

KEITH REIMER, M.D.

1946-2002

Keith Arnold Reimer, M.D., Ph.D., Professor of Pathology at Duke University Medical School, internationally recognized cardiovascular scientist, pathologist, and teacher, died on March 15, 2002 of metastatic renal cell carcinoma at the age of 56. Keith began his career in experimental pathology studying ischemic injury of the kidney, however he quickly shifted his focus to myocardial ischemic injury, the field in which he went on to make his major scientific contributions. After completing the MD/PhD program at Northwestern University in Chicago, Keith joined the faculty at Duke University in 1975 as Assistant Professor of Pathology. Early in his career, working in collaboration with Dr. Robert B. Jennings, he published landmark studies describing and characterizing the "wavefront phenomenon" of myocardial ischemic cell death. These studies, published in two papers (*Circulation* 56: 786-794, 1977; and *Laboratory Investigation* 40: 633-644, 1979), have been cited more than 1000 times. During the early 1980s, Keith developed methods to measure baseline predictors of infarct size, such as area at risk and collateral flow, that have become the standard for generating reliable and reproducible data to test cardioprotective interventions. The effort to discover cardioprotective interventions led to one of Keith's most notable achievements – the description of one of the strongest and most reproducible interventions for reducing infarct size: ischemic preconditioning. Numerous investigators and laboratories have worked to better understand this remarkably effective intervention, and the ever-expanding number of studies on ischemic preconditioning, in a wide variety of tissues, have consistently confirmed the original observation that brief periods of ischemia and reperfusion are not detrimental, but are actually markedly protective. The original article describing the phenomenon of ischemic preconditioning, "Preconditioning with ischemia: a delay of lethal cell injury in ischemic myocardium" (*Circulation* 74: 1124-1136, 1986) has been cited more than 1700 times.

Keith was an active member of the ISHR since 1976, and was elected a Councilor of the American Section in 1979, serving until 1985. He was a finalist for the Richard Bing Young Investigator Award of the ISHR in 1980. Keith served as Secretary of the American Section from 1985-1994, and as a member of the Council of the International Society from 1989-1995. In 1997, he became President-Elect of the American Section and was the sitting President of the American Section, as well as a member of the International ISHR Council, when he died.

About the Award...

Each year, the International Council selects a speaker to deliver the Keith Reimer Distinguished Lecture at the World Congress or speaker's section meeting. The purpose of this lecture is to honor the memory of Dr. Reimer and to recognize his contributions to cardiovascular research. The topic of the lecture must be in the field of ischemia, coronary hemodynamics, cardiac metabolism, or contractile mechanisms. The speaker receives a plaque and \$1,000. honorarium in addition to travel expenses.

*This award is funded by a generous contribution from
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ISHR

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THE KEITH REIMER DISTINGUISHED LECTURE 2004



Honored Speaker

Dr. R. John Solaro

"Sarcomeric Proteins as a Center
of Multiplex Functions in Signaling
and Mechano-Transduction in
the Myocardium"

R. JOHN SOLARO, PH.D.



R. John Solaro has been Professor and Head of the Department of Physiology and Biophysics in the College of Medicine at the University of Illinois at Chicago since 1988. Dr. Solaro is also Co-Director of the UIC Center for Cardiovascular Sciences. In 1998, he was appointed Distinguished University Professor at the University of Illinois.

Dr. Solaro graduated from the University of Pittsburgh, College of Medicine with a PhD degree in 1971. In the same year, he was appointed to the faculty at the Medical College of Virginia. In 1975-76, Dr. Solaro was a British-American Heart Fellow in Birmingham, England. In 1977, he joined the faculty at the University of Cincinnati, where he was supported by an NIH Research Career Development Award and was offered an AHA Established Investigator award. In 1987, he was a Fogarty International Fellow at University College London.

At UIC, Dr. Solaro has received the University Scholar Award and the Faculty of the Year Award. Dr. Solaro served as Secretary General of the ISHR, as Scientific Council Chair of the American Heart Association of Metropolitan Chicago, and as a member of the Councils of the ISHR American Section, and AHA Council on Cardiovascular Sciences, and as Chair for the Gordon Research Conference on "Cardiac Regulatory Mechanisms." Dr. Solaro was a full member of the NIH Physiology Study Section and Chair of the Cardiovascular Sciences Study Section. He is past-president of the Cardiac Muscle Society and the Association of Chairs of Departments of Physiology. He has served as an Associate Editor of the *American Journal of Physiology*, and on the Editorial Boards of *Circulation Research*, *Journal of Molecular and Cellular Cardiology*, and *The Journal of Clinical Investigation*. He is a guest editor at *Circulation Research* of a thematic series on "Regulatory Signaling by Thin Filament Modulation."

