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KEY=MOLECULAR - WHEELER LIU

MOLECULAR BASIS OF INSULIN ACTION

Springer One day, in a moment of weakness, I fell prey to the temptation to organize and edit this volume on the mechanism of insulin action. The major reason for attempting to resist, of course, is the amazing speed at which advances are being made in this field. The usefulness of books such as this is often quickly compromised by new findings obtained during and just after publication. Happily for the contributors to this volume and myself, this unfortunate fate does not appear to be in store for us. New and important findings will undoubtedly continue to flow in this field during the next few years, but I believe this will increase rather than decrease the usefulness of this volume. As a matter of fact, as we go to press, I am delighted both that I was tempted and that I failed to resist. There are two basic reasons for my enthusiasm about this book, and they both relate to this issue of timeliness. First, each of the contributors has had an opportunity to update the scientific content of the various chapters only a few months before actual publication of this volume. The material presented in this volume is, at publication, contemporary with the current original literature. This volume thus provides an excellent framework for assessing new discoveries in this field for some time to come.

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MOLECULAR BASIS OF INSULIN ACTION

CONFORMATIONAL DYNAMICS, CHEMICAL AND BIOCHEMICAL MODIFICATIONS AND STRUCTURE-POTENCY CORRELATION

INSULIN RESISTANCE

INSULIN ACTION AND ITS DISTURBANCES IN DISEASE

John Wiley & Sons Diabetes is now one of the major causes of morbidity worldwide. In many cases, the onset of diabetes is progressive, developing via a condition of insulin resistance. This book considers the development of this condition, its consequences and clinical and therapeutic aspects. The book reviews the normal biology of insulin action on glucose, lipids and proteins. It considers the pathological basis for insulin resistance in animal models and humans, and discusses the influence of heredity, dietary factors and exercise. Clinical consequences including dyslipidaemia, hypertension and polycystic ovary syndrome, and therapeutic strategies for treatment are also examined. * Provides an expert review of the phenomenon of insulin resistance * Brings together a host of recent research for the first time * Written by leading experts in biological and clinical research

MECHANISMS OF INSULIN ACTION

Springer Science & Business Media More than 18 million people in the United States have diabetes mellitus, and about 90% of these have the type 2 form of the disease. This book attempts to dissect the complexity of the molecular mechanisms of insulin action with a special emphasis on those features of the system that are subject to alteration in type 2 diabetes and other insulin resistant states. It explores insulin action at the most basic levels, through complex systems.

INSULIN SIGNALING

FROM CULTURED CELLS TO ANIMAL MODELS

CRC Press With contributions from the leading researchers in the field, this volume brings together the latest studies on insulin action and signal transduction to provide a state-of-the-art reference for graduate researchers and students in diabetes and endocrinology. Insulin Signaling is a comprehensive study of the regulation of molecular events by insulin at a cellular level, utilizing experimental techniques ranging from molecular systems through phenotypic expression in transgenic and knockout models.

DIABETES AND THE ENDOCRINE PANCREAS

A BIOCHEMICAL APPROACH

Springer Science & Business Media This book attempts to explore the contribution that biochemistry has made, thus far, to our understanding of the endocrine pancreas and its relationship to diabetes mellitus. It was written with the aim of using an important clinical problem to illustrate, to medical students, that there are many aspects of the biochemistry taught in the early years which have direct relevance to clinical medicine. Furthermore, it is hoped that such information might provide biochemistry students with a frame work on which to base further studies. To this end a selection of recent references has been placed at the end of each chapter. In spite of considerable advances in our understanding of diabetes mellitus, it is still a disease which many physicians do not seem to comprehend. This is in part related to their lack of understanding of the molecular biology of the disease. Advances in this area have been dramatic in recent years and we are now able to offer a molecular basis for a rational approach to therapy. It may be therefore that this book will provide some physicians with the information they require to help them gain a deeper understanding of the disease. I hope that everyone who reads this book is able to capture some of the fascination that the islets of Langerhans hold for myself and the many other workers actively engaged in trying to unravel their mysteries.

