



DEPARTMENT OF PHYSIOLOGY

DEPARTMENT OF PHYSIOLOGY FACULTY

Zhongjie Sun, MD, PhD, FAHA

Professor and Chair
Thomas A. Gerwin Chair of Excellence
in Physiology

Adebowale Adebisi, PhD

Associate Professor

Julio Cordero-Morales, PhD

Associate Professor

Ioannis Dragatsis, PhD

Professor

Zheng Fan, PhD

Professor

Polly Hofmann, PhD

Professor
Senior Executive Associate Dean,
College of Medicine

Jonathan H. Jaggar, PhD

Maury W. Bronstein Professor

Salvatore Mancarella, PhD

Assistant Professor

Helena Parfenova, PhD

Professor

Kaushik Parthasarathi, PhD

Associate Professor

Gadiparthi N. Rao, PhD

George and Elizabeth Malloy Professor

Nikhlesh Singh, DVM, PhD

Assistant Professor

Donald B. Thomason, PhD

Professor
Dean, College of Graduate Health Sciences

Gabor J. Tigyi, MD, PhD

Van Vleet Professor

Valeria Vásquez, PhD

Assistant Professor

The University of Tennessee is an EEO/AA/Title VI/Title IX/Section 504/ADA/ADEA/V institution in the provision of its education and employment programs and services.

PHYSIOLOGY RECEIVES TOP RANKINGS

AMONG NORTH AMERICAN DEPARTMENTS OF PHYSIOLOGY

The UTHSC Department of Physiology has received a top ten ranking among North American physiology and physiology-related departments, according to the Association of Chairs of Departments of Physiology's (ACDP's) annual survey. Our department ranked #8 in total dollars, #4 in research grant dollars, #1 in research dollars per faculty, and #3 in research space.

Each year the ACDP conducts a survey of all the physiology departments throughout the U.S., Canada, Mexico, and Puerto Rico to determine general trends of faculty, overall departmental budgets, and space available for research. Survey results are published annually each July in the *Physiologist Magazine*. Data since 1996 is available online at acdponline.org/home/surveys/past-surveys, and the most recent survey results are available at acdponline.org/Home/Surveys/2018-ACDP-Survey.pdf. To learn more about the Association of Chairs of Departments of Physiology, please visit acdponline.org/Home/About.



DR. JONATHAN JAGGAR AND LAB PUBLISHES PAPER IN PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES (USA)



Dr. Jonathan Jaggar, Maury W. Bronstein Professor of Physiology, along with members of his lab, recently published a paper in the December 26, 2019, issue of the *Proceedings of the National Academy of Sciences of the United States of America* (PNAS). The paper, entitled "SUMO1 modification of PKD2 channels regulates arterial contractility," shows that a protein termed SUMO1 is attached to PKD2 channels in arterial myocytes, a posttranslational modification that enables a physiological stimulus, intravascular pressure, to control the amount of SUMO-PKD2 that is located in the plasma membrane and to activate SUMO-PKD2 channels. The paper also demonstrates that the SUMO1 modification of PKD2 channels is necessary for intravascular pressure to regulate

arterial contractility. The full cite of the article is: Hasan R., et al. (2019) "SUMO modification of PKD2 channels regulates arterial contractility." PNAS, 116,52,27095-27014. doi: [pnas.org/cgi/doi/10.1073/pnas/1917264116](https://doi.org/10.1073/pnas.1917264116).

For more information about Dr. Jaggar's research, please contact him at jjaggar@uthsc.edu. To learn more about PNAS, please visit pnas.org.



