UC Davis physiology and membrane biology department names new chair

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Luis Fernando Santana, a scientist with an international reputation for his work on arrhythmias and the physiology of calcium channels in smooth and cardiac muscle, has been named professor and chair of the Department of Physiology and Membrane Biology at UC Davis School of Medicine. He also will hold the Arline Miller Rolkin Endowed Chair, which focuses on mentoring junior faculty members in basic science research.

Santana will direct the department's innovative basic science research program as well as its top-ranked graduate and medical school training programs in physiology and the care of critically ill patients. A highly regarded thought leader, he also will participate in various UC Davis committees focused on recruiting new faculty, developing curricula, and supporting student and faculty diversity, in addition to his active role on many national and international editorial and advisory boards.

The physiology and membrane biology department conducts leading-edge research on biological processes and the consequences of genetic mutations at the cellular, organ and system levels to facilitate the more precise diagnosis and treatment of disease. Current investigations focus on ion channels, protein structure and function, cell signaling, blood vessel structure and function, computational biology and protein design to better understand inflammation, cardiovascular disease and metabolism, brain injury and repair, pain, diabetes, stroke, ischemia and neurodevelopmental disorders.

Santana’s world-class research program, fierce commitment to training diverse students and postdoctoral fellows and use of leading-edge research methodologies make him an outstanding addition to the UC Davis leadership, said Frederick Meyers, vice dean for UC Davis School of Medicine.

“Dr. Santana is an exceptional scholar and internationally renowned scientist whose leadership in translating basic science discoveries into better patient care will enhance the health care of those we serve,” Meyers said. “His work detailing calcium release during smooth muscle contraction, as well as the changes in heart muscle excitability associated with arrhythmias, founded a new field of study, with profound implications for the function of many organ systems. His leadership and expertise will enhance the cohesiveness of our cardiovascular research program, advancing team science at UC Davis.”

Santana is known for his work on the mechanisms of calcium signaling in excitable cells. His lab has developed optical approaches to detect calcium signals from single or small clusters of calcium channels and used them to discover several kinds of calcium signaling modalities that regulate cardiac and arterial smooth muscle. Santana’s work on calcium sparks and sparklets has opened new areas of investigation that hold promise for the treatment of arrhythmias and hypertension.

Before joining UC Davis, Santana was a professor in the Department of Physiology and Biophysics at the University of Washington. Major areas of research in his laboratory include investigations into the molecular mechanisms underlying arrhythmias during heart failure, which are the major cause of death among affected patients, as well as mechanisms controlling the diameter of cerebral arteries, which controls blood flow to the
“I feel very fortunate to have the opportunity to work with such an incredibly talented group of scientists and to be on a campus with so many resources for conducting cutting-edge research,” Santana said. “I look forward to working collaboratively to expand the department and enhance existing strengths in ion channel biophysics, cardiac physiology and microcirculation as well as neurophysiology.”

Santana received a bachelor’s degree in marine biology from the University of Puerto Rico in 1991 and a doctorate in physiology and biophysics from the University of Maryland in 1996. He completed his training in the laboratory of W.J. Lederer at University of Maryland Medical Biotechnology Center in 1996 and at the University of Vermont in the laboratory of Mark T. Nelson.

He has contributed to 74 peer-reviewed publications in top-tier journals, including *Nature, Science, Circulation, Journal of Molecular & Cellular Cardiology, Circulation Research, Proceedings of the National Academy of Sciences, Journal of Clinical Investigation* and the *Journal of Physiology*. He also has received many honors and awards, including the American Heart Association Established Investigator Award. He also serves on editorial and advisory boards, has participated on a number of national and international grant review committees, and is the current chair of the Federation of American Societies for Experimental Biology’s Smooth Muscle Summer Research Conference.

The Arline Miller Rolkin Endowed Chair in Physiology and Membrane Biology is held by the department chair. For more information about UC Davis Department of Physiology and Membrane Biology, please visit [http://www.ucdmc.ucdavis.edu/physiology/](http://www.ucdmc.ucdavis.edu/physiology/)