therefore, the effect of the 5-HT3 receptor partial agonist, MD-354, on the actions of psychomotor stimulants was analyzed in mouse locomotor activity assays

to determine whether MD-354 is working through a 5-HT3 receptor agonist or antagonist mode of action. Studies with (+)amphetamine and (+)methamphetamine in combination with MD-354 indicated MD-354 is either devoid of action or is behaving similar to the 5-HT3 receptor antagonist, ondansetron. This effect could be occurring centrally; however peripheral effects can not be discounted. In combination with cocaine, MD-354 behaved similar to the 5-HT3 receptor agonist, SR 57227A, known to act both centrally and peripherally. This difference between central and peripheral effects could account for the different modes of action observed with MD-354. Studies also involved synthesis of potentially brain-penetrant carbamate analogs of MD-354, and QSAR to assist in validating a 5-HT3 receptor agonist pharmacophore.

5-HT4 Receptors in the Brain and Periphery Richard M. Eglen 2013-03-09 This book provides a comprehensive, up-to-date review of the distribution, pharmacology and physiology of central 5-hydroxytryptamine (5-HT)4 receptors. The 5-HT receptor subtypes exhibit a unique pharmacology, distribution and function, of which the 5-HT4 receptor has been one of the most intensively studied in recent years, both from a basic research standpoint and as a target for novel therapeutics.

Encyclopedia of Molecular Pharmacology Stefan Offermanns 2008-08-14 An essential text, this is a fully updated second edition of a classic, now in two volumes. It provides rapid access to information on molecular pharmacology for research scientists, clinicians and advanced students. With the A-Z format of over 2,000 entries, around 350 authors provide a complete reference to the area of molecular pharmacology. The book combines the knowledge of classic pharmacology with the more recent approach of the precise analysis of the molecular mechanisms by which drugs exert their effects. Short keyword entries define common acronyms, terms and phrases. In addition, detailed essays provide in-depth information on drugs, cellular processes, molecular targets, techniques, molecular mechanisms, and general principles.

Receptors in the Human Nervous System F. A. O. Mendelsohn 2013-10-22 Receptors in the Human Nervous System is a synthesis of the results of receptor mapping by leaders in the field. In addition to a comprehensive discussion of the distribution and possible interactions of the receptors of different neuroactive substances, this book also contains an abundance of pictorial representations of receptor distributions. High-quality photographs of one receptor are often juxtaposed with photographs of the distribution of a different receptor or receptor subtype for the consideration of possible interactions between different systems. The book surveys the distribution of receptor subtypes for the classical monoamine transmitters (acetylcholine, adrenaline, noradrenaline and serotonin) as well as the distribution of receptors for the excitatory and inhibitory amino acids, (glutamate, GABA and benzodiazepines) as well as the opioid peptides, angiotensen and other neuropeptides. The distribution of multiple types of serotonin receptors is given in detail, and the codistribution of receptors in the cortex is discussed. The book is directed toward researchers in the field of chemical neuroanatomy, as well as pharmacologists, neurophysiologists, and neuroscientists.

Functional Selectivity of G Protein-Coupled Receptor Ligands Kim Neve 2009-02-27 Functional selectivity refers to the ability of different ligands acting at one receptor subtype to activate multiple signaling pathways in unique combinations; that is, one drug can be an agonist at pathway A and an antagonist or partial agonist at pathway B, and another drug can have the reverse profile. Functional selectivity has profound implications for drug development, for chemical biology, and for the design of experiments to characterize receptor function. In Functional Selectivity of G Protein-Coupled Receptors expert neuroscientists and pharmacologists review the work that demonstrated the existence of functional selectivity, placed it within a theoretical framework, and provided a mechanistic basis for the phenomenon. This exciting, comprehensive, and future-oriented volume includes chapters that focus on theoretical and mechanistic aspects of functional selectivity and that cut across subfamilies of GPCRs. Additional chapters focus on subfamilies of therapeutically relevant receptors where there is considerable evidence of ligand functional selectivity. Accessible and

authoritative, Functional Selectivity of G Protein-Coupled Receptors is a valuable educational tool and reference source for students and scientists interested in drug development, chemical biology, and GPCR function.

5-HT2B Receptors Luc Maroteaux 2021-03-12 This contributed volume provides a comprehensive assessment of the roles played by 5-HT2B receptors in humans. These receptors have been shown to play an important role is the cardiac, intestinal, and central nervous systems as well as in bone marrow formation and growth. In this book, expert researchers present their findings on molecular and physiological/pathological aspects of 5-HT2B receptors. The molecular section includes a discussion of the genetics of 5-HT2B receptors and impulse control. The physiological section covers their role in many biological systems including the nervous system, the heart, and the lungs.

Serotonin Receptor Subtypes Stephen J. Peroutka 1991 This authoritative work explores the complex biochemical interactions of serotonin and related serotonergic agents with their receptors. It covers the molecular pharmacology of serotonin receptor subclasses, relating serotonin's influence on behavior, neuropsychiatric disease, and electrophysiology to characterizations at the molecular level.

The Neurobiological Basis of Suicide Yogesh Dwivedi 2012-06-25 With recent studies using genetic, epigenetic, and other molecular and neurochemical approaches, a new era has begun in understanding pathophysiology of suicide. Emerging evidence suggests that neurobiological factors are not only critical in providing potential risk factors but also provide a promising approach to develop more effective treatment and prevention strategies. The Neurobiological Basis of Suicide discusses the most recent findings in suicide neurobiology. Psychological, psychosocial, and cultural factors are important in determining the risk factors for suicide; however, they offer weak prediction and can be of little clinical use. Interestingly, cognitive characteristics are different among depressed suicidal and depressed nonsuicidal subjects, and could be involved in the development of suicidal behavior. The characterization of the neurobiological basis of suicide is in delineating the risk factors associated with suicide. The Neurobiological Basis of Suicide focuses on how and why these neurobiological factors are crucial in the pathogenic mechanisms of suicidal behavior and how these findings can be transformed into potential therapeutic applications.

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