2004 HONORED SPEAKER BRISBANE, AUSTRALIA

Dr. Solaro has published over 200 papers in the areas of cellular and molecular mechanisms controlling the contraction of the heart and how these mechanisms are altered by pathological conditions and by pharmacological interventions. He has done seminal work on the role of troponin and tropomyosin in switching on contraction, on the role of myofilament protein phosphorylation in the control of cardiac dynamics and in the transition to heart failure, on the unique properties of the embryonic/neonatal isoform of troponin I, and on the enhancement of myofilament activation by pharmacological agents, two of which, Acardi (Pimobendan) and Simdax (Levosimendan), are in clinical use. His current studies focus on multiplex functions of myofilament and Z-disc proteins in contraction and signaling. Dr. Solaro is currently the holder of a 10-year NIH Merit Award, and is Principal Investigator on an NIH Program Project Grant, an NIH RO1 Award, and an NIH Training Grant.

2003 HONORED SPEAKER

GERD HEUSCH, M.D., PH.D. STRASBOURG, FRANCE



Gerd Heusch graduated with an M.D. from the Univ. of Bonn in 1980, and with a Ph.D. from the Univ. of Düsseldorf in 1985. Since 1989, Dr. Heusch has been Professor and Chairman of Pathophysiology at the University of Essen Medical School. From 1999-2000, Dr. Heusch was a Visiting Professor in the Dept. of Physiology, Univ. of South Alabama, where he is now an Adjunct Professor.

Dr. Heusch's research has focused on the areas of α -adrenergic coronary vasoconstriction and myocardial hibernation/ischemic preconditioning. He was the first to identify α -adrenergic coronary vasoconstriction distal to coronary stenosis and the resultant myocardial ischemia in anesthetized dogs during cardiac sympathetic nerve stimulation, and subsequently characterized the responsible α_2 -adrenoceptor subtype and a feed-back cycle between sympathetic activation and myocardial ischemia. Recently, he identified a genetic background for enhanced α -adrenergic coronary vasoconstriction in patients.

Dr. Heusch developed a pig model of perfusion-contraction

matching and short-term myocardial hibernation, and subsequently characterized the limits of short-term hibernation in terms of blood flow, inotropic state and duration. He then studied the underlying mechanisms and found an important role for adenosine and K_{ATP} - channel activation in his pig model of ischemic preconditioning but not in short-term hibernation. He also characterized the reduction of calcium responsiveness and the role of endogenous NO in short-term hibernation. Recently, he has focused on the pathophysiology of coronary microembolization and its inflammatory consequences in the coronary microcirculation and surrounding myocardium.

Dr. Heusch has published 250 papers, including 150 original articles in peer-reviewed journals. He is currently President of the European Section of the ISHR.

2002 HONORED SPEAKER

ROBERTO BOLLI, M.D. MADISON, WISCONSIN



Dr. Bolli graduated from the University of Perugia (Italy) in 1976. He was appointed to the faculty at Baylor Medical College, where he rose to the rank of Professor. In 1994, he accepted the position of Chief of Cardiology at the University of Louisville.

For the past 25 years, Dr. Bolli has carried out careful, innovative studies that have enhanced our understanding of the mechanisms responsible for injury during ischemia and reperfusion and have provided a framework for developing cardioprotective strategies. His earlier work at Baylor established a fundamental role of reactive oxygen species in the pathogenesis of myocardial "stunning". He proposed, tested and validated the concept that myocardial stunning is a manifestation of oxygen radical-mediated reperfusion injury, and, more recently, he has identified, for the first time, the signal transduction pathways and the cardioprotective genes responsible for the late phase of preconditioning, thereby elucidating the molecular basis of this adaptation of the heart to stress. His discovery that the cardioprotection afforded by preconditioning is mediated by two proteins commonly thought to be detrimental (inducible NO synthase and cyclooxygenase-2) has impelled a reassessment of current paradigms regarding these enzymes and has paved the way for developing novel pharmacologic or genetic therapeutic approaches in patients with coronary artery disease. He has also performed translational research in which he has applied basic insights to the study of preconditioning in man. His discovery that nitroglycerin induces a late preconditioning effect in patients has revealed a new therapeutic property of nitrates.

Dr. Bolli has published 210 papers, including 150 original articles. He is presently a member of the NHLBI Program Project Review Committee (2000-2004), Secretary General and Treasurer of the ISHR (1998-2004), and Associate Editor of *Circulation Research* and of the *Journal of Molecular and Cellular Cardiology*.