



## IN THIS ISSUE

#ILookLikeASurgeon: MUSC Celebrates Women in Surgery

An MUSC First: Internal Living Donor Kidney Transplant Chain

New Immunotherapy for Lung Cancer Shows Promise of Success

Research Spotlight on Mark Rubinstein, Ph.D.

...and more.

## MESSAGE FROM THE CHAIRMAN



Last year, *The New Yorker's* Health, Medicine & the Body Issue featured an illustration of four female members of a surgical team, sparking a movement within surgery. According to the artist, Malika Favre, the animated cover "Operating Theatre" was designed as a scene with the patient's perspective in mind.

But the all-female cover quickly took on a life of its own. Soon after the issue hit newsstands, University of Washington surgeon, Susan Pitt,

issued a challenge to female colleagues to bring visibility to women in the male-dominated field of surgery.

Women surgeons across the country embraced the challenge, sharing photos online with the hashtag #ILookLikeASurgeon, created by Heather Logge, M.D. Over the next year, the cover was replicated by women surgeons across the globe, including our 2017 chief residents pictured on this newsletter cover.

In this issue, we feature the evolution of women in surgery at MUSC, beginning with brave women who entered the all-male-dominated operating theater in the 1970s and '80s, serving as trailblazers, changing the conversation and culture, and paving the way for the new generation of surgical trainees.

In addition to exploring our role in supporting women in surgery, we also highlight and celebrate areas of research and clinical expertise. Mark Rubinstein, Ph.D., and Mark Wrangle, M.D. medical oncologist at Hollings Cancer Center, continue their collaborative efforts to advance immunotherapy for lung cancer patients. In a groundbreaking development, results from their recent clinical trial to treat lung cancer show that a novel immunotherapy combination is surprisingly effective at controlling the disease's progression.

Earlier this year, the Division of Transplant Surgery celebrated an MUSC first when four people—two recipients and two donors—were wheeled back to surgery, creating the first-of-its-kind internal living-donor kidney transplant chain at MUSC.

In January at a dinner at the Country Club of Charleston, we celebrated the remarkable careers of two of our country's most distinguished vascular surgeons: Bruce Elliott, M.D. and Jay Robison, M.D. Both men served our country in the armed forces with dedication, honor and integrity, focused on family and built remarkable surgical careers. As surgical leaders, the program they created with the same devotion, commitment and care has provided a formidable foundation for the future of vascular surgery at MUSC.

I hope you enjoy this issue. Please stay in touch.

**Prabhakar Baliga, M.D., FACS**  
Fitts-Raja Professor of Surgery  
Chairman, MUSC Department of Surgery

## SUMMER / FALL EVENTS

### JUNE 21, 2018

Distinguished Alumna Dinner  
Honoring Margaret Metcalf, '78, '80  
Anson Restaurant

### JUNE 23, 2018

Plastic Surgery Fellows' Dinner  
Country Club of Charleston

### JUNE 25, 2018

New Intern Welcome  
MUSC

### JUNE 29, 2018

General Surgery Chiefs' Dinner  
Country Club of Charleston

### JUNE 30, 2018

Cardiothoracic Surgery Chief's Dinner  
Peninsula Grill

### JUNE 30, 2018

Vascular Surgery Chief's Dinner  
High Cotton

### SEPTEMBER 28, 2018

Eric R. Frykberg Lecture  
and Research Day  
MUSC

### SEPTEMBER 28, 2018

Retired Surgical Faculty Luncheon  
Sebring Aimar Conference Room

### OCTOBER 9, 2018

Horace G. Smithy Lecture  
MUSC

### OCTOBER 21 - 25, 2018

ACS Clinical Congress  
Boston, MA

### OCTOBER 22, 2018

SC ACS Reception  
Boston, MA

### CME COURSES

Up-to-date CME Course  
information can be found at  
[www.musc.edu/surgery/events](http://www.musc.edu/surgery/events)

**COVER:** Five general surgery chief residents participated in the #ILookLikeASurgeon social media campaign. Clockwise from 12 o'clock: Alicia Patterson, M.D., Chelsea Connor, M.D., Jessica Taylor, M.D., Elizabeth Godshall, M.D. and Crystal Johnson-Mann, M.D.



# THE SIGNIFICANCE OF A RIDDLE

It is often said that through riddling everything is not what it seems. Riddles can improve critical thinking and logic. At times, riddles can expose hidden biases.

Consider this riddle that has been around a long time:

**A FATHER AND HIS SON ARE IN A HORRIBLE CAR CRASH THAT KILLS THE DAD.**

**THE SON IS RUSHED TO THE HOSPITAL; JUST AS THE CHILD IS TAKEN INTO THE OR, THE SURGEON SAYS, “I CAN’T OPERATE—THAT BOY IS MY SON!”**

**WHO IS THE SURGEON?**

If you answered the boy’s mother is the surgeon, you are among the few who answered correctly, according to a 2014 study.

Researchers at Boston University presented the riddle to BU psychology students and local children, ages 7 to 17. Only 15% of the children and 14% of the University students had the correct answer.

How do the researchers explain the difficulty in imagining a mother as a surgeon?

According to the researchers at Boston University, Deborah Belle and Mikaela Wapman, the riddle reveals the depth of bias that originates in early childhood through gender schemas.

The solution to creating gender equity, according to the authors, is to be mindful of subtle bias, creating change in the schemas over time. ♦

# MODERN ERA OF WOMEN SURGEONS

It’s been a long and arduous road for women surgeons.

The earliest modern account of a female surgeon is Margaret Bulkley, born 1789, who posed as a man to attend medical school, under the name James Barry. A bright child, Margaret enrolled at Edinburgh University in Medicine at the age of 14, where, dressed in masculine attire, she was accepted as James Barry.

Upon graduation, Dr. Barry served in the British military, became a surgeon, performed the first successful cesarean section, and kept her sex a secret for half a century. It wasn’t until after Barry’s death in 1865 that the doctor’s secret was finally discovered...a fact the British Army denied for over 100 years.

While female surgeons no longer have to masquerade as men to enter the profession, and barriers are breaking down, there is still gender bias, as demonstrated in the 2014 study at Boston University.

Thanks to the undaunted women in surgery serving as trailblazers and role models, the number of women in surgery—both residents and fully-trained surgeons—steadily increased, providing a pipeline for leadership.

The number of women surgeons has consistently increased over the past 30+ years. In 1980, women surgeons made up only 3.6% of all surgeons in the U.S. Currently, 19.2% of American surgeons are women; of those, 8% are professors, 13% are associate professors and 26% are assistant professors.

The largest growth has been in leadership. In 2014, there were four female Chairs in Surgery Departments in the United States. According to the Association of Women Surgeons, as of April 1, 2018, there are 21 female Chairs in Surgery Departments, a more than five-fold increase.

For many female and male surgeons, the progress is not quick enough and they say there’s still more to be done. ♦

# THE ASCENT OF WOMEN SURGEONS AT MUSC

As the number of women in surgery increases nationwide, so too does the number of women in surgery at MUSC.

When **Katherine Morgan, M.D.**, Chief of GI & Laparoscopic Surgery joined the faculty as assistant professor of surgery in 2003, there were two other female surgeons on staff: Carolyn Reed, M.D., and Derya Tagge, M.D. at the Veteran's Administration Medical Center.

"Dr. Metcalf, the first female resident and Dr. Reed, the first female faculty were the pioneers at MUSC for the future generation of women surgeons," said Dr. Morgan. "Their vision, strength and willingness to face adversity, persevere and triumph paved the way for my generation of women surgeons."

