

# Trp Channels As Therapeutic Targets From Basic Science To Clinical Use

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Membrane Receptors, Channels and Transporters in Pulmonary Circulation Jason X. -J. Yuan 2010-03-10

Membrane Receptors, Channels and Transporters in Pulmonary Circulation is a proceeding of the 2008 Grover Conference (Lost Valley Ranch and Conference Center, Sedalia, Colorado; September 3-7, 2008), which provided a forum for experts in the fields of those receptors, channels and transporters that have been identified as playing key roles in the physiology and pathophysiology of the pulmonary circulation. The book rigorously addresses: i) recent advances in our knowledge of receptors, channels and transporters and their role in regulation of pulmonary vascular function; ii) how modulation of expression and function of receptors, channels and transporters and their interrelationships contribute to the pathogenesis of pulmonary vascular disease; and iii) the therapeutic opportunities that may be revealed by enhancing our understanding of this area. The overall goal was to explore the mechanisms by which specific receptors, channels and transporters contribute to pulmonary vascular function in both health and disease, and how this knowledge may lead to novel interventions in lung dysplasia, pulmonary edema, lung injury, and pulmonary and systemic hypertension to reduce and prevent death from lung disease. Membrane Receptors, Channels and Transporters in Pulmonary Circulation is divided into six parts. Part 1 (Ion Channels in the Pulmonary Vasculature: Basics and New Findings) is designated for basic knowledge and recent findings in the research field of ion channels in pulmonary circulation. There are five chapters in Part I discussing the function, expression, distribution and regulation of various ion channels present in pulmonary vascular smooth muscle cells and how these channels are integrated to regulate intracellular  $Ca^{2+}$  and cell functions. Part II (TRP Channels in the Pulmonary Vasculature: Basics and New Findings) is composed of five chapters that are

exclusively designed to discuss the role of a recently identified family of cation channels, transient receptor potential (TRP) channels, in the regulation of pulmonary vascular tone and arterial structure. Part III (Pathogenic Role of Ion Channels in Pulmonary Vascular Disease) includes four chapters that discuss how abnormal function and expression of various ion channels contribute to changes in cell functions and the development of pulmonary hypertension. Part IV (Receptors and Signaling Cascades in Pulmonary Arterial Hypertension) consists of five chapters devoted to the role of bone morphogenetic protein receptors, Notch receptors, serotonin receptors, Rho kinase and vascular endothelial growth factor receptors in the development of pulmonary arterial hypertension. Part V (Receptors and Transporters: Role in Cell Function and Hypoxic Pulmonary Vasoconstriction) includes four chapters designed to illustrate the potential mechanisms involved in oxygen sensing and hypoxia-induced pulmonary vasoconstriction and hypertension. Part VI (Targeting Ion Channels and Membrane Receptors in Developing Novel Therapeutic Approaches for Pulmonary Vascular Disease) consists five chapters which discuss the translational research involving on membrane receptors, channels and transporters, including their potential as novel drug targets. We hope that Membrane Receptors, Channels and Transporters in Pulmonary Circulation will allow readers to foster new concepts and new collaborations and cooperations among investigators so as to further understand the role of receptors, channels and transporters in lung pathophysiology. The ultimate goal is to identify new mechanisms of disease, as well as new therapeutic targets for pulmonary vascular diseases. An additional outcome should be enhanced understanding of the role of these

entities in systemic vascular pathophysiology, since the conference will include researchers and clinicians with interests in both pulmonary and systemic circulations.  
Emerging Roles of TRP Channels in Brain Pathology Bilal Ç?? 2021-08-02

