

ISHR Research Achievement Award

The purpose of this Award is to recognize a prominent scientist (1) who has a distinguished track record of innovative scientific contributions that have had a major impact on our understanding and/or treatment of cardiovascular disease and (2) who is likely to continue to make major contributions in the future. The main criteria for selecting awardees are scientific excellence and potential for future research contributions. While both the Outstanding Investigator Award (OIA) and the Research Achievement Award (RAA) recognize established investigators, the OIA (presented annually) is targeted at more junior individuals (at least Assistant/Associate Professor or the equivalent), while the RAA is targeted at more senior individuals (full Professors or the equivalent).

The Research Achievement Award is presented triennially at the ISHR World Congress, where the winner presents a major lecture. The Award consists of a plaque and a monetary prize of \$20,000, which will be used to support the research program of the awardee. An announcement of this Award, along with a photograph and a biosketch, will be published in *Heart News and Views*, and posted in the ISHR website.

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from Chugai Pharmaceutical Co.*



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ISHR

International Society for Heart Research

The Research Achievement Award 2010



Award Winner

Dr. Jeffrey Robbins
“Twenty years of changing
the heart: to the sarcomere
and beyond”

2010 Award Winner

Kyoto, Japan

Jeffrey Robbins, Ph.D.

Dr. Robbins received his Ph. D. in Genetics and Development in 1976 from the University of Connecticut and, after taking a short fellowship with Jerry B. Lingrel, was appointed as Assistant Professor in the College of Medicine at the University of Missouri-Columbia. He rose through the academic ranks, and left Missouri to join the Department of Pharmacology and Cell Biophysics at the University of Cincinnati College of Medicine in 1987. In 1993 he moved to the Cincinnati Children's Hospital to start the new division of Molecular Cardiovascular Biology and in July 2009, formed the Heart Institute, integrating the basic and clinical arms of Pediatric Cardiology. He currently is a Professor of Pediatrics, Chair, Division of Molecular Cardiovascular Biology, Associate Chair of the Research Foundation and Executive Co-Director of the Heart Institute. He has won a number of teaching and research awards, including the Golden Apple awarded by the medical students for excellence in teaching, the Kaplan Award for innovative research, the National Research Achievement Award from the American Heart Association, the President's Distinguished Lecture award from the International Society for Heart Research, the Rieveschel Award for Outstanding Research Achievements and the Drake Medal. He was an Established Investigator of the American Heart Association, as well.

Dr. Robbins is a Fellow of the International Society of Heart Research and the American Heart Association. He has served on and chaired numerous national research review committees for the National Institutes of Health and the American Heart Association. He currently serves on 11 Editorial Boards, including The Journal of Molecular and Cellular Cardiology, is Associate Editor for a number of journals and has been Cardiovascular Section Editor for the Annual Review of Physiology for the past 9 years. He was recently named as a Senior Associate Editor for Circulation Research and, this past year, was chosen to Chair the National

Study Panel for the American Heart Association's program for establishing centers for Stem Cell Biology in the heart, the Jon DeHaan Competition.

Dr. Robbins has been publishing in the field of cardiovascular biology for approximately 20 years. With over 180 publications during this period, his contributions have changed the way that basic cardiovascular research is done, by allowing the research community to carry out "gain-of-function" approaches specifically in the myocardium via cardiac-specific transgenesis. In a series of landmark papers, Robbins first defined the promoter elements needed to target and drive high levels of gene expression in the mammalian heart. Identifying the cis-trans interactions was what drove the basic research but, understanding the implications, Robbins then took the work further and explored the utility of cardiac-specific gene expression as a method of doing defined genetics in the mammalian four-chambered heart. After the initial proof-of-principal showing that cardiac specific transgenesis was feasible, he defined, built and tested a set of reagents that is now routinely used by hundreds of laboratories to carry out genetic experiments in the mouse cardiovascular system.

Dr. Robbins unambiguously showed the utility of the general approach and developed a set of robust reagents that could be used by relatively inexperienced investigators to create animal models of cardiovascular disease. Dr. Robbins' work has changed the way in which we explore the basic pathology of cardiovascular disease. With well over 600 different models being developed and published using his reagents, the work that Dr. Robbins published allowed the entire field to move forward at a pace undreamed of only 15 years ago. A contributing factor to the rapid spread of the technology was Dr. Robbins' early decision to make the reagents freely available, allowing the rapid dissemination of the needed tools, free from the confines of university intellectual property concerns.

Dr. Robbins went on to use gain-of-function approaches to further his own investigations into the underlying pathologies of hypertrophic cardiomyopathy, as well as defining the structure-function relationships in a number of the contractile proteins. His recent experiments have established the importance of mutations in the intermediate filament protein desmin and the chaperone, alpha B crystalline, as causative for a class of cardiomyopathies, which has recently led to the startling observation that intracellular pre-amyloids appear to play an important, and possibly generalized role in cardiovascular diseases of various etiologies.

In addition, recognizing the limits of the murine models for studying critical therapeutic avenues as well as certain aspects of human cardiovascular disease, Dr. Robbins developed the ability to carry out cardiac specific transgenesis in the rabbit. This has already led to fundamental discoveries in hypertrophic cardiomyopathy, and allows the extension of cardiovascular gain-of-function to an animal whose cardiovascular system more closely resembles that of the human.

Dr. Robbins' recent work has focused on integrating the changes observed in contractile behavior with altered cardiomyocyte protein homeostasis and misfolding. Understanding the critical pathogenic pathways that link altered contractility with generalized deficits in protein folding may allow for the identification of novel therapeutic targets for the treatment of cardiovascular disease.

Past Award Winners...

Martin Lohse, M.D.

2007: Bologna, Italy

Roberto Bolli, M.D.

2004: Brisbane, Australia

Eduardo Marban, M.D.

2001: Winnipeg, Manitoba