A stalwart partner is awarded medical school’s highest honor

Foundation’s support has fueled Yale science for two decades and counting

In recognition of more than two decades of outstanding support for biomedical research at Yale School of Medicine, the G. Harold and Leila Y. Mathers Charitable Foundation has received the Peter Parker Medal, the school’s highest honor.

The foundation’s farsighted vision of supporting basic science research has contributed to the work of 15 Yale researchers, ranging from promising new investigators at the outset of their careers to Nobel laureates at the pinnacle of their fields. At a ceremony in March, Dean and Ensign Professor of Medicine Robert J. Alpern, M.D., praised the foundation’s loyalty to Yale. “You are committed to making the world better,” Alpern said.

The foundation has contributed more than $17.5 million since 1989, paving the way for a number of significant advances and programs. Recently, the foundation awarded grants of $1.5 million and $1.7 million to research projects by Joerg Bewersdorf, Ph.D., associate professor of cell biology; and Haifan Lin, Ph.D., professor of cell biology and genetics, respectively.

Bewersdorf, also associate professor of biomedical engineering, is a leader in developing light microscopes that allow the visualization of proteins and membranes within cell organelles and molecular machines with unprecedented precision. The new funding will support his

A family, and a transformative legacy

Gift from a ‘steadfast friend’ to fund three professorships at the School of Medicine

Richard S. Sackler, M.D., is no stranger to the School of Medicine. A member of the Dean’s Council and the Yale Cancer Center (YCC) Director’s Advisory Board, Sackler also has a robust track record of philanthropy, which has shaped the School of Medicine in tangible ways.

In 2009, Sackler, along with his wife, Beth, and his brother and sister-in-law, Jonathan Sackler and Mary Corson, joined forces to donate $3 million to establish the Richard Sackler and Jonathan Sackler Professorship in Internal Medicine, held by Thomas J. Lynch Jr., M.D., director of YCC and physician-in-chief at Smilow Cancer Hospital at Yale-New Haven.

Now, a new commitment by Richard Sackler and his children, Rebecca, Marianna, and Thomas C. Naratil Pioneer Award in Women’s Health Research will offer significant support annually for pilot research in women’s health and gender differences. The Wendy U. and Thomas C. Naratil, of the Yale College Class of ’83, signed on to co-chair their class’s 30th college reunion last year, they knew they wanted to make a gift to the university that would have a significant and lasting effect. Since the late 1990s the Naratils have had a relationship with Women’s Health Research at Yale (WHRY), a program whose mission includes ensuring that women are included in research studies, gender differences in health are examined, and health outcomes are analyzed by gender.

In an effort not only to spearhead their class’s reunion campaign, but also to advance WHRY’s mission, the Naratils have given $1 million to establish an endowment that will offer significant support annually for pilot research in women’s health and gender differences. The Wendy U. and Thomas C. Naratil Pioneer Award in Women’s Health Research will provide up to $50,000 to one faculty member each year. WHRY was founded in 1998 with funding

In giving back, supporting research in women’s health

When Wendy U. and Thomas C. Naratil, of the Yale College Class of ’83, signed on to co-chair their class’s 30th college reunion last year, they knew they wanted to make a gift to the university that would have a significant and lasting effect. Since the late 1990s the Naratils have had a relationship with Women’s Health Research at Yale (WHRY), a program whose mission includes ensuring that women are included in research studies, gender differences in health are examined, and health outcomes are analyzed by gender.

In an effort not only to spearhead their class’s reunion campaign, but also to advance WHRY’s mission, the Naratils have given $1 million to establish an endowment that will offer significant support annually for pilot research in women’s health and gender differences. The Wendy U. and Thomas C. Naratil Pioneer Award in Women’s Health Research will provide up to $50,000 to one faculty member each year. WHRY was founded in 1998 with funding

INSIDE THIS ISSUE

2 Lifelines

By treating medicine as an information science, cardiologist Harlan Krumholz brings a “big data” approach to patient care.

3 One-stop shop for researchers

The Yale Center for Clinical Investigation provides resources and services that guide scientists through the research process.

