

FROM THE
DIRECTOR

Dear CVRI Members,

One of the key missions of the CVRI at Baylor College of Medicine is to promote innovative research by facilitating new collaborations not only across Baylor departments and affiliated hospitals, but also throughout institutions across the Texas Medical Center and beyond.

With this in mind, I am excited to introduce the "[Mark L. Entman, MD, Distinguished Lecture in Cardiovascular Research](#)". The goal of this annual lectureship is to bring in leading experts from across the globe in order to initiate new collaborations between Baylor and the speaker's institution, as well as to highlight Dr. Mark Entman's extensive contributions to cardiovascular research at Baylor College of Medicine. This year's speaker will be Dr. Dao Wen Wang, Chair of Medicine and Chief of Cardiology at Tongji Hospital and Director of the Translational Medicine Center, Genetic Diagnostics Center and Institute of Hypertension at Huazhong University of Science and Technology in Wuhan, China. Dr. Wang is a leading expert in the treatment and study of fulminant myocarditis and heart failure, and has made great progress in reducing mortality rates in patients. You won't want to miss his seminar!



Dao Wen Wang, MD, PhD

Chief of Cardiology, Tongji Hospital and Medical College
Huazhong University of Science and Technology, Wuhan, China

Topic: miRNAs and Heart Failure

September 18, 2019

Don't forget to check out the excellent lineup for our upcoming Fall CVRI seminar series, which can be found at the end of the newsletter.

A handwritten signature in blue ink, appearing to read 'Xander Wehrens', written in a cursive style.

Xander Wehrens, MD PhD



CVRI theme leader **Dr. Christie Ballantyne** received the 2019 Michael E. DeBakey Award for Excellence in Research, which recognizes outstanding BCM faculty for their published scientific contributions to clinical or basic science research over the past three years.



CVRI Associate Director **Dr. Biykem Bozkurt** received the Ben and Margaret Love Foundation Bobby Alford Award for Academic Clinical Professionalism.



Dr. Glenn Levine, Professor of Medicine (Cardiology), received the Barbara and Corbin J. Robertson, Jr. Presidential Award for Excellence in Education.



Dr. Sandra Haudek, Assistant Professor of Medicine (Cardiovascular Research) and co-chair of the CVRI Education and Training Committee, received two Norton Rose Fulbright Faculty Excellence Awards for Educational Leadership and for Teaching & Evaluation.



Dr. Dianna Milewicz, Division Director and Professor of Medical Genetics at UTHealth, received the American Heart Association's \$1 million Merit Award to investigate the genetics related to life-threatening strokes suffered by thousands of children every year. *Don't miss Dr. Milewicz' CVRI seminar on 10/23/2019!*



Dr. Christina Miyake, Associate Professor of Pediatrics (Cardiology), has been appointed as Section Editor for Pediatrics for the journal HeartRhythm Case Reports, an official journal of the Heart Rhythm Society.

Calling All Trainees:

The Cardiovascular Research Institute (CVRI) at Baylor College of Medicine is excited to announce the formation of its new **Education and Training Committee (CVRI-ETC)**!

The mission of the CVRI-ETC is to define and oversee the educational goals of the Cardiovascular Research Institute, as well as to provide opportunities for trainees at all levels to engage in educational and social activities related to CV research but also to promote overall health and wellness.

We are currently recruiting 2 graduate students and 2 postdocs or clinical fellows to join as CVRI-ETC Officers!

Responsibilities of CVRI-ETC officers will include:

- Attending quarterly meetings with CVRI-ETC members
- Developing and promoting CVRI training opportunities (workshops, etc)
- Coordinating social events for CVRI trainees

If interested, please e-mail your CV and a short personal statement (<200 words) explaining why you would be a good fit for this position to cvri@bcm.edu.

Trainees in the Spotlight



Congrats to Postdoctoral Fellow **Dr. Mohit Hulsurkar** of the Department of Molecular Physiology and Biophysics, who was awarded the Kenneth M. Rosen Fellowship in Cardiac Pacing and Electrophysiology from HRS!