During this same time frame, **Megan Baker-Ruppel, M.D.** was one of the first female residents, completing residency in 2005 and joining the faculty upon completion. Reflecting on her MUSC experience, she recalls it was during residency where she first experienced Carolyn Reed, M.D. advocating for women in surgery.

"It was back in the time of 1:2 or 1:3 nights of call, when we were basically living in the hospital," comments Baker-Ruppel. "The call rooms and bathrooms were co-ed. Often, the male co-residents made the call room "theirs" and some expressed concern with sharing a room with a female resident as their spouses didn't approve. The implication being that the women were to find other sleeping accommodations, which often became a gurney in a hallway."

Dr. Baker-Ruppel recalls watching Dr. Reed fight for the women's right to equal space and not backing down. "Not because anyone complained or asked her to intervene," said Dr. Baker-Ruppel. "Dr. Reed inherently knew it was the professional and correct action to take."

Shortly after graduating and joining the faculty, Baker-Ruppel learned she'd soon be joining an even more select group at MUSC: women surgeons who were also mothers.

According to Baker-Ruppel, she was entering uncharted territory, as the department did not have a maternity / paternity leave policy. Dr. Morgan and Dr. Baker-Ruppel worked with the department to develop a contemporary medical leave policy that reflected the values of our faculty for future generations.

At the same time, the two women were active in the creation of the first University GME family leave policy for residents and fellows. In fact, according to Baker-Ruppel, MUSC was one of the very first academic medical centers to create such a policy for their trainees.

"DR. REED FOUGHT FOR THE WOMEN RESIDENTS' RIGHT TO EQUAL SPACE WHEN WE WERE ON CALL, NOT BECAUSE ANYONE COMPLAINED OR ASKED HER TO INTERVENE. SHE INHERENTLY KNEW IT WAS THE PROFESSIONAL AND CORRECT ACTION TO TAKE."

MEGAN BAKER - RUPPEL, M.D.

The department continued to grow in numbers of women surgeons, following the national trend. **Dr. Denise Carneiro-Pla** and **Dr. Kerry Hammond** joined the faculty in 2007, followed by **Dr. Paige Teller** and **Dr. Stephanie Montgomery** in 2008. Over the next ten years, more women would join the faculty including **Dr. Nancy DeMore, Dr. Andrea Abbott, Dr. Rochelle Ringer, Dr. Alicia Privette, Dr. Jean Marie Ruddy, Dr. Marcie Dorlon, Dr. Mahsa Javid, and Dr. Laura Hollinger**, among others.

Many of these women surgeons held or currently hold positions of leadership, both at MUSC and nationally. Dr. Reed served as president of the MUSC Faculty Senate, director of the Hollings Cancer Center, and held the Alice Ruth Reeves Folk Endowed Chair in Clinical Oncology. On a national level, she was the first woman elected to the American Board of Thoracic Surgery and the first to be elected president of the Southern Thoracic Surgical Association.

Dr. Baker-Ruppel was the first female general surgery residency program director at MUSC, during a time when there were no other women in the department in senior leadership roles due to the untimely death of Dr. Reed, who died in 2012 from pancreatic cancer. Dr. Baker-Ruppel also served as the first interim division chief. According to Dr. Baker-Ruppel, having a seat at the leadership table was important to bring a more diverse point of view to light.

As the sole female division chief, Dr. Morgan acknowledges there have been challenges during her rise in leadership; yet she doesn't think of her pathway to leadership as one filled with adversity.

## WOMEN IN SURGERY

“I’m sure there’s unconscious bias everywhere,” she said. “More importantly, I’ve had fantastic male mentors and leaders who have been clear unbiased advocates.” Dr. David B. Adams is one such leader and advocate. According to Dr. Morgan, he paved the pathway for her to advance both at MUSC and nationally. “I feel fortunate to be in a leadership position to improve processes and patient care,” comments Dr. Morgan. “The future is bright for the next generation of women surgeons at MUSC.”

**Dr. Nancy DeMore**, BMW Endowed Chair in Cancer Research and Professor of Surgery, holds leadership positions at MUSC including Medical Director of the MUSC Breast Center, Department of Surgery Vice Chair of Entrepreneurship, and Program Director of the Medical Scientist Training Program (MSTP). She has the distinction of being the only female surgeon in the country to be a program director of the MSTP.

Dr. DeMore agrees the future is bright. “So many challenges for

women surgeons can be mitigated by having the right leadership,” she said. “We are so fortunate at MUSC to have such a strong women’s advocate in our chairman, Dr. Baliga.”

According to Dr. DeMore, one of the first things that **Dr. Prabhakar Baliga** did when he became Chairman of the Department in 2015 was to have a meeting with the female surgery faculty to inquire about any inequity issues for him to address.

“He continues his steadfast commitment to advancing women in leadership. One such example is how he seeks out leadership courses for female faculty, thereby providing us with the training that we need to take on larger roles,” notes DeMore. “I think it takes support like this from the leadership to build a more equitable future for female surgeons.”

Moving towards the future, Chairman Baliga continues his work to fulfill his vision of a department void of inequity, where parity exists at all levels of leadership. ♦

## PAYING IT FORWARD

The importance of role models for junior faculty, residents and medical students cannot be overstated.

According to **Crystal Johnson-Mann, M.D., ’17**, during her MUSC residency, women faculty members were an integral part of the culture of inclusivity and served as mentors and roles models by excelling in their chosen field while managing spouses, children, and other intricacies that come along with being a female surgeon.

“They had the unique experience of knowing what it was like to be in our shoes and provided us with invaluable advice on how to navigate certain situations or to push us in ways we didn’t know we needed to be pushed in order to become the best version of ourselves,” said Dr. Johnson-Mann.

Dr. Carolyn Reed was the first to open lines of communications for women in surgery at MUSC. She often hosted small group gatherings for women interested in pursuing careers in cardiothoracic surgery. Her group expanded to become a club at MUSC: Women Interested in Surgical Experiences (WISE), and eventually changed it to an Association of Women Surgeons Interest Group. This year the club earned official chapter status within the Association of Women Surgeons. **Dr. Jean Marie Ruddy** serves as faculty advisor, and the club is open to men and women medical students, as well as high school students

interested in surgery.

More recently, Drs. Nancy DeMore and Andrea Abbott started an informal gathering of women surgeons and residents, nicknamed “Chicks with Knives.” A few times a year, they get together at someone’s home to share experiences, discuss challenges and build camaraderie. “Often in a clinical department, surgeons, fellows, and residents interact mostly with those in the same specialty. What is nice about the ‘Chicks with Knives’ group is that the female surgeons have an opportunity to get to know one another, which might not happen during the regular work day,” notes Dr. Demore. “The relaxed, informal, get togethers are the perfect opportunity to build a support network and to provide resources and insights to one another.”

Other opportunities to connect with women in surgery for residents and junior faculty occur during national conferences and through membership in organizations such as the Association of Women Surgeons. All meetings are open to men and women alike, and often topics of discussion encompass networking, mentoring, and negotiating contracts — topics relevant to both men and women. The value specific to women surgeons is that they have the opportunity to see and connect with successful women surgical leaders as role models and mentors. ♦

“DR. MORGAN IS AN EXAMPLE OF SOMEONE WHO SAW THE POTENTIAL AND REALLY FORCED ME TO MATURE AS A SURGEON.”

CRYSTAL JOHNSON-MANN, M.D.