5 Bridging the health care gap

A new center aims to identify and reduce persistent health care inequalities.

ALSO

Advances, pp. 3, 5
One & About, p. 4

@YaleMed /YaleMed
Outside the box

Taking the less trodden route, a cardiologist aims for systematic fixes

When Harlan M. Krumholz, M.D., M.S., was a young academic cardiologist in the early 1990s, colleagues advised him to pick a niche, like echocardiography or atrial fibrillation. But Krumholz, the Harold H. Hines Jr. Professor of Medicine, was interested in questions that transcended specialty: How can we measure outcomes to improve care? How can we bring hidden clinical insights into the open? “I was drawn to a bigger picture—how things are connected, how we can best learn to help patients,” he says.

Today, Krumholz’s interdisciplinary work puts him at the center of efforts to improve health care in the U.S. He founded the Yale-New Haven Hospital Center for Outcomes Research and Evaluation, which, among other activities, helps develop the Centers for Medicare & Medicaid Services’ hospital performance measures. His Yale Open Data Access Project has persuaded major companies to share proprietary clinical trial data—a huge win for scientific transparency.

Cardiology has forgiven Krumholz for not sub-specializing. He won the American Heart Association’s Distinguished Scientist Award in 2010. In 2008 he was elected to the Institute of Medicine of the National Academies. Forbes has called him “The Most Powerful Doctor You Never Heard Of.”

As a Yale undergraduate, Krumholz evaluated rural health centers, making him think about how medicine involves larger social systems. Few medical researchers held that holistic perspective at the time, but Krumholz recalls one who did. As a Harvard medical student he attended a talk about collecting data on chest pain patients to develop admission guidelines. The speaker was Lee Goldman, M.D., M.P.H., now dean of the Faculties of Health Sciences and Medicine at Columbia University Medical Center, a pioneer in applying quantitative public-health methods to improve decisions in clinical medicine. “I asked him to be my advisor,” Krumholz says. After completing his residency in internal medicine at the University of California-San Francisco in 1989, Krumholz returned to Harvard for a cardiology fellowship, where Goldman’s support helped launch his research career.

On joining the Yale faculty in 1992, Krumholz found opportunities to pursue his interests outside the academy via a relationship with the nonprofit Connecticut Peer Review Organization, now Qualidigm. At the time, the organization was embarking on a national effort to evaluate the quality of care for Medicare patients. “I’m jumping up and down saying, ‘Count me in!’,” he recalls.

Krumholz, also professor of investigative medicine and public health, has a knack for finding insight in unexpected places. A bout of jet lag after a flight from China made him wonder if sleep disruption and malnourishment might explain why patients often get sick after a hospitalization. Last year he published a paper describing post-hospital syndrome—heightened vulnerability to accidents and illness following hospital discharge.

Today, he says, “medicine needs to learn how other industries manage data.” The goal is—as it has always been for Krumholz—better patient care. If Amazon can predict purchases so accurately that workers can pack shipments before the customer decides, Krumholz asks, why couldn’t doctors sift data buried in thousands of charts to predict a heart attack—and then preempt it?

“That’s what’s fun about what I do,” he says. “You have ideas and you think, ‘Could that work in medicine?’”

Yale Cancer Center joins alliance of world’s leading cancer centers

In March, Yale Cancer Center (YCC) and Smilow Cancer Hospital at Yale-New Haven joined the National Comprehensive Cancer Network (NCCN), an alliance of 25 of the world’s leading cancer centers dedicated to improving the quality, effectiveness, and efficiency of care provided to patients with cancer.

Since its opening in 2009, Smilow Cancer Hospital has become a hub for effective cancer care, complementing YCC’s dedication to innovation in cancer research and the development of novel treatments. Together, YCC and Smilow Cancer Hospital have pioneered many novel approaches to cancer therapy, and YCC research has contributed to significant advances in personalized medicine. YCC joined a study overseen by the National Cancer Institute (NCI) that matches patients to clinical trials of new therapies targeted to their cancer’s specific genetic mutations. YCC researchers are also advancing immunotherapy treatments for melanoma, using the body’s immune system to fight cancer.

