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In this Issue

Special Recognition of Naranjan Dhalla on 25th Anniversary of the Academy

By Bohuslav Ostadal, Past-President of IACS
Prague, Czech Republic

While the Academy is celebrating 25th year of its existence, it goes without saying that major elements for the success and promotion of this organization are related to the distinguished services of its Executive Director, Professor Naranjan Dhalla. His commitments to serve the cardiovascular community go back to more than fifty years when he started promoting the International Study Group for Research in Cardiac Metabolism (now known as International Society for Heart Research) as Councilor (1970–1972), Secretary General (1972–1987) and then President-Elect, President and Past-President (1987–1996). His extraordinary passion and great enthusiasm for promoting the scientific basis for the practice of cardiology were well known at that time. In view of his remarkable success in promoting heart research all over the world, it was decided by the Scientific Committee of the Charles University in Prague to confer Professor Naranjan Dhalla the highest academic degree Doctor Honoris Causa (Honorary Degree of Doctor of Medical Sciences) on the occasion of the Prague World Congress of the International Society for Heart Research in 1995. In this connection it is necessary to mention that Charles University in Prague is one of the oldest universities in Europe, established in 1348 by Charles, the king of Bohemia. Honorary Doctor Degrees of the Charles University, founded in 1990, represent prominent awards for internationally recognized personalities from the scientific, cultural and political world. Professor Dhalla thus belongs to the very exceptional society of Noble laureates from medicine and biology (e.g. Ignarro, Huxley, Watson, Murad), excellent cardiologists (e.g. Braunwald, Moncada, Yusuf) as well as politicians (Czech president Havel, German president von Weizsäcker).

The importance of the personality of Professor Dhalla for the world cardiology was highlighted in the Address by the Dean of the 2nd Faculty of Medicine of the Charles University, Professor Josef Koutecky, presented on the occasion of bestowing the Honorary Degree of Doctor of Medical Sciences on Dr. Naranjan Dhalla on July 4, 1995 in the great aula of the Carolinum. After the ceremonial lecture of Professor Dhalla, the Honorary Degree was delegated by His Magnificency, Rector of the Charles University:

Honorable Prorector,
Honorable Deans of Faculties,
Excellencies,
Cives Academici,
Distinguished Ladies, Eminent Gentlemen,

Permit me to introduce to you Professor Naranjan S. Dhalla, a man who devoted his entire active life to the study of human heart.

The human heart, responsible for blood flow through the body, has always assumed an extraordinary position in the hierarchy of human organs. All nations and all cultures, from the earliest days of existence of humankind, have been aware of its importance and they endowed it with different kinds of symbolic meaning. Gilgamesh, the hero of ancient Mesopotamia, sought the plant of life as "fear of death settled in his heart' '. The ancient inhabitants of India discerned in the heart a place where man meets Brahma, the personified Absolute. In Islam, the heart lies at the center of contemplation and entire spiritual activity. The Egyptians were convinced that from the heart issues love, desire and all spiritual strength. They believed that heart will play a principal role in the judgment of the dead and therefore they provided their mummies with a scarab in heart form. They simply could not imagine life after death without heart. In classical anti-quity they believed the blood moved by the heart to be the seat of the soul; the heart represented the inner life of human beings, their wisdom, their inclinations, their thoughts, their courage and their will.

The Bible contains the word heart more than 370 times and the Christian God seeks those who are "near to his heart' '. St. John the Apostle propounds the view that man understands, thinks, recalls and remembers through his heart and St. Paul speaks of "love stemming from pure heart". It is then understandable why in the New Testament all spiritual and psychic life is represented by the symbol of heart; because heart is the beginning of all human emotions, thoughts and deeds, God wishes to inscribe his laws into the heart of His people.

The heart thus became in general human knowledge the acme among all organs. It expresses the general character

of a human being, the true basis of which does not reside in his outer appearance, beauty or strength, but in his or her inside, in their heart. A man is like his heart. A joyous heart beautifies the face; misery, tragedy or guilt will break the heart. A suffering heart kills the spirit. And one of the bad characteristics of a human being is an obstinate heart.

The role played by the heart in popular wisdom and in our language is documented by a great many sayings and proverbs. We place our hand on our heart to emphasize that we are speaking truth, we wear our heart on our sleeve, which is a truly fine expression for guilelessness. After all, when we like someone we say that he or she is close to our heart.

It is no wonder that heart has assumed an important place among the symbols we use - it is generally taken as a symbol of love, both spiritual and physical, as well as of friendship, honesty and kindness. For this reason it holds an important place in religious heraldry; heart belongs to the favorite attributes of a number of saints, such as the Holy Virgin of the Seven Sorrows, St. Augustine, St. Antony of Padua, St. Ignatius, St. Teresa, and it appears on a number of coats-of-arms and municipal signs.

This small human organ is simply an extraordinary entity. Every minute it expels 5-6 liters of blood into circulation which, during the average 70 years of life, represents some 220 million liters; it is equally astounding that at a frequency of 70 beats per minute during these 70 years of life it undergoes some 2.5 x 109 contractions. Such perfection and perseverance are doubtless one of the greatest wonders of the living world.

I am not sure whether this perfection or some other cause was the reason underlying the charm held by the heart for young Dr. Dhalla and what made the heart the center of all his subsequent activity. Naranjan Dhalla was born on 10 October, 1936, in Ghanieke in Punjab. He grew up in a wealthy and respectable family with six brothers and sisters and it was in his early youth that he acquired a feeling for the importance of well tuned interpersonal relations. His father was his model - it was from him that he learned the scale of human qualities and it was he who instilled in him the respect for human beings as unique objects of creation. He studied at several schools, receiving his bachelor 's degree in physics and chemistry at the Khalsa College of the Punjab University in Amritsar in 1956; then he studied at the Institution of Chemists in Calcutta where he obtained his Master's degree in chemistry and analytical chemistry. His further studies were in the United States, first at the University of Pennsylvania in Philadelphia (another Master of Science in 1963), then at the University of Pittsburgh (PhD in 1965). Throughout his graduate years he assisted in the pharmacological laboratories of both the universities in Philadelphia and Pittsburgh. Then he became assistant professor at the University of St. Louis.

The results of the scientific endeavor of Dr. Dhalla underlay his decision not to return to India. In 1968 he received an offer from the University of Manitoba to create in Winnipeg a laboratory for experimental cardiology. He accepted it and has been working there for the past 27 years. He became professor in 1974 and an honorary professor in 1991. Through a decision of the Medical Research Council of Canada the laboratory for experimental cardiology built by him became in 1987 a Division of Cardiovascular Sciences and then in 1993 the National Centre for Research and Education in Cardiology at the St. Boniface General Hospital. Professor Dhalla has been its director.

During the many years of intense scientific activity he trained 73 professionals working now in cardiological research all over the world. He published 329 scientific papers and 98 chapters and sections in books, he authored or edited 28 monographs, became member of 15 reputable physiological and cardiological societies and was invited 99 times to deliver a congress or conference lecture. He lectured at 125 academic institutions and received some 30 medals and awards in different countries, including honorary professorships at various universities.

He is a founding member of the International Society for Heart Research, where he served as secretary general for 17 years and where he has lately become president. For the last eight years he has been editor-in-chief of the international journal Molecular and Cellular Biochemistry and is on editorial boards of nine other scientific journals.

Professor Dhalla has entertained for many years a cordial relationship to the Czech Republic. This stems obviously from his contacts with Czech emigres, mainly physiologists and, foremost among them, Professor Otakar Poupa. His cooperation with other Czech cardiologists, above all Professor Kolbl and Professor Ostadal, and the fact that he hosted in his institute several researchers from the Institute of Physiology of the then Czechoslovak Academy of Sciences made it possible to develop an informal exchange program between Winnipeg and Prague. The Kluwer Academic Publishers in Boston published in 1993 a joint publication by Dhalla and Ostadal with the title Heart Function in Health and Disease.

Professor Dhalla visited this country several times to attend various congresses and conferences, going to research institutes and transferring there his rich experience and knowledge. As early as in 1975 he was awarded a medal of the Czechoslovak Medical Society, then in 1987 he became its honorary member and received another medal of J.E. Purkyne. There is no doubt about his warm personal and professional approach to Czech scientists.

The private life of Professor Dhalla flows in the company of his wife Ranjit and his sons Vikram and Romel in a house on the bank of the River Rouge in Winnipeg in Canada. His sons Sam and Sonny and his daughter Sonia lead their own private lives Canada and in the United States. His free time is spent in the friendly atmosphere of his family and colleagues. The beat of his heart is therefore regular. His life is well balanced.

Excellencies, distinguished guests, ladies and gentlemen, the history of medicine has been dominated for centuries by two major questions: The first asks about the origin of a disease and about who sends it down on us. The second then inquires as to who can dispatch it and free us from it. Who provides health? Who heals the wounds? In cardiology these questions are even more pressing than in some other branches of medicine because cardiovascular diseases and their complications are the most frequent cause of death in the whole world. No wonder that attempts to learn about the heart and its structure and activity in health and disease have been one of the primary motivating factors for physicians since time immemorial.

The Chinese have examined the heart beat for several centuries before Christ and from its characteristic they assessed the state of the heart. Greek physicians of the famous Akexandrian school of the 3rd century BC under stood the anatomy of the heart and blood vessels from autopsies, just as ancient Egyptians did from their embalming practices and just as Leonardo da Vinci documented in his anatomical drawings at the end of the 15th century AD. Still, our knowledge about blood circulation had been meager up to the 16th century and then it increased only very slowly.

The moving and interesting development of cardiology was finely expressed by the founder of the first cardiological institute in the world, Professor Ignacio Chavez in Mexico. He asked his brother-in-law, the painter Diego Rivera, to paint a fresco in his newly built institute where the history of cardiology would be depicted. This request resulted in two large frescoes, 4 x 6 m each, placed in the vestibule to the large auditorium of his institute.

The first fresco shows the classical anatomists, physiologists, pathologists and clinicians: Galen, the famous Andreas Vesalius with his detailed anatomical description of the heart and blood vessels called De Humani Corporis Fabrica in 1543, Marcello Malpighi who, in 1661, saw in his simple microscope for the first time the blood capillaries of a frog, Reymond Vieussens, the discoverer of coronary arteries, Giovanni Battista Morgagni who, in 1761, described a number of pathological alterations of the heart in his book De Sedibus et Causis Morborum. Then of course William Harvey, whose correct description of blood circulation published as De Motu Cordis in 1628 was the cornerstone of modem cardiology, but also Miguel Servet who described the small (pulmonary) circulation actually 80 years before W. Harvey but whose treatise was destroyed at the church's instigation. Other figures in the fresco include the classical diagnosticians, the musical discoverer of palpation Leopold Auenbrugger (1761) and his protector, the personal physician of Napoleon Bonaparte Jean Nicholas Corvissart, the discoverer of auscultation Rene Theophile Hyacinthe Laenec (1816) and the member of the classical Viennese school, the Czech Josef Skoda, and finally the discoverers of the heart excitation-transmission system Jan Evangelista Purkyne, Aithur Keith and Martin Flack, Ludwig Aschoff and Suano Tawara, and Wilhelm His.

The other fresco shows other outstanding clinicians and inventors of apparatus of the 19th and 20th centuries. The head physician of the General Hospital in Birmingham William Withering, the discoverer of the ' ' medicine of all cardiological medicines" , digitalis; Stephen Hales who was the first to measure the blood pressure of a horse, the shy professor of physics at the University of Wtirzburg Wilhelm Konrad Roentgen , the founder of angiocar-diography Castellanos, the Dutchman Willem Einthoven who developed a practical technique for measuring the electrical activity of the heart in 1903, another famous Viennese Czech, the pathologist Karel Rokitansky , Dr. Abbot who worked out a classification of inborn heart defects, and the famous cardiologists-physiologists White, Laubrey and Chavez. However, a number of other outstanding personalities (including some Nobel Prize laureates) simply did not fit in.

Robert Boyle and Robert Hooke demonstrated almost simultaneously in experiments on dogs that the inhaled air contains something that is essential for life. Richard Lower then showed in 1669 that venous blood changes into arterial blood in the lungs but it took another century before the Frenchman Antoine Lauret Lavoisier separated air into an active and an inert component and thus extended the earlier discovery of oxygen by Joseph Priestley.

This was followed by the first clinical observations. Lancisi published in 1728 in Italy a book entitled De Motu Cordis et Aneurysmatibus, i.e. one dealing with the heart motion, its extent, the failure of the right ventricle and on aneurysms.

Toward the end of the 19th century blood pressure began to be measured consistently. The Italian Scipione Riva-Rocci constructed the first sphygmomanometer in 1891. Then at the end of the 1920s doctors Moniz, Diaz and Lima in Lisbon became the pioneers of contrasting techniques in vascular research, viz. angiography. The 1950s then mark the beginning of hemodynamic cardiology. A number of experiments with catheterization of the heart of animals had been carried out in the 19th century but only in 1929 was this done in a human subject. Werner Forssmann did it on himself and was severely castigated for it. The technique became wide-spread only after World War II, thanks to the efforts of Andre Cournand and Dickinson Richards - all three received the Nobel Prize for it in 1956. The author of the now classical comparative heart physiology is A.J. Clark; finally, another Nobel prize related to cardiology was given in 1963 to Andrew F. Huxley of Oxford for his discovery of the mechanism of contraction of muscle bundles, including those of the cardiac muscle.

All these discoveries which were later joined by a number of others, echocardiography, application of radionuclides, modulation rate, coronarography and methods of invasive cardiology, represented an enormous contribution to the diagnostics of inborn as well as acquired heart defects and

made it possible to launch and develop their surgical treatment.

All these discoveries, and a number of others, permitted the cardiologists to examine various aspects of heart activity both at rest and under a load, to assess the efficiency of the heart, its functional and structural changes, deviations in the origin and propagation of electrical stimulation of the heart, and to introduce catheters into all the heart compartments and into pulmonary and coronary arteries. At this place we should not omit to mention the genius of Claude Bernard at the Sorbonne and his discovery of the regulatory function of endocrie glands and the existence of the milieu interieur, nor the discovery of the double helix of the DNA molecule, published by F.H.C. Crick and J.D. Watson in the 1960s in Cambridge which led to new revelations about the mystery of life and who launched the explosive development of molecular genetics and a breakthrough into rese arch at the subcellular level.

