



2022

RESEARCH

in the Michael E. DeBakey
Department of Surgery

Baylor
College of
Medicine

MICHAEL E. DEBAKEY
DEPARTMENT OF
SURGERY

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Abdominal Transplantation

The Division of Abdominal Transplant team spans multiple disciplines to address the complex problems of organ donation and transplantation as surgeons, hepatologist, nephrologists, critical care doctors and scientists delve into the intricacies of immunogenetics.

Serving both adult and pediatric populations, faculty within the department are driving better outcomes through research to understand the diseases and risk factors causing organ failure. Faculty associated with the Immune Evaluation Laboratory at Baylor College of Medicine, conduct studies on cellular and antibody immune responsiveness in relation to graft rejection, and immune response to allogeneic stem cell infusions for heart failure patients.

On average, about 20 people die every day from the lack of available organs for transplant. Decisions for organ use and allocation are often based on subjective surgeon judgment, simple risk scores such as the Model for End-Stage Liver Disease (MELD), and accepted protocols.

Researchers in the department have been questioning these accepted practices; instead, they are harnessing the expanding power of computing to understand nonlinear patterns of associations between donated organs and transplant recipients to help clinicians make more informed decisions. With improved evidence-based models to assess risks and predict outcomes, organs that would have been discarded are increasingly being used successfully to save lives.





Nilesh Sunil Chitnis, PhD
Assistant Professor
Division of Abdominal
Transplantation
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Ronald T. Cotton, MD
Associate Professor
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Keywords

- HLA Typing
- Anti-HLA antibodies
- Chimerism

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Keywords

- Hepatocellular carcinoma (HCC)
- Genomic differences of Hepatitis

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Research Interests

Dr. Cotton completed a 2-year research fellowship at the Liver, Kidney and Pancreas Center and the Human Genome Sequencing Center at Baylor. There, his research interest centered on developing a high-quality tissue repository, and using these samples to detect genomic differences between Hepatitis B-, Hepatitis C-, and non-viral associated hepatocellular carcinoma. His research has resulted in numerous peer-reviewed publication as well as local, national and international presentations. Dr. Cotton has received numerous clinical accolades during his residency, including being named a 2012 Raleigh Ross Scholar by the Texas Surgical Society.



N. Thao N. Galvan, MD, MPH

Assistant Professor
Division of Abdominal
Transplantation
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John A. Goss, MD

Professor and Chief, Division of
Abdominal Transplantation
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Keywords

- Surgical Technique of Transplantation
- Additive Bioengineering in Transplantation
- Hepatobiliary Surgery

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Research Interests

Dr. Galván is the author of numerous articles in the areas of solid organ transplantation outcomes and surgical technique in transplantation. Her current interests include the economics of solid organ transplantation, and her research project on additive biomanufacturing and collaborative translational research was recently funded.

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Keywords

- Adult and pediatric liver transplantation
- Biliary resection/reconstruction
- Bile duct tumor
- Bile duct injury
- Hepatobiliary surgery

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Research Interests

Dr. Goss' primary research interests revolve around the genomic alterations that occur with hepatocellular carcinoma.

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Peter Jindra, PhD
Assistant Professor
Division of Abdominal
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Christine A. O'Mahony, MD
Associate Professor
Division of Abdominal
Transplantation
Baylor College of Medicine

Keywords

- Anti-HLA antibodies
- Hematopoietic stem cell transplantation
- microRNA in the immune system
- Transplant Diagnostics

Research Interests

The role of anti-HLA antibodies in transplant rejection, the eff

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Keywords

- Adult and pediatric liver transplantation
- Bile duct resections
- Hepatobiliary surgery
- Intraoperative RFA
- Kidney transplantation

Research Interests

Dr. O'Mahony has research interest in clinical outcomes - specifically in kidney and liver transplant patients.