“The collaboration of over 450 scientists and physicians at Yale focused on cancer research and patient care provides a strong foundation for breakthroughs in cancer prevention, diagnosis, and treatment,” said Thomas J. Lynch Jr., M.D., director of YCC, Richard Sackler and Jonathan Sackler Professor of Medicine, and physician-in-chief at Smilow Cancer Hospital. “We are honored to be elected to NCCN institutional membership.”

YCC is one of 41 NCI-designated comprehensive cancer centers in the U.S. Its designation was recently extended for an additional five years.

Acclaimed surgeon is new chief of vascular surgery

Timur Sarac, M.D., an accomplished surgeon and leader in vascular surgery, has joined the School of Medicine as professor of surgery and chief of the Section of Vascular Surgery. He also serves as director of the residency program and co-surgical director of the Heart and Vascular Center at Yale-New Haven Hospital (YNHH).

Sarac, whose appointment began April 1, comes to Yale from the Cleveland Clinic. He succeeds Bauer E. Stumpio, M.D., Ph.D., professor of surgery and diagnostic radiology, a renowned vascular surgeon who has led the Section of Vascular Surgery since 1995.

“Dr. Sarac is not only a spectacular surgeon, but also an international leader in vascular surgery, and holds more than 20 national and international patents for the development of novel stent technology. He was awarded a U.S. Army commendation medal for his innovative approach with military endovascular disease.”

Sarac earned his M.D. at the University at Buffalo School of Medicine and Biomedical Sciences. He completed his residency and a fellowship in interventional radiology at the University of Rochester Medical Center, and a fellowship in vascular surgery at the University of Florida’s College of Medicine.

Medicine@Yale

Harlan Krumholz

Among Harlan Krumholz’s diverse research projects is a study to identify the factors underlying the health and survival of young women, aged 30 to 59, who suffer from heart attacks, and how the patients’ gender may influence those factors, symptoms, and quality of care.

Timur Sarac

A new leader in vascular surgery, Timur Sarac, M.D., has joined the School of Medicine as professor of surgery and chief of the Section of Vascular Surgery. He also serves as director of the residency program and co-surgical director of the Heart and Vascular Center at Yale-New Haven Hospital (YNHH).

Sarac, whose appointment began April 1, comes to Yale from the Cleveland Clinic. He succeeds Bauer E. Stumpio, M.D., Ph.D., professor of surgery and diagnostic radiology, a renowned vascular surgeon who has led the Section of Vascular Surgery since 1995.

“Dr. Sarac is not only a spectacular surgeon, but also an international leader in vascular surgery, and holds more than 20 national and international patents for the development of novel stent technology. He was awarded a U.S. Army commendation medal for his innovative approach with military endovascular disease.”

Sarac earned his M.D. at the University at Buffalo School of Medicine and Biomedical Sciences. He completed his residency and a fellowship in interventional radiology at the University of Rochester Medical Center, and a fellowship in vascular surgery at the University of Florida’s College of Medicine.

Medicine@Yale

Image of a doctor who is a member of the Yale Cancer Center.
**Translating research from mice to men**

**The largest federal grant in the medical school’s history provides scientists with tools to move their research from bench to bedside**

As both a psychiatrist and a neurobiologist, Christopher Pittenger, M.D., Ph.D., is interested in how molecular and cellular changes in the brain contribute to such psychiatric conditions as obsessive compulsive disorder (OCD) and Tourette’s syndrome. In the lab, he wanted to investigate cellular and molecular abnormalities in the brain that are associated with disease—and to find out how these changes affect what patients experience.

Pittenger, associate professor of psychiatry, and in the Child Study Center, was able to translate his research from bench to humans thanks to support from the Yale Center for Clinical Investigation (YCCI).

Lanched in 2006 as part of the medical school’s strategic vision to strengthen clinical and translational research, YCCI provides an array of resources to support research as well as a home for the training of the next generation of investigators. In 2006, the School of Medicine was among the first 12 institutions in the U.S. to receive a five-year Clinical and Translational Science Award (CTSA) of $57.5 million, the largest NIH grant in the school’s history. The CTSA has since been renewed for an additional $47.5 million. This funding, with additional support from the School of Medicine, has allowed YCCI to develop new and enhanced programs, resources, and services to advance biomedical research.