Honorable Prorector, Honorable Deans, ladies and gentlemen, this brief outline of the history of cardiology does not mean that it is at its end. I mentioned it because I wanted to emphasize the fact that Professor Dhalla is one of the greatest contemporary personalities in the field of physiology and pathophysiology of the heart and the cardiovascular system. His experimental work elevated the scientific basis of cardiology. His specialty lies in the area of subcellular basis of heart activity in health and disease. He has studied the biochemical, electrophysiological and ultrastructural changes of the heart muscle under physiological conditions and, using experimental models, under pathological conditions. Metabolism of calcium in the heart muscle, changes of the muscle during experimental diabetes mellitus, the mechanisms of reception and systems of transport have all been under his scrutiny. It is also through his educational activity that world cardiology has greatly benefitted.

In view of all that has been said, the scientific council of the 2nd Faculty of Medicine of the Charles University in Prague reached the unanimous decision to recommend to you, the Prorector of the university, and through you to the scientific council of the Charles University, to express the appreciation of the work of Professor Naranjan Dhalla by awarding him the honorary degree in medical sciences.

If the two Chavez-Rivera frescoes should be joined by a third, it would probably depict the face of Professor Dhalla. I am convinced that it will be an honor if its bearer becomes an honorary doctor of this ancient university and, therefore, I request you humbly, Sir, to agree to this recommendation and to give your consent to begin the ceremony.

Academy Announces the Fellowship Award to Eleven Cardiovascular Investigators

Dr. Roberto Bolli, President of IACS, is pleased to announce the election of the following eleven Fellows effective January 2022. (The maximum number of active Fellows of the Academy does not exceed 250 at any given time):

1. Dr. Peter Carmeliet, Leuven, Belgium
2. Dr. Gerd Heusch, Essen, Germany
3. Dr. Sunjay Kaushal, Chicago, USA
4. Dr. Smadar Kort, Stony Brook, USA
5. Dr. Ravichandran Ramasamy, New York, USA
6. Dr. Hugh E. Scully, Toronto, Canada
7. Dr. Ranko Škrbić, Banja Luka, Bosnia & Herzegovina
8. Dr. Miloš P Stojiljković, Banja Luka, Bosnia & Herzegovina
9. Dr. Srinivas M. Tipparaju, Tampa, USA
10. Dr. Rhian M. Touyz, Montréal, Canada
11. Dr. Nathan D. Wong, Irvine, USA

The academic and professional achievements of all these newly elected Fellows are highlighted as follows:

Dr. Peter Carmeliet

Dr. Peter Carmeliet

Professional flutist, engineer or physician scientist: that was the challenging career choice the young Peter Carmeliet was facing at the age of 18 years. Following his passion for biology as a child, Peter decided to follow the footsteps of his father, the late Professor Edward Carmeliet, who is considered one of the founding fathers of cardiac cellular electrophysiology.

Professor Peter Carmeliet is currently head of the Laboratory of Angiogenesis and Vascular Metabolism and former director of the Vesalius Research Center at the Flemish Institute of Biology (VIB) and University of Leuven, now called the Center for Cancer Biology (Leuven, Belgium). Peter Carmeliet is one of the world most renowned scientists in the field of angiogenesis (formation of blood vessels). His research on the nature and mechanisms of angiogenesis and the link to neurodegeneration (he discovered an important disease-modifying role of the key pro-angiogenic factor VEGF in lethal paralyzing amyotrophic lateral sclerosis) not only fundamentally changed the biomedical field and textbooks, it also provided a better understanding of these central mechanisms in health and disease. Carmeliet is a visionary pioneer, not afraid of taking risks and leaving his comfort zone, and tapping into and bridging new fields, believing that interdisciplinary expertise holds strong promise for advancing science. Not frightened of switching tracks, from hemostasis to angiogenesis and neurodegeneration, from regulation of angiogenesis by growth factors to endothelial cell metabolism, and recently to vascular heterogeneity at the single cell level, it is not a path many researchers would readily consider or dare to jump in to.

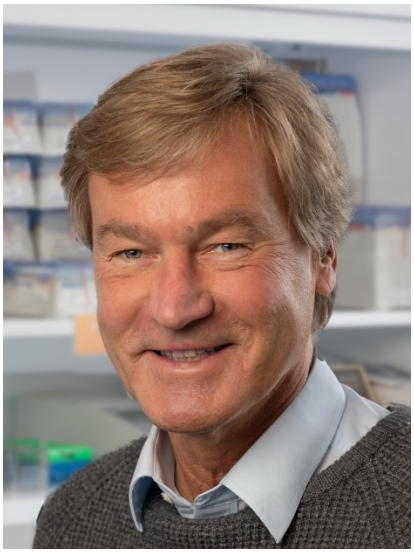
Peter made landmark contributions to the field of cardiovascular biology. He was the first to generate gene knockout mice for virtually every important component of the fibrinolytic and coagulation system. As a newcomer in the angiogenesis field, Carmeliet's breakthrough entree was the discovery of a crucial role for VEGF (Vascular Endothelial Growth Factor) in blood vessel formation (angiogenesis). This observation is today still a classic in the angiogenesis field amassing >3,000 citations. The impact of this seminal study can be judged from the phenomenal series of follow-up studies by Peter (as well as by others) on the genetics of angiogenesis, cancer, vessel and neuron guidance, coagulation and fibrinolysis. Peter Carmeliet also studied VEGF in a broader context, and discovered that placental growth factor (PlGF), a VEGF family member, is a disease-restricted angiogenic factor (Nature Med 2001). PlGF-delivery promotes therapeutic revascularization of limb and myocardial ischemia (Nature Med 2002), while PlGF-blockade offers potential for the treatment of eye disease (Cell 2010) and pediatric medulloblastoma (Cell 2013; with R. Jain). The impact of these discoveries is illustrated by the fact that two biotech companies started clinical testing of anti-PlGF antibody treatment (TB-403) for pediatric medulloblastoma (Oncurious N.V., oncurious.com) and diabetic retinopathy (Oxurion N.V.).

Ten years ago, Carmeliet established a conceptual cornerstone for an entirely new field of investigation, that of "endothelial cell (EC) metabolism" and its therapeutic potential to promote or inhibit angiogenesis. Carmeliet postulated that, for angiogenic factors to mediate their action, a change in EC metabolism would be required. His meticulously performed, highly innovative, multidisciplinary EC metabolism studies demonstrated the importance of EC metabolism in regulating angiogenesis in health and disease. Within 10 years after establishing a novel field of EC metabolism, this work resulted in a phase II clinical trial, testing the effects of dietary ketone bodies for relieving lymphedema (for whom no causal treatment is available, only symptomatic relief), illustrating the potential of Carmeliet's innovative thinking in clinical applications.

His recent achievements using EC from patients and (single-cell) multi-omics, in part to characterize the metabolic transcriptome at the single cell level, resulting in, among others, a single cell EC atlas of various murine organs, of human and murine lung cancer and ocular disease revealing EC subtypes with immunomodulatory features (Cell 2020, Cell Metab 2020, Cancer Cell 2020,

JASN 2020). This required a major transformation of the lab to set up a platform of multi-disciplinary, complementary, state-of-the-art technologies (single cell & bulk RNA-sequencing, proteomics, and meta-analyses) combined with functional validation to further characterize EC markers. A joint spin-off company, Montis Biosciences (montisbio.com), was recently founded for the further development of novel therapeutics in oncology.

Dr. Gerd Heusch



Dr. Gerd Heusch

Gerd Heusch was born in Bonn, the then capital of Germany, in 1955. He was raised as the first of five children. Both his parents were classics teachers. So naturally he attended a traditional gymnasium with a focus on Latin and ancient Greek. He excelled in classics and at age 17 won a gold medal at the International Premio di Cultura in San Remo, Italy. Almost naturally, he also started his studies at the University of Bonn in classics, only to find out after one semester that this was not what he wanted to do for the rest of his life. After exploratory visits to several other faculties, he decided for medicine.
He completed his preclinical studies at the University of Düsseldorf and his clinical studies at the University of Bonn. During medical school he developed an interest for cardiovascular medicine, notably the autonomic regulation of the cardiovascular system. His doctoral thesis, under the supervision by Prof. Dr. A.W. von Eiff, was on the impact of stress, notably traffic noise, on the blood pressure responses of healthy and hypertensive humans – a topic of great interest much more today than in 1977, when he was co-author on the paper in the journal, which he has become editor of later (Basic Res Cardiol 72, 1977, 575-83), After his graduation and approbation as physician in 1979, he spent his year of obligatory military service as a physician captain.

In 1980 he started his formal scientific training as a research assistant in the Department of Physiology at the University of Düsseldorf. Here his interest focused on the sympathetic regulation of coronary blood flow. In collaboration with Andreas Deussen, they challenged the then prevailing paradigm that in ischemia coronary vessels are maximally dilated and they demonstrated in dogs that active alpha-adrenergic coronary vasoconstriction during sympathetic activation reduces coronary blood flow and contributes to myocardial ischemia (Circ Res 53, 1983, 8-15). This finding was provocative at the time, but Heusch and others have confirmed subsequently the impact of alpha-adrenergic coronary vasoconstriction in myocardial ischemia/reperfusion in a number of animal experiments and clinical studies over the years (Circulation 81, 1990, 1-13 and 101, 2000, 689-94). In 1985, Heusch completed his habilitation for physiology at the University of Düsseldorf under supervision by Prof. Dr. Volker Thämer.

He then moved with a scholarship from the German Research Foundation to spend 1½ years at the Seaweed Canyon Laboratory of the University of California, San Diego under the supervision of Dr. John Ross Jr. This time had a major impact on him, he says: “Dr. Ross was a modest, almost shy person, but he had the brightest brain I have ever seen. He knew everything about the heart. To me he was the impersonation of “fortiter in re, suaviter in modo” and the greatest mentor I could wish for.” In Seaweed, Heusch collaborated closely with Brian Guth, and together they performed a series of studies in chronically instrumented conscious dogs with exercise-induced myocardial ischemia to work out the underlying sympathetic mechanisms, notably tachycardia and alpha-adrenergic coronary vasoconstriction (Circulation 75, 1987, 482-90 and 661-9).

On his return to Germany, Heusch was awarded a Heisenberg scholarship by the German Research Foundation which he used 50:50 to continue his experimental work in the Department of Physiology and to receive clinical training in the Cardiology Clinic of the University Düsseldorf under Prof. Dr. Franz Loogen who was not only a most eminent clinical cardiologist but to Heusch also a great teacher and mentor.

In 1989, Heusch was appointed full professor and chair of the Institute for Pathophysiology in the Center of Internal

Medicine at the University of Essen, a position which he holds since. In Essen, Heusch built a team of researchers and clinician-scientists who developed dog and pig models of myocardial ischemia/reperfusion. Together with Rainer Schulz, they performed a large series of studies which characterized the functional, metabolic and structural features of stunned and hibernating myocardium (Nature Rev Cardiol doi 10.1038/s41569-021-00506-7). After 10 years at the University of Essen, Heusch retreated for a full year's sabbatical which he spent with Drs. Michael Cohen and James Downey at the Department of Physiology, University of South Alabama in Mobile. In a stimulating and fruitful atmosphere, Heusch became acquainted with many more details of the cardioprotective signal transduction of conditioning strategies. On his return to Germany, Heusch focused his research on cardioprotection, i.e. the reduction of myocardial ischemia/reperfusion injury in experimental and clinical studies – the focus of his research until today (Nature Rev Cardiol 17, 2020, 773-89). Numerous studies on the signal transduction of ischemic pre- and postconditioning were performed in various pig, rat and mouse models. Together with Rainer Schulz, Heusch identified several features and signal transduction steps, notably the causal role of connexin 43 and STAT 3 in ischemic pre- and postconditioning (Circ Res 116, 2015, 674-99).

In collaboration with his clinical colleague Prof. Dr. Raimund Erbel, Heusch performed a series of experimental and clinical studies on coronary microembolization and characterized its functional, metabolic, morphological and molecular features in the experiment and its footprint in imaging and biomarker modalities in patients with periprocedural microembolisation (Circulation 120, 2009, 1822-36). For about the last decade, Heusch focused his interest on remote ischemic conditioning and its clinical translation. Together with Petra Kleinbongard, they performed a series of experiments in a pig model of remote ischemic conditioning to identify the neuronal, humoral and intracardiac signal transduction of this cardioprotective strategy; they identified the spleen as an important relay organ (Circ Res 123, 2028, 1152-63). Importantly, in collaboration with his cardiosurgical and anaesthesiological colleagues, Heusch initiated and led a clinical trial in cardiosurgical patients and demonstrated protection by remote ischemic conditioning (Lancet 382, 2013, 597-604). Translational studies on the signal transduction and clinical translation of remote ischemic conditioning are still ongoing.

Throughout his professional career, Heusch has been productive. He is the author of more than 600 original or review articles and has a triple-digit h-factor in web of science. He is particularly proud on a number of excellent collaborators who trained with him over the years. His former collaborator Rainer Schulz is now professor and chair of the Physiology Department at the University Giessen, his former collaborator Bodo Levkau is now professor and chair of the Molecular Medicine Institute at the University Düsseldorf, and his current collaborator and deputy chair Petra Kleinbongard is now professor of cardioprotection at the University Duisburg-Essen.

Heusch is editor of Basic Research in Cardiology since 1992 and has established the journal in the top rank of all cardiovascular journals. He has served or still serves on the editorial board of several prestigious journals, including Circulation, Circulation Research, Journal of the American College of Cardiology, European Heart Journal, Cardiovascular Research, American Journal of Physiology and others. Heusch has been actively involved in several professional societies. He has served as chairman of the Working Group on Myocardial Function of the European Society of Cardiology, as president of the European Section of the International Society for Heart Research and as president of the German Cardiac Society. He has also served as the speaker of the medical board of the German Research Foundation.

Heusch has received numerous awards. He holds an honour's doctorate of the Medical Academy Nishnij Novgorod/Russia and an honour's professorship of the Tangshan Medical College/China. He is adjunct professor in the Department of Physiology at the University of South Alabama, Mobile. He was elected fellow of the Royal College of Physicians, London and a member of the Nordrhein-Westfalen Academy of Sciences and Arts where he serves as speaker of the medical section. Heusch has delivered the Basic Science Lecture and the William Harvey Lecture of the European Society of Cardiology, received the Keith Reimer award of the International Society for Heart Research, the Carl Wiggers award of the American Physiological Society, and the Carl Ludwig honour's medal of the German Cardiac Society. In the public domain, he was awarded the cross of merit by the Federal Republic of Germany and also by his home state Nordrhein-Westfalen for his fundamental research and fight against myocardial infarction.