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Abbas Rana, MD

Associate Professor of Surgery
Division of Abdominal
Transplantation
Baylor College of Medicine

Keywords

- Adult and pediatric liver transplantation
- Bile duct resections
- Hepatobiliary surgery
- Intraoperative RFA
- Kidney transplantation

Research Interests

Dr. Rana is an accomplished outcomes researcher with numerous published articles in esteemed journals. He has an expertise in liver and kidney transplantation as well as surgeries for malignant and non-malignant conditions that affect the liver, gallbladder, and bile ducts.

Contact Information

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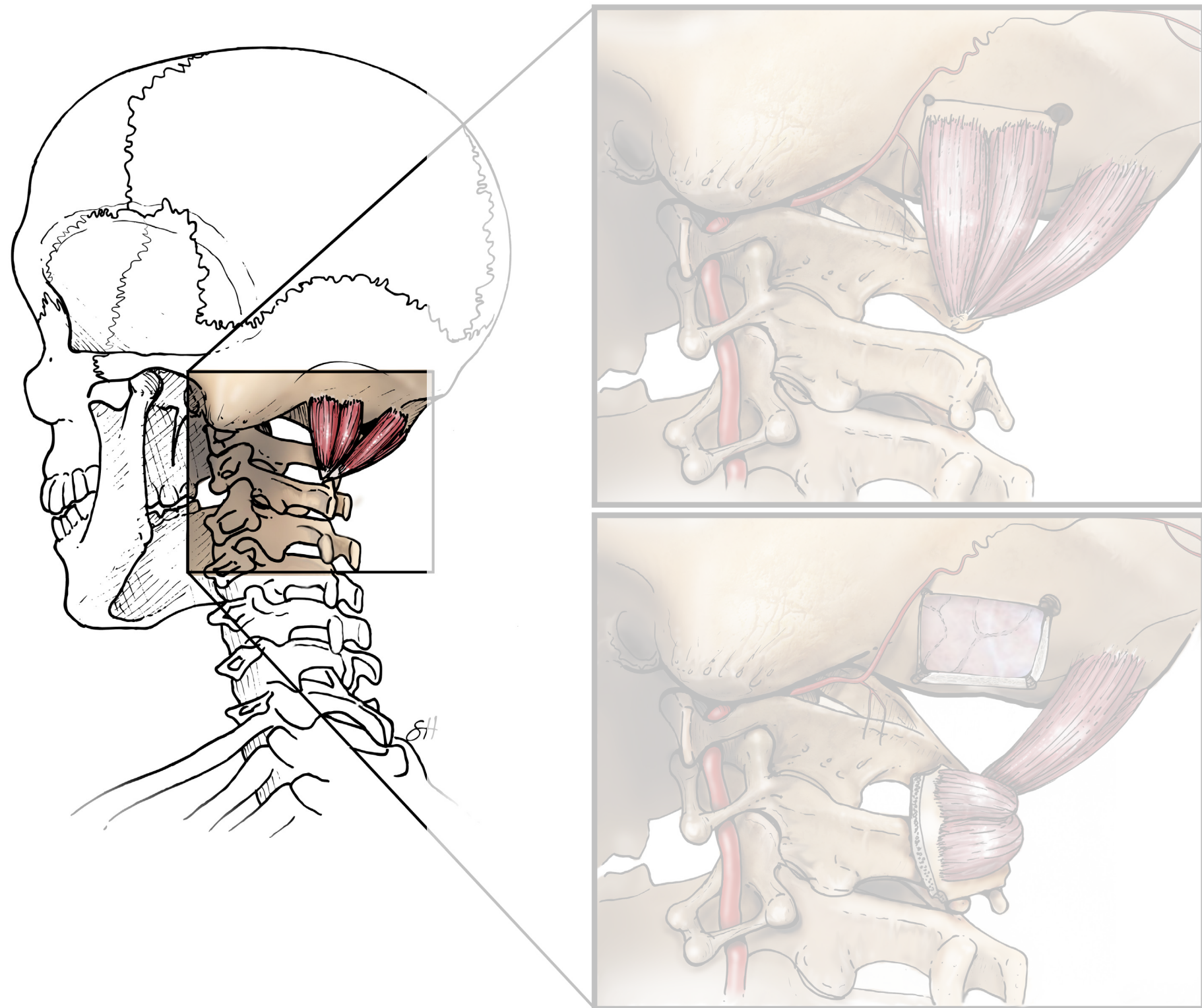
Adult Plastic Surgery