MOLECULAR BASIS OF THYROID HORMONE ACTION

Elsevier Molecular Basis of Thyroid Hormone Action focuses on the actions of thyroid hormones in eukaryotic cells. This book discusses the profound effects of thyroid hormones on the growth, development, and metabolism of practically all tissues of higher organisms. Organized into 15 chapters, this volume starts with an overview of the kinetic interrelationships of hormone bound to specific receptors and hormone associated with other tissue and plasma pools in living animals. This book then discusses the thyroid hormone receptor, a chromatin-associated protein that appears to mediate the actions of the thyroid hormones in mammalian cells. Other chapters consider the localization of the receptors in chromatin. This book further discusses how thyroid hormones stimulate the accumulation of specific mRNA molecules in cell culture as well as in tissues in vivo. This book is intended for readers who are interested in cell and molecular biology. Endocrinologists will also find this book extremely useful.

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MOLECULAR BASIS OF HEALTH AND DISEASE

Springer Science & Business Media The book describes how the balance between pro- and anti-inflammatory molecules is related to health and disease. It is suggested that many diseases are initiated and their progress is influenced by inflammatory molecules and a decrease in the production and/or action of anti-inflammatory molecules and this imbalance between pro- and anti-inflammatory molecules seems to have been initiated in the perinatal period. This implies that strategies to prevent and manage various adult diseases should start in the perinatal period. An alteration in the metabolism of essential fatty acids and their anti-inflammatory molecules such as lipoxins, resolvins, protectins, maresins and

nitrolipids seems to play a major role in the pathobiology of several adult diseases. Based on these concepts, novel therapeutic approaches in the management of insulin resistance, obesity, type 2 diabetes mellitus, metabolic syndrome, cancer, lupus, rheumatoid arthritis and other auto-immune diseases are presented. Based on all these evidences, a unified concept that several adult diseases are due to an alteration in the balance between pro- and anti-inflammatory molecules is discussed and novel methods of their management are presented.

THE MOLECULAR BASIS OF INSULIN ACTIVITY

AN INVERTEBRATE STUDY : A THESIS SUBMITTED FOR THE DEGREE OF DOCTOR OF PHILOSOPHY AT THE UNIVERSITY OF OTAGO, DUNEDIN, NEW ZEALAND

MOLECULAR BASIS OF PANCREAS DEVELOPMENT AND FUNCTION

Springer The purpose of Molecular Basis of Pancreas Development and Function is to bring together the many different aspects of and the recent discoveries in the understanding of pancreatic endocrine development and its close links to endocrine cell physiology and dysfunction in diabetes. The intention is to combine the knowledge from clinical observations in certain diabetic syndromes with the rapidly growing insights derived from basic molecular biological investigation. At the end of the book, future impacts of these studies are outlined in which the knowledge that is gained from basic studies will be translated into new forms of treatment for diabetes. It is hoped that this book will serve established investigators, newcomers to the diabetes research community, and clinicians interested in the molecular basis of the syndromes that they encounter.

THE METABOLIC AND MOLECULAR BASIS OF ACQUIRED DISEASE

INSULIN ACTION

Springer Science & Business Media In 1996 the 75th anniversary of the discovery of insulin was celebrated at the University of Toronto, the scene of that discovery in 1921. This volume was stimulated by the scientific program which was staged at that time and brought together much of the world's best talent to discuss and analyze the most recent developments in our understanding of pancreatic function, insulin secretion, the interaction of insulin with its target tissues, the mechanism of insulin action at the cellular level, and the defects which underlie both Type I (insulin-dependent diabetes mellitus, IDDM) and Type II (noninsulin-dependent diabetes mellitus, NIDDM) forms of the disease. We have chosen to focus the present volume on work related to insulin action.

PRINCIPLES OF DIABETES MELLITUS

Springer Science & Business Media Diabetes mellitus is a very common disease which affects approximately 150,000,000 worldwide. With its prevalence rising rapidly, diabetes continues to mystify and fascinate both practitioners and investigators by its elusive causes and multitude of This textbook is written for endocrinologists, specialists in other disciplines who treat diabetic patients, primary care physicians, housestaff and medical students. It covers, in a concise and clear manner, all aspects of the disease, from its pathogenesis on the molecular and cellular levels to its most modern therapy.