Off work, Heusch is a recreational runner and an avid reader of mostly history books. Heusch and his wife Beate are proud of their 3 children and (so far) 2 grandchildren.

Dr. Sunjay Kaushal

Dr. Sunjay Kaushal

Sunjay Kaushal, PhD, MD is a congenital heart surgeon and Professor of Surgery at Northwestern University's Feinberg School of Medicine. He is also the Division Head of Cardiovascular-Thoracic Surgery, the A.C. Buehler Professor of Surgery, and the Vice-Chair of Research, Department of Surgery at Ann & Robert H. Lurie Children's Hospital of Chicago. Additionally, he is Co-Director of the Heart Center at Lurie Children's.

Dr. Kaushal received his Doctor of Medicine degree from the Johns Hopkins School of Medicine in 1997, while concurrently pursuing a Ph.D. degree in Medical Sciences from the Harvard University Graduate School of Arts and Sciences (awarded in 1995). He completed his general and cardiothoracic surgical training at Johns Hopkins Hospital in 2006, and a fellowship in congenital cardiac surgery at the University of Michigan/C.S. Mott Children's Hospital in 2007. Following completion of his fellowship, he began his career as an Attending Cardiovascular-Thoracic Surgeon at the then named Children's Memorial Hospital (now Lurie Children's) in Chicago in 2007 and organized the core of his research laboratory there. In 2011 he relocated, with his research laboratory, to the University of Maryland-Baltimore/University of Maryland Children's Hospital where he remained until his return to Lurie Children's in 2020.

During his research career, Dr. Kaushal has been the recipient of multiple grants from both governmental and foundations dedicated to furthering research in congenital heart disease. From an initial K08 (Mentored Clinical Scientist Research Career Development Award) in 2009, Dr. Kaushal has gone on to be the recipient of seven active National Institutes of Health grants, along with two pending and three past NIH grants. Dr. Kaushal's research includes prevention of reperfusion injury after heart-bypass, characterization of skeletal and heart muscle gene regulation, and clinical trials with cardiac stem cells in congenital heart disease surgery patients. He is attributed with two inventions: tissue-engineering vascular structures using endothelial cell progenitors and paraxylene films and their therapeutic uses.

Dr. Kaushal has authored or co-authored over 60 refereed articles and delivered numerous presentations at national and international meetings on topics related to complex congenital heart surgery and the investigation of cell-based regenerative therapies for patients with severe heart failure. He is a member of national surgical specialty professional societies including the Congenital Heart Surgeons' Society, the American Association for Thoracic Surgery, and the Society of Thoracic Surgeons, as well as regional and national societies including the American Heart Association, the Southern Thoracic Surgical Association, the Chicago Surgical Society, and the Midwest Pediatric Cardiology Society.

In addition to his clinical and research activities, Dr. Kaushal has a strong interest in the development and training of future congenital heart surgeons and surgeon-scientists and has mentored over 25 trainees in his surgical research lab, assuring a future generation of researchers in the field of cardiovascular sciences.

Dr. Smadar Kort

Dr. Smadar Kort

Dr. Smadar Kort was recruited to Stony Brook University Medical Center as the Director of Echocardiography in 2005. Under her leadership their laboratories were granted accreditation in transesophageal and stress echocardiography for the first time. They have become the only laboratory in Suffolk County, and one of only 25 laboratories in the entire state of New York, which is accredited in all areas of echocardiography. This accreditation has been maintained ever since.

Recognizing Dr. Kort leadership skills, the chief of cardiology promoted her within a year of her recruitment to direct the imaging and non-invasive programs as well.

In 2011, through direct collaboration with cardiothoracic surgery, Dr. Kort co-created a Valve Center at Stony Brook. In addition to the administrative and clinical efforts she devoted to the valve programs, she pursued further training in interventional echocardiography. She completed training in Transcatheter Heart Valves in 2012, in MitraClip in 2014 and in Watchman in 2017.

For all of the accomplishments listed above and more, Dr. Kort was the recipient of the Outstanding Service Award given by the Chairman of the Department of Medicine in 2019.

Her leadership skills and professional reputation have also been recognized nationally. Dr. Kort was elected to serve on the Board of Directors of the American Society of Echocardiography, the largest subspecialty society in cardiology with more than 17,000 members in the US and abroad. In addition, she was one of few board members asked by the President of the society to lead one of the society's major goals of public education.

Dr. Kort is most proud and humbled to be the first woman ever elected as a President of the NY chapter of the American College of Cardiology, representing NY as a member at the Board of Governors of the national ACC, the largest cardiovascular professional organization with almost 60,000 members. Furthermore, she was selected to serve on the Steering Committee of the Board of Governors, leading the board and the organization.

Dr. Kort is also serving and have served on various Leadership Councils of the ACC including the Academic, Women in Cardiology and Cardiovascular Team Section. She served on the Medicare Evidence Development and Coverage Advisory Committee for 4 years. These leadership positions further enhanced her deep understanding of the structure and function of cardiology service lines, and provided her with the skills and tools needed to be an effective section leader at Stony Brook.

Working in academic institutions her entire professional life, she has been responsible for educating students, residents, fellows, sonographers and junior attendings. Dr. Kort have been designing and directing academic courses both locally and nationally. At Stony Brook Medical School, she served as a 2nd year course director for almost 10 years as well as a member of the Committee on Academic and Professional Progress and a member of the Liaison Committee for Medical Education Accreditation Task Force. She has been heavily involved with the Cardiovascular Fellowship Program and in addition founded and directed an Advanced Imaging Training Program in Advanced and Interventional Echocardiography. Outside of cardiology, she currently guides and assist their emergency department physicians in learning how to safely perform transesophageal echo during resuscitation.

At the national level, Dr. Kort Co-Chaired the CME Committee for ASE, Chaired the ACC Annual Scientific Exhibits Subcommittee and am currently Co-Chairing the Committee on Accreditation for Education in Advanced Cardiovascular Sonography. She was selected to represent

the ACC on the Board of Directors of The Joint Review Commission for Diagnostic Medical Sonography – a board that evaluates applications for accreditation by sonography schools. She participated in planning major scientific sessions for both ASE and ACC at the state, the national and international level. She was in charge of the entire imaging track of the 2020 ACC annual scientific sessions and designed a comprehensive face to face 3 day conference, which she had to convert at the last minute to a virtual course due to the pandemic. Dr. Kort participated in writing the National Educational Curriculum for Sonographers, a document endorsed by 18 different national organizations and professional societies. This document is widely disseminated and is publicly available to all sonography schools and educators.

Educating the public is a mission of Dr. Kort. When she served on the Board of Directors of ASE she was elected as a Board Leader in charge of Public Education. Dr. Kort frequently interview with various magazines and radio stations educating people on a wide range of health related issues. She participates in local and outreach teaching activities for her community, promoting healthy lifestyle and cardiovascular disease prevention.

Dr. Kort promotes diversity and inclusion both in medical education as well as in the practice of cardiology. She helped organize Women in Research days at Stony Brook, serve on the Diversity and Inclusion Committee of the NY Chapter of ACC and on the Women in Cardiology Leadership Council on national ACC. She was the recipient of the Diversity and Inclusion Award from the ACC in 2019. She has been mentoring junior cardiologists for both the AHA and ACC, and have just received the Renaissance School of Medicine Award for Mentorship in her own institution.

Her research is focused on new applications of novel technologies and on appropriate use of imaging. In addition to numerous manuscripts published in the top reviewed journals in cardiology and echocardiography, she collaborated with other national thought leaders on writing and publishing various guidelines. Dr. Kort was asked to represent ASE on a national committee charged with writing Appropriate Use Criteria documents that guide clinicians in the appropriate use of cardiovascular imaging in various common clinical scenarios. They have already published 2 guideline documents that were endorsed by all professional societies representing cardiovascular material and the images. Other editorial positions currently held include the Editorial Team Leader for the Non-Invasive Imaging Clinical Topic Collection of ACC.

professionals and published in all major scientific journals. We are currently working on a 3rd document that would help clinicians safely and efficiently evaluate patients who need to have non cardiac surgery performed. She served on ASE Standards and Guidelines Committee, identifying needs for writing certain guideline documents and once written, reviewing them in detail and editing them prior to their publication.

Dr. Kort served on numerous committees and task forces collaborating with other leaders representing emergency medicine and critical care, establishing and writing guidelines and content for the use of Point of Care Ultrasound (POCUS) to be used by novice users of ultrasound. She reviews research abstracts submitted for possible presentations at national scientific sessions and served as the Abstract Chair for the 2019 ACC Annual Scientific Sessions. She served on the Scientific Advisory Board for various international cardiology conferences taking place around the world. This is her 6th year serving on a Grant Selection Committee for the NY Academy of Science, promoting and supporting scientific research in the state of NY.

In addition, she collaborates with other investigators in the division of cardiology and other departments, performing both industries sponsored and institution grown research projects. These collaborations have been quite successful, resulting in numerous posters, abstracts, presentations and publications.

Dr. Kort scientific contributions to the field of echocardiography have been recognized both nationally and internationally. She has been invited to give close to 300 lectures and to chair or co-chair almost 50 scientific sessions in the most prestigious national and international conferences in cardiology. Among others, she gave the keynote address at the World Congress on Clinical and Preventive Cardiology and was awarded a Lifetime Achievement Award at that meeting by the President of India.

Dr. Kort hold several editorial positions, most prominent being Editor in Chief of EchoSAP – a comprehensive core curriculum of echocardiography designed as a self-study tool to help prepare cardiologists for the National Boards in Echocardiography exam. As the Editor in Chief she was responsible for recruiting sub-editors and authors as well as for the content of the written.

Dr. Ravichandran Ramasamy

Dr. Ravichandran Ramasamy

Dr. Ravi Ramasamy is an internationally recognized scientist for his research on the metabolic basis of myocardial ischemia-reperfusion injury and heart failure. Specifically, his pioneering research demonstrated the role of aldose reductase in mediating injury after myocardial infarction in diabetics and non-diabetics. Dr. Ramasamy received his PhD (Chemistry) from Loyola University Chicago in 1989. He completed his post-doctoral fellowship at University of Texas at Dallas & University of Texas Southwestern Medical Center, Dallas. He joined University of California Davis as an instructor and rose to the ranks of Assistant Professor in 1992. He was recruited by Columbia University Medical Center in 1997 to embark on myocardial metabolism and diabetic complications research. He rose to the ranks of Associate Professor and Director of Cardiovascular Complications Laboratory. Subsequent, he was recruited by New York University Langone Medical Center in 2010, where he is currently a Tenured Full Professor of Biochemistry, Molecular Pharmacology & Medicine.

Dr. Ravi Ramasamy is known for innovative studies in the fields of myocardial ischemia-reperfusion injury, diabetic cardiovascular complications, and, more recently, cardiovascular dysfunction in aging and sepsis. He collaborates with Dr. Schmidt on novel means of dissecting interaction between metabolic and signaling pathways in ischemic injury, inflammation, and sepsis. Dr. Ramasamy's research utilizes the tools of basic science to address issues relevant to important clinical problems in cardiovascular disease. Dr. Ramasamy has been the recipient of Harold and Golden Lamport Award For Excellence in Clinical Research at Columbia University, an Established Investigator award from American Heart Association, and a career development award from American Diabetes Association. He is currently principal Investigator on several peer-reviewed grants. His publications include over 109 peer-reviewed papers and over 66 review/book chapters/editorial commentaries. His publications, to-date, have been cited more than 14K times and has H- index value of 63.

Dr. Ravi Ramasamy holds patent on applications of MR contrast agents and use of aldose reductase inhibitors and RAGE receptor blockers in treating ischemic heart disease and diabetic complications. His discovery on aldose reductase as a key mediator of ischemic injury and heart failure has led to the ongoing Phase3 ARISE-HF clinical trials of aldose reductase inhibitors for diabetic heart disease.

At the academic front, he serves on grant review panels for National Institutes of Health (US), American Heart Association, American Diabetes Association, Juvenile Diabetes Research Foundation, and American Federation for Aging Research.

Dr. Ravi Ramasamy also serves as a functional consultant for several pharma companies in the US and India. He specializes in assisting start-up and big pharma companies with proof of concept preclinical and safety studies that have high clinical translational value.

Dr. Hugh E. Scully

Dr. Hugh E. Scully

Dr. Hugh E. Scully is Professor-Emeritus of Surgery and Health Policy, University of Toronto, Ontario, Canada. He is presently Honorary Member [Cardiac Surgery], University Health Network (UHN) Toronto General Hospital and is serving on the Senate of the University Health Foundation. Dr. Scully obtained his B.A. degree in Biology and Chemistry in 1963 from Queen's University, Kingston, Ontario and went on to complete his M.D., C.M. studies as well as obtain an M.Sc. degree in Neuroanatomy and Neurophysiology from the same institute.

As Chief of Staff, Trustee and Deputy Head of Cardiovascular Surgery and Deputy Surgeon-in-Chief, he helped in the merger between Toronto General and Toronto Western Hospitals and the evolution to the UHN including the Princess Margaret Hospital, Toronto Rehab and the Michener Institute. Together with Laureate Wilbert Keon, he was a founding member of the Cardiac Care Network of Ontario. As President-Elect, President (1998-2000) and Past-President of the Canadian Cardiovascular Society, Dr. Scully was the last of only 4 cardiac surgeons to be elected in the 70+ year history of the association. In partnership with the Heart and Stroke Foundation, he established a federal advocacy "heart-on-the-hill" program successfully promoting better heart health, teaching and research in Canada. He served as President of the Canadian Medical Association (1999-2000) where he restored constructive dialogue about health care between the medical profession and all levels of government and public, business, labour and First Nations. He served a Chair of the Board of Trustees of the Canadian Medical Foundation (2016-2020); served the Royal College of Physicians and Surgeons of Canada (1994-2019) in different capacities and was on the Board of Directors of the Canadian Medical Hall of Fame (2014-2020).