Researchers in the Division of Adult Plastic Surgery are always striving to increase the quality of life for their patients in a holistic way as they work across disciplines to restore both physical form and function. The interventions of our surgeons go beyond cosmetic concerns to address serious deformities caused by trauma, surgical interventions, fibrosis and scarring.

Faculty are seeking innovative ways to use advances in fat grafting science and technique. Recent studies have demonstrated that adipose tissue, which contains adipose tissue-derived stem cells, offers proliferative and regenerative potential. Autologous fat transfer can be used for breast reconstruction and facial surgery, but also offers a valuable new approach to address contractile scar formation and fibrosis.

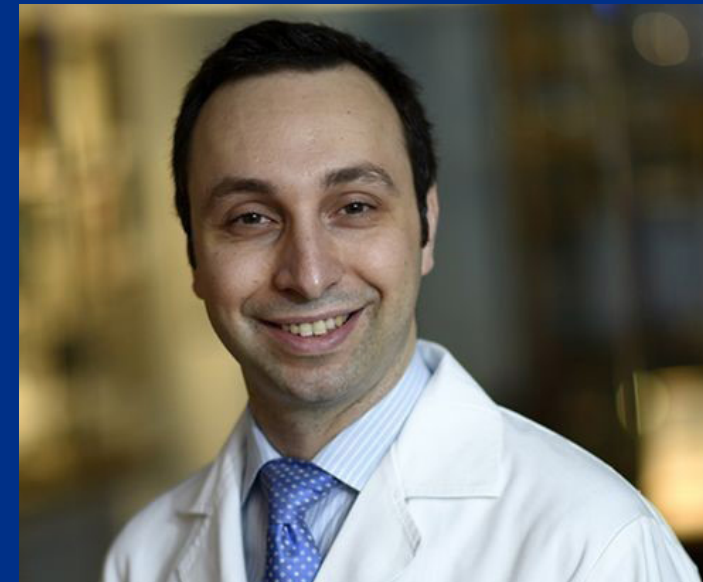
The newly formed discipline of spino-plastic reconstruction may be one of the most exciting initiatives within the department. Bringing together the expertise of surgeons from the fields of orthopedics, neurology, and plastics, spino-plastics is offering highly creative surgical techniques to treat challenging spinal pathologies.

In addition to these clinical and scientific advances, division faculty have published numerous studies related to value-based cost allocation, telehealth implementation, business policy, and training in order to best position the field of plastic surgery to meet future challenges.





Marco Maricevich, MD
Associate Professor of Surgery
Adult Plastic Surgery
Baylor College of Medicine



Sebastian Winocour, MD, MSc
Associate Professor of Surgery
Adult Plastic Surgery
Baylor College of Medicine

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Research Interests

Dr. Maricevich is an enthusiastic and passionate reconstructive and aesthetic plastic surgeon who has been lead or contributing author on over 60 published scientific manuscripts, book chapters, guidelines, and abstracts. Furthermore, he has given scientific research presentations at numerous national and international conferences.

Dr. Maricevich specializes in all kinds of reconstructive and aesthetic procedures of the face, body, and extremities, Targeted Muscle Reinnervation (TMR) - neuroma and phantom pain in limb amputees, as well as skin cancer and non-surgical aesthetic treatments.

