The present volume summarizes current research on type 2 diabetes, its etiology, pathogenesis and long-term vascular and neurological consequences, with special emphasis on molecular and biochemical mechanisms. Alterations in insulin secretion are comprehensively treated, focusing on the role of glucokinase as glucose sensor. Moreover, insulin action is analyzed with regard to both nonoxidative glucose utilization and glucose oxidation.

Concerning the complications in chronic diabetes, topics covered include the effects of high glucose concentration on cellular and endothelial functions and on the glucose phosphorylation rate in non-insulin-sensitive tissues. Furthermore, the role of oxidative stress and advanced glycation end products as well as the significance of alterations in lipoprotein structure are considered. Finally, the pericyte loss in retinopathy and microalbuminuria as related to cardiovascular risk are discussed. Taken as a whole, the contributions included in this book represent a large body of information that will be of great interest to diabetologists, endocrinologists and internists interested in both the basic and clinical aspects of diabetes and its complications.
Malaisse, W.J.: Insulin Secretion in Type II Diabetes. Therapeutic Approach by Novel Nutrients


Chapter II: Insulin Action


Mandarino, L.J.: Regulation of Glucose Oxidation and Pyruvate Dehydrogenase Activity in Human Skeletal Muscle

Chapter III: Mechanisms of Diabetic Complications

Belfiore, F.; Iannello, S.: Glucose Phosphorylation in Non-Insulin-Sensitive Tissues

Giugliano, D.: Oxidative Stress and Cardiovascular Complications of Diabetes

Pugliese, G.; Prifici, F.; Romeo, G.; Díaz-Horta, O.; Leto, G.; Di Mario, U.: The Advanced Glycosylation End Products

Patsch, J.R.: Lipoprotein Structure in Type II Diabetes

Lorenzi, M.; Podestà, F.; Mizutani, M.; Roy, S.: Cellular Effects of Elevated Glucose Concentrations and Diabetic Retinopathy

Porta, M.; La Selva, M.; Beltramino, E.; Pomer, F.; Molinar Min., A.; Molinatti, G.M.: Vascular Remodelling in Diabetic Retinopathy

Chibber, R.; Molinatti, G.M.: Vascular Endothelial Cell Transfer to Study Insulin Action in 3T3L1 Adipocytes


Cavallo Perin, P.; Gruden, G.; Olivetti, C.: Microalbuminuria and Cardiovascular Risk

Chapter IV: Short Communications

Rigoli, L.; Di Benedetto, A.; Di Cesare, E.; Lasco, A.; Cucinotta, D.: No Evidence of the Mitochondrial DNA(T-RNALeu(UUR)) Mutation in Unselected NIDDM Patients


Fusin, F.; Keppeler, I.; Marines, W.; Weber, P.; Schrezenmeir, J.: Similar Apolipoprotein E Phenotype Distribution in ‘High Triglyceride Responders’ and Type 2 Diabetic Patients


Pricci, F.; Pugliese, G.; Romeo, G.; Leto, G.; Gali, G.; Mazz, G.; Fiala, G.; Di Mario, U.; Rotella, C.M.: High Glucose Increases Monolayer Permeability to Macromolecules in Retinal Endothelial Cells

Thomas, S.; Gruden, G.; Martini, A.; Porta, M.; Boccuzzi, G.: Dehydroepiandrosterone Prevents the Decrease in Bovine Retinal Capillary Pericytes Number Induced in vitro by High Glucose

Scruel, O.; Sener, A.; Malaisse, W.J.: Stimulation by Aldohexoses of D-Fructose Phosphorylation by Human B-Cell Glucokinase

Aragno, M.; Brignardello, E.; Tamagno, E.; Fantino, C.; Gatto, V.; Dann, O.; Boccuzzi, G.: Oxidative Damage Induced by Acute Hyperglycemia Is Reduced by Dehydroepiandrosterone Supplementation in the Rat

Fields of Interest: Endocrinology, Diabetes, Metabolic Diseases, Metabolism, Clinical Nutrition