From his work in heart valve surgery, Dr. Scully was the only Canadian surgeon appointed to both the North American and World Panels which published articles and guidelines about the diagnosis, emergency, management and follow up monitoring of Björk Shiley mechanical heart valves at fractional risk of sudden failure with catastrophic risks to patients. Dr. Scully has published more than 450 peer reviewed papers and abstracts, focusing on heart valve and cardiac surgery as well as been invited as a speaker at many national and international meetings. From all these experiences, he became an early advocate and promoter of what is now heralded as the "Team Approach" to the diagnosis, patient management, teaching and research of cardiovascular disease.

Dr. Scully is the recipient of many awards and recognition, including the Commemorative Medal for the Queen's Golden Jubilee for contribution to health/health care in 2002; the Medal of Service from the Canadian Medical Association in 2010; Lifetime Achievement Award from the Canadian Cardiovascular Society; the Bigelow Lecture, from the Canadian Cardiovascular Congress and most recently the Gold Medal Award from the Institute of Cardiovascular Sciences (University of Manitoba) for outstanding contributions to Cardiovascular Surgery, Research, Teaching and Leadership in 2021. Aside from his notable academic achievements, it is also noteworthy that Dr. Scully is the first physician member of the Canadian Motorsport Hall of Fame (in 2000) being elected for leadership in motorsport medicine and safety in Canada and the world. Since 2011 he is serving as President of the Canadian Motorsport Heritage Foundation and Chair of the Canadian Motorsport Hall of Fame and since 2108. Dr. Scully is an Honorary Member of the Canadian Motorsport Rescue Team. Of note, a 1996 book authored by Prof. Sid Watkins entitled "Life in the Fast Lane: Triumph and Tragedy in Formula One" was dedicated to 3 people who have made an outstanding (worldwide) contribution to safety in autos sport, namely, Lord Stanley, Sir Jackie Stewart and Prof. Hugh Scully.

Dr. Ranko Škrbić

Dr. Ranko Škrbić

Ranko Škrbić, was born on 10 April 1961 in Banja Luka, Bosnia and Herzegovina, Yugoslavia. He graduated from the Faculty of Medicine, University of Banja Luka in September 1986. After completing his internship at the Emergency unit of the Primary health care centre he continued with postgraduate study at the Faculty of Natural Sciences, Zagreb University, Croatia and he defended his MSc thesis in Experimental Pharmacology in 1991. As a Japanese Government Research fellow he spent 13 months (1989-1990) at Shinshu University, Matsumoto, Japan doing the research in the field of cardiovascular pharmacology. At that time his main focus of interest was the vascular responses of various vasoactive substances and the role of different signalling mechanisms involved in it.

In 1994 Dr. Škrbić defended his PhD thesis at University of Belgrade, Serbia, and in year 2000 he finished the Specialization in Clinical Pharmacology at the Faculty of Medicine, University of Novi Sad, Serbia. In his professional carrier he was engaged in the basic pharmacology, toxicology and clinical pharmacology studies, performing various functions, from Junior Researcher and Research Assistant, to Leading Scientist, Associate Professor, Full Professor and Head of Department of Pharmacology and Clinical Pharmacology at Medical Faculty, University of Banja Luka. Beside teaching, Dr. Škrbić is very much involved in the research activities of the Centre for Biomedical Research of the Faculty of Medicine, University of Banja Luka and has been appointed as a Mentor or Co-Mentor of several PhD theses

He also finished several short term courses and training such as Drug information training at Bristol Royal Infirmary, Bristol, UK in 1999, and Short term course in Pharmacoeconomics at London School of Economics (LSE), London, UK in 2000.

Aside from scientific area of professional engagement Dr. Škrbić had several important appointments such: Head of National Drug Information Centre which was established in collaboration with WHO and EU-ECHO project (1998-2006); Chairman of Drug Registration Committee of Republic of Srpska (1999-2002); Regional Coordinator for EU PHARE program for Pharmaceutical Sector Development in Bosnia and Herzegovina (1998-1999); Regional Coordinator for UNICEF program on Essential Drugs and Rational drug use in Republic of Srpska (Bosnia and Herzegovina, 1999-2000); Regional Coordinator EU-CARDS program for Health Care Reform in Bosnia and Herzegovina (2000-2002); Short term consultant for Development of Accreditation Standards and Clinical Guidelines, EPSILON Research, Development and Consulting, doo, Banja Luka (in collaboration with Basic health Project of the World Bank; Accreditation and Quality Assurance) (2001-2003).

From 2006-2013 Dr. Škrbić was appointed as a Minister of Health and Social Welfare, of the
Government of the Republic of Srpska, BiH, and then as an Ambassador of Bosnia & Herzegovina in Belgrade, Serbia (2013-2015). After two years being in diplomacy he turned back to University and has been elected as a Dean of Faculty of Medicine, University of Banja Luka.
He has authored some 150+ scientific papers and book chapters so far, with main focus in cardiovascular pharmacology, neurotoxicology, pharmacoepideimology and rational drug use.

Dr. Miloš P Stojiljković

Dr. Miloš P Stojiljković

Miloš P Stojiljković was born on 5 December 1960 in Belgrade, Serbia, Yugoslavia. He accomplished his undergraduate training in Sarajevo, Bosnia and Herzegovina, Yugoslavia and graduated from the Faculty of Medicine, University of Sarajevo on 28 September 1984. After completing his internship at the Military Medical Academy in Belgrade, Serbia, Yugoslavia, he remained in Belgrade developing his career as a military physician, reaching finally the rank of Colonel in 2002. Dr. Stojiljković continued his education at the Faculty of Medicine, University of Belgrade, Belgrade, Serbia, Yugoslavia where he defended his MSc thesis in Experimental Pharmacology in 1991 and passed the final specialist exam in Clinical Pharmacology in 1992. His main focus became the development of new antidotal combinations against nerve agents and trichothecenes and, as a result, he defended his PhD thesis of prophylactic antidotes against acute poisoning with soman in rats in 1996. He spent as a Postdoctoral Fellow in Clinical Pharmacology 15 months (1999-2000) at the Medical University of South Carolina, Charleston, SC, USA, under the guidance of Professor Brent M Egan.

Dr. Stojiljković served at the Pharmacology and Toxicology Department of the Military Medical Academy until 2004, where he performed several duties, including the one of the Chief of the Department. It was at the Military Medical Academy where he became Assistant Professor in 1997 and Associate Professor in 2002. He later on resigned from the active military duty and moved with his family to Denmark, where he spent two years as Clinical Pharmacologist at the Odense University Hospital, Southern Denmark University in Odense, Denmark.

Upon his return to Serbia in 2006, he assumed senior roles at several pharmaceutical companies and marketing agencies working with pharma industry (Actavis, Pfizer, Novartis, Executive Group). In parallel to this career, Dr. Stojiljković has been continuously teaching Pharmacology, Toxicology and Clinical Pharmacology at the Faculty of Medicine, University of East Sarajevo, ever since 1997, until 2019. During this period, he served as Adjunct Professor (1997-2009) and as Full Professor (2019-2019) in Pharmacology, Toxicology and Clinical Pharmacology.

Since 2016 Dr. Stojiljković became involved in the PhD Programme at the Faculty of Medicine, University of Banja Luka, where he was first appointed Professor of Pharmacology, Toxicology and Clinical Pharmacology and Programme Director and later, in 2020, Vice-Dean, Scientific Research and Postgraduate Education. Besides teaching, Dr. Stojiljković is very much involved in the research activities of the Centre for Biomedical Research that was formed by the Dean, Faculty of Medicine, University of Banja Luka, in 2018. He was appointed Mentor or Co-Mentor of several PhD theses. Since 2018, Dr. Stojiljković has also served as a Consultant in Clinical Pharmacology and Advisor to the Director, Dedinje Cardiovascular Institute in Belgrade, Serbia.

Dr. Stojiljković was Technical Editor of the scientific journal Archives of Toxicology, Kinetics and Xenobiotic Metabolism 1991-2000 and has been Associate Editor, Drug and Chemical Toxicology since April 2018 and Editor-in-Chief, Scripta Medica since August 2018. He has authored some 250+ scientific papers and book chapters so far, with main focus in neurotoxicology and cardiovascular pharmacology and toxicology.

Professor Stojiljković has been happily married since 1989 and has two children. He lives in Belgrade and Banja Luka.

Dr. Srinivas Tipparaju

Dr. Srinivas Tipparaju

The training, background and experience of Dr. Srinivas Tipparaju include PhD from Central Drug Research Institute, Lucknow (Hamdard University), post-doctoral training in Cardiovascular Research from Emory University, Atlanta. He worked at Emory University, University of Louisville, and University of South Florida which are top rated universities according to US News and Reports. He contributed as PI, Co-I and collaborator in many extramural, internal grants and funded research projects. As tenured Professor, Dr. Tipparaju published papers in high impact peer reviewed journals including Journal of Molecular and Cellular Cardiology, Acta Physiologica, American Journal of Physiology, Pflügers Archiv: European Journal of Physiology, Circulation Research, Biochemistry, Drug Metabolism Reviews which include original articles and review papers. Additionally, he contributed and published book chapters and edited book, presented his work in research and scientific, educational conferences and as invited presentations. **Following is a short description for the research accomplishments:**

As PI, Dr. Tipparaju received NIH R01 grant at University of South Florida, for the project entitled "Redox regulation of Kv channel", he established independent research team with focus on understanding cardiovascular disease. He recruited Research associate, post-doctoral fellow, research technician, and graduate student and collaborators in the program. As PI his NIH R01 grant application received top percentile score of 4% received funding from NIDDK the project is entitled "Protecting the diabetic skeletal muscle by Nampt activation". He trained and mentored young or new faculty for developing research projects and achieving advanced academic positions. Additionally, he received American Heart Association grants as PI, and NIH R21 grant (role Co-I) and other internal grants at University of Louisville. Dr. Tipparaju developed these proposals and worked in teams to successfully secure the funding. He secured state, industry sponsored grants and internal awards as principal investigator (PI) for projects in which he led the team. He collaborated with Practice/Clinical faculty for such projects; presently they have Pharm D and MD (clinical faculty) in the projects as collaborators which directly utilize their expertise in the research projects.

Professional Service: Dr. Tipparaju served as panel member on many prestigious study sections and editorial boards, the membership includes his contributions at NIH ad hoc study sections, American Heart Association, scientific journals.

Academic accomplishments and Didactic teaching: As Professor, Dr. Tipparaju developed Doctor of Pharmacy courses as Course Coordinator/Director and Instructor for professional courses. He planned and utilized a multi-pronged active learning approach and incorporated the use of Laboratory based training, Industry rotations and compounding pharmacists for providing a well-rounded approach for student experiences. He collaborated with Pharmaceutical Industry and compounding pharmacy experts to provide experiences at external sites for achieving this objective. He developed strategic alliances and partnerships which allowed students for working as interns which is direct result of my initiatives at University of South Florida. He provided direction, and leadership for exam development and student assessment.

Department Chair: As Chair for the Department of Pharmaceutical Sciences, and William Saunders Endowed Chair in Geriatric Pharmacotherapy at Taneja College of Pharmacy, University of South Florida. Dr. Tipparaju inspired and mentored the department members in mission areas for providing direction, leadership, establish procedures and guidelines, contributed significantly for receiving ACPE college accreditation for faculty, staff, and student success. Based on his leadership contributions and guidance the department has successfully received many NIH grants for the faculty which includes faculty success programs for existing faculty. As Chair, he successfully recruited NIH funded faculty from other universities that were inspired by their success story and moved to the College with his leadership. As Chair for the Department of Pharmaceutical Sciences, he currently supervises 14 faculty, 3 staff.

Overall, as Professor, Chair and Endowed Chair at the University of South Florida, Dr. Tipparaju provided key

leadership both as academician and as researcher that led to receiving extramural funding support, industry sponsored projects. As academician he provides didactic teaching to Doctor of Pharmacy, and graduate students. In a short span 10 years with his key contributions and leadership they successfully achieved top 50 position in the Blue Ridge rating for research, and Top 50 rank for the Taneja College of Pharmacy in the Pharmacy Academy (per US News and Reports). As reviewer, Dr. Tipparju served both as panel member and chaired many NIH study sections. He frequently reviews papers for top scientific journals and serve as editorial board member. He serves as mentor to Assistant and Associate Professors and collaborate with nationally reputed researchers in US and international faculty. Dr. Tipparju served on many high-profile councils, editorial boards, and study sections for scientific review. He provided scientific talks, lectures to students and at highly reputed conferences and organized scientific meetings.

Dr. Rhian M. Touyz

Dr. Rhian M. Touyz

Dr Touyz, is the recently appointed Executive Director and Chief Scientific Officer of the Research Institute of the McGill University Health Centre and Dr. Phil Gold Chair in Medicine, McGill University, Montreal, Canada. She was recruited to Montreal in September 2021 after serving 10 years as the Director of the Institute of Cardiovascular & Medical Sciences (ICAMS) and British Heart Foundation Chair and Professor of Cardiovascular Medicine, University of Glasgow, United Kingdom.

Dr Touyz, a clinician-scientist, received her BSc (Hons) (1980), MBBCh (1984), MSc (1986) and PhD (1992) in South Africa. She completed a post-doctoral fellowship at the Clinical Research Institute of Montreal (CRIM) in 1996 and then progressed the scientific/academic ladder to become Staff Scientist and Professor in the CRIM. In 2005 she was recruited to the Kidney Research Centre, Ottawa Hospital Research Institute, Univeristy of Ottawa, where she was the Canada Research Chair in Hypertension Tier 1, until 2011 when she was recruited to the University of Glasgow to direct ICAMS.

She is an elected Fellow of the Academy of Medical Sciences (FMedSci), the Royal Society of Edinburgh (FRSE), the College of Physicians and Surgeons (FRCP), AHA (FAHA), European Society of Cardiology (FESC) and Canadian Academy of Health Sciences (FCAHS).

Dr Touyz serves on scientific advisory boards and expert panels of numerous international institutions including the Max Delbruck Centre for Molecular Medicine, Berlin; INSERM, L'Unite de Recherche de L'Institut du Thorax, Nantes, France; Mayo Clinic Cardiovascular Research Center,USA; MRC London Institute of Medical Sciences, UK; the Wellcome Trust Physiology in Health and Disease, UK and Imperial College BHF Centre of Research Excellence, London UK.