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Keywords

- Breast Reconstruction
- Aesthetic Surgery
- Surgical Education

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Research Interests

Dr. Winocour is a dedicated researcher in the field of plastic and reconstructive surgery. His devotion to medical research led him to pursue a Master of Science degree while studying novel treatments to reduce scarring and keloid formation at McGill University. Throughout his subsequent years of training at Mayo Clinic and MD Anderson Cancer Center, his research portfolio has continued to grow, and he is a prolific author on the topics of breast reconstruction and aesthetic surgery outcomes, as well as surgical education. To date, he has contributed over 80 peer-reviewed scientific articles and book chapters in his field, and has served as invited speaker, panelist, and conference organizer in numerous national and international meetings. In his present role as the associate program director of Baylor's Plastic Surgery Residency Program, one of his top priorities is sharing his passion for research with the next generation. He is an active mentor of medical students, research fellows, and plastic surgery trainees and takes pride in their successful research endeavors.



Jessie Z. Yu, MD

Assistant Professor of Surgery
Adult Plastic Surgery
Baylor College of Medicine

Keywords

- Lymphedema Surgery
- Microsurgery
- Reconstructive Surgery

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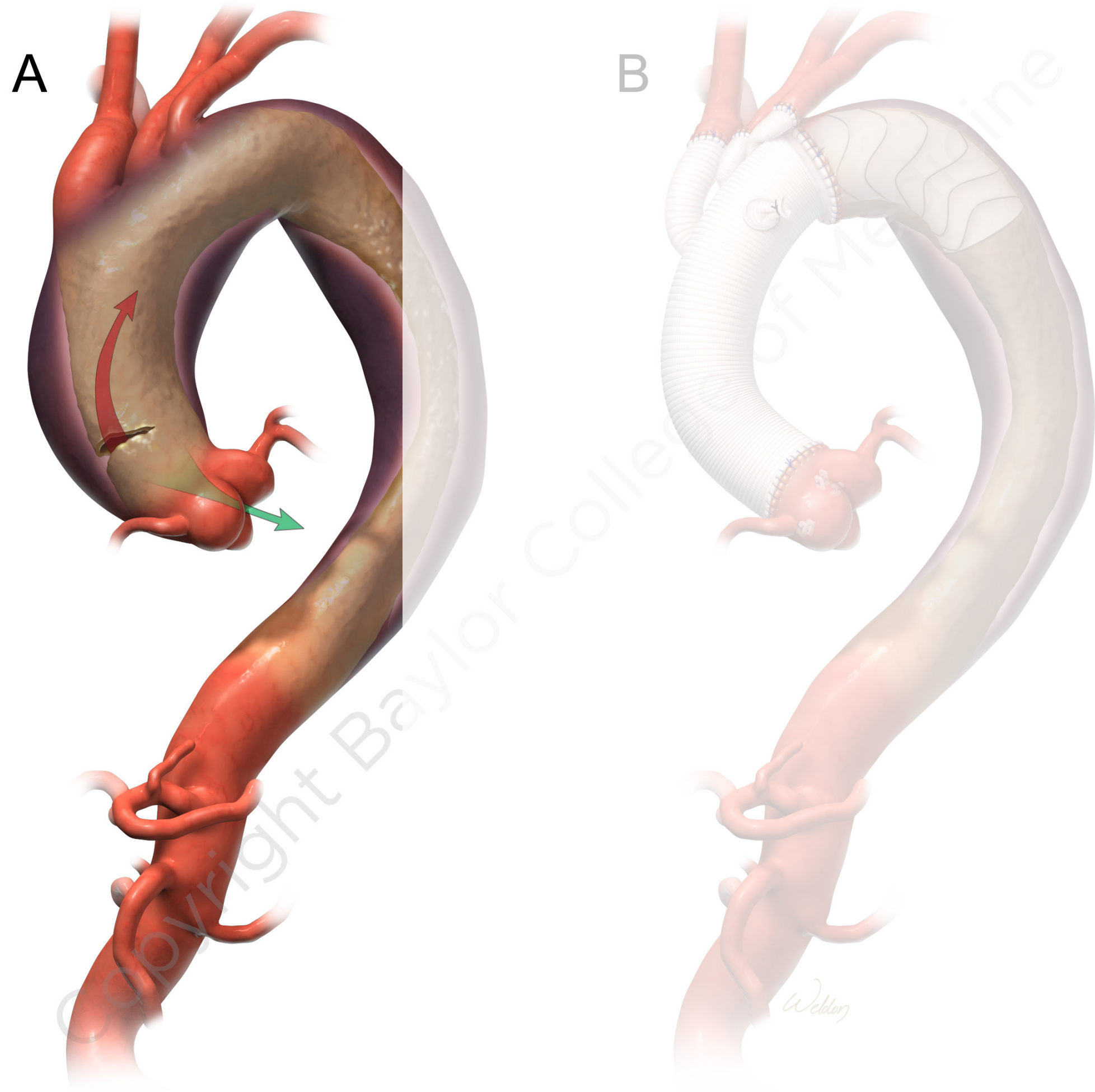


