

1. Record Nr.	UNINA9910298350603321
Titolo	Cardiac Energy Metabolism in Health and Disease // edited by Gary D. Lopaschuk, Naranjan S. Dhalla
Pubbl/distr/stampa	New York, NY : , : Springer New York : , : Imprint : Springer, , 2014
ISBN	1-4939-1227-5
Edizione	[1st ed. 2014.]
Descrizione fisica	1 online resource (301 p.)
Collana	Advances in Biochemistry in Health and Disease ; ; 11
Disciplina	612.173 616.1205
Soggetti	Biochemistry Metabolism Cardiology Biochemistry, general Metabolomics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Part 1. Control of Energy Metabolism -- 1. A Primer on Carbohydrate Metabolism in the Heart -- 2. Lipoproteins: A Source of Cardiac Lipids -- 3. Role of Lipoprotein Lipase in Fatty Acid Delivery to the Heart -- 4. Control of Myocardial Fatty Acid Uptake -- 5. Cardiac Energy Metabolism in Heart Failure Associated with Obesity and Diabetes -- 6. Transcriptional Control of Mitochondrial Biogenesis and Maturation -- 7. Relationship between Substrate Metabolism and Cardiac Efficiency -- 8. Acetylation in the Control of Mitochondrial Metabolism and Integrity -- Part 2. Alteration in Energy Metabolism -- 9. Adrenergic Control of Cardiac Fatty Acid Oxidation in Diabetes -- 10. The Myocardial Creatine Kinase System in the Normal, Ischaemic and Failing Heart -- 11. Fuel Metabolism Plasticity in Pathological Cardiac Hypertrophy and Failure -- 12. Defects in Mitochondrial Oxidative Phosphorylation in Hearts Subjected to Ischemia-Reperfusion Injury -- 13. The Role of AMPK in the Control of Cardiac Hypertrophy -- 14. The Role of Incomplete Fatty Acid Oxidation in the Development of Cardiac Insulin Resistance -- Part 3. Optimization of Energy Metabolism -- 15. Metabolic Therapy for the Ischemic Heart -- 16. Inhibition of Fatty Acid Oxidation to Treat Heart

Failure in Patients -- 17. Cardiac Metabolic Protection for the Newborn Heart -- 18. Targeting Transcriptional Control of Fatty Acid Oxidation to Treat Heart Disease.

Sommario/riassunto

The heart has a very high energy demand but very little energy reserves. In order to sustain contractile function, the heart has to continually produce a large amount of ATP. The heart utilizes free fatty acids mainly and carbohydrates to some extent as substrates for making energy, and any change in this energy supply can seriously compromise cardiac function. It has emerged that alterations in cardiac energy metabolism are a major contributor to the development of a number of different forms of heart disease. It is also now known that optimizing energy metabolism in the heart is a viable and important approach to treating various forms of heart disease. Cardiac Energy Metabolism in Health and Disease describes the research advances that have been made in understanding what controls cardiac energy metabolism at molecular, transcriptional, and physiological levels. It also describes how alterations in energy metabolism contribute to the development of heart dysfunction, and how optimization of energy metabolism can be used to treat heart disease. The topics covered include a discussion of the effects of myocardial ischemia, diabetes, obesity, hypertrophy, heart failure, and genetic disorders of mitochondrial oxidative metabolism on cardiac energetics. The treatment of heart disease by optimizing energy metabolism is also discussed, which includes increasing overall energy production as well as increasing the efficiency of energy production and switching energy substrate preference of the heart. This book will be a valuable source of information to graduate students, postdoctoral fellows, and investigators in the field of experimental cardiology as well as biochemists, physiologists, pharmacologists, cardiologists, cardiovascular surgeons and other health professionals.