She has played major leadership roles in the premier national and international hypertension and cardiovascular organisations. She was President of the Canadian Hypertension Society (2007-2008), Chair of the High Blood Pressure Research Council (AHA) (2010-2012), President of the International Society of Hypertension (2014-2016) and President of the European Council for Cardiovascular Research (2019-2021). She was the founder and Chair of the 'Women in Hypertension Research Network' of the International Society of Hypertension, the mission of which is to encourage, support and inspire women in science and medicine in the field of hypertension and related cardiovascular diseases and to facilitate new avenues for communication, collaboration and education. She is Editor-in-Chief of Clinical Science, in- coming Editor-in-Chief of Hypertension, and Associate Editor of Pharmacological Reviews.

Her research focuses on molecular and vascular mechanisms of hypertension and small vessel disease with a particular interest in i) vascular signaling and redox biology; ii) vascular biology of cations and TRPM channels; iii) cardiovascular oncology, and iv) cardiometabolic and adipose biology. Her research spans molecular biology to clinical studies and she uses a combination of proteomics, cellular and molecular biology, transgenic models, molecular imaging technologies and

human physiological assessment. She has a particular interest in translational and clinical research. She has published over 555 peer-reviewed papers and her research has been funded by the CIHR, HSFC, JDRF, BHF, ERC, MRC, Wellcome Trust and Leducq Foundation.

She has received numerous prestigious awards, including the Dahl Award (American Heart Association (AHA)), Harriet Dustan Research Award (AHA), Robert M. Berne Distinguished Award (American Physiological Society), Distinguished Scientist Award (Hypertension Canada), RD Wright Award (BP Research Council, Australia), Irvine Page Award (American Society of Hypertension), Joan Mott Award (Physiology Society) and premier international hypertension honor, the Research Excellence Award (Council on Hypertension, AHA).

She is also actively involved in contributing to best clinical practice and co-chaired the Canadian Hypertension Education Program for clinical guidelines and is a current member of the Committee for Practice Guidelines of the European Society of Cardiology.
In addition to her clinical and scientific activities, she is an inspirational leader and passionate mentor and teacher and has trained over 70 PhD students and fellows, in basic, translational and clinical research. Many of her trainees have gone on to successful independent academic and clinical careers.

Dr. Nathan D. Wong

Dr. Nathan D. Wong

Dr. Nathan Wong is a cardiovascular epidemiologist, specialist in preventive cardiology, and Professor and Director, Heart Disease Prevention Program, Division of Cardiology at the University of California, Irvine in California, where he has been on faculty since 1988, with joint appointments in Epidemiology and UCLA and UC Irvine. He holds MPH and PhD degrees in epidemiology from Yale University and is a fellow of the American College of Cardiology (ACC), American Heart Association (AHA), National Lipid Association (NLA), and American Society for Preventive Cardiology (ASPC). He is currently president of the Interamerican Heart Foundation, focusing on cardiovascular health promotion in Latin America, and is a past president of the ASPC and Pacific Lipid Association (Chapter of the NLA). He served on the board of the ASPC for many years and is a current board member of the NLA. He is also a past chair of the AHA Prevention Science Subcommittee and long-time member of the ACC Prevention Leadership Council and Member Services and Credentialing Committee, and the AHA Council on Epidemiology and Prevention.

Dr. Wong has primary research interests in the epidemiology of subclinical atherosclerosis, including vascular calcification, as well as epidemiology and management of dyslipidemia, diabetes, and cardiovascular disease. He has participated as an investigator or collaborator on key prospective studies, including the Framingham Heart Study, Cardiovascular Health Study, Multiethnic Study of Atherosclerosis, and Women's Health Initiative. He has authored over 350 papers and co-edited seven textbooks, including the Braunwald Companion on Preventive Cardiology and two editions of the ASPC Manual on Preventive Cardiology. He is also on the editorial board of several cardiology and diabetes-related journals, including serving as co-editor-in-chief of the American Journal of Preventive Cardiology. Dr. Wong lectures locally, nationally and internationally on various topics in preventive cardiology.

Dr. Wong is a recent recipient of the Joseph Stokes III Award for lifetime achievement in preventive cardiology from the American Society for Preventive Cardiology (ASPC), as well as a recipient of the Jan Kellerman Memorial Award for Achievement in Preventive Cardiology, ASPC Presidential Citation Award, and Distinguished Fellowship Award from the International Academy of Cardiology, and is listed in Who's Who in America and Who's Who in the World. He is also a recent recipient of the Albert Nelson Marquis Lifetime Achievement Award and elected Full Professor of the European Center for Peace and Development formed by the United Nations. Dr. Wong is a long-time member of the Sierra Club, past mountain climber, and enjoys skiing, hiking, kayaking, and paddleboarding in his spare time

Academy Establishes Paul Ganguly Distinguished Lecture Award in Cardiovascular Science

Dr. Paul Ganguly, MBBS, MD, FACA, FIACS
Professor and Chairman, College of Medicine, Alfaisal University, Kingdom of Saudi Arabia
Email: pganguly@alfaisal.edu

Dr. Paul Ganguly

The Academy is most pleased to announce the establishment of an Annual Distinguished Lecture Award in Cardiovascular Sciences in the name of Dr. Paul Ganguly. After his medical degrees (MBBS, Residency and MD) from India, Dr. Ganguly joined the experimental Cardiology Laboratory at the Department of Physiology, University of Manitoba. Dr. Ganguly was one of the promising postdoctoral fellows and was recruited as a faculty member at the internationally well recognized cardiovascular Institute at St. Boniface Hospital Research Centre in Winnipeg, Canada in 1982. He showed an exceptional dedication to research, teaching and service to cardiovascular community from the very beginning. His research work on catecholamine (sympathetic activity), atrial natriuretic factor and catecholamine receptor changes (G- protein interaction in kidney basolateral membrane), oxidized product of catecholamines (adrenochrome and adrenoleutin) and brain changes (neuropeptide Y, homocysteine and excitatory amino acids) in health and disease received immediate recognition from both Canada as well the United States. He received the most prestigious awards from the Rh Institute, University of Manitoba; Heart and Stroke Foundation of Canada scholarship; Young Investigator Award from the Canadian Cardiovascular Society; Young Investigator Award from the American College of Angiology; Merit Award from the International Society for Heart Research; Fellowship from the International Academy of Cardiovascular Sciences; and Merit Award from the University of Manitoba, Canada for his scholarly work in cardiovascular sciences. He was invited to spend a year in Harvard Medical School, USA as a visiting Professor to work on chronically instrumented techniques in the Department of Internal Medicine. Many of his graduate students also received various awards and are presently well-placed in their careers. Till today, Dr. Ganguly has published over 150 peer-reviewed publications: mostly in reputed journal having high impact factors. One of his edited books is based on his earlier research entitled **Catecholamines and Heart Disease**.

Dr. Ganguly had joint appointment as a Faculty member in the Department of Anatomy, University of Manitoba, Canada. His interest in medical Education allowed him to visit McMaster University, Canada and later to Arabian Gulf University, Bahrain where he spent as a Chairman of Anatomy to establish an integrated anatomy resource center for problem-based learning. Dr. Ganguly recently edited two books on medical education (**Education in Anatomical Sciences and Health and Disease: Curriculum for the 21st Century Medical Students**) and is currently working as a Professor and Chairman of Department of Anatomy, College of Medicine, Alfaisal University, Kingdom of Saudi Arabia. He received a very prestigious award, **Best Professor in Anatomy**, from the Asian Education Leadership Organization in Dubai and several recognitions on his scholarly activities at Alfaisal University. He has been getting recognition as invited speaker world- wide in various symposia, meetings and conferences related to Cardiovascular Sciences and Medical Education.

Academy Establishes Amarjit Arneja Distinguished Lecture Award for the Prevention of Heart Diseae

Dr. Amarjit Arneja, MD, MBBS, FRCPC
Former Associate Professor, University of Manitoba
Victoria, BC, Canada
Email: amarjit7arneja@gmail.com

Dr. Amarjit Arneja

In view of Dr. Amarjit Arneja's high commitments for preventing heart disease, IACS is pleased to establish an Annual Distinguished Lecture in his name. Dr. Amarjit Arneja was born in Punjab, India, came to Winnipeg in 1973 as an intern, and completed residency and fellowship in physical medicine and rehabilitation in 1979. He quickly began his career at the Health Sciences Centre and St. Boniface Hospital. Dr. Arneja, over a period of 39 years, is known as one of the most caring, compassionate and innovative physicians. His hard work and vision was evident in his roles as Director of the Amputee and Musculoskeletal Rehabilitation Programs in Winnipeg (1980), and the Founding Director of the Amputee Program Day Hospital. As a result of his dedication and contributions, he has been honoured with the War Amps of Canada Recognition of Excellence in the area of amputee rehabilitation. He has been instrumental in introducing new programs and treatments which have greatly improved the lives of many Manitobans.

Despite a busy practice, Dr. Arneja always made time for family and friends and was a fantastic role model for his two sons who are now physicians as well. With family responsibilities and his busy clinical workload, balancing academic interests would be difficult, and published 67 papers, 3 book chapters and an eMedicine chapter. On the occasion of his retirement from the University of Manitoba and the Health Sciences Centre, in the fall of 2019, Dr. Arneja established the Dr. Amarjit Arneja Visiting Professorship Fund to foster excellence and knowledge in medicine and support the engagement of an annual visiting speaker, thus bringing the best minds from other centres to the University of Manitoba.

As a result, Dr. Arneja's dedicated services were recognized by awards: • Silver Pin from the College of Physicians and Surgeons of Manitoba (2006) • Lifetime Achievement and Service of Excellence Award from the Manitoba Association of Asian Physicians (2012) • Queen Elizabeth II Diamond Jubilee Medal (2013) for outstanding contribution to both the art and science of rehabilitation medicine • Distinguished Service Award from Doctors Manitoba (2018) Additionally, he has been a member of various boards over the years including: Manitoba Tennis Association, Manitoba Human Rights Commission, Manitoba Human Rights Museum (raising $400,000), Manitoba Health Appeal Board, India Association of Manitoba, Punjab Foundation of Manitoba, the Reh-Fit Centre, and India Canada Cultural and Heritage Association.

Dr. Jim Paratt: Misadventures in Heart Research

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Dr. Jim Parratt

Jim Parratt has postgraduate degrees (MSc, PhD) in both physiology and pharmacology as well as higher doctorates from the University of London (DSc med) and, in 1974, from the University of Strathclyde in Glasgow. He was elected a Fellow of the Royal Society of Edinburgh (FRSE, Scotland's National Academy established in 1783) in 1986. He is an Emeritus Fellow of the European Society of Cardiology, a Founding Fellow of the International Society of Heart Research and a Fellow of the Royal College of Pathologists. The International Academy of Cardiovascular Sciences awarded Jim a Lifetime Achievement Award in 2014.

In recognition of his long association with the countries of the former Eastern Europe he was given an honorary doctorate in medicine (MDhc) by the Szent-Gyorgyi Albert Medical University, Szeged, Hungary in 1989 and, in 1995, the Gold Purkyne Honorary Medal of the Czech Academy of Sciences. He is an honorary member of the Polish Physiological Society, the Czech and Slovak Cardiological Societies and the Slovak Medical Society. Jim is the author of three books on the interaction between science and faith. His 'memoir', 'A scent of water – adventures in faith and science' was published by the Handsel Press in Edinburgh in November 2021.

Heinrich Taegtmeyer's fascinating article in the September/October edition of CV Network set me thinking about my own somewhat longer journey in cardiovascular research. It is said that it is 'the younger men who see visions and the older that dream dreams' and it is sometimes interesting, at least for them, to look back over a relatively long life spent in research and dreaming about what might have been! Perhaps being within striking distance of 90 years old (or young) is as good a time as any. Maybe even the only time!

I was a second year PhD student in 1956 when I was introduced to Sir Henry H Dale, winner of the 1936 Nobel Prize for Physiology and Medicine, together with Otto Loewi, for their work on the chemical transmission of nerve impulses. In his later years, he died in 1968 at the age of 93, his main scientific publications, selected by himself, were published in a book entitled 'Adventures in Physiology'. This is still one of my favourite reads. Perhaps I have a very tenuous link with this famous British scientist because his earliest publications were on the heart (in 1909) and on shock (in 1919) which were to become the main areas of my own research. There is another link with this famous medical scientist. Among his co-workers in the 1930s in London were John Gaddum and Wilhelm Feldberg. It was being present at a lecture by Gaddum that first stimulated me to become a pharmacologist, whilst Feldberg was the examiner for my own PhD.

What intrigues me looking back looking back are the misadventures in research - those incidents where I missed the relevance of what I had found. These were regarded as unimportant because they did not 'fit' with preconceived ideas. The really gifted scientist sees such 'oddities' as lines for investigation that could become even more important than the 'expected' results. Here are three examples of my own 'misadventures,' one from each of the three countries in which I worked in nearly sixty years of heart research.

After completing my doctorate my first appointment was in Nigeria, where I taught pharmacology from 1958 to 1961 and then physiology from then until the end of 1966. My first interest (also one of Dale's) was in histamine and its presence in mast cells, where it has a role in inflammation. During my PhD studies I found that, in some species, these cells also contain 5-hydroxytryptamine (5HT). This amine is also found in significant amounts in tropical fruit such as pineapples and bananas, which were easy to access because they grew in my own garden in Nigeria.

Now there is a disease of the heart called endomyocardial fibrosis (emf) that is especially present in areas of the world (East and West Africa and the Caribbean) where plantain (a fruit similar to banana) is eaten as a vegetable. We knew from the literature at that time that 5HT is capable of causing myocardial damage, so I wondered if 5HT was a factor in the development of emf? To examine this, we persuaded (not bribed!) some of our African medical students, as well as the staff of the Physiology Department, some patients with emf and some with other forms of cardiac disease, to ingest as many bananas as they could manage. As one of the volunteers it was a long time before I could eat another banana! We measured how efficient these individuals were in breaking down 5HT by measuring the urinary output of its major breakdown product, 5HIAA. The emf patients were found to be less capable of breaking down 5HT, meaning that circulating levels would be higher than in non-cardiac subjects. The results, implying that 5HT could be a factor involved in this cardiac disease, were published in the Lancet. Now, any cardiologist reading this would be able to detect a flaw in this conclusion!

This simple study taught me two things. Firstly, the importance of attempting to 'tie up' basic cardiovascular research with relevant clinical situations – from 'bench to bedside;' those of us usually at the bench should have this in mind. Secondly, quite reasonable experiments can be performed with quite simple materials, in this case an easily available assay, some willing patients and bananas!