The number of research grant applications to the National Institutes of Health (NIH)—the largest source of funding for medical research globally—has increased by 72 percent since 2000, but in 2013, the success rate for established investigators applying for R01-equivalent awards was just 15 percent, according to the NIH director’s annual report. For first-time investigators, the success rate was even lower—13 percent—an illustration of the difficulties young researchers face. Pittenger, also director of the Yale OCD Research Clinic, made this leap thanks to a 2009 YCCI Scholar award, which provided two years of research support for imaging studies on the neurotransmitter glutamate in OCD patients. “I didn’t know enough and didn’t have enough of a published track record to get major external grants in clinical research at that time,” he says.

The Scholar program is the cornerstone of the education, training and mentorship umbrella and is particularly important to fulfilling its goal of nurturing investigators early in their careers. "Building the next generation of investigators is critical, and it’s the most efficient way of sustaining research excellence at Yale," says Robert S. Shader, M.D., C.N.H. Long Professor of Medicine, chief of the Section of Endocrinology, and director of YCCI.

The program has proven to be a sound investment: so far, over 90 percent of the 88 Scholars who have received awards have remained in academic medicine, generating $57 million in independent funding and publishing more than 1,000 papers. "Without the YCCI award I wouldn’t have been able to grow the clinical side of my research program, which is now half of my research portfolio," says Pittenger, who also serves as a mentor to younger colleagues embarking on research careers. YCCI oversees the Investigative Medicine Program, one of a handful of programs in the U.S. focused on translational medicine for physicians who have completed their clinical training, and has expanded it to include scholars in nursing, public health, and biomedical sciences who want to pursue research. YCCI also supports about a dozen medical students annually for up to a year to work on research projects.

Before YCCI was established, investigators and departments were largely left to their own devices, since the School of Medicine lacked a centralized facility that offered the know-how needed to put together grants and conduct research studies. "Investigators need infrastructure with one-stop shopping resources," says Sheldon Cohen, who is renowned for his research on diabetes. "This is critical so that investigators are able to focus on the science and get help on the things we’re not really trained to do." YCCI’s Office of Research Services helps both experienced and novice investigators throughout the research process, offering expertise in developing study protocols, navigating regulatory requirements, developing budgets, recruiting study volunteers, supplying nursing and other research staff, and providing quality assurance.

One example of how YCCI facilitates research is the biostatistical support offered through the Yale Center for Analytical Sciences (YCAS). Created in partnership with the School of Public Health in 2010, the more than 30 biostatisticians affiliated with the Center provide assistance with statistical analyses, a crucial element in successfully carrying out research. For 2008 YCCI Scholar Leora I. Horwitz, M.D., M.H.S., assistant professor of medicine, whose research on the transition of care when patients are discharged from the hospital has earned her a national reputation, YCAS biostatisticians were instrumental in helping her develop the statistical section of her NIH Career Development award. “Having that resource makes all the difference,” Horwitz says.

Since 2007, YCCI has also provided almost $3 million for 64 pilot awards that allow investigators to develop new scientific initiatives and compete successfully for further funding. Pittenger received a pilot award for research showing that a genetic mutation that disrupts the production of histamine in the brain is a cause of Tourette’s syndrome. “YCCI is a place where I was able to get funding for exciting ideas at an earlier stage than I could otherwise have gotten,” says Pittenger, whose research originally funded by his Scholar award led to a major NIH grant that is enabling him to continue his work on OCD.

The pilot program, just one example of the benefits of YCCI’s collaborative approach, has built its successes by leveraging existing resources and collaborating with other programs. For example, much of YCCI’s regulatory and administrative support structure is intertwined with Yale Cancer Center (YCC). The two centers have collaborated to support YCAS as well as equipment and faculty expertise in research cores utilized by // Translational Research (page 4)

Creating a legacy

A gift from Henry Bronson, who received his M.D. in 1827, established the school’s first named professorship, an endowment created in 1870 that supports members of the faculty to this day. The named professorship is the highest form of recognition for a physician-scientist, distinguishing its holder as a leader in medicine. Bronson’s legacy forever remains in the achievements of the faculty honored as Bronson Professors.