Membrane Transporters and Channels as Targets for Drugs  
Graça Soveral 2020-01-03 Transporters and channels are membrane proteins that mediate the traffic of metabolites, water and ions across biological membranes. Membrane transport proteins are crucial to maintain homeostasis and assure cell survival upon intracellular or environmental stress. A failure of any of these transport systems may have dramatic consequences for cell function. There is increasing evidence that membrane transport proteins play important functions in healthy conditions and that their absence or dysfunction may cause diseases. In recent years much attention has been paid to diseases resulting from defective transporters (“carrier diseases”) and ion channels (“channelopathies”). Very interestingly, altered expression of transporters has been described in several human pathologies. On this basis, many transport proteins are well acknowledged targets for drugs. Many others are involved in drug delivery and disposition and/or are considered potential targets. Others are off-targets for drugs and then, are responsible for side effects. Thus, membrane protein drug discovery is now an emerging field where the search for physiological mechanisms of regulation and for chemical compounds as modulators of transport activity, present new opportunities for drug development and for new therapies. This Research Topic addresses the latest research advances in membrane transport proteins, stimulating future research on these important protein families.

Reviews of Physiology, Biochemistry and Pharmacology Vol. 169

Bernd Nilius 2015-11-25 Leading researchers are specially invited to provide a complete understanding of the key topics in these archetypal multidisciplinary fields. In a form immediately useful to scientists, this periodical aims to filter, highlight and review the latest developments in these rapidly advancing fields.

Progress in Medicinal Chemistry 2017-03-15 Progress in Medicinal Chemistry, Volume 56 provides a review of eclectic developments in medicinal chemistry. This volume includes chapters covering recent advances in cancer therapeutics, fluorine in medicinal chemistry, a perspective on the next generation of antibacterial agents derived by manipulation of natural products, a potential new era for Chagas Disease drug discovery, and imaging in drug development. Specific chapters cover timely topics, such as the development of LRRK2 inhibitors for the treatment of Parkinson's, and recent discoveries and developments in TRPA1 modulators. Users will find a comprehensive resource on the topic of medicinal chemistry that also discusses avenues for the acceleration of drug discovery programs. Extended, timely reviews of topics in medicinal chemistry Contains targets and technologies relevant to the discovery of tomorrow's drugs Presents analyses of successful drug discovery programs

Ion Channels as Therapeutic Targets 2016-03-31 This volume is the second part of the thematic on Ion Channels as Therapeutic Targets. The popular Advances in Protein Chemistry and Structural Biology series, an essential resource for protein chemists, brings forth new information about protocols and analysis of proteins, with each thematically organized volume guest edited by leading experts in a broad range of protein-related topics. Provides cutting-edge developments in protein chemistry and structural biology Discusses the use of ion channels as therapeutic

targets Chapters are written by authorities in their field  
Targeted to a wide audience of researchers, specialists, and students

**Ion Channels Down Under** 2017-05-18 **Ion Channels Down Under**, Volume 79 provides up-to-date information on ion channel pharmacology, their pharmacological modulators, and role in a diverse range of poorly treated medical conditions. Contributors include prominent scientists and highly-recognized experts with major accomplishments in the field of ion channel pharmacology. Topics covered include the role of ion channels in health and disease, ion channels as therapeutic targets and the molecular pharmacology of ion channels. Provides a must read book on ion channel pharmacology Contains up-to-date information on a number of ion channels, their pharmacological modulators, and their role in a diverse range of poorly treated medical conditions Contains contributions from prominent scientists and highly-recognized experts with major accomplishments in the field

**TRP Channels** Michael X. Zhu 2016-04-19 The rapid expansion of the TRP field has generated a large amount of excellent original work across many different research fields. However, investigators are not necessarily familiar with the pros and cons of the variety of methods used to study TRP channels. Because of functional and genetic diversity, as well as the different physiological roles

**TRP Channels in Inflammation and Immunity** Santiago Partida Sanchez 2021-06-08

**Medical Physiology E-Book** Walter F. Boron 2016-03-29 For a comprehensive understanding of human physiology — from molecules to systems —turn to the latest edition of **Medical Physiology**. This updated textbook is known for its unparalleled depth of information, equipping students with a solid foundation for a future in medicine and healthcare, and

providing clinical and research professionals with a reliable go-to reference. Complex concepts are presented in a clear, concise, and logically organized format to further facilitate understanding and retention. Clear, didactic illustrations visually present processes in a clear, concise manner that is easy to understand. Intuitive organization and consistent writing style facilitates navigation and comprehension. Takes a strong molecular and cellular approach that relates these concepts to human physiology and disease. An increased number of clinical correlations provides a better understanding of the practical applications of physiology in medicine. Highlights new breakthroughs in molecular and cellular processes, such as the role of epigenetics, necroptosis, and ion channels in physiologic processes, to give insights into human development, growth, and disease. Several new authors offer fresh perspectives in many key sections of the text, and meticulous editing makes this multi-authored resource read with one unified voice. Includes electronic access to 10 animations and copious companion notes prepared by the Editors.