Research Interests

Dr. Yu attended Princeton University where she received her undergraduate degree in Molecular Biology, graduating with the Sigma Xi Award for Outstanding Thesis. She completed her MD at the NYU School of Medicine, and her dedication to excellence in patient care was recognized with the Gold Foundation Humanism Award. Dr. Yu further pursued an additional research fellowship at Memorial Sloan Kettering Cancer Center with a focus on the development of novel treatments for lymphedema. Dr. Yu completed her Plastic Surgery training at New York University, followed by an advanced fellowship in microsurgery and reconstructive plastic surgery at MD Anderson Cancer Center. Her commitment to research and education are reflected in not only her numerous publications, but also her passion for mentoring future generations of plastic surgeons.

Cardiothoracic Surgery

The Division of Cardiothoracic Surgery is leading breakthrough research in heart failure, aortic disease, and valve disease through their work in clinical trials, device innovation, and in the laboratory. Our team of surgical experts and scientists partner together to develop innovative clinical therapies for cardiovascular disease. Dr. Todd K. Rosengart's Laboratory for Cardiac Regeneration is funded by an NIH grant to study the ability to convert scar tissue into new contractile cells in order to reduce fibrosis and restore cardiac function. Dr. Joseph S. Coselli serves as the international principal investigator and head of the Data Coordinator Center and Surgical Core for The Marfan Foundation's Aortic Valve Operative Outcomes in Marfan Patients study. The Aortic Disease Research Laboratory maintains one of the world's most extensive aortic tissue banks, enabling high quality research both at Baylor and in other academic institutions around the nation.





Lauren Barron, MD
Assistant Professor of Surgery
Cardiothoracic Surgery
Baylor College of Medicine



Lorraine D. Cornwell, MD
Associate Professor of Surgery
Cardiothoracic Surgery
Baylor College of Medicine

Keywords

- Burnout
- Heart Rate Variability (HRV)
- Surgical education

Contact Information

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Research Interests

Dr. Barron completed her general surgical training at Washington University in St. Louis, Missouri in addition to an NIH-funded research fellowship. She then completed her cardiothoracic surgical training at Washington University specializing in coronary artery bypass grafting, aortic surgery, aortic valve surgery and alternative access transcatheter aortic valve surgery.

Keywords

- Thoracic oncology
- Video-Assisted Thoracoscopic lobectomy

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Research Interests

Dr. Cornwell's research focuses on optimization of clinical outcomes of cardiothoracic surgery, especially minimally invasive procedures, off-pump CABG, valve repair, and VATS lobectomy.

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Joseph S. Coselli, MD
Professor & Executive Vice-Chair,
Department of Surgery
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Keywords

- Aortic Valve Disease
- Heritable Aortic Disease (eg, Marfan Syndrome)
- Aortic Aneurysm
- Aortic Dissection

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Research Interests

Mentored by the legendary aortic surgeon, Dr. E. Stanley Crawford, Dr. Coselli is today one of the world's most experienced aortic surgeons and best known as the foremost expert in thoracoabdominal aortic aneurysm repair, having published the milestone paper describing results after 3309 such repairs. He has an extensive clinical database and encourages participation in clinical research by designing research projects based on specific interests within aortic surgery. With approval, access to de-identified data from the Aortic Surgery clinical database may be granted. Dr. Coselli routinely publishes on a wide variety of aortic topics, and several outstanding papers and presentations have been prepared by residents, fellows, and students.