An endowed professorship helps us to attract and retain the most outstanding scientists and physicians. Robert S. Wherewin, M.D., the C.N.H. Long Professor of Medicine (profiled above), had success in the lab and the clinic thanks to the substantial and reliable flow of funds for research, clinical, and teaching activities generated by the endowment. The School of Medicine is privileged to count among its faculty, innovators who solve today’s most pressing medical issues. Endowed professorships help move science, and Yale, forward.

To learn more about how you can endow a named professorship at the School of Medicine, contact Charles Turner, associate vice president for development and director of medical development at (203) 436-8560 or charles.turner@yale.edu.
January 31 A 35th Anniversary Symposium was held to mark the Department of Immunobiology’s silver anniversary, drawing former department affiliates back to the medical campus. (From left) Department alumni Tim Zheng, Ph.D., Eric S. Hoffman, Ph.D., and Naveen Bangla, Ph.D. (From left) Ruslan M. Medzhidov, Ph.D., the David W. Wallace Professor of Immunobiology, Akhilesh haswani, Ph.D., professor of immunobiology and of molecular, cellular, and developmental biology, and Richard A. Flavell, Ph.D., chair and Sterling Professor of Immunobiology. 3. (From left) M.D./Ph.D. student Daniel Okin ’15, M.D./Ph.D. student Raj Chovatiya ’16, Tattiana Bondar, Ph.D., postdoctoral fellow in immunobiology, Xu Zhou, Ph.D., postdoctoral fellow in immunobiology, and Scott Pope, Ph.D., postdoctoral fellow in immunobiology, are members of the Medzhidov lab.

February 21 At this year’s Second Year Show, “The Greatest Second Year Show Ever?”, the Class of 2016 carried on a 66-year tradition, poking fun at the medical school’s faculty and administration. (From left) Jacob Weatherly ’16 as August H. Fortin VI, M.D., M.P.H., associate professor of medicine, with (back, from left) Ezra Baraban ’16, Jason Sandler ’16, James Smithy ’16, and Hannah Dziemutowicz ’16, in one of the dance numbers. 2. Mary Barden ’16 plays Nancy R. Angoff, M.P.H., M.D., M.Ed., associate professor of medicine and associate dean for student affairs. 3. Fritz Stabenau ’16 as “The Elder.”

February 10 The 2014 David J. Leffell Prize for Clinical Excellence was awarded to Leo M. Cooney Jr., M.D., Humana Professor of Medicine (center). The annual prize was established in 2008 by a gift from David J. Leffell, M.D., the David Page Smith Professor of Dermatology and professor of surgery (right), and his wife, Cindy, to recognize a faculty member who best exemplifies clinical expertise, a commitment to teaching, and the highest standards of care and compassion for patients. Pictured with Cooney and Leffell is Dean and Ensign Professor of Medicine Robert J. Alpern, M.D.

March 21 Each spring, fourth-year students at medical schools across the country eagerly await Match Day, when students receive word of acceptance in residency training programs. 1. (From left) Amy Moreno, Charisse Mandimika, and Maria Beth Koenigs. 2. (From left) Alexander Arzeno and Joseph Thomas Patterson. 3. (From left) Ryan Aronberg, Katherine Davis, Lauren Hibler, Carlos, and Carlos’ husband, Jonathan Carlos.

April 26 A Neuroscience Symposium was organized by the Department of Psychiatry at the Mary S. Harkness Auditorium. Pictured are (from left) Tyrone Cannon, Ph.D., professor of psychology, Patricia Rehmer, M.D., N.S., commissioner of the Connecticut Department of Mental Health and Addiction Services, Elyn R. Saks, J.D., Ph.D., Orrin B. Evans Professor of Law, Psychology, and Psychiatry and the Behavioral Sciences at University of Southern California, Gould School of Law, Marisa Walls, president of the Board of Directors, National Alliance on Mental Illness, Connecticut Chapter; Joan Kaufman, Ph.D., associate professor of psychiatry and in the Child Study Center; Morris D. Bell, Ph.D., professor of psychiatry, John H. Krystal, M.D., the Robert L. McNeil Jr. Professor of Translational Research, chair of psychiatry, and professor of neurobiology, Judson A. Brewer, M.D., Ph.D., assistant professor (adjunct) of psychiatry.

