

MARTIN MORAD



Martin Morad, PhD. is Professor of Regenerative Medicine and Cell Biology at the Medical University of South Carolina (MUSC) and the University of South Carolina (USC) and Professor of Bioengineering at Clemson University. He is the Director of the Cardiac Signaling Center and holds the Blue Cross Blue Shield of South Carolina Endowed Chair in Cardiovascular Health, which includes a unique three-way faculty appointment at the USC, MUSC and Clemson University.

ACADEMIC AND PROFESSIONAL CAREER

Dr. Morad is an internationally recognized scientist in the field of cardiac electrophysiology and calcium signaling. He has pioneered many of the seminal findings and technology in the field of Cardiac calcium signaling. He has had over 300 original publications, 20 of which have appeared in *Science* and *Nature*. Dr. Morad's career is marked by an incessant drive to formulate new physiological and molecular concepts based on innovative technology. He was first to Voltage-clamp cardiac tissue, use laser scanning of optical dyes to measure action potential propagation in the heart, Photo-release of caged compounds in cardiomyocytes and neurons, and apply TIRF imaging to resolve calcium signaling dynamics. His work has generated critical data on a wide variety of biological processes, ranging from EC-coupling, SA-nodal pacemaking mechanism, Regulation of ion channel proteins and Calcium signaling alternations in development and comparative biology. He has had a distinguished scientific career as a Professor of Physiology and Medicine at University of Pennsylvania, Georgetown University, and now as an Endowed professor at the three leading universities of SC. He has trained over 100 Graduate students, postdoctoral fellows, most of whom have leading academic positions in American, European, and Asian Universities. Among his many honors and services to the scientific community, in an advisory or editorial capacity, are also his services as the organizer of international high profile scientific conferences. He was awarded the German Government senior Scientist Alexander von Humboldt prize for his seminal work in cardiac electrophysiology.

Dr. Morad's current research is focused primarily on the complex protein interactions that regulate heart function that requires creation of transgenic animals that over-express or are deleted of proteins that are thought to be critical in pathophysiology of heart failure and cardiac arrhythmias. His Lab has pioneered the use of stem cell derived cardiomyocytes in probing the mechanisms underlying the CPVT1 arrhythmia using CRISPR/Cas9 gene editing technique. His gene editing approach may lead to new therapeutic approaches to treating life-threatening arrhythmias and to creation of tissue-based pacemaker using genetically engineered cells from patient dermal fibroblasts. His research for the past 50 years has been continuously funded by NIH. He has maintained a lab at Mount Desert Biological Labs in Maine for 40 years, where he has cloned genes from marine species and has introduced them in mammalian hearts to prevent arrhythmias associated with cardiac failure.