

DE MOTU CORDIS



Spring 2020

06

Yale physicians provide evidence-based medical training to meet local needs.

12

Tiny freshwater fish provide key insights about human disease.

14

A leader in cardiovascular device trials and women's health.

Yale SCHOOL OF MEDICINE
Section of Cardiovascular Medicine

Yale
NewHaven
Health

TO THE FINISH LINE AND BACK

From the desk of
Eric J. Velazquez, MD



This issue of *De Motu Cordis* explores the value of partnerships and shared discoveries. Like many physicians, my family history of cardiovascular disease played a role in my decision to study medicine and has motivated me to focus on cardiovascular diseases. Although we have made significant progress since I finished medical school, access to outstanding evidence-based health care for all remains an unmet need. I am fortunate to work with faculty and staff who are committed to population health and community care. Our cardiovascular disease support groups and other comprehensive clinical and research programs are expanding opportunities for patients to live longer, healthier lives. While we have made much progress in combating cardiovascular diseases, better implementation of proven therapeutic strategies and continued innovation and discovery remains critical.

I hope you will join me and take steps to support your community during the Greater New Haven Heart Walk on Saturday, May 2, 2020 at Savin Rock Park in West Haven, Conn.

There are two ways you can to contribute:

- 1. Register.** Find a Heart Walk near you and register online.
- 2. Give.** Donate to a team or the 2020 Greater New Haven Heart Walk.

Together we will work to hopefully prevent or mitigate cardiovascular disease and invest in healthier, more vibrant communities.

Best,

A handwritten signature in black ink that reads "Eric Velazquez".

Eric J. Velazquez. | MD, FACP, FACC, FASE
FAHA Robert W. Berliner Professor of Medicine
Chief, Cardiovascular Medicine, Yale School of Medicine
Chief, Cardiovascular Medicine, Yale New Haven Hospital
Physician-in-Chief, Heart and Vascular Center,
Yale New Haven Health



Celebrating National Wear Red Day at Yale

YALE CARDIOVASCULAR MEDICINE EDUCATION FUND

Lawrence Cohen, MD

Lawrence S. Cohen MD, the Ebenezer K. Hunt Professor of Medicine (Emeritus), served as the chief of Yale Cardiovascular Medicine from 1970-1978. An accomplished teacher and physician, he oversaw the early growth of cardiac catheterization and coronary arteriography at Yale New Haven Hospital. He taught physical diagnosis and led the medical student course “Learning Heart Sounds” for almost four decades. He is the recipient of the Francis Gilman Blake Award of Yale School of Medicine for Outstanding Teaching of the Medical Sciences.

He initiated the Yale clinical trials comparing medical treatment and coronary bypass surgery in patients with stable angina and thrombolytics in patients with unstable angina and myocardial infarction.

He is past president of the Association of University Cardiologists and the Interurban Clinical Club founded by William Osler in 1905.

In 1991, he was appointed Deputy Dean of the medical school and later served as Special Advisor to the Dean and Research Integrity Officer to three deans.

If Dr. Cohen has had an impact on your life, we encourage you to send a gift – along with a note that we can share with him – to the Yale Cardiovascular Medicine Education Fund in his honor. To learn more about opportunities to partner with us through charitable giving, please contact Erin Shreve, Director of Development at erin.shreve@yale.edu or **203-436-8529**.



“All of us have shared the joys of being a physician. There is the joy of being allowed to enter and change the lives of our patients and the joy of teaching future physicians the lessons we have learned. We revel in the knowledge that our lessons will be amplified and enlarged upon by our fellows. We are proud of the knowledge that the Society of Yale Cardiovascular Fellows will make a difference in the lives of thousands of patients, and will in turn teach a future generation of nascent physicians the latest in cardiac research and cardiac care.”

Lawrence Cohen, MD

How to Make a Gift

*Thank you in advance
for your support.*

- 1. Online.** Visit cardiology.yale.edu/giving
- 2. By mail.** Checks should be made payable to Yale University and mailed to the following address:
Yale School of Medicine Office of Development
Attn: Erin Shreve
P.O. Box 7611
New Haven, CT 06519-0611

WEST PUTNAM MEDICAL CENTER OFFICIALLY OPENS



ABOVE Leaders from Yale New Haven Health cut the ribbon at the new West Putnam Medical Center, which includes a variety of outpatient services provided by Greenwich Hospital, Yale New Haven Health Heart and Vascular Center and Yale Medicine.