DIABETES MELLITUS

A FUNDAMENTAL AND CLINICAL TEXT

Lippincott Williams & Wilkins Thoroughly revised and updated, this Third Edition encompasses the most recent advances in molecular and cellular research and describes the newest therapeutic modalities for type 1 and type 2 diabetes mellitus. Chapters by leading experts integrate the latest basic science and clinical research on diabetes mellitus and its complications. The text is divided into ten major sections, including extensive sections on therapeutics, diabetes during pregnancy, and complications. New chapters cover stem cell therapy for type 1 diabetes; genetics and treatment of obesity; new therapies to promote insulin action; vasculopathy; islet cell protocols; triglycerides in muscle; hypoglycemia in the adult; and the Diabetes Prevention Program.

THE METABOLIC AND MOLECULAR BASIS OF ACQUIRED DISEASE: GENERAL MECHANISMS, ENVIRONMENTAL ASPECTS OF DISEASE, ACQUIRED METABOLIC DISEASES

MOLECULAR BASIS OF SOME ASPECTS OF MENTAL ACTIVITY

PROCEEDINGS OF A NATO ADVANCED STUDY INSTITUTE HELD AT DRAMMEN, NORWAY, 2-14 AUGUST 1965

POLYCYSTIC OVARY SYNDROME

CURRENT CONTROVERSIES, FROM THE OVARY TO THE PANCREAS

Springer Science & Business Media This volume includes the latest diagnostic criteria for PCOS and comprises the most up-to-date information about the genetic features and pathogenesis of PCOS. It critically reviews the methodological approaches and the evidence for various PCOS susceptibility genes. The book also discusses additional familial phenotypes of PCOS and their potential genetic basis. All four editors of this title are extremely prominent in the field of PCOS.

MOLECULAR BASIS OF HUMAN NUTRITION

CRC Press Molecular Basis of Human Nutrition focuses on the metabolic basis of human nutrition, detailing recent knowledge and research in this field. It explains the biochemical functions of the essential nutrients and the physiological consequences of deficient and excessive intakes. These are described within the context of normal human diets and requirements for health. Although this book is about human nutrition, in some instances there are comparisons with and examples of other mammalian species to facilitate understanding of the principles. Molecular Basis of Human Nutrition is the only book to cover this particular subject and will prove very popular with both students and lecturers alike.

MOLECULAR BASIS OF MEMBRANE-ASSOCIATED DISEASES

Springer Science & Business Media Biological membranes are often effected by diseases. Molecular events leading to or arising from pathological changes in the course of different diseases are as yet not clearly understood. This competent study by leading experts covers changes of the cellular environment, membranes and the metabolic functions during tissue growth and differentiation as well as aspects of abnormal organelle function in lysosomal storage diseases, peroxisomal and mitochondrial disorders, enzyme defects and regulatory defects of receptors due to oncogenes.

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MOLECULAR BASIS OF BIOLOGICAL ACTIVITY

Elsevier Molecular Basis of Biological Activity documents the proceedings of a symposium on the Molecular Basis of Biological Activity held in Caracas, Venezuela, July 11-17, 1971. This was the First Meeting of the Pan-American Association of Biochemical Societies (PAABS), and was organized by the Asociacion Venezolana de Bioquimica. The book begins by presenting a lecture on advances in the study of the mechanism of polysaccharide synthesis. This is followed by studies on rabbit muscle aldolase; the catalytic function of α -glycerolphosphate dehydrogenase; the functional and structural roles of metals in metalloenzymes; and enzyme adaptation in mammals. Separate chapters cover collagen biosynthesis and the mechanisms involved in its regulation; the organization of lipids in bilayers; the behavior of water-lipid interactions; the permease or transport systems in the mitochondrial membrane; and interaction between TTX and STX with isolated nerve membrane constituents. The final chapter examines the coupling of respiration via specific dehydrogenases to the transport of amino acids and many sugars.