**Ion Channels as Therapeutic Targets, Part A** 2016-02-23 **Ion Channels as Therapeutic Targets** is the latest volume in the popular **Advances in Protein Chemistry and Structural Biology** series, an essential resource for protein chemists. Each volume brings forth new information about protocols and analysis of proteins, with each thematically organized volume guest edited by leading experts in a broad range of protein-related topics. Provides cutting-edge developments in protein chemistry and structural biology **Discusses the use of ion channels as therapeutic targets** **Chapters are written by authorities in their field** **Targeted to a wide audience of researchers, specialists, and students**

**Ion Channel Signalling in Cancer: From Molecular Mechanisms to Therapeutics**

Elena Adinolfi 2021-08-02

Therapeutic Targets Luis M. Botana 2012-05-22 Providing insight into where the next generations of drugs are likely to emerge, this book describes the pharmacology of therapeutically undefined targets and potential applications. In some cases, there are no defined drugs to modulate some of the targets, and in other cases inhibition or activation will render different therapeutic uses. Chapters cover specific biochemical targets like kinases, phosphatases, phosphodiesterases, and potassium channels. Because different diseases can require their own targeting strategies, the book has chapters on the strategies for targeting Alzheimer's, diabetes, pain, and inflammation.

Frontiers in Cardiovascular Drug Discovery: Volume 5 Atta-ur-Rahman 2020-10-02 Frontiers in Cardiovascular Drug Discovery is a book series devoted to publishing the latest advances in cardiovascular drug design and discovery. Each volume brings reviews on the biochemistry, in-silico drug design, combinatorial chemistry, high-throughput screening, drug targets, recent important patents, and structure-activity relationships of molecules used in cardiovascular therapy. The book series should prove to be of great interest to all medicinal chemists and pharmaceutical scientists involved in preclinical and clinical research in cardiology. The fifth volume of the series covers the following topics: -The Lipid Hypothesis: From Resins to Proprotein Convertase Subtilisin/Kexin Type-9 Inhibitors -The Role of SGLT2i in the Prevention and Treatment of Heart Failure -Natural Products and Semi-Synthetic Compounds as Antithrombotics: A Review of the Last Ten Years (2009-2019) -Transient Receptor Potential Channels: Therapeutic Targets for Cardiometabolic Diseases? -Treatment of Raynaud's Phenomenon -Traditional Medicine Based Cardiovascular

## Therapeutics -Cardiovascular Disease: A Systems Biology Approach

The Perplexing Physiology of the Nociceptive System Istvan Nagy 2022-01-11 Impacts that threaten or indeed compromise the integrity of tissues trigger the development of a defence response, which through the activity of the nociceptive system includes pain. If the noxious impact does not induce tissue damage, the pain, called “nociceptive” pain, ceases within seconds after the impact is withdrawn. In contrast, if tissue damage does occur, a pain experience that usually persists until the injury is resolved and includes two major pathological sensory experiences, hypersensitivity to heat stimuli (i.e. heat hyperalgesia) and/or hypersensitivity to mechanical stimuli (i.e. mechanical allodynia) develop. The cellular and molecular mechanisms underlying the development of nociceptive pain are fairly well understood. Our understanding of the development of pain associated with tissue injury has also significantly improved in the last decades. Hence, two fundamental mechanisms, interactions between the nervous and immune systems both within and without the central nervous system and sensitization that is a use-dependent increase in the sensitivity and activity of neurons involved in nociceptive processing have been identified being pivotal for the development of tissue injury-associated pain. However, important details of the cellular and molecular mechanisms, which account for the development of the pathological sensory experiences and those experiences becoming persistent, still await elucidation.