Key publications have influenced clinical practice trends by determining the best approaches towards preventing complications during aortic repair. Regarding thoracoabdominal aortic aneurysm repair, randomized clinical trials were conducted to establish the benefits of using cerebrospinal fluid drainage to protect the spinal cord (a technique now in widespread use in aortic repair) and renal perfusion as a protective measure against renal ischemia as well as performing retrospective analysis of left heart bypass as a protective measure against distal ischemia. Additionally, by routinely presenting informative academic lectures throughout the world, Dr. Coselli has disseminated the latest approach to surgical repairs of the aortic root (valve-sparing approaches, including those in patients with Marfan syndrome), aortic arch (Y-graft approaches, hybrid procedures), and thoracoabdominal aortic aneurysm repair (redo operations, modified repair in patients with Marfan syndrome). Dr. Coselli continuously seeks out new treatment paradigms and participates in numerous investigator-initiated and industry-sponsored research projects conducted at Baylor College of Medicine and the Texas Heart Institute; studies include the use of second-generation transcatheter aortic valves, hybrid frozen elephant trunk repairs, as well as single-side branch and ascending aortic stent grafts.



Ravi Kiran Ghanta, MD
Associate Professor of Surgery
Cardiothoracic Surgery
Baylor College of Medicine

Keywords

- Heart Failure
- Ventricular Remodeling
- Clinical Outcomes

Contact Information

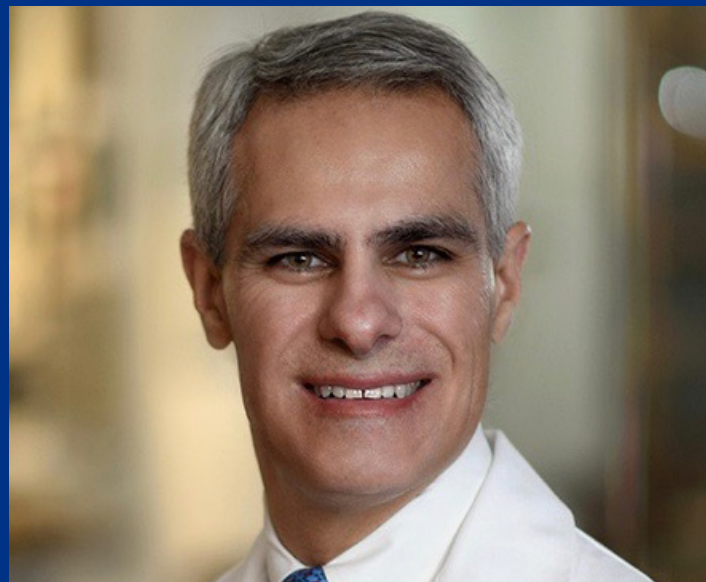
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Research Interests

Dr. Ghanta's laboratory focuses on inflammation post myocardial infarction and the influence of immunomodulation on ventricular remodeling in heart failure. His laboratory utilizes gene and cell therapy and tissue engineering techniques in small and large animal models of heart failure. In addition, Dr. Ghanta utilizes machine learning and statistical analyses of large scale clinical databases to answer fundamental clinical questions in cardiac surgery. Dr. Ghanta is a member of the American Association of Thoracic Surgery, Southern Thoracic Surgery Association, Society of Thoracic Surgeons, American College of Surgeons, and the American Heart Association.