## TRAILBLAZER FOR WOMEN IN SURGERY A TRIBUTE TO CAROLYN REED, M.D.

**Carolyn E. Reed, M.D.**, was born on March 4, 1950 in Farmington, Maine. She graduated with honors from the University of Maine in 1972 as a member of Phi Beta Kappa and received her M.D. degree from the University of Rochester School of Medicine in 1977. She trained in general medicine and cardiothoracic surgery at the New York Hospital-Cornell Medical Center. Dr. Reed joined the Medical University of South Carolina as an Assistant Professor in the Division of Cardiothoracic Surgery in 1985. She was the first woman faculty member in the MUSC Department of Surgery. She was subsequently promoted to Associate Professor in 1989 and full Professor with Tenure in 1997.

During her career at MUSC, Dr. Reed held numerous roles, particularly in the development of the Hollings Cancer Center. She served as Associate Director for Clinical Affairs (1998-2000), Director of the Hollings Cancer Center (2000-2004), and Deputy Director of Clinical Affairs (2004-2012). Dr. Reed was a nationally and internationally recognized thoracic surgeon and oncologist with an expertise in lung and esophageal cancer. At the time of her death in 2012, Dr. Reed was the Alice Ruth Folk Endowed Chair of Clinical Oncology.

Dr. Reed was known for her commitment to medical education as well as her advocacy for research. She held multiple research grants from the National Institutes of Health and other organizations. She served as an investigator in numerous cancer-related clinical trials. She authored over 100 peer-reviewed publications, 20 book chapters and was the Editor of the text *General Thoracic Surgery* (7th Edition), which is widely known as the “bible” for general



thoracic surgery. In addition, she made over 120 scientific presentations at thoracic surgical meetings around the world.

As an outspoken advocate for women in surgery, specifically in the specialty of thoracic surgery, Dr. Reed served as a mentor and advisor for numerous medical students, residents, and women faculty at MUSC and across the nation. In 1987, she received the Student Teaching Award and was subsequently nominated four times for the Golden Apple Award for teaching.

At the 2013 Society of Thoracic Surgeons meeting, Dr. Reed was posthumously awarded the Socrates Award by the Thoracic Surgery Residents Association in recognition of her many contributions to thoracic surgery education.

Dr. Reed was a member of many prestigious surgical organizations and held a number of leadership positions in these organizations, including President of the Southern Thoracic Surgical Association,

the first woman to ever serve as president of a major thoracic surgical organization. Dr. Reed served on the Council of the American Association for Thoracic Surgery, the oldest thoracic surgical organization in the world. She served as a Governor in the American College of Surgeons and as Vice Chair of the Thoracic Surgery Residency Review Committee.

Dr. Reed played numerous important roles in the Society of Thoracic Surgeons (STS), the largest organization of thoracic surgeons in the United States.

She served on the Executive Council, the Program Committee, and a five-year term as Treasurer. At its annual meeting in January 2013, Dr. Reed was elected posthumously as President of the STS, a decision that had been made long before her death. She was the first woman to be elected President of the STS. She was also posthumously awarded the Society of Thoracic Surgeons Distinguished Service Award. She served on the Boards of the Thoracic Surgery Foundation for Research and Education and the Joint Council for Thoracic Surgery Education. She was the first woman to ever be elected to the American Board of Thoracic Surgery and was subsequently elected as Chairman (2005-2006), again the first woman to serve as leader of this organization.

Dr. Reed died on November 16, 2012 from pancreatic cancer.

References:

Fred A. Crawford, Jr., M.D. (October 2013). Carolyn Elaine Reed, M.D. March 4, 1950–November 16, 2012. *The Annals of Thoracic Surgery*, 96(4), 1517. ♦



## MARGARET METCALF, M.D.

### MUSC'S FIRST FEMALE SURGICAL GRADUATE

**Margaret Metcalf, M.D.** holds the distinction of being the first female graduate from the MUSC Surgical Residency Program.

Dr. Metcalf graduated from medical school at the University of Texas Medical School at San Antonio, where she was one of seven female graduates in a class of 104. She entered surgical residency at MUSC in 1973, where she was accepted into the plastic surgery fellowship at the same time she was accepted as an intern.

When she entered MUSC, there were no women faculty, no women role models. Her mentors were the men who were her advisors. With no female role models at the time, and spending so much time with her male counterparts, she and her fellow residents bonded through residency and remained close throughout their careers.

“When I started my residency at MUSC, there were no female call rooms. Even the dictation rooms were in the men’s dressing room, which is probably why the guys and I were such good friends,” chuckles Dr. Metcalf.

She doesn’t recall any other hardship during her residency. In fact, she remembers quite fondly the bond she developed with her residency classmates, Ken Shull and Joe Cullom.

“They looked out for me,” she recalls fondly. “Treated me as an equal, but also as a sister. It felt good.”

One colleague in particular, Price Cameron, M.D. stands out. The friendship that began in residency, strengthened in fellowship training and continued throughout their careers.

“Price and I started our internships



at the same time and completed our plastic surgery fellowships together, as well,” comments Dr. Metcalf. “We both chose to go into private practice solo but covered for each other. In a way, it was almost like we were partners throughout training and our careers.”

Dr. Metcalf graduated general surgery residency in 1978 and completed her plastic surgery fellowship in 1980.

Upon graduation, she entered private practice in Charleston where she built a successful practice that covered a span of 36 years. She was a member of the Charleston County Medical Society, American Society of Plastic Surgery and the Medical Society of South Carolina.

Dr. Metcalf retired from private practice in 2016 and remains active in various organizations in Charleston, most notably her continuing membership in the Widows and Orphans Society. She has one grown son, Christian, who also resides in Charleston.

While Dr. Metcalf doesn’t consider herself to be a trailblazer at MUSC — she leaves that distinction to Carolyn Reed — she certainly paved the way for women in surgery at MUSC.

Recognizing her contribution to advancing women in surgical residency at MUSC and her exceptional contributions to the field of surgery, Dr. Metcalf is the recipient of the 2018 H. Biemann Othersen, Jr. MD Distinguished Alumna Award.

On June 21, 2018, the Department of Surgery formally recognized Dr. Metcalf’s contributions to the field of surgery at the MUSC Distinguished Alumna Dinner in her honor. ♦



(left to right) Price Cameron and Margaret Metcalf at the Chiefs' Dinner



(left to right) Joe Cullom, Ken Shull, Marion Anderson, Margaret Metcalf, and Bob Powers

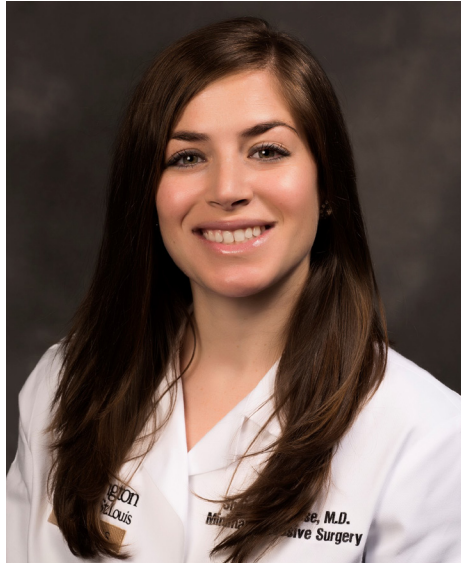
## SHAINA ECKHOUSE, M.D. SURGICAL ALUMNA, CLASS OF 2015

Following the completion of her General Surgery Residency at MUSC and her Minimally Invasive and Bariatric Surgery Fellowship at Duke University, **Shaina Eckhouse, M.D.** joined the Division of Minimally Invasive Surgery at Washington University. In addition to building a robust surgical practice at Washington, Dr. Eckhouse conducts research focusing on advancing population health. Applying her clinical knowledge, she collaborates with researchers in the Division of Public Health Science to understand the surgical disparities in the outcomes of bariatric surgery, an effective treatment of obesity, which affects one third of Americans and is particularly prevalent in minorities and underserved populations.