TRP Channels in Health and Disease Alexander Dietrich 2019 Almost 25 years ago, the first mammalian transient receptor potential (TRP) channel was cloned and published. TRP channels now represent an extended family of 28 members fulfilling multiple roles in the living organism.

Identified functions include control of body temperature, transmitter release, mineral homeostasis, chemical sensing, and survival mechanisms in a challenging environment. The TRP channel superfamily covers six families: TRPC with C for “canonical”, TRPA with A for “ankyrin”, TRPM with M for “melastatin”, TRPML with ML for “mucolipidin”, TRPP with P for “polycystin”, and TRPV with V for “vanilloid”. Over the last few years, new findings on TRP channels have confirmed their exceptional function as cellular sensors and effectors. This Special Book features a collection of 8 reviews and 7 original articles published in “Cells” summarizing the current state-of-the-art on TRP channel research, with a main focus on TRP channel activation, their physiological and pathophysiological function, and their roles as pharmacological targets for future therapeutic options.

Ion Channels of Nociception Rashid Giniatullin 2020-12-02  
The Special Issue “Ion Channels of Nociception” contains 13 articles united by a focus on the peripheral mechanisms of pain. The content covers the mechanisms of neuropathic, inflammatory, and dental pain as well as pain in migraine and diabetes; nociceptive roles of P2X3, ASIC, Piezo and TRP channels; pain control through GPCRs and pharmacological agents; and nonpharmacological treatment with electroacupuncture.

Transient Receptor Potential (TRP) Channels in Drug Discovery: Old Concepts & New Thoughts Susan M. Huang (Ed.)

Transient Receptor Potential (TRP) Channels in Drug Discovery: Old Concepts & New Thoughts Arpad Szallasi 2018-06-22 This book is a printed edition of the Special Issue "Transient Receptor Potential (TRP) Channels in Drug Discovery: Old Concepts & New Thoughts" that was

published in Pharmaceuticals

Involvements of TRP Channels, Oxidative Stress and Apoptosis in Neurodegenerative Diseases Mustafa Naziroglu  
2021-05-03

Mammalian Transient Receptor Potential (TRP) Cation Channels Bernd Nilius 2014-04-22 In this fast moving field the main goal of this volume is to provide up-to-date information on the molecular and functional properties and pharmacology of mammalian TRP channels. Leading experts in the field will describe properties of a single TRP protein/channel or portray more general principles of TRP function and important pathological situations linked to mutations of TRP genes or their altered expression. Thereby this volume on Transient Receptor Potential (TRP) Channels provides valuable information for readers with different expectations and backgrounds, for those who are approaching this field of research as well as for those wanting to make a trip to TRPs.

Drug Discovery and Evaluation: Pharmacological Assays Hans Vogel 2007-10-30 The new edition of this successful reference offers both cutting-edge and classic pharmacological methods. Thoroughly revised and expanded to two volumes, it offers an updated selection of the most frequently used assays for reliably detecting the pharmacological effects of potential drugs. Every chapter has been updated, and numerous assays have been added. Each of the more than 1,000 assays comprises a detailed protocol outlining purpose and rationale, and a critical assessment of the results and their pharmacological and clinical relevance.

Chemesthesis Shane T. McDonald 2016-01-15

Chemesthesis are the chemically initiated sensations that occur via the touch system. Examples in the mouth include