I moved to Glasgow in December 1966 and the next example illustrates that sometimes we miss something important that is under our very noses!

One of my first research students came from Ghana. He worked on isolated coronary arteries from pig hearts, which were obtained from the local slaughterhouse. He found that the responses of these coronary vessels to catecholamines changed following storage under cold conditions. Responses to both adrenaline and noradrenaline were, in fresh preparations, relaxation, due to an action on beta-adrenoceptors. However, on storage this response changed to a contraction, through an action on alpha-adrenoceptors. Why this reversal in response? We joked about looking for beta-adrenoceptors floating around in the surrounding fluid!

What we missed (and this was in the late 1960s) was that storage can lead to loss/damage of the endothelium. Our results showed that there was something in the intact endothelium that modified responses to one of the body's important neurotransmitters. In other words, there must be a vasodilator material present that was absent when the endothelium was damaged or denuded. Of course, we now know what this 'vasodilator material' is.

I once had the privilege of co-chairing a symposium with Bob Furchgott, a delightful, humble man, who had been rewarded for his work on 'endothelial derived relaxing factor'(EDRF). This he told me was an 'accidental discovery.' Bob had asked the 'why' question about an unusual experimental result and then continued to probe; we had simply missed what was under our noses.

Another strange idea came when I was working at the Western Infirmary in Glasgow in the late 1970s. Dick Marshall and I were interested in the determinants of blood flow in the ischaemic myocardium and whether it was possible to increase oxygen availability and hence save (salvage) cells in danger of dying. In the Department of Surgery where we worked there were two hyperbaric chambers, large enough to contain an operating table and three or four people. We often worked at 2 atmospheres (2ATA), which greatly enhances the oxygen pressure and content of blood. The idea we had was this - if we brought patients, who had had a recent myocardial infarction, into the chamber and very slowly increased the pressure to 2ATA, perhaps giving them oxygen to breathe would reduce myocardial cell death by 'driving' oxygen into the ischaemic region.

The problem was that in order to measure blood flow at this time (2-4h after the onset of flow reduction) we had to overcome the early fatal arrythmias that occurred when a coronary artery is occluded. We found that if, after occluding the artery, we released the occlusion as soon as the first ventricular arrythmias started to appear, the arrythmias on re-occlusion were much less severe. This survival from the effects of coronary artery occlusion meant that we could then measure blood flow in the developing ischaemic zone many hours later. That would be the time when, we thought, patients with an infarction could have reached the hospital. This idea failed because we were not able to increase flow into the ischaemic region (and hence oxygen availability) at this time since oxygen itself has an intense vasoconstrictor effect. This we were not able to overcome with vasodilator drugs.

However, the point we missed (and this was in the early 1980s) was earlier in the experiment. The question was why releasing the occlusion, when the arrythmias began to appear, had a protective effect against fatal arrythmias when the artery was later re-occluded. So, that single short coronary artery occlusion was a form of the protection, at least against subsequent occlusion- induced fatal arrythmias. Looking back, I would conclude that this was a form of what Bob Jennings and his group defined as preconditioning, when applied to the reduction in cell death.

Later, in Szeged, Agnes Vegh and I worked a great deal on the protective effects of short coronary occlusions against

early post-occlusion arrythmias. These disorders of cardiac rhythm are perhaps responsible clinically for many cases of sudden cardiac death. We later also showed that this, as well as the protection afforded by cardiac pacing and by exercise, is largely due to the production of nitric oxide (NO).

This interest in NO brought together the two strands of my research interests – coronary blood flow, arrythmias and shock induced by sepsis and bacterial endotoxin.

This interest in shock began, again at the Western Infirmary, with my involvement in the 'shock group.' This had been set up to reduce the mortality of patients with septic shock, which was, at that time, over 90%. The reason that this was a particular concern of a university department especially involved with abdominal surgery, was that the accidental entry into the blood stream of bacteria, normally living for the benefit of us (and them!) in the gut lumen, was a serious, problem.

Now, one of the early consequences for such patients in septic shock is the early loss of vascular reactivity to noradrenaline, the transmitter at sympathetic nerve endings. The blood pressure falls and it is difficult to restore this to safe levels by the administration of exogenous catecholamines. The question we set out to investigate was the reason for this loss of vascular reactivity and with, Jean-Claude Stoclet and his team in Strasbourg, we soon found that this is due to the excessive production of NO.

Now here came another idea, not as silly as it may first appear. I tried to persuade some of my PhD students, working on the metabolic effects of bacterial endotoxin to, at the end of their experiments, to give their hearts (or rather the hearts of the endotoxin treated rats!) to other students in the laboratory working on preconditioning. The idea being that, if endotoxin turned on NO production and if NO was involved in the protective effects of preconditioning, then the hearts of rats given endotoxin should be protected against the effects of coronary artery occlusion. The students thought this was not such a clever idea (they were more involved in other 'set' plans and my suggestion would be a distraction) and it was only when a student from China came to work with me that this was investigated. The hearts of rats given bacterial endotoxin were indeed protected against the effects of coronary artery occlusion. This led to attempts to produce non-toxic derivatives of the lipid A component of endotoxin as being possible protective against the effects of myocardial ischaemia. And indeed these did prove to be cardioprotective.

What conclusions do I draw from these misadventures? First, do not ignore the unusual result. It may prove to be more important than the one perhaps expected. Second, I have discovered the importance of collaborations with those working in other laboratories, even perhaps in another country. This has led to strong friendships, and a great deal of fun that are some of the delights of being involved in science. Thirdly, sometimes (often?) the 'senior investigator' might be right. Lastly, reading old literature can be both fun and instructive. Papers published five years go might still be relevant and will save you doing (repeating) something that has already been explored before! Not all ideas are new! I still learn much from those papers written even a hundred years before I was born. Which brings me back to Henry Dale.

Dr. L. Maximilian Buja: Striving for Balanced Excellence - My Multifaceted Career in Academic Medicine with a Core Focus on Cardiovascular Pathobiology

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Dr. L. Maximilian Buja

I am exceedingly grateful for the many opportunities that I have been able to advantage into a grounded personal life with a wonderful family and a fulfilling professional life in academic medicine. I herein provide a personal reflection on my multifaceted career and accomplishments.

Roots in New Orleans, Louisiana

As a native of New Orleans, Louisiana, who grew up in a Garden District home build in 1852, I became imbued with the heritage and culture of this unique city noted for jazz, great cuisine and joie de vivre. My father, Louis Marcus Buja, was a civil engineer who graduated from Tulane University in 1921, and my mother, Fay Kofler Buja was a homemaker whose ambition to become a physician was thwarted by mores of the time. My father and mother instilled in me and my sister, Fay Maxine, core ethical values, a strong work ethic, high expectations for academic achievement, and humanitarian instincts. I think that my parents' expectations for me are reflected in my given names of Louis Maximilian Gregory, those of a king, an emperor and a pope. My sister became a social worker and I became a physician.

I received a rigorous high school and college education at Jesuit institutions in New Orleans. My education included courses in Latin, Greek and English literature in high school, and courses in philosophy, theology, mathematics and history of science as well as biological and chemical sciences in college. At the urging of my parents, I pursued an accelerated course of studies, including taking quantitative chemistry and organic chemistry in the summers, so that I completed the pre-medical curriculum in 3 years. My diligence in undergraduate studies was rewarded when, in 1963, I was accepted into the Medical School of Tulane University.

Tulane Medical School was founded in 1834 and is the 15th oldest medical school in the USA. For many years (until the Hurricane Katrina disaster), Tulane faculty and students taught and learned clinical medicine at the Charity Hospital of New Orleans which was founded on May 10, 1736, within one month of the opening of Belleview Hospital in New York City. At "Big Charity", we worked side by side with folks from the rival medical school in town, Louisiana State University School of Medicine (only around since 1931). As a Tulane medical student, I became exposed to an environment steeped in medical history including a grand tradition in cardiovascular medicine and surgery, with luminaries including Dr. Rudolf Matas (1860-1957), the "Father of Vascular Surgery"; Dr. Alton Ochsner (1896-1981), a leader in thoracic surgery who trained Dr. Michael DeBakey; and Dr. George Burch (1910-1986), a shaper of modern cardiology, noted for his research on the fundamental physiological basis of important cardiovascular diseases (1).

After my first year of medical school, by chance, I obtained a summer job in the laboratory of Dr. Victor J. Ferrans who was a young cardiologist and protégé of Dr. Burch. After obtaining his MD from Tulane, Dr. Ferrans completed clinical training in internal medicine and cardiology combined with research work in histochemistry

and electron microscopy leading to a PhD in Anatomy. Dr. Ferrans had joined the faculty and established his laboratory for only a couple of years before I joined him. Victor Ferrans became my mentor and friend who had a seminal influence on my career trajectory as week as many others (2). He was a superb investigative cardiologist/pathologist. I worked off and on in Dr. Ferrans' laboratory while gaining an MD degree in 1967 and serving as a clinical intern at Charity Hospital from 1967 to 1968. Under his guidance, I performed work on the light and electron microscopic histochemistry of the rat heart which resulted in a MS in Anatomy in 1968. Very importantly, demonstration of my thesis work during my interviews was instrumental in my acceptance into a position in the US Public Health Service at the National Institutes of Health. This was at the height of the Vietnam War, and without my research with Victor Ferrans, my life and career likely would have developed very differently.

Another seminal event happened when, as a third-year medical student in 1966, I married the love of my life, Donna Steele Kinney. We subsequently have been joined in our journey together with three great sons, Max, Evan and Gregory, their spouses and three grandchildren.

Training at the NIH, Bethesda, Maryland

At the NIH, I became a trainee of Dr. William C. Roberts who was director of the cardiovascular pathology program of the National Heart, Lung and Blood Institute. Dr. Roberts became my second mentor. From him, I learned the skills of examination of cardiac and vascular specimens and clinicopathological correlation. After I introduced Dr. Roberts to Dr. Ferrans, Dr. Ferrans joined Dr. Roberts and established an ultrastructure division of the pathology program. After my first 2 years as a fellow in cardiovascular pathology, I spent 2 years as a pathology resident in anatomic pathology in the National Cancer Institute, and then 2 more years in a junior staff position with Dr. Ferrans and Dr. Roberts. I gained certification in Anatomic Pathology from the American Board of Pathology in 1972.

At the Clinical Center of the NIH, I was able to be involved in clinical training and Autopsies I performed as a resident resulted in the first publication of cardiac ultrastructural lesions of anthracycline cardiotoxicity in man, cardiac pathological findings in patients undergoing bone marrow transplantation, and pathologic features of multiple endocrine neoplasia type 2 (Sipple's syndrome). These 6 years at the NIH provided an unparalleled environment that fostered my professional development into a physician-scientist and pathologist with a subspecialty of cardiovascular pathology.

Investigative Focus at The University of Texas Southwestern Medical Center, Dallas, Texas

In 1974, I commenced an academic career with a faculty appointment at UT Southwestern Medical School. Dr. James T. Willerson was instrumental in my recruitment to UT Southwestern. We had met when we were both fellows in training at the NIH. Dr. Willerson recognized the need for a cardiovascular pathology component in order to achieve his ambition of establishment of a major comprehensive cardiovascular research program. We were successful in obtaining an NIH/NHLBI Ischemic Heart Disease Specialized Center of Research (IHD SCOR) grant.

Shortly before my arrival, radiologists at UT Southwestern had confirmed their idea that technetium-99m pyrophosphate (99mTc-PYP), a radiochemical which was originally developed for bone scanning, might show positive uptake in the hearts of patients with suspected acute myocardial infarction. Some patients showed 99mTc-PYP uptake in an ovoid pattern surrounding a lucent area ("doughnut pattern") and others had smaller areas of uniform positive uptake. My first project was to determine the pathological basis for the detection of acute myocardial infarction with 99mTc-PYP with different imaging patterns. In a series of studies of canine myocardial infarction, I documented that the "doughnut pattern" was due to selective uptake of 99mTc-PYP in peripheral regions of the infarcts with marked calcium accumulation in irreversibly injured cardiomyocytes (CMC) whereas smaller infarcts showed diffuse uptake of the agent (3). These seminal studies of experimental myocardial infarction established the pathobiological basis for the detection of ischemic and infarcted myocardium with diagnostic imaging techniques, including 99mTc-PYP and 201thallium, a tracer of myocardial perfusion.

These observations in experimental myocardial infarction led me to pursue basic experimental work on the role of altered calcium homeostasis in the pathogenesis of ischemic, hypoxic and toxic injury of CMC (4). This work was facilitated by the technological expertise of Dr. Herbert Hagler, a bioengineer. We initially utilized analytical electron microscopy with electron probe x-ray microanalysis for measurement of intracellular electrolyte concentrations (4,5), and subsequently, microspectrofluometry with fura-2 for measurement of intracellular ionic calcium transients (6). These studies produced a comprehensive body of experimental work (1974-1992) that established the primary role of cell membrane damage in the progression of lethal cell injury based on correlation of progressive derangements of intracellular electrolytes leading to calcium overload in relationship to membrane phospholipid degradation and ultrastructural changes.

While a faculty member at UT Southwestern Health Science Center at Dallas, I was both the principal investigator of my own research project and also director of the pathology core laboratory for the NIH-sponsored IHD SCOR. In addition to the work on membrane pathophysiology, I was engaged in other mechanistic studies of myocardial ischemic injury and infarction. I also contributed pathological expertise which was essential for the successful completion of many projected reflected in publications from the IHD SCOR.

Parallel Track Career at The University of Texas Health Science Center at Houston

Although my research work had progressed well, I developed a growing aspiration to take on a leadership role in academic medicine. So, in 1989, I accepted an offer to become Chairman of the Department of Pathology and Laboratory Medicine of the Medical School at The University of Texas Health Science Center at Houston. Independently of my decision, Dr. Jim Willerson accepted an offer to become Chairman of Internal Medicine at UT-Houston. We now were in different circumstances with more responsibilities that resulted in a change of our relationship.