BELOW Keith Churchwell, MD, Chief Operating Officer, Yale New Haven Hospital



Yale New Haven Health hosted a ribbon-cutting ceremony to officially open the newly-renovated West Putnam Medical Center in Greenwich, which offers patients easy access to cardiac, primary care, pediatric, endoscopy, laboratory, diagnostic imaging, and rehabilitation services under one roof.

Approximately 170 people attended the grand opening of the outpatient facility, which includes services from Greenwich Hospital, Yale New Haven Health Heart and Vascular Center and Yale Medicine.

“The Heart and Vascular Center (HVC) at the West Putnam Medical Center is a fantastic development for the community. The HVC reflects the commitment of Greenwich Hospital, Yale New Haven Health System, and Yale Medicine to provide the highest level of cardiovascular care in the lower Fairfield region with expert clinicians and the best diagnostic equipment,” said Christopher Howes, MD, Greenwich Hospital’s Chief of Cardiology and Director of Cardiac Catheterization and Intervention. Greenwich Hospital provides diagnostic imaging, laboratory, physical medicine and endoscopy services at West Putnam Medical Center.

Keith Churchwell, MD, Yale New Haven Hospital Executive Vice President and Chief Operating Officer, said community access to heart and vascular services from Yale Medicine specialists had “grown exponentially” with the opening of the Greenwich facility. The center includes general cardiologists, interventional cardiologists, electrophysiologists, cardiovascular surgeons and other physicians. “The ability to build a heart and vascular center in collaboration with our partners in primary care, obstetrics and pediatrics is a dream come true,” he said. “Our enhanced ability to take care of the patients we have the honor to serve is exciting and a huge opportunity for Greenwich and the Heart and Vascular Center.”

Eric J. Velazquez, MD, Yale Cardiovascular Medicine Section Chief, added that it’s critical for the Greenwich community to have a facility nearby where they can receive exceptional cardiovascular care. “The importance of this new facility cannot be understated.”

West Putnam Medical Center also houses the Yale New Haven Children’s Hospital Pediatric Specialty Center and Greenwich Hospital’s Pediatric Outpatient Center, which both opened last year. The YNHCH Pediatric Specialty Center provides children and their families with access to nationally ranked specialties. The Greenwich Hospital Pediatric Center provides care to thousands of under- and uninsured children each year.

To learn more about West Putnam Medical Center, visit greenwichhospital.org.

“The Heart and Vascular Center (HVC) at the West Putnam Medical Center is a fantastic development for the community. The HVC reflects the commitment of Greenwich Hospital, Yale New Haven Health System, and Yale Medicine to unite to provide the highest level of cardiovascular care in the lower Fairfield region with expert clinicians and the best diagnostic equipment.”

Christopher Howes, MD

Yale New Haven Health Heart and Vascular Center Medical Director for Greenwich Hospital and Assistant Professor of Medicine



ABOVE Yale New Haven Health marks the opening of the West Putnam Medical Center

RIGHT Inside the enhanced outpatient facility





ITEACH provides medical students, physicians, and other healthcare providers with educational opportunities to improve the quality of cardiovascular care in low and middle-income countries.

PROMOTING CARDIOVASCULAR HEALTH WORLDWIDE

How it Began

Cardiovascular disease is among the leading cause of death worldwide. Over 75 percent of those deaths occur in low-and middle-income countries where suboptimal education and resources make it difficult to provide ideal medical care.

Healthcare providers have tried to address this issue through short-term medical missions. Traditionally, the volunteer arrives in the host country and stays for a brief period of time, often one week. Once the group departs, follow-up care provided by trained personnel and access to necessary supplies and medications is often limited. Even during these missions, being from abroad, the physicians might not provide care that is culturally sensitive.

Now there's a growing recognition that better medical training is the key to strengthening healthcare systems. Teaching local healthcare providers results in more patients getting access to care over time than with short-term medical missions and patients prefer to meet with doctors and nurses who speak their language and understand their culture.