the burn of capsaicinoids in chilies, the cooling of menthol in peppermint, and the tingle of carbonation. It is physiologically distinct from taste and smell, but is increasingly understood to be just as important as these senses for their contribution to flavor, especially with the sustained growth in interest in spicy foods from around the world. *Chemesthesis: Chemical Touch in Food and Eating* surveys the modern body of work on chemesthesis, with a variety of contributors who are well known for their expertise on the topic. After a forward by John Prescott and an introduction by Barry Green (who originally coined the term chemesthesis 25 years ago), the book moves on to survey chemesthetic spices and address the psychology and physiology of chemesthesis; practical sensory and instrumental analysis; the interaction of chemesthesis with other chemical senses; health ramifications; and the application of chemesthesis in food. The major types of chemesthesis, including pungency/burning, cooling, tingling, nasal irritation, and numbing, are each covered in their own chapter. The book concludes with a look to the future. This is the first comprehensive book on chemesthesis since 1990, when Barry Green and his colleagues edited a volume on the perception of chemical irritants, including those in food. This new book is intended to be a vital resource for anyone interested in the sensory impact of the food we eat, including food scientists, sensory professionals, analytical chemists, physiologists, culinary scientists, and others.

Neurobiology of TRP Channels Tamara Luti Rosenbaum

Emir 2017-08-09 During the last two decades, there has

been an explosion of research pertaining to the molecular mechanisms that allow for organisms to detect different

stimuli that is an essential feature for their survival. Among

these mechanisms, living beings need to be able to respond

to different temperatures as well as chemical and physical stimuli. Thermally activated ion channels were proposed to be present in sensory neurons in the 1980s, but it was not until 1997 that a heat- and capsaicin- activated ion channel, TRPV1, was cloned and its function described in detail. This groundbreaking discovery led to the identification and characterization of several more proteins of the family of Transient Receptor Potential (TRP) ion channels. Intensive research has provided us with the atomic structures of some of these proteins, as well as understanding of their physiological roles, both in normal and pathological conditions. With chapters contributed by renowned experts in the field, *Neurobiology of TRP Channels* contains a state-of-the-art overview of our knowledge of TRP channels, ranging from structure to their functions in organismal physiology.

Features:

- Contains chapters on the roles of several TRP ion channels with a diversity of physiological functions, providing a complete picture of the widespread importance of these proteins.
- Presents an overview of the structure of TRP channels, including the roles of these proteins in different physiological processes.
- Discusses the roles of TRP channels in pathophysiological processes, further highlighting their importance.
- Features several full color illustrations to allow the reader better comprehension of TRP channels.

A volume in the *Frontiers in Neuroscience* series

Comprehensive Biomedical Physics 2014-07-25

*Comprehensive Biomedical Physics* is a new reference work that provides the first point of entry to the literature for all scientists interested in biomedical physics. It is of particularly use for graduate and postgraduate students in the areas of medical biophysics. This Work is indispensable to all serious readers in this interdisciplinary area where physics is applied in medicine and biology. Written by leading scientists who

have evaluated and summarized the most important methods, principles, technologies and data within the field, Comprehensive Biomedical Physics is a vital addition to the reference libraries of those working within the areas of medical imaging, radiation sources, detectors, biology, safety and therapy, physiology, and pharmacology as well as in the treatment of different clinical conditions and bioinformatics. This Work will be valuable to students working in all aspect of medical biophysics, including medical imaging and biomedical radiation science and therapy, physiology, pharmacology and treatment of clinical conditions and bioinformatics. The most comprehensive work on biomedical physics ever published Covers one of the fastest growing areas in the physical sciences, including interdisciplinary areas ranging from advanced nuclear physics and quantum mechanics through mathematics to molecular biology and medicine Contains 1800 illustrations, all in full color

Frontiers in CNS Drug Discovery Atta-ur-Rahman 2013-09-10

“Frontiers in CNS Drug Discovery” is an eBook series devoted to publishing the latest and the most important advances in Central Nervous System (CNS) drug design and discovery. Eminent scientists write contributions on all areas of rational drug design and drug discovery including medicinal chemistry, in-silico drug design, combinatorial chemistry, high-throughput screening, drug targets, recent important patents, and structure-activity relationships. The eBook series should prove to be of interest to all pharmaceutical scientists involved in research in CNS drug design and discovery. Each volume is devoted to the major advances in CNS drug design and discovery. The eBook series is essential reading to all scientists involved in drug design and discovery who wish to keep abreast of rapid and

important developments in the field.

