

EDITOR'S PAGE

Remembering Jeff Robbins

The Father of Cardiac Transgenesis

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Jeffrey Robbins, PhD, died unexpectedly on August 20, 2022. Jeff was professor in the Department of Pediatrics at Cincinnati Children's Hospital, former executive codirector of the Cincinnati Children's Heart Institute, and former director of the Division of Molecular Cardiovascular Biology (Figure 1). He was killed at the age of 71 in a traffic accident while riding his bike that morning, pursuing his passion for exercise.

Jeff graduated from the University of Connecticut with his PhD in 1976 and became an assistant professor in 1978 at the University of Missouri-Columbia. Jeff then moved to Ohio in 1985 to the University of Cincinnati as an associate professor where he stayed until moving his scientific research program across the street to the Cincinnati Children's Hospital in 1993, where he served as a professor in Pediatrics of the University of Cincinnati and as the founding director of the Division of Molecular Cardiovascular Biology. Jeff retired from Cincinnati Children's Hospital and the University of Cincinnati in 2019.

Jeff published more than 230 peer-reviewed scientific articles and his work has earned some of the most prestigious research awards, such as the American Heart Association's Research Achievement Award, the Kaplan Visionary Award, and the Distinguished Scientist Award; the International Society for Heart Research's Distinguished Research Achievement Award; the prestigious Louis and Artur Lucian Award for Research in Circulatory Diseases; the University of Cincinnati's Rieveschel Award and the Daniel Drake Medal; and the William Cooper Procter Medallion, which is the highest award given by

Cincinnati Children's Hospital and the first recipient was Dr Albert Sabin in 1960.

Jeff was a world-renowned researcher and lovingly known as the "father of cardiac transgenesis" by his colleagues. His research was acclaimed for systematically dissecting the molecular underpinnings of heart disease and the genetic basis of hypertrophic cardiomyopathy. In his early career, Jeff's research provided some of the very first molecular insights into the function of myosin protein in mediating heart contraction, which evolved into a careful annotation of the transcriptional circuitry that underlies cardiac-specific gene expression of the myosin gene promoters. From this understanding of cardiac-specific gene expression, he pioneered the generation of tissue-specific promoters to drive gene expression in the heart by transgenesis, which changed the way that basic cardiovascular research is done. Indeed, the cardiac-specific myosin gene promoters that his laboratory generated (and shared) directly led to more than 1,000 additional publications by the field. His work revolutionized disease-based cardiovascular research by the field at large, to interrogate the genes that directly underlie or contribute to genetically driven heart disease as well as acquired heart disease states.

From this description, one can glean that Jeff shared all his newly developed biologic reagents, such as the cardiac-specific α - and β -myosin heavy chain gene promoters (both mouse and rabbit). Indeed, one of Jeff's scientific credos was that of sharing all reagents and knowledge with the greater field. Jeff was also selfless in mentoring and giving of his time across all levels of science: institutionally with his trainees in his laboratory and his new junior faculty; and nationally and internationally where he served on countless committees, editorial boards, and study sections, and advocated for science and the careers of trainees. Indeed, Jeff was the founding scientist underlying the establishment of the young

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investigator program within the International Society of Heart Research, as well as in supporting young investigator funding to the American Heart Association, often from his own personal funds.

During the 40+ years of running his research program Jeff directly trained nearly 100 early career scientists, including a multitude of PhD students, medical students, medical fellows, postdoctoral fellows, and junior faculty within his division at Cincinnati Children's Hospital. Many of these scientists are now leading figures in biomedical research and they attribute much of their success to Jeff's mentorship. Finally, Jeff was an intellectually giving colleague, always trying to help them better their science and conduct themselves with integrity. Indeed, one of Jeff's most important intangible legacies to all those around him was that of integrity and honesty in science. Jeff was a beacon of truth in our field of cardiovascular scientific research, including with his own published work that was always of the utmost credibility. As a way of showing Jeff's coauthored publication network, Jeff and Roz's son, Stuart Robbins, constructed a very nice interactome using coauthored publications of Jeff's and then factoring in coauthors of his coauthors. This resulted in 2,811 papers that were visualized with Gephi open source software.¹

We all assembled in Cincinnati on August 29, 2022, to have a memorial and commemorate the life and work of Dr Jeffrey Robbins. In attendance were most of his past trainees, his previous mentored junior faculty members, his friends and close colleagues from all over the United States, as well as his

immediate family. We would like to end this written memorial with quotes from some of these individuals who were especially close to Jeff.

"Jeff had a huge impact on my career development when he hired me as a new assistant professor in 1995. He definitely supported the development of my lab and made sure I had what I needed even before I knew that I needed it. He was heavily invested in his faculty and trainees, viewing their success as his greatest success."

—Dr Katherine Yutzey, Cincinnati Children's Hospital

"Jeff was a leading light in the field of cardiovascular research. He was extremely gracious in supporting young investigators, which I benefitted from enormously as I was establishing my independent career. He was also a scientific perfectionist, which I also benefitted from whenever he suggested the ways in which I could strengthen my science. He inspired all of us by showing how exciting and fun science was."

—Douglas L. Mann, Washington University

"Jeff played an instrumental role in my career trajectory and constantly challenged me to move into new directions. I can still hear Jeff saying: 'Come on Kranias, when are you going to take the next step with phospholamban? You need to find out if this protein is important in vivo.' He inspired me to make the Pln gene-deleted mouse, which was a turning point in my career."

—Evangelia Kranias, University of Cincinnati

"The best thing I liked about Jeff was that he didn't count quantity. Instead, he looked at quality as a mark of excellence as how one should excel in the long run. He will always remain within our hearts, through his knowledge, training, mentorship, and care. I pray that his soul rests in peace."

—Sakthivel Sadayappan, University of Cincinnati

"I always felt Jeff treated me like one of his own mentees including all the gentle teasing and ironic comments. I will always remember his sly smile along with his intellectual generosity and deep devotion to mentoring that helped shape my career in academic cardiology. Simply put, Jeff influenced every facet of my career."

—Jil C. Tardiff, University of Arizona

"Jeff was one of a kind and an all-around good guy. I admired his openness in sharing ideas and

*reagents, which propelled our entire field.
Beyond his contributions to the field, I loved
Jeff's distinctive wardrobe with the eternal black
tee shirt for every occasion. He leaves a special
and long-lasting legacy."*

—Eric N. Olson, UT Southwestern-Dallas

From these and many similar comments from friends and colleagues it was obvious that Jeff Robbins had a profound impact on cardiovascular science, both through his research and his highly extensive mentorship and intellectual sharing. We feel his loss deeply and extend our heartfelt condolences to his family. Jeff is survived by his wife Roslyn, his 2 sons, Stuart and Andrew, and his brother, Scott.

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