INSULIN RESISTANCE

THE METABOLIC SYNDROME X

Springer Science & Business Media In Insulin Resistance: The Metabolic Syndrome X, outstanding investigators thoughtfully summarize our current understanding of how insulin resistance and its compensating hyperinsulinemia (Syndrome X) play a major role in the pathogenesis and clinical course of high blood pressure and cardiovascular disease-the so-called diseases of Western civilization-as well as polycystic ovary disease. Under the aegis of Gerald Reaven, the discoverer of Syndrome X, the distinguished authorities writing here detail for the first time the pathophysiological consequences and the clinical syndromes, excluding Type 2 diabetes, related to insulin resistance. They also examine the genetic and lifestyle factors that contribute to the wide differences in insulin action that exist in the population at large. Each author has been encouraged to present a point of view that reflects their unique insights. The first authoritative book on the subject, Insulin Resistance: The Metabolic Syndrome X illuminates the special importance of insulin resistance as a major cause of hypertension, heart disease, and polycystic ovary syndrome. Its thoughtful and detailed approach will make it an essential reference for basic and clinical researchers seeking to understand these critical phenomena.

MOLECULAR BASIS OF SOME ASPECTS OF MENTAL ACTIVITY

PROCEEDINGS ...

NON-ALCOHOLIC FATTY LIVER DISEASE

MOLECULAR BASES, PREVENTION AND TREATMENT

BoD - Books on Demand Nonalcoholic fatty liver disease (NAFLD) with a prevalence of 20-30% worldwide is characterized by the buildup of fat in the liver (liver steatosis) with no or little alcohol consumption. Its principal causes are modern diet and occidental lifestyle. It is characterized by metabolic disturbances such as insulin resistance, inflammation, and oxidative stress, considered as the hepatic manifestation of metabolic syndrome. There is no effective drug therapy for this disease; therefore, lifestyle interventions remain as the first-line treatment. Nevertheless, the adherence rates to this type of treatment are very low, so great efforts are focused at finding novel therapeutic agents for the prevention of hepatic steatosis and its progression. This book presents a systematic and comprehensive revision about NAFLD, highlighting its epidemiological and molecular aspects, as well as its prevention and treatment.

HEPATIC DE NOVO LIPOGENESIS AND REGULATION OF METABOLISM

Springer The liver is the largest solid vital organ in mammals that supports other organ in the body in some facet. This book synthesizes all the primary and relevant metabolic information that one needs to review to understand the complex and diverse role of the liver in metabolism. With the current epidemic of metabolic diseases, it is of immediate importance to understand the contribution of the liver in health and its role in the development of impaired metabolic regulation. This book covers the many studies that have unmasked important roles that proteins expressed in the liver play in the development of or protection from metabolic diseases. One of the major metabolic functions of the liver is to carry out de novo lipogenesis, which is the metabolic pathway that allows the conversion of excess carbohydrates into fatty acids. The process of de novo lipogenesis is covered in depth within this volume. The book is an important contribution to the vast literature and ongoing research on liver function.

UNDERSTANDING INSULIN ACTION

PRINCIPLES AND MOLECULAR MECHANISMS

Springer Science & Business Media Every year between three and four hundred papers are published on the topic of insulin action. This extraordinary publication rate prevents any author from including an exhaustive bibliography in any review or book. Perhaps due to this there is no single text that attempts to cover the effects and the mechanism of action of insulin. This book is such an attempt. I intend to present a review of the physiological effects of insulin, the pathology of defects in the action of insulin, and the current views on the mechanism of action of this hormone. I make no apology for the fact that the bibliography will not be extensive and that the amount of experimental detail and data discussed will be kept to a relevant minimum. This book is not intended for the expert in the field, but for the second- or third-year undergraduate and graduate student of medicine, biochemistry, physiology or related disciplines, and will be valuable as a reference source for research workers. The book is presented as a guide, a summary of the ideas and facts; it will present a reader with a foretaste of a fascinating and ever-changing field. I have attempted to be up-to-date with published research work. Any significant contributions to the field not included in the first draft have been added as footnotes. I assume a basic knowledge of the metabolic pathways of carbohydrates, fats and proteins.