Challenges of Medical Education

Although the number of medical schools in developing countries has grown significantly, the learning environment is not always optimal. At times, students may feel disappointed by the quality of clinical performance, or frustrated by the lack of technical support, equipment, and other resources.

As a medical student in Colombia, Camila Trejo, MD, experienced many of these challenges. She decided to pursue advanced cardiovascular training with the aim of sharing what she learned with her colleagues. Two years ago, Trejo became a research fellow in Yale Cardiovascular Medicine where she found a team of physicians who shared her passion for improving health outcomes. She then joined ITEACH.



The International Team of Educators to Advance Cardiovascular Health (ITEACH) is a nonprofit organization created by a team of Yale Cardiovascular Medicine physicians to improve the quality of cardiovascular care in underserved communities. Under the leadership of Bernardo Lombo, MD; Robert McNamara, MD, MHS; Michael Dewar, MD; Lissa Sugeng, MD and Jorge Otero, MD, ITEACH collaborates with international partners to improve knowledge base, clinical skills, and systems organization skills. ITEACH focuses on the medical needs that are the priority of the community – rather than a short-term fix.

“ITEACH uses a team-based approach, incorporating local and international educators, to enhance evidence-based medicine to meet local needs. The science of medicine may be global, but the art and practice of medicine needs to be local,” says McNamara.

Last spring, Pilar Patino; Cesia Gallegos, MD; Camila Trejo, MD and Priyanka Bisarya applied to the competitive Yale Tsai CITY (Center for Innovative Thinking at Yale) Spring Accelerator Program, which is an eight-week program where teams receive tailored startup mentorship and a \$1,000 grant. ITEACH was one of the teams selected to participate in CITY's Accelerator. The program supports early-stage ventures through workshops and activities designed to improve skills in organizational development, team management, financial sustainability, and human-centered design.



International Activity

ITEACH has partnerships in multiple countries including Colombia, Dominican Republic, Russia, Argentina, Indonesia, Honduras, and Rwanda. In each country, the team organized a symposium to share best practices and discuss the latest advances in cardiovascular research.

Bogotá, Colombia. According to the Colombian Ministry of Health, cardiac ischemic disease is the leading cause of death in Colombia, and many hospitals are overwhelmed by the number of emergency admissions due to heart failure.

In July 2015, ITEACH visited a primary care clinic near Bogotá. The clinicians identified cardiovascular conditions as prevalent diseases. In collaboration with the Fundación Santa Fe de Bogotá (FSFB), the team helped establish a cardiology consult service. ITEACH also trained healthcare personnel to manage patients with hypertension and other cardiovascular conditions. Also, members of ITEACH provided educational workshops for patients and family members in the local community. This collaboration has evolved into cardiovascular conferences in Bogotá, and training in advanced cardiovascular techniques of Colombian cardiovascular fellows at the School of Medicine's section of Cardiovascular Medicine.

Baní, Dominican Republic. Hypertension is a leading cause of death in the Dominican Republic. To combat this issue, the Ministry of Public Health adopted a National Chronic Non-communicable Disease Control and Prevention Program, aimed at the prevention and management of noncommunicable diseases, including hypertension. In collaboration with colleagues at the Instituto Tecnológico de Santo Domingo (INTEC) and the Ministry of Health, the ITEACH team traveled to Bani, Dominican Republic in May 2019 to gather pilot data on the management of hypertension in primary care clinics. This collaboration is now conducting a cluster randomized control trial to evaluate strategies to improve hypertension care in these primary care clinics. The Dominican Ministry of Health and the Dominican Society of Cardiology have expressed interest in extending any proven strategies across their health system.

St. Petersburg, Russia. Northwest Russia has one of the highest incidences of coronary artery disease in the world but underfunding during the late Soviet Union era had left the capacity to treat these patients at a much lower standard than seen in other developed countries. Since 1995, Michael Dewar, MD, has been teaching and performing surgeries in Northwest Russia, predominately St. Petersburg.