April 27 Students and faculty flexed their muscle at the Student/Faculty Tennis Classic, held at Yale’s Cullman-Heyman Tennis Center. This spring, 51 people participated in the tournament, which consisted of three rounds of one-set matches. Following the tournament, Dean and Ensign Professor of Medicine Robert J. Alpern, M.D., hosted a dinner for the event’s participants.
Continued clinical care for ex-convicts

A network tailored to the medical needs of ex-prisoners could reduce recidivism and strengthen the U.S. health care system

People newly released from prison confront serious health risks the moment they step off the bus. Many lack identifying documents and have only a few dollars in their pockets. Many don’t know how to find health insurance or medical care. And many quickly wind up in emergency departments with overdoses or exacerbations of chronic diseases that were being treated in prison. These are problems that Assistant Professor of Medicine Emily Wang, M.D., M.A.S., is trying to resolve.

While an internal medicine resident at the University of California—San Francisco, Wang decided to talk to current and former prisoners about these barriers. In 2006, she co-founded a San Francisco clinic based on what she learned. The Transitions Clinic Network (TCN) is designed to connect ex-prisoners with medical and social services as soon as they leave prison. Eight years after its founding, the TCN has grown to serve 13 locations around the country, including at Yale-New Haven Hospital’s Primary Care Center. The network has drawn substantial national media attention in part because of its help enrolling returnees under the Affordable Care Act (ACA)—or “Obamacare”—that strengthens insurance rolls as well as reduce recidivism. Wang and colleagues at the TCN meet regularly with President Obama’s Federal Interagency Reentry Council to discuss policy barriers to returnee health, such as Medicaid termination for people incarcerated longer than a year.

Founded by a Career Development Award from the National Heart, Lung, and Blood Institute, Wang also studies health outcomes in returned prisoners. In September 2013 she reported in JAMA Internal Medicine that about one in 12 are hospitalized within three months of release. The structure of the TCN is based on advice from current and former prisoners, who suggested to Wang that effective medical care for returnees needs four key elements: early access to primary care; workers with a history of incarceration to guide returnees to medical and social services; providers with correctional health experience or training; and strong connections to community organizations like housing, employment, and legal aid. Returnees have also alerted Wang to discrimination in the health care setting.

“A big problem in many of the interventions that are designed for this population is that often they haven’t solicited the opinion of former prisoners,” Wang says. “You end up with interventions that either aren’t palatable or aren’t feasible.” By contrast, the TCN is succeeding. When Wang and her colleagues compared returnees receiving all four elements of the TCN’s care to returnees receiving just an early primary-care visit, they found that only one-quarter of TCN patients visited the emergency department in a year compared with 40 percent of non-TCN patients. The results appeared in the American Journal of Public Health in September 2012.

Though medical care for prisoners is mandated under the Eighth Amendment of the U.S. Constitution, that care often abruptly ends when imprisonment does. The clinic makes it possible to access prison health records and resume care. In 2012 the TCN received a Health Care Innovation Award from the Center for Medicare and Medicaid Innovation. The program has been mentioned in The Atlantic, Newsweek, and CNN.com.

Some of the attention has centered around the TCN’s connections to Medicare and the ACA. Poor health care in the form of untreated mental health problems and addiction lead many people to offend in the first place. So getting ex-prisoners enrolled in Medicaid—and making sure they receive treatment tailored to their needs, as the TCN does—might mean fewer of them return to prison.