Have something newsworthy to share?
Email cvri@bcm.edu

Recap for Seventh Annual CVRI Symposium – 2019

Since it was founded in 2012, the [Cardiovascular Research Institute](#) at [Baylor College of Medicine](#) has been hosting an annual symposium that offers an exceptional opportunity to learn about the latest, most innovative research work related to cardiovascular diseases. Led by CVRI Director Dr. Xander Wehrens and Associate Director Dr. Biykem Bozkurt, the event encourages participants from BCM departments, affiliated hospitals and other institutions across the Texas Medical Center to meet and facilitates scientific collaborations.

[Dr. Adam Kuspa](#), professor and Salih J. Wakil, Ph.D. Endowed Chair in the Verna & Marrs McLean Department of Biochemistry & Molecular Biology and Senior Vice President and Dean of Research, opened the event this year, welcoming the audience to an exciting day of discovery and opportunities for networking.

Keynote Speakers

During the symposium, participants enjoyed two keynote lectures by renowned scientists [Dr. Mariell Jessup](#), chief science and medical officer of the [American Heart Association](#), and [Dr. Mark Sussman](#), director

of the [Integrated Regenerative Research Institute](#) at San Diego State University.

During her talk, Jessup raised her concerns about the persistence and devastating consequences of heart disease and stroke in the American population, the challenges of interpreting ‘big data’ to improve this situation and the need to foster more productive collaborations. She also highlighted the importance of studies focusing on women’s cardiovascular disease as it continues to be a woman’s greatest health threat, claiming the lives of 1 in 3. Jessup encouraged the audience to visit the AHA portal “[Research Goes Red for Women.](#)” an initiative calling on women across the United States to contribute to health research. She concluded with AHA’s mission statement: “To be a relentless force for a world of longer, healthier lives.”



Dr. Mariell Jessup, Chief Science and Medical Officer of the American Heart Association, speaking at the Seventh Annual Cardiovascular Research Institute Symposium.

Sussman spoke about the latest research on polyploidy in myocardial homeostasis, repair and ageing. Polyploidy refers to the state of a cell

having more than two paired sets of chromosomes. He explained that polyploidy is a normal state in human bodies and that it can play both positive and negative roles. For instance, polyploidy is of physiological significance during platelet development, but it also may play a role in diseases such as cancer. He showed that the human heart is tremendously polyploid and prompted the audience to think about the role polyploidy may play on cardiomyocyte and interstitial cell functions in health and disease. In addition, Sussman highlighted the significant differences in polyploidy between human and murine (mouse) hearts and the implications of these differences when using mice as models of human disease.



Dr. Mark Sussman of San Diego State University speaking on the role of polyploidy in the heart.

Poster Sessions and Awards

84 abstracts were submitted and reviewed this year, and those with the highest scores from 4 different categories (student, postdoctoral researcher, clinical fellow/resident, and junior faculty) were selected for platform presentations during the Symposium.

Furthermore, this year's Symposium featured 81 poster presentations by graduate students, postdocs, junior faculty members and clinical fellows. Each poster was reviewed and scored by 2 judges throughout the day's poster sessions, and winners were selected from the same 4 categories as mentioned previously. This year, there was an additional poster award highlighting the best overall outcomes research. Top abstracts and poster presenters were recognized with a plaque and monetary award during the symposium's afternoon session. See the next page for details and pictures of the award winners.

Don't forget to check the CVRI out on [Facebook](#), where you can find a full album of pictures from the day's events!



CVRI Symposium Best Abstract Winners 2019

From left: CVRI Director Xander Wehrens, Larry Scott Jr., Qilin Gu, Lisa Mullany, Ishita Jindal, National Keynote Speaker Mariell Jessup, and CVRI Co-Director Biykem Bozkurt.