Together with Maria Prokudina MD, PhD, a Russian cardiologist, Dewar established a formal educational collaboration of bidirectional exchanges of physicians in 2005. Since that time, U.S. surgeons, cardiologists, cardiothoracic anesthesiologists, and trainees have traveled to northwest Russia 18 times to assist in complex cardiac surgeries and consultations. In addition, 60 young Russian physicians have spent one to two months at Yale New Haven Hospital (YNHH), learning advanced techniques and concepts in their field of cardiology, surgery, or anesthesiology. Unlike most short-term visits to the U.S., these international physicians obtained medical liability insurance and credentialing at YNHH to not only observe but perform procedures and consultations. This collaboration has been so successful that YNHH will expand the model to include oncology.

El Brete and Cordoba, Argentina. The World Health Organization estimates that seven million people may be infected with Chagas, a vector-borne illness transmitted by the parasite *Trypanosoma cruzi*. Infection with this parasite can lead to fatal gastrointestinal and cardiovascular complications. However, if detected early enough, the disease is treatable.

In March 2019, a team of health care professionals from Yale and Argentina worked together to investigate the prevalence and complications of Chagas disease in El Brete, Cordoba, a rural town in central Argentina. The group screened 147 people with questionnaires, physical exam, blood work, electrocardiograms, and echocardiograms over a two-day period. One of the main goals was to evaluate a new polymerase chain reaction (PCR) technique that some of the Argentinian investigators developed for early detection of *Trypanosoma cruzi* in the blood.

In addition, members of the team conducted a one-day symposium about Chagas disease and global cardiovascular health for other faculty, trainees, and medical students back at the Hospital Privado Universitario de Córdoba. This venture was the inauguration of an education and research collaboration between Yale Cardiovascular Medicine, Yale New Haven Health and the Instituto Universitario de Ciencias Biomédicas de Córdoba (IUCBC) and Hospital Privado. The symposium was an extraordinary opportunity to share knowledge and ideas with our colleagues in Argentina and gain insights about the potential impact a PCR technique would have on patients.

After the symposium, ITEACH was formally recognized by the government of Argentina and received a commemorative plaque from local authorities and the IUCBC.



Bali, Indonesia. Rheumatic heart disease (RHD), caused by an autoimmune inflammatory response to a Streptococcal infection, often leads to disabling valvular heart disease and is a serious health concern in Indonesia. Early intervention is the key to preventing premature death. The World Health Organization has recommended the use of a device for echocardiographic screening since 2004. Cardiac ultrasound devices are a cost-effective method for early detection.

In March 2017, ITEACH faculty teamed up with local physicians from Udayana University to conduct a research study to assess the prevalence of RHD using portable echocardiography devices in Kubu, Karangasem. During a two-day field activity, the group screened more than 300 children under 18 years old, making it the first tablet echo screening of RHD in a rural area of Indonesia.

The team provided lectures, during a one-day symposium, to residents, fellows, and physicians from Udayana University, on how to evaluate and analyze the diastolic function, and analysis of the cardiac function through Speckle Tracking.

Two cardiologists from Indonesia did a rotation at the Echocardiography Lab at Yale New Haven Hospital Heart and Vascular Center. They went back to their country, became faculty members of the local university and are now recognized as the leaders in new echocardiographic techniques. They introduced echo stress at their local hospital, improved their cardiac imaging protocol, and helped create a new rheumatic heart disease clinic.



Left to right: Camila Trejo, MD, Pilar Patino and Priyanka Bisarya

San Pedro Sula, Honduras. Despite an increasing incidence and prevalence of cardiovascular disease and its manifestations in Honduras, the capacity to educate the needed physicians is lacking across Honduras. In June 2019, Robert McNamara, MD, and Cesia Gallegos Kattan, MD, traveled to San Pedro Sula, Honduras with members of the ITEACH team. In collaboration with faculty from the Universidad Nacional Autónoma de Honduras en el Valle de Sula, ITEACH faculty taught internal medicine residents and medical students on evidence-based care of the cardiovascular patients and the use of point-of-care echocardiography.

Kigali, Rwanda. In 2013, McNamara, as part of the Human Resources for Health initiative, spent 12 weeks in Rwanda, teaching medical students, internal medicine postgraduates, and young physicians different aspects of cardiovascular care relevant to local needs. In collaboration with the Department of Internal Medicine's Office of Global Health, multiple Rwandan trainees have had the opportunity to experience rotations at Yale New Haven Hospital. The program also includes research collaborations to teach rigorous clinical investigational techniques.