“Obamacare is key to reducing recidivism,” Wang says. She adds, however, that the reverse is also true. Over one-fifth of people eligible for Medicaid under the ACA expansion are incarcerated, on probation, or on parole. Many are young and healthy, making them attractive to insurance companies looking to dilute their risk pools. Far from being burdensome, then, these individuals may strengthen the health care system—much as their involvement has made the TCN more effective.

“In order for the Affordable Care Act to work,” Wang says, “you have to get former prisoners involved.”

Reducing health care inequalities is focus of new research center

Many health care systems in the U.S. and abroad suffer from significant variation in quality and patient outcomes. With the July 1 launch of the new Equity Research and Innovation Center (ERIC), however, the School of Medicine is home to a new hub of activity focused on closing stubborn gaps in health care delivery and outcomes. Launched by Marcella Nuñez-Smith, M.D., ERIC aims to reduce health care inequalities that disproportionately affect minority and low-income populations.

“The sad reality is that despite all the research and hard work that has been advanced, disparities in health and health care outcomes persist, and some of the gaps have increased over time,” says Nuñez-Smith, associate professor of medicine and of epidemiology of public health and the center’s executive director. “ERIC is laser-focused on asking the questions and looking for the answers that have direct implications for closing these gaps,” she says.

To best obtain these answers, ERIC’s goals include developing and disseminating research that informs evidence-based policy and practice, and serving to support Yale students, faculty, and others interested in conducting state-of-the-art health equity research.

The principal investigator of several federal and foundation awards, Nuñez-Smith leads a team of some 60 researchers from the School of Medicine and partners institutions across the globe. The center’s flagship research project brings together 40 researchers located at remote research sites in Trinidad, the Virgin Islands, Puerto Rico, and Barbados. The multi-site cohort study will explore prevention and risk factors associated with chronic diseases, such as cancer, diabetes, and cardiovascular disease, in low- and middle-income Caribbean communities.

With initial financial support from the School of Medicine, ERIC is building upon established research projects focused on diversity within the health care workforce and faculty promotion and retention in academic health centers. ERIC researchers are also working to develop new measurement approaches to capture the patient care experience.

“We will continually ask if we are focusing on the right kinds of things, resources, or research that can inform interventions,” Nuñez-Smith says. “We want to try new approaches that will advance the field, so the next generation of researchers can begin at a [more advanced] starting point.”
development of novel approaches to manipulate these structures, in real time and in vivo, at the same sub-microscopic scale.

Lind also, professor of obstetrics, gynecology, and reproductive sciences and director of the Yale Steen Center (YSCC), has a longstanding relationship with the Mathers Foundation. The 2006 establishment of the YSCC was enabled in large part by the founding of the Mathers Foundation. In support of the YSCC, "the foundation exemplified a willingness to support a controversial research area that was being held back by federal policies," said Carolyn W. Slattery, PhD, of the Yale Steen Center. In support of the YSCC, "the foundation exemplified a willingness to support a controversial research area that was being held back by federal policies," said Carolyn W. Slattery, PhD, of the Yale Steen Center.
Looking at RNA to get to the heart of cardiovascular disease

Yale will play a vital part in an expansive study on the role of long non-coding RNA and microRNAs (miRNAs) in cardiovascular disease, thanks to a $6 million grant from the Public Health Foundation.

The five-year grant, awarded under the foundation’s Transatlantic Networks of Excellence Program (TNEP), enables a transatlantic collaboration among international teams in cardiovascular RNA biology with complementary research interests. The School of Medicine’s William C. Sessa, Ph.D., the Alfred Gilman Professor of Pharmacology and professor of medicine, will lead the American “half” of the project, as U.S. coordinator.

RNA is a family of biological molecules involved in the coding, decoding, regulation, and expression of genes. Prior to the last decade, its role in cardiovascular disease had been largely unexplored.

The project’s goal—to elucidate the role of non-coding and miRNAs in cardiovascular disease—furthers the foundation’s mission of improving human health through international efforts to combat cardiovascular and neurovascular disease. Its core aims include creating a “data bank”: an annotated list of the long non-coding RNAs expressed in cardiovascular tissues, to be made available as a resource for scientists in the international cardiovascular community. Another aim is to better understand how circulating miRNAs function: whether they cause disease, or are merely biomarkers—indicators, but not necessarily the cause, of conditions or processes.