Vascular Adjustments in Cardiovascular Disorders Luciana Venturini Rossoni 2021-12-30

Comprehensive Treatment of Chronic Pain by Medical, Interventional, and Integrative Approaches Timothy R Deer 2013-02-11 Edited by master clinician-experts appointed by the American Academy of Pain Medicine, this is a state-of-the-art multidisciplinary textbook covering medical, interventional, and integrative approaches to the treatment and management of pain. It is designed as a practical and comprehensive primary reference for busy physicians and is also an up-to-date resource for preparing for certification examinations in pain medicine. · Written and edited by world-class authorities · “Key Points” preview contents of each chapter · Leading edge medical topics, such as monitoring opioid use and abuse, and the emerging role of cannabinoids in pain treatment · Expert guidance on full range of interventional techniques · Clinical anatomy and physiology for the interventionist · Behavioral dimensions of the experience and management of pain · Integrative approaches for treating the “whole person” · Legal issues, such as failure to treat pain · First-hand patient accounts

Membrane Receptors, Channels and Transporters in Pulmonary Circulation Jason X. -J. Yuan 2010-03-10

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transporters and their role in regulation of pulmonary vascular function; ii) how modulation of expression and function of receptors, channels and transporters and their interrelationships contribute to the pathogenesis of pulmonary vascular disease; and iii) the therapeutic opportunities that may be revealed by enhancing our understanding of this area. The overall goal was to explore the mechanisms by which specific receptors, channels and transporters contribute to pulmonary vascular function in both health and disease, and how this knowledge may lead to novel interventions in lung dysplasia, pulmonary edema, lung injury, and pulmonary and systemic hypertension to reduce and prevent death from lung disease. *Membrane Receptors, Channels and Transporters in Pulmonary Circulation* is divided into six parts. Part 1 (*Ion Channels in the Pulmonary Vasculature: Basics and New Findings*) is designated for basic knowledge and recent findings in the research field of ion channels in pulmonary circulation. There are five chapters in Part I discussing the function, expression, distribution and regulation of various ion channels present in pulmonary vascular smooth muscle cells and how these channels are integrated to regulate intracellular  $Ca^{2+}$  and cell functions. Part II (*TRP Channels in the Pulmonary Vasculature: Basics and New Findings*) is composed of five chapters that are exclusively designed to discuss the role of a recently identified family of cation channels, transient receptor potential (TRP) channels, in the regulation of pulmonary vascular tone and arterial structure. Part III (*Pathogenic Role of Ion Channels in Pulmonary Vascular Disease*) includes four chapters that discuss how abnormal function and expression of various ion channels contribute to changes in cell functions and the development of pulmonary hypertension. Part IV (*Receptors and Signaling Cascades in*

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Neuroprotective Therapy for Stroke and Ischemic Disease  
Paul A. Lapchak 2017-01-12 A critical and comprehensive look at current state-of-the-art scientific and translational research being conducted internationally, in academia and industry, to address new ways to provide effective treatment to victims of ischemic and hemorrhagic stroke and other

ischemic diseases. Currently stroke can be successfully treated through the administration of a thrombolytic, but the therapeutic window is short and many patients are not able to receive treatment. Only about 30% of patients are "cured" by available treatments. In 5 sections, the proposed volume will explore historical and novel neuroprotection mechanisms and targets, new and combination therapies, as well as clinical trial design for some of the recent bench-side research.

Frontiers in Clinical Drug Research - Hematology: Volume 4  
Atta-ur-Rahman 2020-11-30  
Frontiers in Clinical Drug Research – Hematology is a book series that brings updated reviews to readers interested in learning about advances in the development of pharmaceutical agents for the treatment of hematological disorders. The scope of the book series covers a range of topics including the medicinal chemistry, pharmacology, molecular biology and biochemistry of natural and synthetic drugs employed in the treatment of anemias, coagulopathies, vascular diseases and hematological malignancies. Reviews in this series also include research on specific antibody targets, therapeutic methods, genetic hemoglobinopathies and pre-clinical / clinical findings on novel pharmaceutical agents. Frontiers in Clinical Drug Research – Hematology is a valuable resource for pharmaceutical scientists and postgraduate students seeking updated and critically important information for developing clinical trials and devising research plans in the field of hematology, oncology and vascular pharmacology. The fourth volume of this series features 5 reviews: -TRP Channels: Potential Therapeutic Targets in Blood Disorders - Hypercoagulable States: Clinical Symptoms, Laboratory Markers and Management -Advanced Applications of Gene Therapy in the Treatment of Hematologic Disorders - Ferroptosis - Importance and Potential Effects in