Her interest in both research and bariatric surgery stems from the many mentors she encountered during her training, including women surgeons at MUSC. In fact, one of the deciding factors on why she chose MUSC for residency was when she interviewed and met with women faculty.

“When interviewing for residency, the opportunity to meet with women faculty and residents helps you see how you can fit in, how you will be treated fairly,” said Dr. Eckhouse. “I knew as soon as I interviewed with Dr. Reed, and met with Dr. Baker and female residents that MUSC would be the right environment for me.”

According to Eckhouse, Dr. Reed was a big influence during her training at MUSC. It was during the cardiothoracic surgery rotation where Dr. Reed really impressed her. “I signed up for as many surgeries with her as possible. I really got to know and admire her,” said Dr. Eckhouse. “When I started residency, I learned she had started a group for women interested in pursuing



**DR. ECKHOUSE FEELS FORTUNATE FOR THE MENTORSHIP SHE RECEIVED AND ATTRIBUTES MUCH OF HER SUCCESS DURING HER FELLOWSHIP YEAR TO HER SURGICAL TRAINING AT MUSC.**

cardiothoracic surgery. She was the first female president of the Society for Thoracic Surgeons – a trailblazer for women in surgery – and here she was forming a club on campus to help young students see how we could succeed.”

Dr. Eckhouse also had the opportunity to conduct postdoctoral research at MUSC under a Cardiovascular Research Training Grant, where Jeffrey Jones, Ph.D., and Rupak Mukherjee, Ph.D. were very important mentors to her.

“Dr. Jones’ mentorship was influential in advancing my career,” says Eckhouse. “In 2015, I won the Vivien Thomas Young Investigator Award from the American Heart Association as a result of the research we were doing in the lab.”

Once she returned to the clinical environment, she rotated on GI Surgery and then moved to Acute Care. She liked both. Dr. Eckhouse reached out to many faculty in both specialties for advice. “I appreciate everyone’s interest in guiding my decision,” comments Eckhouse. “I came to realize the best fit for me was GI and Bariatric Surgery.”

Even though she changed disciplines, Dr. Eckhouse is confident her two years of postdoctoral research in the cardiothoracic lab at MUSC gave her an advantage as a candidate for the Minimally Invasive and Bariatric Surgery Fellowship at Duke University, where she thrived. “My training at Duke gave me a really nice foundation to grow into an expert in my field,” she said.

During her Duke fellowship, an unexpected mentor from her MUSC residency appeared when Megan Baker-Ruppel, M.D. reached out. “Dr. Baker was one of my strongest advocates during my fellowship year,” said Eckhouse.

“I give her all the credit in the world for helping me find jobs and prepare for interviews. She also gave me the support and advice I needed so I could feel comfortable negotiating contracts,” Shaina recalls. “In fact, when she learned I was being recruited for a position at Washington University, she once again reached out and offered her objective guidance,” adds Dr. Eckhouse. “It was quite amazing and something I model for my residents.”

*Editor’s Note:* The MUSC staff are most appreciative of Dr. Eckhouse for sharing her experiences with us when she visited campus for our newsletter interview during her wedding week this past March. Dr. Eckhouse married Brewster Smith on March 24, 2018, whom she met during MUSC residency. ♦



## NEWS & ANNOUNCEMENTS



**Mark Lockett, M.D.**, is invited to present during the 2018 ACS Clinical Congress Postgraduate Course “Opioid-Sparing Perioperative Pain Management: A Certifying Course for the Practicing Surgeon.” Dr. Lockett, surgeon lead for the South Carolina Surgical Quality Collaborative (SCSQC), also secured a \$650,000 Duke Endowment to support SCSQC’s vision to enable delivery of highly reliable, evidence-based, patient-centered general surgical care to all South Carolinians.



**Nancy DeMore, M.D.**, was awarded the 2018 Sarcoma Foundation of America Research Grant and the SCRA - Academia Collaboration Team (SACT) Feasibility Grant. Dr. DeMore was also invited to present at the 2018 French Academy of Surgery Exchange Program. The American Surgical Association selected three mid-career Fellows to participate in the exchange program this fall in France — a week-long series of lectures and scientific sessions in September at three academic departments of general and visceral surgery at the Universities of Lille, Rennes, and Strasbourg, and at the French Association of Surgery Congress.



**Rochelle Ringer, M.D.**, and the MUSC Health team was recognized for top-quality care by the National Accreditation Program for Breast Centers. Dr. Ringer was also named Hilton Head Hospital’s 2018 Physician of the Year.



**Prabhakar Baliga, M.D.**, is PI at MUSC on the PCORI grant “Comparing the Effectiveness of House Calls and Peer Mentorship to Reduce Racial Disparities in Live Donor Kidney Transplantation.”



**Mino Kavarana, M.D.**, received the 2018 MUSC Foundation Outstanding Clinician Award, which honors full-time faculty who have made outstanding contributions to patient care at MUSC.



**Satish Nadig, M.D., Ph.D.**, appointed Chair of the Communications Committee for the American Society of Transplant Surgeons for a three-year term.



**Derek DuBay, M.D.**, received a \$335,000 Duke Endowment to fund research to reduce disparities in access to kidney transplantation in South Carolina.



**Rana Pullatt, M.D.**, is the invited speaker at the 10<sup>th</sup> Worldwide Congress of Clinical Robotic Surgery Meeting that will take place October 4-6, 2018 in Hong Kong.



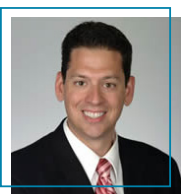
**Denise Carneiro-Pla, M.D.**, is an invited panelist for ACS Clinical Congress. The course, “Cutting Edge Endocrine Surgery: A Case-Based Review of Recent Advances in Endocrine Surgery,” will take place October 22, 2018, in Boston.



**Aaron Leshner, M.D.**, and the MUSC Pediatric Burn Team received the American Pediatric Surgical Association (APSA) Innovation Award.



**Shikar Mehrotra, Ph.D.**, received a 2018 American Association of Immunologists (AAI) Careers in Immunology Fellowship.



**Robert Cina, M.D.**, presented “Expert Outpatient Burn Care In The Home Through Mobile Health Technology” at the APSA Annual Meeting.



**Hongjun Wang, Ph.D.**, was invited to serve as an Oral Session Chair at the American Diabetes Association’s 78<sup>th</sup> Scientific Session, held in June 2018 in Orlando, FL.

## HEART CENTER CONTINUES TO EARN THREE-STAR RATING FOR CONGENITAL HEART SURGERY



Scott M. Bradley, M.D.  
Professor of Surgery

MUSC Children's Heart Center has once again earned a distinguished three-star rating from the Society of Thoracic Surgeons (STS) for its patient care and outcomes in congenital heart surgery and is proud to be ranked 11<sup>th</sup> in U.S. News & World Report's Best Children's Hospitals 2018-19 specialties rankings.

The three-star rating, which denotes the highest category of quality, places MUSC Children's Heart Center among the elite for pediatric heart surgery in the United States and Canada. "Dr. Kavarana and I are excited to see MUSC Children's Heart Center has once again earned a three-star rating," said Dr. Bradley. "Our entire pediatric cardiac team is pleased with our group's achievement." ♦



Mino N. Kavarana, M.D.  
Associate Professor of  
Surgery and Pediatrics

## MUSC METABOLIC & BARIATRIC SURGERY PROGRAM DESIGNATED BLUE DISTINCTION® CENTER

The MUSC Metabolic & Bariatric Surgery Program is again a Blue Distinction® Center for Bariatric Surgery by BlueCross BlueShield of SC, an independent licensee of the Blue Cross Blue Shield Association, for expertise in delivering specialty care.

