

Introduction

It is a great pleasure to introduce this special issue of *Physiological Research* as the representative publication focused on several topics of research carried out currently at the Institute for Heart Research, Slovak Academy of Sciences in Bratislava. We would like to devote this special issue to distinguished Professor Naranjan S. Dhalla, Director of Cardiovascular Developments, Institute of Cardiovascular Sciences, St. Boniface General Hospital Research Centre, Faculty of Medicine, University of Manitoba in Winnipeg, Canada, at the occasion of his 80th anniversary. We are appreciating his permanent motivation and support as well as long-lasting cooperation.

Despite significant progress in medical invasive and noninvasive treatments heart diseases are still the leading cause of death worldwide. There are seven dominant cardiovascular diseases: atherosclerosis, myocardial ischemia and infarction, hypertension, diabetes, arrhythmias and heart failure. Environmental factors including a high saturated fat and sucrose intake, sedentary life style and circadian

rhythm disruption exert a major impact on the development of cardiovascular diseases.

Since the establishment of the Institute for Heart Research 50 years ago, its general mission is to promote our understanding of the fundamental molecular signaling mechanisms implicated in the pathogenesis of cardiovascular diseases and to determine the target molecules for the treatment. Revealing mechanisms and molecular changes involved in activation of endogenous protection of the heart can contribute to prevention of its dysfunction. Our recent findings as well as review articles published in this special issue are focused on novel approaches in cardiovascular diseases prevention and treatment. Certainly, ideas and theories surge ahead while the tools to test them can take decades to catch up.

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