Sessa’s research focuses on the vascular endothelium, cells that line all blood vessels, and the factors that can cause dysregulation of the endothelium and contribute to cardiovascular disease. His lab has been at the fore in describing the miRNA profile of vascular cells. In 2007 Sessa and colleagues published a paper showing that miRNAs played a vital functional role in blood vessels. More recently, his group has shed light on the connection between miRNA-29 and the gene ELN, which codes for a protein called tropoelastin, the precursor of the elastin that gives blood vessels their elasticity and helps them to open and close in response to the cardiac cycle.

Sessa’s part in the multi-pronged project is to identify important miRNAs in endothelial cells and smooth muscle cells, which compose the bulk of vessel walls, as well as to investigate the role of miRNAs that influence other vascular remodeling in aneurysm formation or how blood vessels are made.

The project was conceived as a way to combine diverse expertise and complementary research interests. “My collaborators are all people that I admired scientifically,” says Sessa, also director of the medical school’s Vascular Biology and Therapeutics Program. “To be able to work with them without competing against them is refreshing.”

The grant joins four European labs with three in the U.S., including two at Yale: Sessa’s and that of Carlos Fernández-Hernando, Ph.D., associate professor of comparative medicine. It fosters an exchange of students and postdoctoral fellows, who will travel to partner institutions to gain experience with new research and technologies.

The project’s European coordinator is Thomas Thüm, M.D., Ph.D., of Hanover Medical School in Germany. The $6 million TNEP grant is the third such grant awarded by the foundation to School of Medicine scientists.

In 2007 the foundation supported a project involving Yale’s Richard P. Lifton, M.D., Ph.D., chair and Sterling Professor of Genetics and a Howard Hughes Medical Institute investigator, and the late Steven C. Hebert, M.D., then chair and C.N.H. Long Professor of Cellular and Molecular Physiology, aimed at pinpointing the kidney’s role in high blood pressure. In 2010 the foundation funded research involving Michael Simons, M.D., the Robert W. Berliner Professor of Medicine and professor of cell biology, and colleagues in the Yale Cardiovascular Research Center, on the link between metabolism and arteriogenesis—the process by which new arterial blood vessels form.

Joan and Sylviane Leducq established the Foundation Leducq in 1996 to support cardiovascular disease research. One of the foundation’s goals is to promote collaboration between researchers in North America and Europe. In 2004 it began to accept applications for its Transatlantic Networks of Excellence in Cardiovascular Research Program, and in 2011 the foundation opened the program to cardiovascular and neurovascular scientists worldwide. As of 2013, the foundation had awarded 39 Transatlantic Network grants, totaling more than $240 million, to hundreds of researchers in 18 countries.

Says Sessa, “It’s incredible to have non-federal sources of funding nowadays, considering the climate today for getting federal grants.”

// Women’s Health (from page 3)

Wendy and Thomas Naratil have established an award that helps scientists generate feasibility data needed to attract funding.

Wendy Naratil says, “Tom and I are very excited about partnering with this organization to create an award that will help fund innovative medical research that will ultimately advance women’s health.”

According to Mazure, also associate dean for faculty affairs, three-fourths of investigators funded through the PPP are junior and mid-level faculty “who need initial funding to launch their research.” More than half of these investigators have used their pilot research to obtain larger external grants—more than five times the success rate for new investigator-initiated NIH grant applications.

As with other PPP-funded grants, the Naratil Pioneer Award will be determined following an application process and review by a study section composed of Yale scientists. The award is designed to support projects that are “outside-the-box, innovative, high-risk but high-payoff,” Mazure says, “or projects that are close to fruition but that scientists can’t quite bring home without some additional help.”

Projects funded by the PPP have included developing new models for treating breast cancer and preventing tumor metastasis, addiction, cardiovascular disease, depression, osteoporosis, and adaptation of returning women combat veterans.

“The establishment of these permanent funds signals that women’s health research is here to stay, and the impact of our research will be even greater. I am deeply grateful,” Mazure says.