The program identifies facilities with proven expertise in delivering specialty care. ♦



Rana Pullatt, M.D. and T. Karl Byrne, M.D. offer surgical expertise as part of MUSC's Metabolic and Bariatric Surgery Care Team.

## PEDIATRIC BURN TEAM WINS PRESTIGIOUS AWARD



Aaron Leshar, M.D., (center) accepting the ABA-Shriners Best Pediatric Burn Paper Award on behalf of the Pediatric Burn Team.

Aaron Leshar, M.D., Ryan Howard, MSN, RN, and the entire Pediatric Burn Team received the ABA-Shriners Best Pediatric Burn Paper Award at the American Burn Association's 2018 Annual Meeting.

Dr. Leshar and his team were selected as one of five presenters of a plenary session Top 5 Abstracts out of a highly competitive pool of over 500 submissions.

### NEW FACULTY



**Heather Evans, M.D., MS** joins the Department of Surgery on September 1, 2018 as Professor in the Division of General and Acute Care Surgery. As Vice Chair of Clinical Research and Applied Informatics, Dr. Evans will bring a research focus on the application of telehealth solutions to the unique problems faced by the surgical patient, and looks forward to building upon the established collaborations between MUSC Telehealth, the College of Nursing, the Center for Health Disparities, and the Department of Surgery.

Prior to joining MUSC, Dr. Evans served as Associate Professor of Surgery at the University of Washington where she led a multidisciplinary research team with investigators in Biomedical Health Informatics and the School of Nursing, leveraging mobile health (mHealth) solutions to improve the early diagnosis and treatment of surgical site infections. In addition to her practice of trauma surgery and surgical critical care, she also focuses on minimally invasive general surgery, including laparoscopic inguinal hernia repair.



**Thomas Curran, M.D., MPH** joins the Department of Surgery on September 1, 2018 as Assistant Professor in the Colorectal section in the Division of GI & Laparoscopic Surgery. Originally from Philadelphia, Pennsylvania, Dr. Curran received his undergraduate degree from Duke University and subsequently his medical degree from the Icahn School of Medicine at Mount Sinai in New York City. He completed general surgery residency and research fellowship at the Harvard-affiliated Beth Israel Deaconess Medical Center in Boston, Massachusetts, during which time he received a Master's of Public Health from the Harvard T.H. Chan School of Public Health. From there he pursued fellowship training in colon and rectal surgery at the University of Minnesota.

His clinical interests include benign anorectal conditions, inflammatory bowel disease, and colon and rectal cancer with a particular focus on minimally invasive and robotic surgical procedures. His research interests focus on comparative effectiveness and quality improvement in colon and rectal surgery.



**Elizabeth Genovese, M.D., MS** joins the Department of Surgery on August 1, 2018 as Assistant Professor in the Division of Vascular Surgery. Originally from Cleveland, Ohio, Dr. Genovese received her bachelor of science degree from the University of Notre Dame and her master of science and medical degrees from the University of Pittsburgh. Dr. Genovese completed her post graduate training in the Integrated Vascular Surgery Residency program at the University of Pittsburgh Medical Center, where she was the Administrative Chief Resident.

During medical school and residency, Dr. Genovese won numerous awards, including the Eli Goldstein Award, Highest Academic Honors in the First Three years of Medical School, the Eastern Vascular Society Resident Competition Award, as well as numerous travel awards.

She is a published author with more than 15 refereed articles and 26 published abstracts, and has presented at national and international conferences.



## EDUCATION NEWS

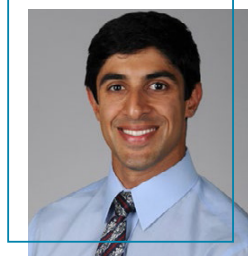
### CONGRATULATIONS, 2018 GRADUATES!



Bennett Calder, M.D.



Ashely Hink, M.D.



Rohan Kambeyanda, M.D.



Lauren McClain, M.D.



Yana Mikhaylov, M.D.



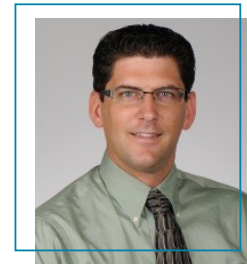
William DeVoe, M.D.



Daniel Eads, M.D.



Matthew Gibson, M.D.



Brian Hill, M.D.



Yemi Ogunleye, M.D.

## FACULTY DEVELOPMENT

Senior leadership and faculty inspired, motivated and challenged junior faculty during a day-long faculty development day for surgical faculty. **President David Cole, M.D. FACS** provided the Welcome Remarks and a talk on leadership in a changing health care environment.

**Chairman Prabhakar Baliga, M.D., FACS** further set the tone of the day during his discussion on the value of being an academic surgeon, bringing a first-hand account of the level of fulfillment academic medicine brings to his life, and providing an outline of the day by covering the importance of carving out a niche in academic medicine, networking, and career advancement.

The day expanded on these areas of career development with insightful presentations from senior faculty, who shared their experiences and offered advice. Topics included how to build a successful practice, career advancement, financial planning, finding a mentor, becoming a mentor and finding true happiness.

## RESIDENT NEWS & ANNOUNCEMENTS

**Avi Bunnell, M.D.**, PGY-4 Vascular Surgery Integrated Resident accepted an appointment as the vascular resident member of the Association of Program Directors in Vascular Surgery (APDVS) Ad Hoc Committee on Recruitment of Surgical Residents and Students.

**Denise Garcia, M.D.**, PGY-2 presented at the American Society of Breast Surgeons Annual Meeting in Orlando, Florida. Dr. Garcia is co-author of the paper "The Value of Second Opinion in Breast Cancer Patients Referred to an NCI-Designated Cancer Center with a Multi-disciplinary Breast Tumor Board."

**Gabe Chedister, M.D.**, PGY-4 was selected to give two podium presentations at the American Society of Colon and Rectal Surgeons 2018 Annual Scientific Meeting in Nashville, TN.

Dr. Chedister presented two video presentations: "Robotic Assisted APR with Robotic Harvest of Rectus Abdominis Muscular Flap for Vaginal Reconstruction" and "Transanal Minimally Invasive Surgery for Rectal Stricture."

**Yana Mikhaylov, M.D.**, PGY-5 was awarded the Block 4 Resident Faculty Excellence Award ♦

### DEPARTMENT HOSTS DISTINGUISHED VISITING LECTURERS

As important in university studies as textbooks and laboratories, the named lectureship is an integral part of the education, research and patient care provided for our faculty and trainees. The Department of Surgery's Named Lecture Series brings national experts in surgery to MUSC throughout the academic year to educate residents and faculty, to provide an opportunity for the exchange of ideas and to present at Grand Rounds. This spring, the Department was pleased to host three distinguished visiting faculty.



**Dr. Bruce Gewertz** was the 2018 MUSC-invited faculty for the **Kredel-Springs Lecture**. The Kredel-Springs Lectureship honors Frederick E. Kredel, M.D. and Holmes B. Springs, M.D. for their contributions and personal dedication to resident education and continuing medical education at MUSC.

Dr. Gewertz is Surgeon-in-Chief, Vice Dean for Academic Affairs and Chair of the Department of Surgery at Cedars-Sinai Health System. Since joining Cedars-Sinai in June 2006, Dr. Gewertz has provided professional leadership and oversight for a large surgical/interventional operation. Within the Department of Surgery, Dr. Gewertz has coordinated recruitments across the full spectrum of modern surgical care.