At UT-Houston, I embarked on a career with multiple parallel tracks. On the administrative leadership track, I served as Chairman of the Department of Pathology and Laboratory Medicine (1989-1996), Dean of the Medical School (1996-2003), Executive Vice President for Academic Affairs (2003-2009) and Executive Director of the Texas Medical Center Library (2009-2016) as well as a number of leadership roles with various academic societies and organizations. In 2000, I also became the Chief of Cardiovascular Pathology at the Texas Heart Institute (THI), providing oversight of a research laboratory, at the invitation of Dr. Jim Willerson, by that time recognized as a leading cardiologist and editor of Circulation, Dr. O.H. (Bud) Frazier, a leader in the fields of cardiac transplantation and ventricular assist devices, and Dr. Denton Cooley, the renowned cardiovascular surgeon who founded the THI. Being approached by such an august group, how could I refuse.

I have approached my various administrative appointments as opportunities to foster academic excellence as a servant leader of an academic enterprise. While serving in these various leadership roles, I remained committed to participation in educational and investigative activities. While no longer able to maintain NIH funding as a principal investigator, I have found other resources and way to support my research. At UT-Houston, I continued to pursue mechanistic studies of modes of cell injury and death, including mechanistic studies of oncotic necrosis and apoptosis (7). Combining my interests in contemporary research and medical history, I have written perspectives on cellular pathology and atherosclerosis linking important earlier discoveries to contemporary research (7,8). I have produced a series of reviews of myocardial ischemia, ischemia-reperfusion injury and myocardial conditioning that have synthesized knowledge and identified gap areas to foster further research (9,10). I also have provided an evidence-based perspective on the limited regenerative capacity of the mammalian myocardium and general ineffectiveness of stem cell therapy, thereby challenging unsubstantiated claims in the field (11).

Since 2016, I have been full-time in the Department of Pathology and Laboratory Medicine. I lead a program and clinical service in cardiovascular and pulmonary pathology, and I direct the department's autopsy service at our affiliated hospitals. I serve as the senior pathologist for our Center for Advanced Heart Failure providing expertise in the evaluation of native hearts removed at the time of heart transplantation and endomyocardial biopsies (EMB) taken for monitoring post-transplant rejection. I am a consultant to the Harris County Institute of Forensic Sciences where I conduct a monthly cardiovascular pathology case review.

Over the years, I have contributed pathological expertise to numerous studies of cardiovascular and pulmonary diseases conducted in experimental models and man. Two recent studies are representative. First, in collaboration with colleagues at UT MD Anderson Cancer Center, we documented the value of endomyocardial biopsy (EMB) in the diagnosis and grading of immune checkpoint inhibitor (ICI) myocarditis and made recommendations regarding criteria for continuation of ICI therapy (12). Second, my colleagues and I have documented the detailed pathology of COVID-19 respiratory disease with multisystem involvement (13). Our publication was one of the first to provide a comprehensive analysis of pathological changes in severe COVID-19 infection (14). The work documented the occurrence of florid diffuse alveolar damage with microangiography and coagulopathy, thereby providing the rationale for early anticoagulation in severely ill COVID-19 patients. The paper has been cited over 250 times on Google Scholar and recognized as a highly cited paper and hot paper by Clarivate Web of Science. My colleagues and I have also produced a comprehensive review of human corona virus diseases (15).

Throughout my career, I have maintained a focus as a medical educator with regular presentations and interactions with medical students, graduate students, clinical residents and fellows. In 2004, I was appointed as the UT System Chancellor's Health Fellow in Medical Education with a charge to advance the educational mission across all the UT health institutions. I organized and became the first president of the UT System Shine Academy of Health Science Education which sponsors an annual Innovation in Health Science Education conference

(16). In 2007, I was designated as a Distinguished Teaching Professor in the University of Texas System. In 2014, my teaching efforts were recognized with the University of Texas Health Science Center at Houston President's Excellence in Teaching Award.

I have forthrightly presented a critical analysis of contemporary medical education with the goals of shoring up basic biomedical science in the undergraduate medical curriculum and fostering the development of future physician-scientists (17). I have also championed the importance of the autopsy in medicine (18). The COVID-19 pandemic is a case in point as to the importance of the autopsy in establishing the pathological basis for new diseases (13-15). I have attempted to disseminate my perspectives through open access internet-based venues (19-21).

With my colleague, Gerhard Krueger, we have produced two atlases of pathology to foster learning and application of pathology to medicine (22,23). I have addressed areas of educational and investigative interest in my contributions to the leading textbook, Cardiovascular Pathology (24). I am co-editor and an author of chapters on the scope of practice and training in cardiovascular pathology, ischemic heart disease, congenital heart disease, basic pathobiology of cell-based therapies and pathology of cardiac interventions and devices. I also have engaged in the peer-review process as another route for dissemination of knowledge. I am in a third five-year term as the Editor-in-Chief of Cardiovascular Pathology, the official journal of the Society for Cardiovascular Pathology. My reward for the work as editor is access to up-to-date scholarly work in the field.

Perspectives

I think that motivating factors for my multiple track career have been a combination of a focus on personal achievement and leadership imparted by my parents and teachers, and reinforced in medical school by my mentor, Victor Ferrans, coupled with my own ambition. These factors have led me to strive for balanced excellence in all aspects of academic medicine, including research, education, clinical service and administration. I think my research has had an influence on other investigators and helped to advance cardiovascular medicine (h-index for my publications of 82). I appreciate various awards I have received for my work and career. I also think that my multifaceted activities have made a positive difference for good in the lives of many students, colleagues and patients. This is a source of immense satisfaction and is my legacy. I have no current plans to retire and intend to keep pursuing my quest for balanced excellence for the duration.
For more information, see: https://www.lmbujamd.org

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23rd Institute of Cardiovascular Sciences, Naranjan Dhalla Cardiovascular Awards Day

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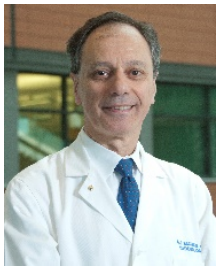
The Institute of Cardiovascular Sciences (ICS) at the St. Boniface Hospital Albrechtsen Research Centre in Winnipeg, Canada has been holding an Annual Awards Day to celebrate excellence in cardiovascular research, education and training. Dr. Naranjan Dhalla the founder of the Institute of Cardiovascular Sciences established the Cardiovascular Awards Day to recognize an individual's leadership and achievements in promoting cardiovascular research, education, as well as their lifetime contributions to the cardiovascular community. These awards also honour individuals at various stages of their careers from summer and graduate students to world leaders whose achievements significantly influenced cardiovascular education and medicine.

The awards which have been named after several leaders in cardiovascular medicine, research and education, as well as life-long service to the Institute includes: 1) Dr. Robert E. Beamish Leadership Award for outstanding leadership in cardiovascular sciences and education; 2) Mr. Ken Bowman Research Achievement Award for outstanding achievements in cardiovascular research; 3) Dr. John Foerster Distinguished Lecture Award for lifetime contributions to cardiovascular medicine; 4) Dr. Vincenzo Panagia Distinguished Lecture Award for cutting edge research in cardiovascular sciences; 5) Mr. Jack Litvack Exemplary Service Award for exemplary service to the Institute of Cardiovascular Sciences; 6) Dr. Arnold Naimark Young Investigator Award for excellence in cardiovascular research by a post-doctoral scientist; 6) Dr. Henry Friesen Young Scientist Award for excellence in cardiovascular research by pre-doctoral trainee; 7) Sr. Jacqueline St-Yves Publication Award for best paper published in cardiovascular research; 8) Institute of Cardiovascular Sciences Award for a trainee at the masters of science level, 9) Mr. Kalwant Dhalla Research Technician Award for high quality of dedicated technical services; 10) Dr. Ted Cuddy and Dr. James McGoey Student awards for exemplary performance of summer students. In addition, the ICS gold medal, which recognizes the lifetime achievement and leadership of an individual in cardiovascular medicine, in research, teaching, and service was awarded to Dr. Hugh E. Scully. The awards day program comprised of a Scientific Program and Awards Ceremony. Over the years, this premier awards program has honoured many distinguished scientists and several Nobel Prize Laureates.

The 23rd Annual Institute of Cardiovascular Sciences, Naranjan Dhalla Cardiovascular Awards Day was held on December 2nd, 2021, with some slight modifications. Due to Covid-19 pandemic restrictions on public gatherings, the Scientific Program was held virtually. I am pleased to announce the awards winners as follows:

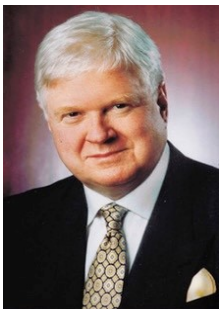
Robert Beamish Leadership Award
Dr. David Lefer
New Orleans, USA

Ken Bowman Research Achievement Award
Dr. Elizabeth Murphy
Bethesda, USA



John Foerster Distinguished Lecture Award
Dr. Ali J. Marian
Houston, USA

Vincenzo Panagia Distinguished Lecture Award
Dr. Merry Lindsey
Omaha, USA



Institute of Cardiovascular Science Leadership Gold Medal
Dr. Hugh Scully
Toronto, Canada

The awards program was a tremendous success and showcased the outstanding cardiovascular research and training in Winnipeg, Canada. We are very proud of Dr. Naranjan Dhalla for his vision and leadership for establishing the awards program which has become a world class event of the Institute of Cardiovascular Sciences at the St. Boniface Hospital Albrechtsen Research Centre and the University of Manitoba.

IACS India Section Elects New Council Members for 2022-2025

Dr. Chandrasekharan Kartha, the President for the India Section of the Academy announces the results of election for the Council Members for the year 2022-2025:

PRESIDENT*:* Ramesh Goyal, PhD, FAMS, FNASc, FIAN, FIPS, FIACS – Vice Chancellor, DPSRU, New Delhi (Pharmacology)

PAST-PRESIDENT: Chandrasekharan Kartha, MD, – Professor, Kerala Institute of Medical Sciences

VICE PRESIDENT: Tejal Gandhi, PhD, FIACS – Principal, Anand Pharmacy, Anand (Pharmaceutical Sciences)

VICE PRESIDENT: Harikrishnan S, MD, DM, FRCP, FACC, FAMS, FIACS – Chief of ICMR Center for Advanced Research and Excellence in Heart Failure, SCTIMST, Trivandrum (Cardiology)

VICE PRESIDENT: Trupti Swain, MD, PhD – Head of the Department, SCB Medical College, Cuttack (Pharmacology)

VICE PRESIDENT: Praveen Varma, MS, MCh- Head of the Department, AIMS, Cochin (Cardiac Surgery)

SECRETARY GENERAL: Mukesh Nandave, PhD - DPSRU, New Delhi (Pharmacology)

JOINT SECRETARY*:* Abdul Jaleel, PhD- RGCB, Trivandrum (Metabolomics, Lipidomics, Proteomics)

MEMBER: Ramu Adela, MPharm, PhD- NIPER, Guwahati (Pharmacy Practice)

MEMBER: Kalyani Barve, PhD - NMIMS, Mumbai (Phytochemistry)

MEMBER*:* Dhandapany P, PhD - InStem, Bangalore (Genetics)

MEMBER*:* Kavita Gulati,PhD - VPCI, New Delhi (Traditional Medicine)

MEMBER*:* Jeemon P, MPH, PhD - SCTIMST, Trivandrum (Public Health, Epidemiology, Cardiovascular Disease Prevention)

MEMBER*:* Abhinav Kanwal, PhD -AIIMS, Batinda (Epigenetics)

MEMBER*:* Jagavelu Kumaravelu, PhD - CDRI, Lucknow (Vascular biology)

MEMBER*:* Nitish Mahapatra, PhD, FNASc - IIT Madras, Chennai (Biotechnology)

MEMBER*:* Anupam Mittal, PhD- PGIMER, Chandigarh (Translational and Regenerative Medicine)

MEMBER*:* Ipseeta Ray Mohanty, PhD - MGM Medical College, Mumbai (Pharmacology)

MEMBER*:* Bhoomika Patel, PhD- NIRMA University, Ahmedabad (Pharmacology)

MEMBER: Yadav HN, PhD- AIIMS, New Delhi (Pharmacology)

ACADEMY OF CARDIOVASCULAR SCIENCES

Indian Section of
INTERNATIONAL ACADEMY OF CARDIOVASCULAR SCIENCES

Academy Pays Tribute to Dr. Yevgeniy Chazov, a Great Cardiologist, Leader and Peace Activist

Dr. Yevgeniy Ivanovich Chazov
1929-2021

It is with saddness that we announce the passing of Dr. Yevgeniy Ivanovich Chazov on November 11, 2021. He was described as Russia's most famous cardiologist and pioneer of thrmbolysis [1]. Dr. Chazov was a graduate of Kiev Medical Institute. He was a physician to leaders of the Soviet Union and Russa, specializing in cardiology. Indeed, in his memoirs, *Health and Power*, Dr. Chazov describes the many situations concerning the health of Soviet leaders. He was Chief of the Fourth Directorate of the Ministry of Health of the former U.S.S.R., Academicianof the Russian Academy of Sciences and the Russian Academy of Medical Sciences. Dr. Chazov was the director of the Moscow Cardiological Centre since 1976. It is one of the largest such centres in the world that encompasses 10 separate institutes. It should be noted that Dr. Chazov was a co-founder and co-president of the International Physicians for the Protection of Nuclear War. At that time this group represented more than 135,000 members from 41 different countries. This group was responsible for the promotion of research on probable medical, psychological and biospheric effects of nuclear war. To this end, the group was awarded the Nobel Peace Prize in 1985. Of note, Dr. Chazov gave the acceptance speech in Oslo.

He has been the recipient of many awards including the Order of Lennin (in 1969, 1976, 1978 and 1981), the U.S.S.R. State Prize in 1975, Order of Merit to the Fatherland in 2004, 2009, 2014 and 2019. In a recent article [1], his granddaughter, Dr. Olga Mironova, Associate Professor and Chair of Internal Diseases of Sechenov University in Moscow revealed that "I am always amazed by the work my grandfather did at the Cardiology Research Centre, when he was working with patients, he never chose what kind of patient he saw, it didn't matter to him if it was General Secretary or an ordinary patient not connected with politics.".