Cardiac Imaging Learning

In recent years, medical imaging technology has rapidly developed. This progress has led to more accurate diagnoses. However, not all medical students have access to cardiovascular imaging case studies captured during patient examinations. Students find it challenging to improve interpretation and diagnostic skills without digital videos and images, but online training programs in cardiovascular imaging are expensive. In partnership with the Fundacion Santa Fe de Bogota (FSFB) and Yale CIDER (Center for Interactive Digital Education in Radiology) ITEACH provides free access to a world-class medical education for non-invasive cardiology. Cardiac Imaging Learning is an online archive of case studies and an image gallery where medical students can review prevalent medical conditions including mitral stenosis, aortic insufficiency, and pleural effusion among others.

The website was created by Yale Cardiovascular Medicine faculty including Lissa Sugeng, MD, MPH, Robert McNamara, MD, MHS, Bernardo Lombo, MD in collaboration with the Fundacion Santa Fe de Bogota (FSFB) and Yale CIDER.

For more information about ITEACH, check out this video: youtu.be/OYA3_XOdAmA.

UPCOMING EVENTS

Yale Continuing Medical Education (CME) provides high-quality learning opportunities for physicians and other health care professionals. For more details and updates, visit: medicine.yale.edu/cme.

April 3, 2020

TransCatheter Therapies 2020 Improving Patient Care

Understanding How and When to Refer Patients Across the Yale New Haven Health System

This dinner event is a one-day CME symposium where experts lecture medical professionals on new therapies and treatments in the field. The goal of this program is to close the knowledge gap on transcatheter therapies.

April 24, 2020

9th Annual Update on Interventional Cardiology

What Nurses and Radiation Technologists Bring to the Table: It's Not Always About the Doctors

The 2020 Interventional Cardiology symposium is a one-day educational event highlighting the contributions of nurses and technologists who care for patients undergoing interventional cardiovascular procedures. From new research and equipment to new procedures, applications, and approaches, the field of interventional cardiology is one of the fastest-changing areas in medicine. Often the care delivered by nurses and technologists during life-saving cardiac procedures gets overlooked. Their role is critical. Their preparation behind the scenes is what often allows providers to get the outcomes that patients need. This year's CME event will focus on nurses' and technologists' skill sets, processes, and understanding of cardiac disease and procedures that enhance the survival and quality of life of patients.

FELLOW FOCUS



Kerrilynn Carney, MD
Fellow, Cardiovascular Medicine

Why did you choose medicine and Yale?

Medicine is a field that I discovered slowly. In high school, I dreamed of following in the footsteps of my mother with a career in teaching and counseling. In my undergraduate training, I studied neuroscience, which opened my eyes to the field of medicine and the unique privilege of educating patients and their families about their health. In medical school, I was participating in public health efforts in New York City to address health literacy and educate adult students in Harlem about primary prevention of cardiovascular disease which lead me down the path to cardiology. I chose Yale for cardiology fellowship for the opportunity to learn from a diverse patient population in an integrated health system and to develop my research interest in implementation science and outcomes.

What is your five-year goal? 10-year? Overall career?

In five years, my goal is to be the associate program director at an academic medical center and to obtain skills in implementation science to improve health care delivery. In 10 years, I hope to use those skills in a leadership capacity to improve regional and national cardiovascular care. Along the way, I want to take great care of my patients, my family, my friends, and myself.

What is a fun fact about you?

I played Division I soccer for four years in college and continue to play in adulthood. In New York, I'd often play at Chelsea Piers or the East River fields and rollerblade, including on the street, to get there.

To learn more about Dr. Carney, visit:
cardiology.yale.edu/education

NEW FRONTIERS IN CARDIOVASCULAR RESEARCH



Stefania Nicoli, PhD

For over a decade, Stefania Nicoli, PhD, has used zebrafish to study disease. The remarkable similarities between humans and these tiny freshwater fish provide valuable information about the genetic root of human disease.