The clinical activity of the department continues to increase making Cedars-Sinai Surgery one of the largest surgical programs in the country. Dr. Gewertz provided an inspiring talk on sustaining fulfillment in work and life.



**Dr. Charles Vollmer** was the 2018 MUSC-invited faculty for the **Marion C. Anderson, M.D. Lecture**. This lectureship honors Dr. Marion Anderson, former Chair, MUSC Department of Surgery, for his contributions to the field of gastrointestinal and pancreatic surgery and his personal dedication to resident education and continuing medical education. Dr. Vollmer presented "An Odyssey with Pancreatic Fistula."

Dr. Vollmer is the Director of Pancreatic Surgery and Professor of Surgery at the University of Pennsylvania. He specializes in pancreaticobiliary and other complex gastrointestinal surgery with a research focus in clinical outcomes assessment in high-acuity surgery. He has authored over 145 manuscripts, 40 book chapters, and two books focusing on pancreaticobiliary diseases.

Dr. Vollmer's collegiate education was at the University of North Carolina at Chapel Hill. He then received his M.D. degree in 1994 from Jefferson Medical College in his hometown of Philadelphia. From there, he received general surgical training at the Barnes-Jewish Hospital program at Washington University of St. Louis where he was elected into Alpha Omega Alpha.



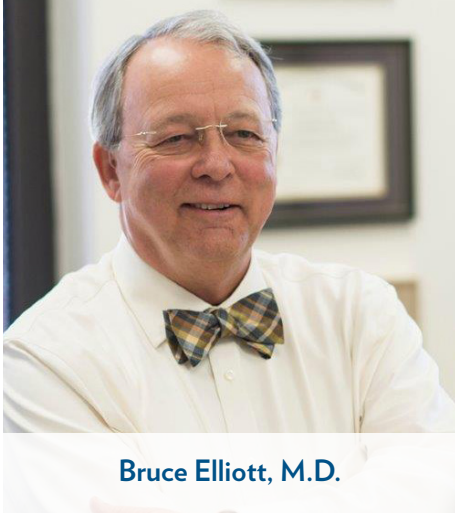
**Michel S. Makaroun, M.D.** was the 2018 MUSC-invited faculty for the May Grand Rounds, presented by the Division of Vascular Surgery. His talk was entitled "A Modern Vascular Practice: Am I Still a Surgeon?"

Dr. Makaroun has been the Chair of Vascular Surgery for University of Pittsburgh Medical Center (UPMC) since 1999. He is Professor of Surgery and Clinical Translational Research at the University of Pittsburgh and Co-Director of UPMC Heart and Vascular Institute.

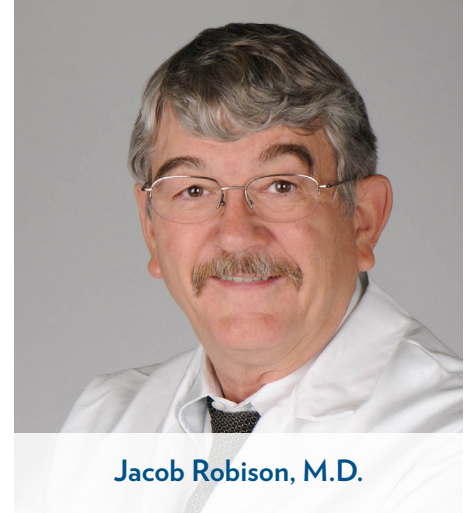
He has served as president of several societies and currently is the President-Elect of the Society for Vascular Surgery. The division of Vascular Surgery at UPMC consists of 21 vascular surgeons and includes the largest training program in the country with 18 trainees.

# WHAT'S IN A NAME?

## ENDOWED CHAIR HONORS NAMEHOLDERS AND DONORS



**Bruce Elliott, M.D.**



**Jacob Robison, M.D.**

An endowed chair is the highest academic award that the University can bestow on a faculty member, and it lasts as long as the University exists. Thus, it is an honor to the recipient, a legacy for those for whom the Chair is named, and an enduring tribute to the donors who help establish it. This year, we recognize two faculty in the Division of Vascular Surgery with the **Elliott-Robison Endowed Chair in Vascular Surgery**.

In recognition of **Dr. Bruce Elliott** and **Dr. Jacob “Jay” Robison’s** combined 60+ years of dedicated service to MUSC’s patients, families, students, residents, colleagues, and countless others, **Dr. Prabhakar Baliga** announced the campaign for the Elliott-Robison Endowed Chair in Vascular Surgery during a dinner held in their honor on January 11, 2018. Friends, family and colleagues traveled from across the country to pay tribute to both men and their distinguished careers.

“As surgical leaders, the program they created with the same devotion, commitment and care has provided a formidable foundation for the future of vascular surgery at MUSC,” said Prabhakar Baliga, M.D. “The Department honors their contributions and continues their legacy through the creation of an endowed chair.”

Bruce Elliott, M.D. and Jay Robison, M.D. both served our country in the armed services with dedication, honor and integrity, while staying focused on family and building remarkable surgical careers at MUSC. Working

together with a vision to bring modern vascular surgery to MUSC, they were instrumental in the creation of one of the first few integrated vascular training programs in the country.

“When I joined the Department thirty years ago, the surgical culture was one where general surgeons could and should do all kinds of surgery. However, in larger academic medical centers, the culture was changing. As the population in the greater Charleston area expanded, so did the desire for specialized medicine,” Dr. Elliott comments. “As one of three board-certified vascular surgeons in the state, I saw a great opportunity to change the philosophy of the existing standard of care by building a vascular surgery program that was highly specialized. Only then could we become a leader in the field of vascular surgery.”

Within a year, Dr. Elliott recruited Jay Robison, M.D., whom he knew well from their time in the military. When Dr. Robison came to visit MUSC, he too saw the opportunity and possibilities for change. He joined the department and together they began building the program they envisioned. When both were called back to active duty during the Gulf War, the lack of surgical expertise in vascular surgery at MUSC became evident. By 1991, **Thomas Brothers, M.D.** was recruited to join the program.

“We had the sincere desire to do what was truly in the best interest of the patient,” remarks Dr. Elliott. “We always felt

**BRUCE ELLIOTT HAS SERVED MANY LEADERSHIP ROLES INCLUDING PRESIDENT OF THE MEDICAL STAFF, PRESIDENT OF THE UNIVERSITY MEDICAL ASSOCIATES FACULTY PRACTICE PLAN, SR. ASSOCIATE DEAN FOR CLINICAL AFFAIRS, AND UNIVERSITY’S DESIGNATED CONFLICT OF INTEREST OFFICER.**



## MAKING A DIFFERENCE

the natural history of the disease had to be worse than any intervention we offered. Sometimes the best option for the patient is not to undertake any intervention.”

In fact, only ten percent of their patients require surgery or an intervention. What was most needed was the best medical therapy, which they provided. “With no medical counterpart, we were the patients’ total doctor for vascular disease, developing relationships with patients lasting a lifetime,” says Dr. Elliott. “But when intervention was necessary, we were on the cutting-edge.”

“Philosophically, Bruce and I were congruent in many ways,” said Robison. “First, through our specialized training, we acquired the skills and determination to provide excellent surgical patient care. Secondly, we then further perfected those skills by limiting our practice to only vascular surgery, and, consequently, achieved a high level of success with excellent outcomes. Finally, we both felt compelled to pass on this knowledge and skills we had learned to young surgeons, culminating in the creation of MUSC’s integrated vascular residency.

“As our reputation grew throughout the state we realized the best surgical programs in the country were committed to specialized vascular training, and we realized we needed an integrated vascular training program to reach the level of excellence and recognition we aspired for the Department of Surgery. Ultimately, we both saw this as an opportunity to elevate MUSC.”