Best Abstract Awards:

Larry Scott Jr, BS, Student, Molecular Physiology and Biophysics, Baylor College of Medicine, Houston, Texas

Title: *NLRP3 Inflammasome Mediates the Obesity-Induced Pathogenesis of Atrial Fibrillation*

Qilin Gu, PhD, Postdoctoral Researcher, Department of Cardiovascular Sciences, Houston Methodist Research Institute, Houston, Texas

Title: *AIBP Instructs Hematopoietic Stem and Progenitor Cell Fate Through SREBP2-Regulated Notch Signaling*

Ishita Jindal, MD, Clinical Fellow, Department of Pediatric Endocrinology, Baylor College of Medicine, Houston, Texas

Title: *Determinants of Cardiovascular Disease Risk in Obese Youth With Non-Alcoholic Fatty Liver Disease (NAFLD)*

Lisa Mullany, PhD, Assistant Professor, Department of Molecular and Cellular Biology, Baylor College of Medicine, Houston, Texas

Title: *A Steroid Receptor Coactivator Stimulator (MCB-613) Promotes Cardiac Protection and Repair After Myocardial Infarction*



CVRI Symposium Best Poster Winners 2019

From left: CVRI Director Xander Wehrens, Manuel Cantu-Gutierrez, Waleed Ageedi, Ketan Ghaghada.

Not pictured: Joseph Knadler, Parag Jain.

Best Poster Awards:

Manuel Cantu Gutierrez, BS, Student, Developmental Biology Graduate Program, Baylor College of Medicine, Houston, Texas

Title: *Defining the Transcriptional and Epigenetic Basis of Endothelial Heterogeneity*

Waleed Ageedi, MD, Postdoctoral Researcher, Department of Surgery, Baylor College of Medicine, Houston, Texas

Title: *Critical Role of AIM2 Inflammasome in the Development of Sporadic Aortic Dissection*

Joseph Knadler, MD, Clinical Fellow, Pediatric Cardiology, Texas Children's Hospital, Houston, Texas

Title: *Sex-Related Differences in Aortic Dimensions in Children and Young Adults with Marfan Syndrome*

Ketan Ghaghada, PhD, Assistant Professor, Radiology, Texas Children's Hospital, Houston, Texas

Title: *Computed Tomography Imaging of Aortic Wall Injury in a Mouse Model of Sporadic Aortic Aneurysm and Dissection*

Parag Jain, MD, Assistant Professor, Pediatric Critical Care Medicine, Baylor College of Medicine, Houston, Texas

Title: *A Novel Real-Time Patient Monitoring System For Detection of Junctional Ectopic Tachycardiac in Patients With Congenital Heart Disease*

CVRI Member Profile: Jason Karch, PhD



Jason Karch, Ph.D. is an Assistant Professor in the Department of Molecular Physiology and Biophysics at Baylor College of Medicine. Dr. Karch

completed his doctoral degree in Cancer and Cell Biology at the University of Cincinnati and postdoctoral training at Cincinnati Children's Hospital Medical Center under the mentorship of Dr. Jeffery Molkentin before coming to Baylor College of Medicine in 2018.

Dr. Karch studies the mechanisms underlying cell death. Aberrant cell death is a common thread that binds various human diseases such as ischemic injuries, degenerative diseases, many types of cancer, and aging. Further mechanistic detail of the cell death pathways during these disease states is required to identify efficacious novel therapeutic targets to prevent or induce cell death as needed. Specifically, the Karch lab is interested in defining the regulated necrotic cell death pathway that leads to cardiomyocyte death during an ischemic event.

What brought you to Baylor / CVRI?

Baylor College of Medicine is a top-tier research institution and my research program seemed to fit well with both the Department of Molecular Physiology and Biophysics and the Cardiovascular Research Institute. When I started my search for an Assistant Professor position, I was excited to see an opened position within the department of MPB and I applied immediately. What attracted me to BCM following my interview was the strong core facilities, the strong commitment to cardiovascular research, and greater Texas Medical Center. The Texas Medical Center in Houston is a hub for scientific research and the potential future collaborations within and around BCM really excited me. Scientifically speaking, BCM checked all the right boxes. Being from Los Angeles, California, my wife and I were looking to move to a larger city than Cincinnati while still being able to live contentedly. We were pleasantly surprised by the affordability of Houston, even though it is the 4th largest city in the US. Personally speaking, Houston seemed like a great place to raise our family, although we have not lived through a summer here yet.

