



## **James F. Martin, MD, PhD**

Vice Chairman/Professor

Molecular Physiology and Biophysics

Baylor College of Medicine

*Hippo-Signaling in Cardiac Regeneration*

Dr. Martin is an internationally recognized developmental and regenerative biologist who has contributed fundamentally to our understanding of development, disease, and regeneration. His work aims to obtain an in-depth understanding of how signaling pathways are connected to adult tissue regeneration to develop ways to treat congenital diseases and regenerate heart muscle and other adult tissues. He has authored over 195 peer-reviewed papers in top journals such as Nature, Science, Cell, Developmental Cell, Plos Genetics, Development, and PNAS. His groundbreaking work on the Hippo pathway in heart size regulation is a landmark study that led to the insight that the Hippo pathway is an inhibitor of adult heart muscle regeneration. Dr. Martin's insights revealed new avenues for treating human heart failure. His group recently completed a study to determine whether Hippo deficiency can improve functional outcomes in a swine model of heart failure. Dr. Martin has made fundamental insights into the role of the transcription factor Pitx2 in atrial fibrillation, the most common sustained arrhythmia in the human population. He uses the mouse model to investigate Pitx2 in atrial homeostasis and left-right asymmetric morphogenesis, which is essential for human development.

Dr. Martin's studies investigating Pitx2 function in craniofacial development provided insight into the molecular basis of Rieger syndrome. His group discovered that Hippo signaling inhibits the cardiac injury response by maintaining the resting state of cardiac fibroblasts and, most recently, transitioned into single-cell genomics and computational biology to interrogate complex biologic systems. Using these methods, they have published several high-impact papers that address an array of critical biological questions important for human development and diseases. His group's most recent study investigated human congenital heart disease using single-cell multi-omics approaches. Dr. Martin's studies are highly cited and are reported on by the lay media.