TYPE 2. DIABETES MELLITUS

Elsevier España

INSULIN RESISTANCE

CHILDHOOD PRECURSORS OF ADULT DISEASE

Springer Nature Now in a revised and expanded second edition, this unique text presents topics related to insulin resistance in youth and its consequences across the lifespan. In the first section of the book examining epidemiology, the contributors review controversies over the definition of insulin resistance in children and what is known about how insulin resistance in youth differs from adults, the measurement of insulin resistance in youth in the research and clinical settings, and current knowledge regarding the epidemiology of insulin resistance in the pediatric population. The second section of the book explores pathophysiology, including current knowledge of the molecular, metabolic, and physiologic mechanisms of insulin resistance, the unique pathophysiology of pregnancy and puberty, the contributions of the prenatal and early childhood environment to the development of insulin resistance, and adipose and biochemical mediators. This section concludes with discussion of the relationship between insulin resistance and cardiovascular disease and liver disorders. A third section, new to this second edition, explores insulin resistance in unique models: intrauterine growth restriction and girls with polycystic ovary syndrome and metabolic syndrome. The final section of the book explores the concepts of treatment through medications directed at insulin sensitivity, as well as exercise, weight loss medications and consequences of bariatric surgery. Insulin Resistance: Childhood Precursors of Adult Disease, Second Edition provides up-to-date reviews of all of these areas, providing the reader with a current perspective on issues in insulin resistance in youth, an emerging risk factor for disease across the lifespan, that will spur continued interest in the topic on the part of clinicians and researchers, perhaps promoting new points of view and creative approaches to this daunting challenge.

MOLECULAR AND CELLULAR BIOLOGY OF DIABETES MELLITUS

BIOCHEMISTRY

THE STUDY OF THE MOLECULAR BASIS OF LIFE

MECHANISMS OF ADIPONECTIN ACTION

MDPI The adipokine adiponectin is very concentrated in plasma, and decreased levels of adiponectin are associated with pathological conditions such as obesity, diabetes, cardiovascular diseases, and metabolic syndrome. When produced in its full-length form, adiponectin self-associates to generate multimeric complexes. The full-length form of adiponectin can be cleaved by the globular form of elastase that is produced locally, and the resulting biological effects are exerted in a paracrine or autocrine manner. The different forms of adiponectin bind to specific receptors consisting of two G-protein-independent, seven-transmembrane-spanning receptors, called AdipoR1 and AdipoR2, while T-cadherin has been identified as a potential receptor for high molecular weight complexes of adiponectin. Adiponectin exerts a key role in cellular metabolism, regulating glucose levels as well as fatty acid breakdown. However, its biological effects are heterogeneous, involving multiple target tissues. The Special Issue "Mechanisms of Adiponectin Action" highlights the pleiotropic role of this hormone through 3 research articles and 7 reviews. These papers focus on the recent knowledge regarding adiponectin in different target tissues, both in healthy and in diseased conditions.