While Robison is a brilliant surgeon and innovator, and served the University in leadership roles such as President of the Medical Staff, his passion is training the next generation of vascular surgeons.

“We had a unique vision,” said Elliott. “We could take students right out of medical school that wanted to be vascular surgeons, and provide a five-year program. To me, it was more respectful of the resident’s desires and needs. By not going through the general surgery pathway, we were reducing the amount of time and money they required to achieve their goals.”

It took time and dedication. Eight years, to be exact.

By 2012, not only had they built a nationally recognized Division of Vascular Surgery, they created one of the country’s first few RRC accredited integrated vascular residency programs.

“Once the program was established, we were also committed to diversity, and felt strongly about recruiting women and

minorities to the training program,” noted Elliott. “We sponsored a number of female medical students at MUSC who have gone on to become vascular surgeons.”

Both men are known not only for their desire to pay it forward to the next generation of vascular surgeons – like **Jean Marie Ruddy, M.D.** who was recruited to the division during her MUSC residency by Dr. Elliott – but also for their technical skills and compassion. Their reputation and respect extends far beyond the walls of MUSC. They have contributed not only to the division and the University, but have had enormous impact on the care of people throughout South Carolina and beyond.

**JAY ROBISON HAS ALWAYS BEEN A STRONG ADVOCATE OF ADAPTING NEW TECHNOLOGIES TO THE TREATMENT OF VASCULAR DISEASE. TOGETHER WITH RENAN UFLACKER, MD. HE PERFORMED SOUTH CAROLINA'S FIRST ENDOVASCULAR ANEURYSM REPAIR (EVAR) IN 1996 AS WELL AS THE FIRST 'FENESTRATED' AORTIC GRAFT TO PRESERVE VISCERAL FLOW DURING EVAR.**

“That’s why we both feel it’s so important to support the Endowed Chair with lead gifts,” said Dr. Elliott. “It’s the only way the division will be able to continue to grow and maintain the highest caliber of talent and leadership necessary to propel the division to even greater heights.”

“Their level of commitment to our patients and to each other is so real it is something rare to find, and something I have learned from them,” comments

**Dr. Ravi Veeraswamy**, Chief of the Division of Vascular Surgery at MUSC. “My charge is to take that foundation and to build it and grow it in a way that is right to honor them.” Dr. Veeraswamy sums it up very nicely when he says, “Character is destiny and I cannot think of two greater men with greater character than Bruce and Jay. It is my hope that through the Endowed Chair we can honor the commitment and sacrifice that they have made to the division, the University and beyond.” ♦



**The Division of Vascular Surgery**

To support the  
*Elliott-Robison Endowed Chair in Vascular Surgery*  
visit <https://connect2.musc.edu/surgery>

# GATHERINGS



Tom Brothers, M.D. (not pictured) has guests laughing during the Elliott-Robison Retirement Reception, as he shares a lively story about the early days of the department, comparing Drs. Elliott, Robison and Adams to the Three Musketeers—Aramis, Porthos and Athos. He, of course, was d'Artagnan, the young man who later joined the Musketeers of the Guard.



One hundred and seventy-one registrants participated in the three-day International Chronic Pancreatitis Symposium in Charleston, SC, led by 32 moderators and speakers from all continents except Antarctica. Scientists, physicians, surgeons, gastroenterologists, pathologists, radiologists, nurses, physician assistants, patient advocates, and patients participated in the program designed to move the art and science of caring for patients with chronic pancreatitis forward.



Alumni, faculty, and residents gathered during two receptions this spring. Dr. Rana Pullatt and his wife, Dr. Arasi Maran, hosted a surgical alumni reception at their home during the College of Medicine Alumni Weekend, and the *Curtis P. Artz* MUSC Surgical Society held its annual reception in conjunction with the 47<sup>th</sup> Annual Postgraduate Course in Surgery.



## MILK OF HUMAN KINDNESS

### MUSC celebrates its first internal living donor kidney transplant chain.

*Mikie Hayes, PR*

On Jan. 10, four people — two recipients and two donors — were wheeled back to surgery, creating the first-of-its-kind internal living-donor kidney transplant chain at MUSC, an act that saved two lives and created countless friendships.

A kidney chain is an altruistic approach to living donor transplantation. “When an anonymous donor comes forward to donate a kidney to a person he or she has never met, it initiates a special chain of events — one where logistics require meticulous planning,” said **Satish N. Nadig, M.D., Ph.D.**, the transplant surgeon and living donor program director who oversaw the coordination of the kidney chain.

Nadig said the surgeries went wonderfully. In just a matter of days, the patients would feel well enough to be released and resume life.

But before that would happen, the patients were eager to meet each other.

On January 12, three couples — Renee and Dareus Brown, Mindy and Ben Runk and Christine and Bruce Thompson — met face-to-face in the Thompsons’ shared hospital room.

“Welcome to our home, our little apartment,” Christine said to the burgeoning group of patients, family members, friends, and doctors congregating in their room.

After teary introductions and warm embraces, Dareus asked Mindy, who is credited with being the first donor, thereby kicking-off the donor chain, what made her become a kidney donor.

Before finally conceiving her daughter and son, Mindy and her husband, Ben, had a tough time trying to get pregnant. As a result, she thought she might want to help other couples by



**Mindy Runk, left, hugs Christine Thompson. Mindy donated a kidney to Christine’s husband Bruce as part of MUSC’s first internal living donor kidney transplant chain.** *Photo by Sarah Pack*

acting as a surrogate. But they decided that plan wasn’t a good fit for their family, she explained.

“I just thought I needed to do something to help someone. So we started thinking about living donation. My friend has a friend who has a daughter who needed a kidney,” Mindy said. “He was posting on Facebook about his little girl. I saw her, and she almost looked like my daughter. She was a sweet looking little girl.”

She was touched by how sad the situation was to her.

“She’d already had one transplant, and it had been very difficult for her. If it were me, and I had to basically beg strangers on Facebook to try to help my daughter...well, it broke my heart a little bit. I knew I had to go get tested for her.”

But Mindy wasn’t a match for the little girl. So when a transplant coordinator asked if she would be willing to consider a good Samaritan donation, she agreed. Mindy is particularly knowledgeable about organ donation through her work with Sharing Hope SC, where she serves as the quality coordinator.

So when she was a match for Bruce and, subsequently, Christine a match for Dareus, it created an internal chain, meaning doctors did not have to go outside MUSC for recipients or donors, allowing them to control the external factors that affect their patients.

“You’re not at the mercy of timing or mercy of having the organs travel long distances,” Nadig said. “You can control all those variables, which makes it very fulfilling for the surgeon and ultimately, and most importantly, better for the patients.” ♦

**To read the full article, search [muscd.edu/news](https://muscd.edu/news)**

**To support the MUSC Living Donor Institute, visit <https://connect2.musc.edu/surgery>**



# NEW IMMUNOTHERAPY FOR LUNG CANCER SHOWS PROMISE OF SUCCESS

Novel combination of drugs is a huge step forward in cancer treatment.

*S. Corrin Garr, writer*



In a groundbreaking development, results from a recent clinical trial to treat lung cancer show that a novel immunotherapy combination is surprisingly effective at controlling the disease's progression. The study, published April 4, 2018 in the journal *The Lancet Oncology*, focused on non-small cell lung cancer, which is the most common form of lung cancer.

Immunologist John Wrangle, M.D., of the Hollings Cancer Center at MUSC said it's a promising therapy that can be delivered in an outpatient setting. He, along with his colleague **Mark Rubinstein, Ph.D.**, Assistant Professor of Surgery, designed a clinical trial that started in 2016.

