



# ISHR

International Society for Heart Research

## The Keith Reimer Distinguished Lecture 2021

“Unfolding the misfolded: Cardiac amyloidosis  
then and now”



Ronglih Liao, PhD

2021 Honored Speaker  
ISHR/JMCC Cardiovascular Webinar

After she received her Ph.D. in biophysics at University of Alabama at Birmingham in 1990, Dr. Liao pursued her postdoctoral training at Beth Israel Hospital and Brigham and Women's Hospital, Harvard Medical school under the mentorship of Dr. Judith Gwathmey and Joanne Ingwall. She was then recruited to Boston University School of Medicine to begin her independent research career in 1996. In 2005, she was recruited back to Brigham and Women's Hospital, Harvard Medical School where she rose to the rank of Professor.

Dr Liao's research program has centered upon the interrogation of cardiovascular pathophysiology, from the molecular and cellular level to the organismal level, to understand the molecular underpinnings of cardiovascular diseases in human. Over decades, her laboratory has played an international leading role in the study of amyloid light chain (AL) cardiomyopathy, a rare and fatal form of cardiovascular disease. She has described the underlying pathophysiologic basis for amyloid cardiomyopathy and found that the circulating amyloidogenic light chain proteins that characterize this disease directly result in a specific cardiotoxic response. Consequently, Dr Liao's research work has redefined AL cardiomyopathy and has raised new treatment approaches.

More recently, her laboratory also embarked on investigation of other form of amyloidosis such as transthyretin amyloid (ATTR) cardiomyopathy and amyloid A (SAA) amyloidosis. In line with her goal of revealing novel therapeutic strategies for patients with cardiovascular disease, her efforts have also focused on revealing the molecular mechanisms and harnessing

endogenous cardiac regenerative capacities for cardiac repair and regeneration. In December 2017, she was recruited to Stanford School of Medicine and Cardiovascular Institute to co-direct the Stanford Amyloid Center with Drs. Ronald Wittles and Michaela Liedtke.

Importantly, her research efforts have universally involved collaboration with local, national and international colleagues. Importantly, over the course of her academic career, she takes great pride in mentoring the next generation of scientists, supervising numerous students, postdoctoral fellows, and junior faculty, many of whom have gone on to independent academic careers. Her contribution to the advancement of scientific knowledge has been promoted not only through her own discoveries but also the support of trainees, and academic and industrial collaborators.

## The Keith Reimer Distinguished Lecture

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 6000 times (the most cited paper in *Circulation*).

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.