The Nicoli lab investigates how microRNAs (miRNAs) play a role in the physiology of the cardiovascular system. The lab currently holds 1,000 adult zebrafish. Nicoli and her team combine several approaches to identify disease-causing genes

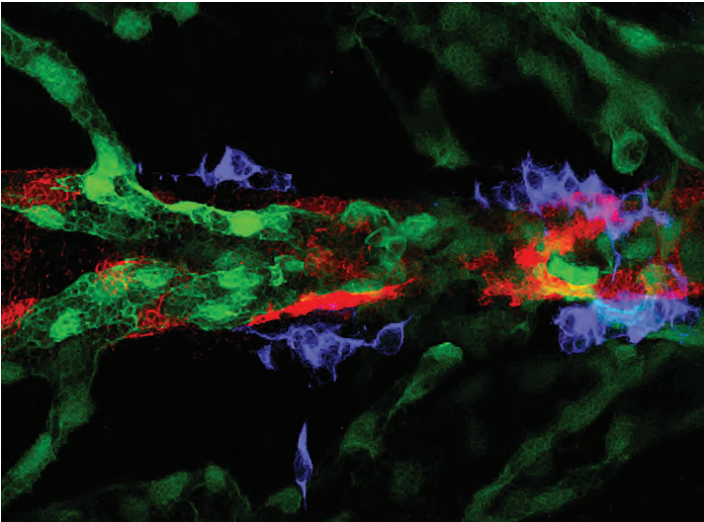
including: in vivo genomic manipulation

of the zebrafish vertebrate system, single-cell resolution microscopy, live imaging of zebrafish development, and genome-wide computational analysis. These techniques are used to examine the function of RNA-based mechanisms in driving endothelial and neuronal cell behaviors, which could have a wide range of applications including blood disorders, atherosclerosis, diabetes, Alzheimer's disease, and fibrosis.

As an undergraduate student at the University of Brescia, Nicoli identified the role of fibroblast growth factor 2 (FGF2) in the development of new blood vessels, or angiogenesis in tumors. This showed the direct FGF2 regulation of P12, a single protein molecule of Polymerase alpha-1, that led to cancer. During her graduate studies at the University of Brescia, Nicoli developed a zebrafish tumor xenograft and zebrafish yolk membrane (ZFYM) angiogenesis assays. This was the first investigative procedure that used xenografts in zebrafish to measure angiogenesis. After completing her postdoctoral research at UMASS Medical School, Nicoli received a Research Career Development Award from the National Institute of Health (K99/R00) to establish a research lab. Nicoli was recruited by the Yale Cardiovascular Research Center (YCVRC) in 2012, where she holds a dual appointment in cardiovascular medicine and genetics.

Using Zebrafish to Study Disease

Scientists have used zebrafish as a research tool since the 1960s. The embryos develop externally in under six weeks.

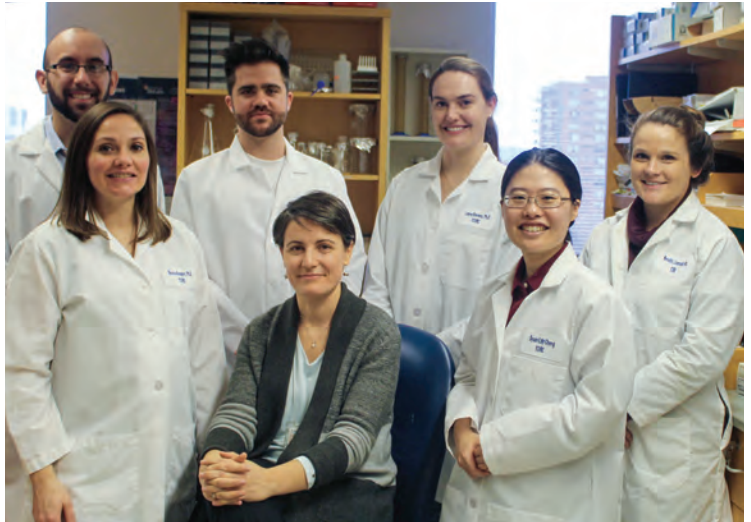


Zebrafish Sympathetic Neurons

The fertilized eggs are also transparent, another unique characteristic that enables scientists to observe blood vessel formation and circulatory patterns under the microscope. Humans and zebrafish also share similar genomes. Molecular biologist George Streisinger, PhD, developed a groundbreaking technique in the 1980s to manipulate genes so that a mutation detected in a human can often be replicated in zebrafish. Scientists have discovered that nearly 80 percent of the disease-causing genes identified in humans have at least one related gene in zebrafish.