CALCIUM: THE MOLECULAR BASIS OF CALCIUM ACTION IN BIOLOGY AND MEDICINE

Springer Science & Business Media The enormous and varied role of calcium in living systems is now widely appreciated by both cell biologists and clinicians. The identification and characterisation of new calcium binding proteins and regulatory pathways is matched by the recognition of the involvement of calcium binding proteins in a growing number of disease states. This book is intended to introduce clinicians to fundamental biological research, whilst at the same time attracting researchers to the clinical world. The publication of the book coincides with the elucidation of the complete Human Genomic Sequence. As a result of this, scientists now have access to an unprecedented array of data, from which new calcium binding proteins and hence new regulatory pathways will undoubtedly be discovered. It is a further aim of this book to provide a 'key' to open the door to the new postgenomic era. The book is in three parts. The first section introduces the reader to the role of calcium in cell biology, providing an appreciation of how this small, simple, non-metabolisable agent can move rapidly and silently through the different cellular compartments, thereby influencing and controlling the fate of the cell. This section also illustrates and dissects the often-complex interplay between calcium and numerous agents in muscle and endocrine cells, neurons, hepatocytes, and platelets. In the second section the reader will discover the role of calcium and its partners in common diseases such as migraine and drug dependence. New classes of diseases such as annexinopathies, channelopathies, calcium-sensing disorders, and citrullinemia are discussed, and the authors give many new insights into the molecular mechanisms of the diseases, thereby explaining how and why they occur. Such information is clearly of primary importance for the pharmaceutical industry. New ideas and concepts of neurodegenerative diseases are introduced, which should stimulate new approaches. Clinicians will also have access, in a comprehensive and authoritative yet highly readable chapter, to data from recent large-scale clinical studies on the numerous and widely prescribed calcium antagonists. The final section gives information on new methods and devices for calcium imaging, and illustrates how calcium movement and change can be monitored and ingeniously utilised as a fast, cheap, and accurate drug screening instrument.

ANTIOXIDANTS IN DIABETES MANAGEMENT

CRC Press This volume summarizes current understanding of the pathogenic role of oxidative stress in the onset and progression of diabetes and its complications, and presents results of studies aimed at regulating oxidatively induced complications through the use of antioxidants. Examines the presence of impaired microcirculation, capillary hypoxia, and ischemia syndrome in diabetic complications! Designed to stimulate scientific discussion and curiosity about the causes of diabetes, with contributions from nearly 65 clinicians and researchers who cite more than 1300 sources, Antioxidants in Diabetes Management focuses on stringent control of hyperglycemia to prevent or modify onset and progression and promotes the development of intervention strategies because of the therapeutic limitations of hypoglycemic therapy emphasizes the potential synergistic effects of an interlinked antioxidant network investigates the controversy surrounding the significance of oxidative stress markers in diabetes highlights oxidative stress and antioxidant treatment in animal models for juvenile and adult onset diabetes explores the hypothesis that ischemic reperfusion is the primary cause of diabetic polyneuropathy links protein kinase C

activation to the development of diabetic vascular complications and the effectiveness of vitamin E in preventing these abnormalities spotlights recent clinical trials of therapeutic effects of antioxidants to reduce insulin resistance and much more! Illustrating the therapeutic potential of antioxidants for the treatment of diabetes, *Antioxidants in Diabetes Management* is an unparalleled reference for endocrinologists, nutritionists and dietitians, cell biologists and biochemists, cardiologists, pathologists, and graduate and medical school students in these disciplines.

IN VITRO INVESTIGATION OF THE EFFECT OF CAMEL MILKPROTEINS AND ITS FRACTIONS ON INSULIN RECEPTOR FUNCTION

Camel milk (CM) has been reported to have anti-diabetic properties in many in vitro and in vivo studies but the molecular basis of such beneficial properties are still elusive. Recently, camel milk whey proteins (CWPs) have been shown to positively affect the activity of the human insulin receptor (hIR) in cell lines. In this study, we profiled crude CWPs and their hydrolysates as well as camel milk lactoferrin (CMLF) for their pharmacological and functional effects on hIR activity and its downstream signaling in both human embryonic kidney (HEK293) and hepatocarcinoma (HepG2) cell lines. For this, bioluminescence resonance energy transfer (BRET) technology was used to assess hIR activity in live cells and the phosphorylation status of the downstream protein kinase B (Akt) and the extracellular signal-regulated kinases (ERK1/2) was also analyzed in parallel. Moreover, glucose uptake was examined in order to link our data to more integrated cell response and to the hypoglycemic effects of camel milk. Our data clearly demonstrate the biological activity of CWPs, their hydrolysates, and CMLF, by promoting Akt and ERK1/2 phosphorylation in both HEK293 and HepG2 cells. In addition, our BRET assay confirmed the positive pharmacological action of CWPs and their hydrolysates on hIR activity in a dose-dependent manner. More interestingly, the combination of CWPs and their hydrolysates with insulin revealed an allosteric modulation of hIR that was drastically abolished by the competitive hIRselective peptide antagonist S961. This clearly demonstrates the implication of hIR activation in the effects of CWPs and their hydrolysates. Finally, such effects on BRET data and kinase phosphorylation were clearly correlated with an increase in glucose uptake in HepG2 cells. Our data reveal the pharmacological effects of camel milk proteins on hIR activity and function. This provides for the first time the molecular basis of the anti-diabetic properties of camel milk that was unknown until now.