Patients with metastatic non-small cell lung cancer will always progress after chemotherapy, so most patients go on to be treated with immunotherapy, a type of therapy that uses the body's immune system to fight cancer. One class of immunotherapeutic drugs is known as "checkpoint" inhibitors, as they target checkpoints in immune system regulation to allow the body's natural defenses, such as white blood cells, to more effectively target the cancer.

Rubinstein said checkpoint therapies work by cutting the brake cables on the white blood cells that are inherently able to kill tumor cells. "Tumor cells often produce suppressive factors which essentially turn the brakes on tumor-killing white blood cells. What's unique about the therapy that we're testing is that in addition to cutting the brake cables on white blood cells, we're providing fuel to them so that they can more effectively kill cancer cells."

Wrangle and Rubinstein's therapy is a combination of a

checkpoint drug, nivolumab, with a new and powerful immune stimulation drug, ALT-803. "What's unique about our trial is that it's two completely different types of drugs that have never been combined in humans before, and the trial demonstrated that these drugs can be safely administered, and also, there's evidence that it may help patients where checkpoint therapy is not good enough alone," said Rubinstein.

Patients who have stopped responding to checkpoint therapy may be helped significantly by adding ALT-803. Pre-clinical studies have shown that ALT-803 activates the immune system to mobilize lymphocytes against tumor cells and could potentially serve as an important component in combination treatments.

Of the 21 patients treated, nine previously either had stable disease or responded to single-agent immunotherapy before becoming resistant to this treatment. Of these nine patients, 100 percent either had stable disease or had a partial response to the treatment used in this study.

"We can reassert control, at least in terms of stable disease, in essentially everybody we've treated so far," Wrangle said.

This novel combination is a huge step forward in cancer treatment. "Whereas for decades the modalities of therapy were surgery, radiation, and chemotherapy, the last decade has brought targeted therapy, and more recently, immunotherapy. It fundamentally alters the balance of power between your body and your cancer," Wrangle said.

A lung cancer specialist, Wrangle said 75 percent of lung cancer

## RESEARCH NEWS

patients unfortunately are diagnosed at an incurable stage. “If 10 years ago you were talking about defining a five-year survival rate for metastatic non-small cell lung cancer patients, someone would laugh in your face. It would be a joke. It’s just a very different time now,” he said of the progress being made in the treatment of lung cancer.

He credits Rubinstein’s work, instrumental in the development of ALT-803, in helping to make this advance. Research into ALT-803 started years ago while Rubinstein was doing his postdoctoral training at the Scripps Research Institute. It was there that he co-discovered the powerful immune system stimulator used in this trial. The stimulator, known as IL-15 complexes, is actually a combination of an immune system growth factor and its soluble

receptor. IL-15 is a growth factor for certain kinds of white blood cells including natural killer cells and T cells. Wrangle explained that natural killer cells are the chief arm of the innate immune response. “They are an important part of anti-cancer response that haven’t been really talked about for a long time.” Wrangle said his collaboration with Rubinstein is a powerful example of what team science can accomplish. ♦

To read the full article search: [musc.edu/newscenter](https://musc.edu/newscenter)

To support the  
David J. Cole Fund for Surgical Oncology and  
Dr. Rubinstein’s work,  
visit <https://connect2.musc.edu/surgery>

## SPOTLIGHT ON MARK RUBINSTEIN, PH.D.

**Dr. Mark Rubinstein** is an Assistant Professor at MUSC in the Department of Surgery and his research goals are the development of immune-based approaches for the treatment of cancer and other human disease.

His interest in science began at an early age, which he credits to his parents who always instilled a mindset and curiosity to understand the unknown. Among several things that helped develop his interest in cancer research, he remembers watching a television program about the poor treatment options available for cancer patients. He explored this area as an undergraduate student at the University of Virginia, where he worked in a cancer research laboratory. These experiences led him to pursue graduate school at MUSC. He began working with **Dr. David Cole**, a surgical oncologist, who at the time was a new faculty member. Dr. Cole introduced Dr. Rubinstein to the emerging field of cancer immunotherapy. Although this form of therapy was yet to receive mainstream attention, immunotherapy was appealing as it offered the possibility of inducing long-term, durable responses, and even cures in some cancer patients. Since their first publication together in 2002, Drs. Cole and Rubinstein have co-published more than 20 scientific manuscripts in the field of cancer immunology.



“Working with Dr. Cole while a graduate student at MUSC was one of the most important and rewarding influences on my career,” said Dr. Rubinstein. “Dr. Cole introduced me to the field of cancer immunotherapy, long before most people even knew about this field. He also helped me understand the relationship between basic and clinical research, and how things in the laboratory might be used to help patients. I am very grateful for his mentorship and energy to help guide me into becoming an independent scientist.”

Former Chairman of Surgery and now President of MUSC, Dr. Cole, recalls Dr. Rubinstein’s early days at MUSC, “Mark was my first graduate student, and I think we both learned a lot from each other. He is a quiet, unassuming and talented scientist. He is the type of individual who makes others better because of his work ethic and

selfless personality. By the way, pay attention, because this is important work that will yield significant outcomes for the future of cancer treatment.”

After completing his Ph.D. at MUSC, Dr. Rubinstein did his postdoctoral training in immunology at the Scripps Research Institute in San Diego, and the University of California, San Diego. During this time, he co-discovered a naturally occurring protein (growth factor) that can improve the ability of certain types of white blood cells to kill tumor cells.

He returned to MUSC in 2010 and started his laboratory, which focuses on understanding immune cell biology, and applying this knowledge to the treatment of cancer and other human disease.

Most recently, Dr. Rubinstein joined forces with medical oncologist John Wrangle, M.D., to conduct a clinical trial for patients with metastatic non-small cell lung cancer who are not responding to traditional immunotherapies. The trial is a combination of a checkpoint drug, nivolumab, with a new and powerful immune stimulation drug, ALT-803. Rubinstein’s work during his time at Scripps was instrumental in the development of ALT-803, and is now changing what’s possible in cancer therapeutics. ♦

# Thank you

Your generous support has made much possible.



THE MUSC 2<sup>ND</sup> CHANCE GOLF INVITATIONAL AND CELEBRATION RECEPTION HAS BEEN THE CONDUIT FOR GENEROUS DONORS TO SUPPORT THE MUSC LIVING DONOR INSTITUTE. THE EVENT HAS RAISED MORE THAN \$500,000 IN THREE YEARS.

THANK YOU FOR HELPING MAKE THESE—AND MANY MORE—CONNECTIONS FOR LIFE POSSIBLE:

## CONNECTED FOR LIFE



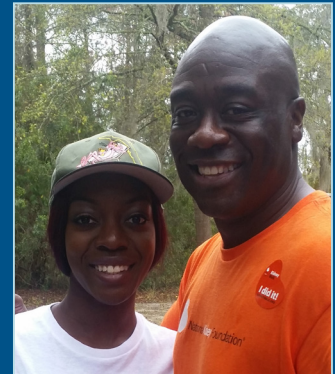
James, living donor to his daughter, Fantashia - 2018

## CONNECTED FOR LIFE



David, living donor to his nephew, Mac, with Dr. Satish Nadig - 2015

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Charlene, donor to her brother, Everett

## CONNECTED FOR LIFE



Julie, kidney donor to her husband, Jack - 2018

## CONNECTED FOR LIFE



Janet traveled from NJ to donate her kidney to her good friend, Rich - 2017

## CONNECTED FOR LIFE



Amber, kidney recipient initiated by Michael's altruistic donation creating a living donor chain.