Nicoli's latest discovery demonstrates how the AGO2-miRNA complex interfaces the interaction between a cell and the extracellular matrix – a crucial factor in how cells and tissues maintain their shape. The findings in *Nature Cell Biology* could enable early detection of fibrosis. If detected early, the thickening and scarring of tissue can be reversed. Now Nicoli is partnering with Karen Hirsci, PhD, to uncover how a common protein N-glycosylation, limits the activity of hematopoietic regulators. These findings could provide new avenues for regulating in vivo and ex-vivo blood stem cell production. The researchers hope the same molecules can be studied in humans, and even explored as therapeutic agents for blood disorders.

While the Nicoli lab has contributed to our understanding of the cellular and molecular structure of an organism, the motivation behind this work is encouraging physicians and patients to think differently. “Identifying genetic markers



Left to right: Jared Hintzen; Dionna M. Kasper, PhD; Joey Ghersi, PhD; Stefania Nicoli, PhD; Liana Boraas, PhD; Siyuan (Lily) Cheng; Meredith S. Cavanaugh, MS

for complex phenotypes that puts you at a higher risk for disease later in life could motivate patients to adopt a healthier lifestyle,” says Nicoli.

Awards in Vascular Biology

Since 2012, the Nicoli lab has been awarded almost \$4 million in funding from the National Institute of Diabetes and Digestive Kidney Disease (NIDDK), the United States Public Health Service (USPHS), and other agencies focused on understanding how the vascular system develops.

After identifying miR-223 as a novel regulator of hemogenic endothelial cells in zebrafish, the lab received a Transformational Project Award from the American Heart Association to determine whether miR-223 directs N-glycosylation levels to control endothelial to hematopoietic cell fate transition. On average, the human body produces over 200 billion blood cells per day through a process called hematopoiesis. Hematopoietic stem and progenitor cells (HSPCs) are essential to maintain a healthy vascular system, however little is known about how these cells are formed.

Nicoli was the recipient of the 2016 NAVBO Springer Junior Investigator Award for her research, “Mutagenesis of microRNA genes uncovers trait variance as a unique vascular phenotype that confers stress sensitization.” She also received the Bohmfalk Scholar in Medical Research Award in 2015.

YALE CARDIOVASCULAR RESEARCH GROUP



Alexandra Lansky, MD

Over the past 30 years, the mortality rate for cardiovascular (CV) disease has been on the decline — except in young women. Smoking bans, blood pressure control, risk factor modification, and more widespread use of statins have improved outcomes.

“Women need to be aware of the symptoms of heart disease and get help with the earliest warning signs to prevent the all-too-common delays to treatment,” says Professor Alexandra Lansky, MD, a cardiologist at the Yale School of Medicine (YSM).

Lansky leads the Yale New Haven Hospital (YNHH) Heart and Vascular Clinical Research Program and the Yale Cardiovascular Research Group (YCRG), which has grown to 50 full-time research professionals in 10 years. The YNHH Clinical Trials Unit enrolls patients in 70 clinical trials for a range of CV specialties. YCRG leads the academic design and management of multicenter national and international CV clinical trials. The team manages state-of-the-art central imaging laboratories in multiple modalities, safety oversight with clinical endpoint adjudication and data safety monitoring and FDA regulatory strategy, consultation and submissions for early feasibility and premarket approval devices.

The four imaging laboratories evaluate devices and other CV therapies with protocol-specific quantitative performance and efficacy measures using systematic methods, FDA-approved software, and meticulous quality control. Lansky has led over 500 pharmacologic and interventional device trials. “Our work has been integral to the approval of numerous cardiovascular devices that are used every day in the catheterization laboratory to help patients with symptomatic coronary, peripheral and valvular heart disease. Equally important,” said Lansky, “is our responsibility to identify devices that may not work or may cause harm and stopping the clinical study if necessary when patient safety may be at risk.”

Currently, Lansky is the principal investigator of a U.S.-based randomized study evaluating a cerebral embolic protection device used to prevent strokes during aortic valve replacement and a global randomized trial evaluating a biodegradable polymeric coronary stent with an electro-grafted bio-stable base layer technology designed to promote endothelial healing.