Hematological Malignancies -Clinical Application of Liquid Biopsy in Solid Tumor HCC: Prognostic, Diagnostic and Therapy Monitoring Tool.

Phytocannabinoids A. Douglas Kinghorn 2017-01-24 The book presents the current state of the art on phytocannabinoid chemistry and pharmacology and will be of much use to those wishing to understand the current landscape of the exciting and intriguing phytocannabinoid science. The focus is on natural product cannabinoids which have been demonstrated to act at specific receptor targets in the CNS.

Mammalian TRP Channels as Molecular Targets Derek J. Chadwick 2004-08-11 This book brings together contributions from key investigators in the area of Transient Receptor Potential (TRP) channel structure and function. It covers the structure, function and regulation of mammalian TRP channels and mechanisms of signal transduction. The discussions indicate research that would improve understanding of the role of TRP channels in normal cellular physiology, the involvement of TRP channels in disease states and their potential use as molecular targets for novel therapeutic agents.

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TRP Channels as Therapeutic Targets Arpad Szallasi 2015-04-09 TRP Channels as Therapeutic Targets: From Basic Science to Clinical Use is authored by experts across academia and industry, providing readers with a complete picture of the therapeutic potential and challenges associated with using TRP channels as drug targets. This book offers a unique clinical approach by covering compounds that target TRP channels in pre-clinical and clinical phases, also offering a discussion of TRP channels as biomarkers. An entire section is devoted to the novel and innovative uses of these channels across a variety of diseases, offering strategies that can be used to overcome the adverse effects of first generation TRPV1 antagonists. Intended for all researchers and clinicians working toward the development of successful drugs targeting TRP channels, this book is an essential resource chocked full of the latest clinical data and findings. Contains comprehensive coverage of TRP channels as therapeutic targets, from emerging clinical indications to completed clinical trials Discusses TRP channels as validated

targets, ranging from obesity and diabetes through cancer and respiratory disorders, kidney diseases, hypertension, neurodegenerative disorders, and more Provides critical analysis of the complications and side effects that have surfaced during clinical trials, offering evidence-based suggestions for overcoming them

Mammalian TRP Channels as Molecular Targets Derek J. Chadwick 2004-04-16 This book brings together contributions from key investigators in the area of Transient Receptor Potential (TRP) channel structure and function. It covers the structure, function and regulation of mammalian TRP channels and mechanisms of signal transduction. The discussions indicate research that would improve understanding of the role of TRP channels in normal cellular physiology, the involvement of TRP channels in disease states and their potential use as molecular targets for novel therapeutic agents.

Membrane Receptors, Channels and Transporters in Pulmonary Circulation Jason X. -J. Yuan 2010-03-10 Membrane Receptors, Channels and Transporters in Pulmonary Circulation is a proceeding of the 2008 Grover Conference (Lost Valley Ranch and Conference Center, Sedalia, Colorado; September 3-7, 2008), which provided a forum for experts in the fields of those receptors, channels and transporters that have been identified as playing key roles in the physiology and pathophysiology of the pulmonary circulation. The book rigorously addresses: i) recent advances in our knowledge of receptors, channels and transporters and their role in regulation of pulmonary vascular function; ii) how modulation of expression and function of receptors, channels and transporters and their interrelationships contribute to the pathogenesis of pulmonary vascular disease; and iii) the therapeutic