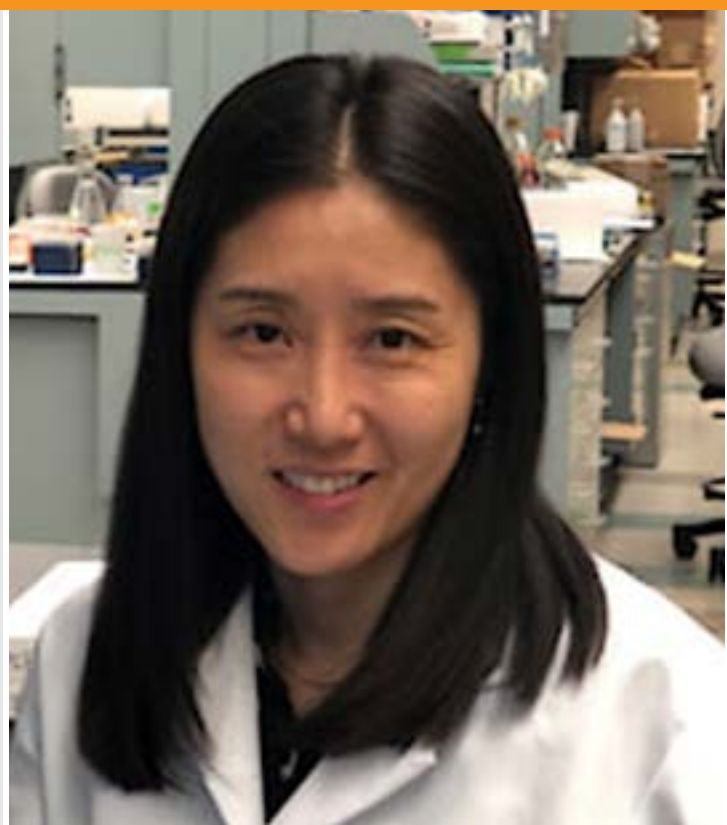
DR. GABOR TIGYI

PRESENTS KEYNOTE ADDRESS TO COUNCIL OF SCIENTIFIC SOCIETY PRESIDENTS LEADERSHIP WORKSHOP

Dr. Gabor Tigyi, Harriet Van Vleet Endowment Professor of Physiology, was invited to present the keynote address to the Council of Scientific Society Presidents (CSSP) at their Winter 2019 Workshop held in Washington, DC. CSSP Executive Director Cindy Reed Paska praised Dr. Tigyi's presentation, "A Drug that can save humankind - but should never be used," as making a significant contribution to helping CSSP members better understand the gravity of effects that are caused by radiation exposure.

Founded in 1973, the CSSP is a unique organization representing the breadth of science and engineering research disciplines through its member societies and federations. CSSP member societies are represented by their presidents, presidents-elect, and recent past presidents of leading scientific societies and federations whose combined membership is over one million. CSSP has served as a center for national science leadership development, a strong voice in support of science, and the premier forum for national science policy development and open, substantive exchanges on current issues encompassing the full spectrum of science, engineering, and mathematics. CSSP is committed to "Advancing Leadership in Science and Technology" and to establishing policies and programs that will ensure a bright future for 21st century science.

To learn more about Dr. Tigyi's research endeavors, please contact him at gtigyi@uthsc.edu. To find out more about the CSSP, please visit their website, sciencepresidents.org/about-us/.



DR. JUNGSOO LEE

AWARDED UTHSC NEUROSCIENCE INSTITUTE POSTDOCTORAL/RESEARCH ASSOCIATE AWARD

Dr. Jungsoo Lee, Research Associate in the lab of Dr. Valeria Vasquez, was awarded a Postdoctoral/Research Associate Award from the UTHSC Neuroscience Institute for calendar year 2020. This award provides \$15,000 toward salary and fringe, and Dr. Lee is also eligible for a \$500 travel award supplement. The UTHSC Neuroscience Institute Postdoctoral/Research Associate Award is highly competitive, and candidates must have mentors in the Neuroscience Institute. Awardees are selected by the Neuroscience Executive Committee based on their productivity and promise in neuroscience research.

Dr. Lee joined the Vásquez Lab in June 2019 as Research Associate. She received her PhD in 2005 from Gwangju Institute of Science and Technology in Gwangju, Republic of Korea, and did postdoctoral work at the Ernest Gallo Clinic and Research Center at the University of California at San Francisco from 2005-2010.

For more information about Dr. Lee's work with the Vásquez Lab, please contact her at jlee240@uthsc.edu. To learn more about the UTHSC Neuroscience Institute, please visit uthsc.edu/neuroscience-institute/.

LUIS ROMERO

AWARDED BELZ FAMILY SCHOLARSHIP ENDOWMENT FUND SCHOLARSHIP

Department of Physiology graduate student Luis Romero was recently notified that he is the recipient of the Belz Family Scholarship Endowment Fund scholarship. Belz Fund scholarships are awarded to incoming students based on their scholastic ability, leadership potential, and dedication to the health sciences as a career and profession. Romero, who received his Licentiate in Biology from Universidad Central de Venezuela in Caracas, has been at UTHSC for three years. He previously served as Senior Research Assistant and Research Coordinator II in the Vásquez Lab and is currently researching the mechanisms by which the plasma membrane composition regulates mechanosensitive ion channel function. Romero will be mentored by Dr. Valeria Vásquez and will receive training in molecular biology, biochemistry, structural biology, lipid profile analysis, working with animal models, and furthering his expertise in electrophysiology.

To learn more about Mr. Romero's work with the Vásquez-Cordero research group, please contact him at lromerog@uthsc.edu.



