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CaMKII, the Downstream Hypertrophic Signaling Pathway in the Heart: The 2009 Benedict R. Lucchesi Distinguished Lectureship Award

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During the 2009 experimental biology meeting in New Orleans, LA, the Division for Cardiovascular Pharmacology of the American Society for Pharmacology and Experimental Therapeutics (ASPET) presented the Benedict R. Lucchesi Distinguished Lectureship Award to Dr Joan Heller Brown of the University of California at San Diego. The Lectureship is a biennial award bestowed by the ASPET and the Division for Cardiovascular Pharmacology to honor a living legend of cardiovascular pharmacology, Dr Benedict R. Lucchesi. It pays tribute not only to Dr Lucchesi's lifelong scientific contributions that have bettered the treatment and prevention of cardiovascular diseases but also to his outstanding mentoring of countless prominent cardiovascular pharmacologists.

Since the early 1960s, Dr Lucchesi has made significant scientific contributions in 3 major areas: (1) the cellular and electrophysiological mechanisms involved in the genesis of reentrant arrhythmias in the ischemic heart and the pharmacologic interventions for the prevention of ventricular fibrillation or sudden coronary death, (2) the pharmacologic protection from an irreversible ischemic myocardial injury, and (3) the study of drugs that prevent arterial and venous thrombosis. His groundbreaking observations helped to translate basic research to the clinical practice of cardiovascular medicine and include discovering the antifibrillatory mechanism of propranolol (independent of β -adrenoceptor blocking activity), the prolongation of the ventricular effective refractory period through inhibition of potassium efflux (many years before awareness of selective potassium channels in the heart), the first in vivo demonstration of reperfusion injury, and the documentation of the roles of oxygen-free radicals and neutrophils as mediators of reperfusion injury. Dr Lucchesi also participated in the development of the first cardiac pacemaker implanted in humans, the first transdermal nitroglycerin patch, and the demonstration of physical dependence associated with the chronic use of tobacco. This work has been described in more than 400 research articles, 50 book chapters, and 4 books. In addition, among other awards, Dr Lucchesi has been honored with the ASPET Award for Experimental Therapeutics and the *Esprit de Coeur (Spirit of the Heart) Award for Distinguished Achievement*. He is a founding fellow of the International Society for Heart Research and chaired the ASPET

Division for Cardiovascular Pharmacology from 2001 to 2002. He has served on many study sections, advisory boards, and journal editorial boards, including the board of the *Journal of Cardiovascular Pharmacology*. More importantly, Dr Lucchesi has trained and mentored numerous graduate students and postdoctoral fellows many of whom have gone on to establish highly successful careers in both academia and industry. Dr Lucchesi is an exemplary role model and is a living legend for the field of cardiovascular pharmacology.

The recipient for the 2009 Benedict R Lucchesi Distinguished Lectureship Award is Dr Joan Heller Brown from the University of California at San Diego who delivered a lecture entitled “Cardiac hypertrophy and heart failure development through Gq and CaM kinase II signaling.”¹ Over the years, Dr Brown’s research has focused on signal transduction—even long before that term came into widespread use. Dr Brown’s groundbreaking contributions to the molecular and physiological understanding of cardiac myocyte growth, death, and function include the initial observation that cholinergic stimuli decrease cyclic adenosine monophosphate production in the heart. She linked adrenergic and cholinergic receptor signaling to phosphoinositide hydrolysis in the heart, reported on Gq-coupled receptor signaling involving an array of downstream mediators including protein kinases and delineated pathways in which both Gq and RhoA regulate cardiac myocyte hypertrophy and death. Her most recent work links activation of Gq signaling pathways and Ca²⁺/calmodulin-dependent kinase II (CaMKII) to the development of heart failure. Dr Brown’s work impressively spans from fundamental aspects of molecular, biochemical, and genetic analyses to integrative physiology.

Due in significant part to her productive efforts over the past 10 years in the emerging field of CaMKII signaling in the heart, many groups around the world have been stimulated to explore the role of CaMKII in the electrical and contractile activity of the heart and to consider how this Ca²⁺ regulated protein kinase impacts on mitochondrial integrity and cardiomyocyte survival. Indeed, Dr Brown has been an open and generous collaborator to many groups, and her collegial approach has made those around her better scientists and enriched the cardiovascular research community tremendously. Although Dr Brown has ascended to become an international star in the past decade, she has maintained the personal strengths to continue to contribute with excellent balance and perspective. She is an excellent collaborator and a dedicated mentor. She has trained scores of graduate students and postdoctoral fellows and junior faculty members in cardiovascular pharmacology. In particular, she has taken promising young scientists under her wing, helped them to succeed, and encouraged their careers to blossom. She is truly an outstanding role model for all scientists and is especially inspirational to women.

With her remarkable scientific achievements and outstanding services to the cardiovascular pharmacology and mentoring of young scientists, Dr Brown personifies the type of individual for whom the Benedict R. Lucchesi Distinguished Lectureship Award was created. Bestowing it on her recognizes her unique contributions, which have provided so much and continue to lead the field.

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