opportunities that may be revealed by enhancing our understanding of this area. The overall goal was to explore the mechanisms by which specific receptors, channels and transporters contribute to pulmonary vascular function in both health and disease, and how this knowledge may lead to novel interventions in lung dysplasia, pulmonary edema, lung injury, and pulmonary and systemic hypertension to reduce and prevent death from lung disease. Membrane Receptors, Channels and Transporters in Pulmonary Circulation is divided into six parts. Part 1 (Ion Channels in the Pulmonary Vasculature: Basics and New Findings) is designated for basic knowledge and recent findings in the research field of ion channels in pulmonary circulation. There are five chapters in Part I discussing the function, expression, distribution and regulation of various ion channels present in pulmonary vascular smooth muscle cells and how these channels are integrated to regulate intracellular  $Ca^{2+}$  and cell functions. Part II (TRP Channels in the Pulmonary Vasculature: Basics and New Findings) is composed of five chapters that are exclusively designed to discuss the role of a recently identified family of cation channels, transient receptor potential (TRP) channels, in the regulation of pulmonary vascular tone and arterial structure. Part III (Pathogenic Role of Ion Channels in Pulmonary Vascular Disease) includes four chapters that discuss how abnormal function and expression of various ion channels contribute to changes in cell functions and the development of pulmonary hypertension. Part IV (Receptors and Signaling Cascades in Pulmonary Arterial Hypertension) consists of five chapters devoted to the role of bone morphogenetic protein receptors, Notch receptors, serotonin receptors, Rho kinase and vascular endothelial growth factor receptors in the development of pulmonary arterial hypertension. Part V

(Receptors and Transporters: Role in Cell Function and Hypoxic Pulmonary Vasoconstriction) includes four chapters designed to illustrate the potential mechanisms involved in oxygen sensing and hypoxia-induced pulmonary vasoconstriction and hypertension. Part VI (Targeting Ion Channels and Membrane Receptors in Developing Novel Therapeutic Approaches for Pulmonary Vascular Disease) consists five chapters which discuss the translational research involving on membrane receptors, channels and transporters, including their potential as novel drug targets. We hope that Membrane Receptors, Channels and Transporters in Pulmonary Circulation will allow readers to foster new concepts and new collaborations and cooperations among investigators so as to further understand the role of receptors, channels and transporters in lung pathophysiology. The ultimate goal is to identify new mechanisms of disease, as well as new therapeutic targets for pulmonary vascular diseases. An additional outcome should be enhanced understanding of the role of these entities in systemic vascular pathophysiology, since the conference will include researchers and clinicians with interests in both pulmonary and systemic circulations.

Coronary Graft Failure Ion C. ?intoiu 2016-03-24 Coronary artery bypass surgery has been developed since 1960s to overcome proximal coronary artery disease. Worldwide, the number of patients that are undergoing coronary artery bypass surgery is steadily increasing. Depending on diverse risk factors, one fifth of grafts are occluded at 1 year. For the remaining, graft patency last usually 8–15 years. This book brings together the main specialists in the field to review the current evidence on epidemiology, pathophysiology, diagnostic, new imaging techniques and specific therapeutic modalities. This volume aims to update a complex subject

represented by coronary graft failure. The authors of this monograph are interventional cardiologists, cardiovascular surgeons and research scientists, who will be creating four parts and 71 chapters that are divided in order to give a uniform interpretation of this condition including all aspects of coronary graft failure. This book not only provides the most up-to-dated scientific evidence in the field but in a two-step manner. Each chapter is divided into a at a glance part that reflects the basic evidence on the topic, and a “full picture” part that brings all what the advanced reader should be brought with.

Pharmacology and Therapeutics of Asthma and COPD Clive P. Page 2017-02-06 The present volume is supposed to be a major reference resource for chest physicians and those involved in the development of novel pharmaceutical entities for these diseases. Internationally recognized authorities review the most important new information on the advances in our understanding of the pathogenesis and treatment of these diseases, including the substantial advances in the topical delivery of inhaled medicines. Each chapter is extensively referenced, generously illustrated with clear diagrams and photographs, and represents a state-of-the-art review of this important area of respiratory medicine.