Where is your research headed and what upcoming projects are you most excited about?

Persevering cardiomyocytes following an ischemic event is the overall goal of my research. My laboratory focuses on the molecular characterization of the cell death pathway that engages during ischemic injuries. Currently, we know that mitochondria play a vital role in the regulated necrotic cell death process that takes place during a myocardial infarction and subsequent reperfusion. If the mitochondria are preserved during this insult, the necrotic damage is significantly reduced. The event that leads to mitochondrial dysfunction is the opening of the mitochondrial permeability transition pore. However, the molecular identity of this pore is unknown and my lab aims to identify it. Once identified, we can then start to think about how the pore may be pharmacologically interrogated to inhibit necrotic cell death. Additionally, my lab is also characterizing novel regulators of cell death that I have previously identified through genome-wide screening efforts during my post-doctoral training. We are very excited to see what these novel regulators will unveil about the cell death pathways.

What are some of the challenges you have faced during your career progression?

The biggest challenge during my career was getting my thesis work published. This work was a bit controversial and was rejected seven different times. I made a promise to my PhD mentor that I would not leave the lab until my work was accepted. Two years following the original submission it final was accepted. Unfortunately, I decided to graduate after the first submission, so my post-doc clock for transitional funding was running for all that time. This was a major determinate for deciding to continue my post-doctoral training in the Molkenin lab, which was not the original plan. Although I chose the non-traditional path, I was still fortunate to obtain a scientific development grant from the American Heart Association, which prompted me to begin searching for assistant professor positions. As a junior faculty everyday has unexpected challenges. As a trainee, you never learn the details of starting and running your own lab. Beginning a lab from scratch is extremely enjoyable and overwhelming all at the same time. I cannot wait for the lab to have everything it needs to become a data-producing machine.

What advice do you have for trainees aspiring to one day establish their own independent research program?

First and foremost, find what genuinely interests you. Being passionate about your research topic is under appreciated. Having a genuine interest will get you through the hard times that will come during your career. Without this interest, it is too easy to give up and throw in the towel when times

get tough. Secondly, be persistent. If there is one thing you can control in this career it is your persistence. You will meet people smarter than you, people that have better hands than you, people that present better than you, people that write better than you, try not to meet anyone more persistent than you. Thirdly, be kind to others. Science is a community that depends on one another for grants and manuscripts to be accepted and you never know who will have your paper or grant to review in the future. There is never any reason to burn a bridge. Finally, when you feel you are ready to pursue your own independent research program, before you start applying for jobs, write your first R01. Trust me on this one.

How do you manage to maintain a healthy work-life balance?

Throughout your training and career, you will encounter times that will require 100% of your effort and times that will not. During the 100% effort times there is no “work-life balance” there is only work. Fortunately, we usually know when these times will happen (grant deadlines, submitting papers, handling reviews etc.) so you can warn your “life” about them. On the other hand, during the non-intense times, which is the majority of the time, it is important to have a routine. Set aside time for yourself to do what is important to you and leave work at work. If you burn the candle at both ends for too long

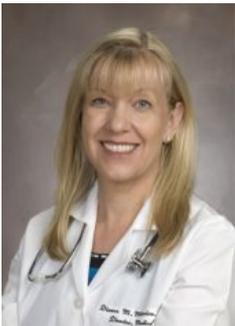
you will be burned, or worse you will get burnt out. Personally, my family is the most important thing in my life and instead of a “work-life” balance, I have a “work-wife” balance. Raising our five children takes a ton of effort and my spouse bears the brunt of that. When I am not at work I am spending time with the kids and when they go to bed I relax, which is sadly my current favorite hobby.



Hong Wang, MD, PhD

Director and Professor, Center for Metabolic Disease Research
Temple University

September 11, 2019



Dianna Milewicz, MD, PhD

Division Director and Professor, Medical Genetics
UT Health Medical School

October 23, 2019



Stacey Rentschler, MD, PhD

Assistant Professor, Medicine
Washington University School of Medicine

November 20, 2019



Lavannya Pandit, MD

Assistant Professor, Medicine
Baylor College of Medicine

December 18, 2019