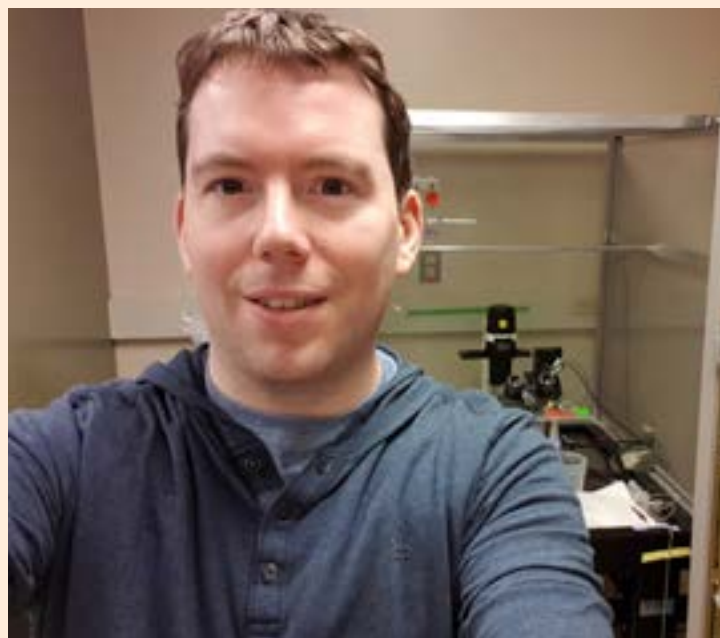
DR. CHARLES MACKAY

RECEIVES AMERICAN HEART ASSOCIATION POSTDOCTORAL FELLOWSHIP AWARD

Dr. Charles Mackay, postdoc in the Jaggar Lab, was recently awarded an American Heart Association Postdoctoral Fellowship. The \$131,356 total award will be funded from January 1, 2020 through December 31, 2021 and will be used in conjunction with Dr. Mackay's project titled "Blood pressure regulation by endothelial cell polycystin proteins."

The purpose of the AHA Postdoctoral Fellowship is to enhance the integrated research and clinical training of postdoctoral applicants who are not yet independent. The applicant must be embedded in an appropriate research group with the mentorship, support, and relevant scientific guidance of a research sponsor. Recognizing the unique challenges that clinicians, in particular, experience in balancing research and clinical activity, this award mechanism aims to be as flexible as possible to enable applicants to develop academic careers in research alongside fulfilling clinical service commitments.

Dr. Mackay joined the Jaggar Lab in October 2016 after completing his PhD from King's College London (UK), where he investigated whether Src Family Kinases (SrcFK) reactive oxygen species and Rho-Kinase acts as a signaling cascade in vascular smooth muscle cells under physiological and pathophysiological conditions. Since coming to UTHSC, Dr. Mackay's research has primarily focused on investigating how endothelial cell PKD2 channels contribute to flow-mediated vasodilation (FMD). The results from this study resulted in numerous national and international conference presentations.



To learn more about Dr. Mackay and his research, please contact him at cmackay@uthsc.edu. For more information about the American Heart Association, please visit professional.heart.org/professional/index.jsp.

DR. VALERIA VÁSQUEZ

ELECTED A COUNCIL MEMBER OF THE SOCIETY OF GENERAL PHYSIOLOGISTS

Dr. Valeria Vásquez, Assistant Professor in the Department of Physiology, has been elected to serve as a Council Member of the Society of General Physiologists. Dr. Vásquez's term on the Council is for three years beginning in January 2020. Founded in 1946, the Society of General Physiologists (SGP) is a scientific organization whose purpose is to promote and disseminate knowledge in the field of general physiology, and otherwise to advance understanding and interest in the subject of general physiology. The Society convenes an Annual Meeting as well as Special and Group Meetings and has a close and long-standing collaborative relationship with the *Journal of General Physiology* to promote the study of fundamental biological mechanisms through comprehensive, systematic, and quantitative investigation.

For more information about Dr. Vásquez's work, please contact her at vvasquez@uthsc.edu. To learn more about the Society of General Physiologists, please visit sgpweb.org.



DR. VÁSQUEZ APPOINTED TO JOURNAL OF GENERAL PHYSIOLOGY EDITORIAL BOARD

Dr. Valeria Vásquez, Assistant Professor in the Department of Physiology, has been appointed to serve on the Editorial Advisory Board of the *Journal of General Physiology* (JGP). Dr. Vásquez's appointment is for three years effective January 1, 2020. A key feature of the journal's editorial practice consists of the weekly editors' meetings. JGP's editors share the view that the goal of the review process is to identify submissions that contain mechanistic insight and to ensure that before acceptance such work is as free from error and clear in presentation as possible. These practices keep continuity with the editorial history of JGP and are aimed at encouraging and promoting the best of general physiology. Thoughtful, thorough peer review is the heart and soul of the journal.

Founded in 1918, the mission of Journal of General Physiology (JGP) is to publish mechanistic and quantitative molecular and cellular physiology of the highest quality, to provide a



best-in-class author experience, and to nurture future generations of independent researchers. The major emphasis is on physiological problems at the cellular and molecular level.

To learn more about Dr. Vásquez and her research, please contact her at vvasquez@uthsc.edu. To find out more about the Journal of General Physiology, please visit rupress.org/jgp/pages/history.

For more information, please contact:

Department of Physiology | 956 Court Ave. | Memphis, TN 38163
t 901.448.2675 | t 901.448.7111 | f 901.448.7126

uthsc.edu/physiology



DEPARTMENT OF PHYSIOLOGY