BLOOD GLUCOSE LEVELS

BoD - Books on Demand The main source of energy for the body is glucose. Its low blood concentrations can cause seizures, loss of consciousness and death. Long lasting high glucose levels can cause blindness, renal failure, cardiac and peripheral vascular disease, and neuropathy. Blood glucose concentrations need to be maintained within narrow limits. The process of maintaining blood glucose at a steady state is called glucose homeostasis. This is achieved through a balance of the rate of consumption of dietary carbohydrates, utilization of glucose by peripheral tissues, and the loss of glucose through the kidney tubule. The liver and kidney also play a role in glucose homeostasis. This book aims to provide an overview of blood glucose levels in health and diseases.

THE DISCOVERY OF INSULIN

University of Toronto Press The discovery of insulin at the University of Toronto in 1921-22 was one of the most dramatic events in the history of the treatment of disease. Insulin was a wonder-drug with ability to bring patients back from the very brink of death, and it was no surprise that in 1923 the Nobel Prize for Medicine was awarded to its discoverers, the Canadian research team of Banting, Best, Collip, and Macleod. In this engaging and award-winning account, historian Michael Bliss recounts the fascinating story behind the discovery of insulin - a story as much filled with fiery confrontation and intense competition as medical dedication and scientific genius. Originally published in 1982 and updated in 1996, *The Discovery of Insulin* has won the City of Toronto Book Award, the Jason Hannah Medal of the Royal Society of Canada, and the William H. Welch Medal of the American Association for the History of Medicine.

THE NUTRITIONAL BIOCHEMISTRY OF CHROMIUM(III)

Elsevier Chromium nutritional supplements are the second best selling mineral supplements after calcium as chromium is found in pills, sports drinks, chewing gums, smoothies, and numerous other products. Chromium has been promoted to promote weight loss and muscle development and most recently to be available to treat the symptoms of type 2 diabetes and related conditions. The aim of *The Nutritional Biochemistry of Chromium(III)* is to examine the four most controversial areas of chromium nutrition and biochemistry: - is chromium an essential element for humans and are chromium nutritional supplements of value? - what biochemical role, if any, does chromium play in the body - can large doses of chromium(III) be used to treat symptoms of type 2 diabetes, cardiovascular disease, and related medical conditions - is the use of chromium(III) supplements a health concern. Scientific experts, who are recognized leaders in the field, weigh in with their opinions on both sides of these issues in this book. A background review of the field from 1955-1995 by Vincent opens the book and concludes with a summary by Dr. Forrest Nielsen, Center Director of the USDA's Grand Forks Human Nutrition Research Center concludes the book. * Point-counterpoint format, providing both sides of major issues * Complete coverage of current issues, including nutrition, health, biochemical role and toxicology * Authors are recognised experts and leaders in this field

NEURODEGENERATIVE DISEASES

Springer Science & Business Media The editor of this volume, having research interests in the field of ROS production and the damage to cellular systems, has identified a number of enzymes showing ·OH scavenging activities details of which are anticipated to be published in the near future as confirmatory experiments are awaited. It is hoped that the information presented in this book on NDs will stimulate both expert and novice researchers in the field with excellent overviews of the current status of research and pointers to future research goals. Clinicians, nurses as well as families and caregivers should also benefit from the material presented in handling and treating their specialised cases. Also the insights gained should be valuable for further understanding of the diseases at molecular levels and should lead to development of new biomarkers, novel diagnostic tools and more effective therapeutic drugs to treat the clinical problems raised by these devastating diseases.