She is also the principal investigator of a postmarket multicenter trial evaluating a thin strut biodegradable drug-eluting stent in an all-comers population following patient outcomes for five years. This work is part of the Barts Heart Centre transatlantic research collaboration, co-directed by Andreas Baumbach, MD, from the William Harvey Research Institute, Queen Mary University of London and the Barts Heart Centre.

Women Count

Lansky has been instrumental in efforts to enroll more women in cardiovascular trials. “Current guidelines are not sex-specific and are based on data derived predominantly in male patients, even when the evidence in females may not support recommendations,” says Lansky. Men comprise 75-80 percent of enrollees in cardiovascular device trials according to last year’s position statement in *JACC Cardiovascular Interventions*. Co-authored by Lansky, “Sex Disparities in Cardiovascular Device Evaluations: Strategies for Recruitment and Retention of Female Patients in Clinical Device Trials,” proposes a three-pronged-approach to increase the enrollment of women in cardiovascular device trials.

To address the current barriers, Lansky co-chairs a coalition of clinician academics, advocacy groups, AdvaMed and the FDA, working toward equal access and enrollment for female patients. The initiative received support from Robert Califf, MD, the former FDA commissioner, and Robert Harrington, MD, president of the American Heart Association (AHA).

Evidence Matters

Globally, cardiovascular disease is the leading cause of death for women. During the mid-90s primary prevention thresholds for starting statin therapy were set at a higher bar for women than men. Since then guidelines have been adjusted and outcomes have improved, but not without a steep climb. In 2004, the AHA released a statement about the prevention of CV disease in women. The same year, Lansky published the first sex-specific statement on revascularization to showcase the difference in outcomes between men and women. With endorsement from the Society for Cardiovascular Angiography and Interventions (SCAI), she is working on an updated expert consensus to highlight the gaps in current evidence. She hopes to catalyze further research and funding to address the disparities.

Representation Matters

Only 4.5 percent of interventional cardiologists in the U.S. are women. At Yale, 50 percent of our interventional fellows are women, and we are committed to training women interventional cardiologists for leadership roles. Trainees also benefit from a diverse body of female faculty, including Elissa Altin, MD, and Qurat-UI-Ain Jelani, MD in the interventional program. As co-chair of the SCAI-Women in Innovation Committee, Lansky’s primary focus has been to empower women professionally, to fund dedicated complex intervention fellowships for women, and to develop educational programs highlighting female talent. For example, last year at the CRT annual symposium, Altin performed her first live case demonstration. Chaired by Lansky, the live case was broadcasted nationwide and featured an expert panel of mostly women. “The talent of our female faculty will speak for itself with time.” Lansky points out. Within Yale Cardiovascular Medicine, we are fortunate to have Lynda Rosenfeld, MD, the first female cardiology fellow at Yale, leading regular meetings for female cardiology faculty and fellows to address professional growth, challenges and exchange best practices in a collegial environment.

Background

A graduate of the Medical College of Virginia, Lansky trained and practiced with early pioneers in interventional cardiology at the Washington Hospital Center, Washington, D.C. Early in her career, she developed a passion for clinical research and its broad impact on patient care, during the formative years of interventional cardiology. One of five founding physicians of the Cardiovascular Research Foundation (CRF), she relocated to New York City where, for the next decade, she assumed the position of chief scientific officer of the Clinical Trials Unit at CRF and director of the Clinical Program for Interventional Cardiology at Columbia University Medical Center. In 2010, Lansky joined YSM and founded YCRG to establish a strong clinical research program at Yale.

Lansky has received multiple awards for her outstanding clinical research contributions including the Master of Arts *Privatim* from Yale University in 2017, Thompson Reuters 2014 World’s Most Influential Scientific Minds for Clinical Medicine, 2016 Web of Science Highly Cited Researcher and the 2012 Wenger Award of Excellence in Women’s Health Care for a lifelong commitment to pursuing gender-based outcomes research.



“All of us have shared the joys of being a physician. There is the joy of being allowed to enter and change the lives of our patients and the joy of teaching future physicians the lessons we have learned.”

Lawrence Cohen, MD

DE MOTU CORDIS

Yale SCHOOL OF MEDICINE
Section of Cardiovascular Medicine

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