Dr. Naranjan Dhalla remembers Dr. Chazov fondly. Dr. Dhalla was introduced to Dr. Chazov by Prof. Alexi Chernukh of the Pathophysiology Institute in Moscow, in 1976, where Dr. Dhalla was presented with a medal from the USSR Academy of Medical Sciences in Moscow. Dr. Chazov was a highly committed individual who was deeply interested in promoting cardiovascular activities in the Soviet Union. Not only did Dr. Chazov invite Dr. Dhalla several times to the Soviet Union for participation in many different conferences, he also forged a US-Soviet Scientist Exchange Program with Dr. Howard Morgan. He developed the Soviet Section of the ISHR and organized the highly successful 10th meeting of the ISHR in 1980. The success of proceedings of this meeting were published in "Advances in Myocardiology" Volume 3 edited by E. Chazov, V. Smirnov and N.S. Dhalla, and in "Advances in Myocardiology" Volume 4 edited by E. Chazov, V. Sachs and G. Rona; both published by Plenum Medical Book Company, New York, USA. The ISHR meeting led Dr. Chazov to organize the World Heart Congress a few years later in Moscow. He not only chaired the world's largest Institute of Cardiovascular Medicine, but also served as Health Minister of the Soviet Union for a long time. Dr. Chazov was elected as Fellow of the International Academy of Cardiovascular Sciences and was very fond of developing a Western approach for the practice of cardiovascular medicine in the Soviet Union.

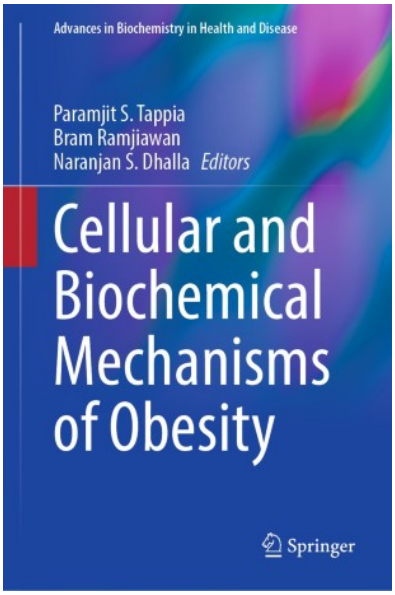
Reference:

1. Nicholls M. Following in the footsteps of a cardiology legend and Nobel laureate. CardioPulse. 2415-2416. Doi: 10.1093/eurheart/ehab182.

Other Source:

Wikipedia.org/wiki/Yevgeniy_Chazov

Tappia, Ramjiawan and Dhalla Edit Book on Obesity Published by Springer Nature



The well-being of the global population has been challenged with the epidemic of obesity. Obesity is a complex and multifactorial health hazard. While obesity itself can be considered as a metabolic disease that reduces quality of life and life expectancy, the occurrence of a variety of obesity-related complications including cardiovascular diseases, cancer, type 2 diabetes, renal dysfunction, liver defect, mobility limitations and neurological/psychological disorders also contribute to the human and economic burden of obesity. Therefore, advancement of the understanding of the mechanisms as well as causes of obesity can further our knowledge such that appropriate and concerted efforts for prevention of obesity and associated health problems can be undertaken.

"Cellular and Biochemical Mechanisms of Obesity" brings together contributions from global experts that present their perspectives on obesity that will stimulate exploration for effective approaches for the prevention of this major public health hazard and concern. It describes recent advancements in the pathogenesis of obesity and related complications that will inspire innovative research for disease prevention worldwide.

The book features 21 chapters in two different parts in this book, comprising of Part I: Pathophysiologic Mechanisms of Obesity (11 chapters) and Part II: Therapeutic Mechanisms of Obesity (10 chapters). https://link.springer.com/book/10.1007/978-3-030-84763-0

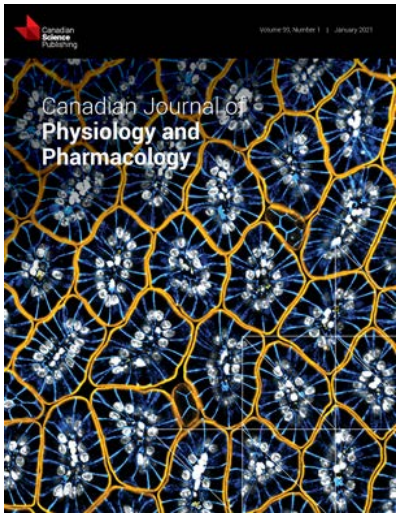
Two earlier volumes dedicated to the subject of obesity, published in the series "Advances in Biochemistry in Health and Disease" focused on the pathophysiology of obesity-induced health complications and the biochemistry of cardiovascular dysfunction in obesity.

Official Partnering Journals of the International Academy of Cardiovascular Sciences

IACS partnering journals:

1. *Canadian Journal of Physiology and Pharmacology*
2. *The Journal of Cardiovascular Aging*
3. *Heart Failure Reviews*
4. *American Journal of Cardiovascular Drugs*
5. *Reviews in Cardiovascular Medicine*

Readers are encouraged to submit original research articles and reviews to these partnering journals.



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Canadian Journal of Physiology and Pharmacology

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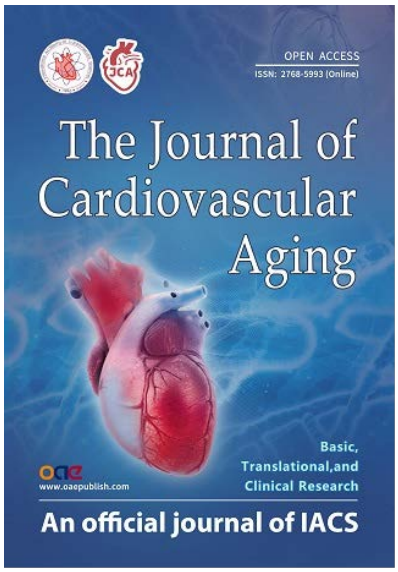

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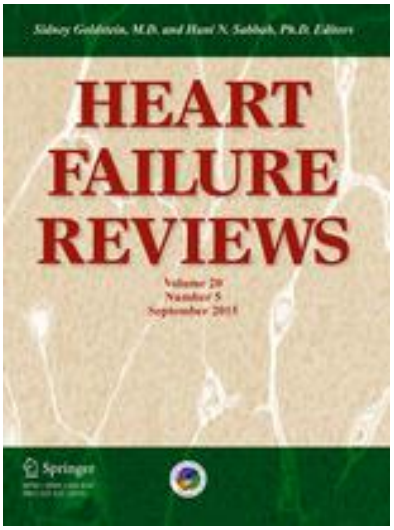

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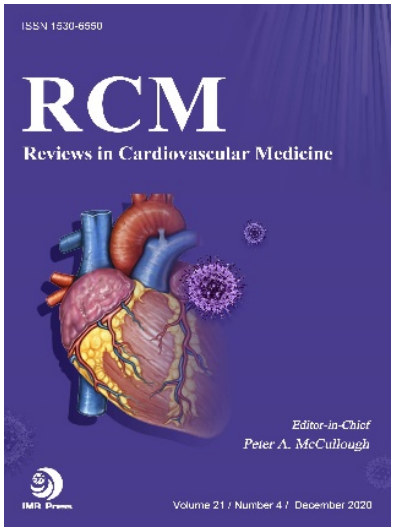

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1st Announcement for Conference "Advances in Cardiovascular Science and Medicine" Winnipeg, Manitoba, Canada

INVITATION

On behalf of the Organizing and Program Committee I am pleased to bring to your attention that the Institute of Cardiovascular Sciences, St. Boniface Hospital Albrechtsen Research Centre will host the 9th Meeting of North American Section of the International Academy of Cardiovascular Sciences (IACS) and the 41st International Society for Heart Research (ISHR) meeting on September 6th- 9th, 2022 in Winnipeg, Manitoba, Canada.

The Institute of Cardiovascular Sciences, which is located at the St. Boniface General Hospital campus is recognized as a world class cardiovascular research institute since its inception by Dr. Naranjan Dhalla in 1987.

The theme of the meeting entitled **"Advances in Cardiovascular Science and Medicine Through Diversity, Equity, and Inclusion supported Education, Research, and Technology Innovation".** Our goal is to attract and bring together the top cardiovascular scientists, clinical cardiologists, research fellows and trainees, from all over North America to participate in this scientific forum.

The meeting will be held at the historic Hotel Fort Garry, one of the most iconic hotels in North America known for its ornate and turn of the century design. The conference will be comprised of 24 scientific symposia and clinical tracks focused on women's heart health, cardioprotection, cardiometabolic diseases, risk factors, oxidative stress, arrhythmogenesis, inflammation, molecular genetics, epidemiology, prevention, circadian biology, heart failure, nutrition, exercise physiology and applied aspects in cardiovascular health care delivery, will be presented. The scientific program will include a broad mix of topics from molecular, cellular, clinical and integrative aspects of cardiovascular sciences with a special focus on early and midcareer investigator programs.

The meeting will serve as a platform for the exchange of new ideas and concepts offer a great educational opportunity for advancing career development of early and mid-career young investigators and trainees. Winnipeg has a rich heritage in performing arts, sports and cultural activities, museums and galleries. It's vibrant night life and international cuisine make it a popular tourist destination for visitors from all over the world. The city is geographically located in the center of Canada and is easily accessible through the James Richardson International Airport from Canada and the USA. The combination of outstanding speakers, themed symposia and meeting venue will offer a great scientific experience.

We are hopeful that you will join us and participate in this unique scientific forum and wish you a warm welcome to Winnipeg, Manitoba, Canada.

Lorrie Kirshenbaum, Conference Chair
Director, Institute of Cardiovascular Sciences
Winnipeg, Canada

Conference Chair/Organizing and Program Committees

Lorrie Kirshenbaum, Winnipeg, Canada

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Conference Coordinator: Kairee Ryplanski, Winnipeg, Canada

Symposia Topics

- Pathophysiology of Cardiovascular Disease in Women
- Hormonal Therapy and Women Heart Health
- Translational Medicine in Cardiovascular Aging
- Frailty and Cardiovascular Diseases in Males and Females
- Proteomics and Proteotoxicity in Cardiovascular Dysfunction

- Advances in Cardiac Repair and Gene Therapy
- Advances in Cardiovascular Biology
- Cardiac Regeneration and Cellular Therapy
- Molecular Biology of Cell Death and Autophagy
- Epigenetics and Cardiac Disease
- Metabolic Syndrome in Cardiovascular Abnormalities
- Metabolic Defects in the Pathogenesis of Heart failure
- Role of Inflammation in Cardiac Dysfunction
- Molecular Mechanisms of Hypertension
- Current Concepts for the Genesis of Arrhythmias
- Targets for the Prevention of Cardiac Fibrosis
- Mitochondria and Cardiac Dysfunction
- Cardiac Development and Congenital Abnormalities
- Advances in Cardiovascular Science
- Advances in Cardiovascular Medicine
- Naranjan Dhalla Cardiovascular Awards Symposium
- Prevention of Heart Disease

Awards

Oral Presentations

Two awards competitions for young investigators will be organized at this meeting:

Roberto Bolli Awards Competition for Postdoctoral Fellows and Junior Faculty – 4 speakers will be invited.

Garry Lopaschuk Awards Competition for Graduate Students – 4 speakers will be invited.

Poster Presentations

The **two poster sessions** will be held on **Wednesday, September 7th, 2022** and **Thursday, September 8th, 2022**. A total of 12 poster awards will be given. These awards will be named after **Morris Karmazyn** (4) **Margaret Moffat** (4) and **Naranjan Dhalla** (4)

Established Investigator Awards

Several investigators will be honoured during the Awards Ceremony with named awards such as Amarjit Arneja, Dennis McNamara, Jawahar Mehta, Howard Morgan, Makoto Nagano, Paul Ganguly, Grant Pierce and James Willerson Awards for their Leadership and Excellence in Cardiovascular Science.

Abstracts

Abstract Submission Deadline **April 15th, 2022 (4:00 p.m. CST)**
Authors – On a right-hand side a field with spaces for full names, email address and affiliation for each author can be found. By clicking on "+", additional fields for co-authors can be opened.

Body of abstract – Its length is limited to 350 words.
In case that the presentation itself brings original data from experiments or clinical trials, please make a structured abstract with following sections:
Background/Aim, Methods, Results, Conclusion.

In case that the presentation itself is more of a review or a state-of-the-art type, please write a non-structured abstract.

Key words – Please, write 3-5 key words, with the capitalized first letter.

References – ***4 references are required***. In the text, they should be marked with arabic numerals – e.g. (1), (2), (3) and (4). Below the abstract, whole references should be written, according to the Vancouver style. Example: Lopes HF, Egan BM. Visceral adiposity syndrome and cardiometabolism. Scr Med 2021 Jun;52(2):144-50.

Instruction for abstracts requirements can be found and submitted on the official meeting website: www.iacs2022.com

Important Information

Meeting date
Tuesday, September 6th, 2022 – Thursday, September 8th, 2022

Registration
The registration desk will be open on:

Tuesday, September 6th, 2022	4:00 p.m. – 6:00 p.m.
Wednesday, September 7th, 2022	8:00 a.m. – 5:00 p.m.
Thursday, September 8th, 2022	8:00 a.m. – 4:00 p.m.

Registration Information

The registration fee includes, attendance to meeting sessions, congress bag, and social program: Welcome reception, 2 continental breakfasts, 4 coffee breaks, 2 lunches, 2 poster session wine and cheese receptions, 1 informal dinner and 1 gala dinner.

Type of participant	Early bird registration Discount Until May 1st, 2022	Registration after May 1st, 2022
Researchers (with the exception of invited speakers)	$500 CAD $450 USD	$600 CAD $550 USD
Students and Fellows	$425 CAD $375 USD	$475 CAD $425 USD

Hotel Accommodation

The Fort Garry Hotel

222 Broadway, Winnipeg, MB R3C 0R3

https://www.choicehotels.com/reservations/groups/YP76A3

Hotel Room Type: Double Bed**,** Queen Bed and King Bed are available.

All participants are expected to make their own reservation from the Hotel. Special Room Rates for the conference are being negotiated.

Registration and accommodation forms can be found on the official meeting website at a later date: www.iacs2022.com

Publication of Full-Length Papers

A certain number of presentations will be selected and invited to be published as full-length papers in a special issue of the internationally recognized journal *Canadian Journal of Physiology and Pharmacology*. These invited papers will be formally reviewed according to the peer- review procedure of the journal.

Organizing and Program Committee Contact

Lorrie Kirshenbaum, PhD, FAHA, FIACS, FISHR, FFGTB, FCAHS

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FIRST ANNOUNCEMENT

Conference Chair:
Dr. Lorrie A. Kirshenbaum
Director, Institute of Cardiovascular Sciences
St. Boniface Hospital Albrechtsen Research Centre