Scott A. LeMaire, MD
Professor, Departments of
Surgery and of Molecular
Physiology and Biophysics
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Keywords

- Aortic aneurysm
- Thoracic aortic surgery
- Aortic dissection

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Research Interests

The focus of Dr. LeMaire's research program, which derives directly from his clinical interest in the surgical treatment of patients with thoracic aortic aneurysms and dissections, encompasses outcomes after thoracic aortic repair, strategies for preventing perioperative complications, genetic factors related to aortic disease, and the pathobiology of aortic wall degeneration. Dr. LeMaire's clinical research team has had a long-standing interest in the analysis of outcomes following aortic surgery, and has conducted randomized clinical trials comparing the effectiveness of various techniques for preventing associated ischemic complications. Further, his research team has conducted several studies to evaluate the safety profile of surgical adhesives, which are an important adjunct for limiting bleeding complications during aortic repairs.

In 2002, his basic science research group in the Aortic Disease Research Laboratory initiated the Thoracic Aortic Disease Tissue Bank, which currently houses samples and corresponding phenotypic data from over 4,000 patients with thoracic aortic disease. The members of the lab employ a wide range of standard and advanced techniques, including tissue analysis, cell-based experiments, mouse models of aortic disease, and single-cell transcriptome analysis. Through an American Heart Association Strategically Focused Vascular Research Network Award, the lab has established the Aortopathy Research Center in partnership with collaborators at the University of Kentucky College of Medicine. The goal of this project is to understand how different types of cells in the aortic wall respond to stress and how these responses differ in men and women. Dr. LeMaire's basic science laboratory also focuses on the role of various aspects of extracellular matrix metabolism in the development of aortic aneurysms and dissections. In particular, his group is studying the roles of destructive factors as well as reparative mechanisms during the development of aortic aneurysms and dissections.



Megumi Mathison, MD, PhD

Associate Professor of Surgery
Cardiothoracic Surgery
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Keywords

- Cardiovascular disease
- Cardiac regeneration

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Research Interests

Heart failure is a leading cause of death in developed countries. Recent advances in interventional cardiology and cardiac surgery have made it possible to save numerous patient lives after myocardial infarction. However, those patients eventually develop end-stage heart failure since the loss of cardiac muscle is never replaced with new muscle. Our study focus is on regenerating cardiac muscle by transdifferentiating cardiac fibroblasts into cardiomyocytes. We reported that Gata4, Mef2c, and Tbx5 overexpression transdifferentiated cardiac fibroblasts into cardiomyocyte-like cells in vitro, and improved cardiac function in vivo. Our goal is to translate this in-situ cardiomyocyte regeneration into clinical therapy.



Kenneth L. Mattox, MD
Distinguished Service Professor
Cardiothoracic Surgery
Baylor College of Medicine

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Research Interests

His reputation as an innovator in trauma care is known worldwide. He has made original and significant contributions in trauma resuscitation, trauma systems, thoracic trauma, vascular injury, autotransfusion, complex abdominal trauma and multi-system trauma. His research in preoperative fluid restriction for penetrating trauma shook the foundation of surgical doctrine in this area. Authoring over 600 articles and more than 1000 abstracts, he has also served on six Editorial Boards and has been an Editorial Reviewer for 15 other journals.

Dr. Mattox is past President of the American Association for the Surgery of Trauma and current Secretary-Treasurer of the Michael E. DeBakey International Surgical Society. He previously chaired the Mayor's Red Ribbon Committee to address Houston Fire Department Emergency Medical Services and sat on the Hospital Subcommittee of the Mayor's Special Task Force on the Medical Aspects of Disaster. He has served as consultant to the Center for Biologic Evaluation and Research of the FDA and on the Board of Directors of the Rotary Club of Houston, Doctors' Club of Houston, Wayland Baptist University, the American Association for the Surgery of Trauma, the Southeast Texas Trauma Regional Advisory Council, the American College of Surgeons Board of Governors, and Chairman of the Board of the John P. McGovern Museum for Health & Medical Science.

Recently, Doctor Mattox stepped down from his longtime position as Chief of Staff at the Ben Taub Hospital and continues his work at Baylor as Special Advisor to the President and CEO of Baylor, Dr. Paul Klotman.



Marc R. Moon, MD
Professor and Chief,
Cardiothoracic Surgery
Baylor College of Medicine



Vicente Orozco-Sevilla, MD
Assistant Professor of Surgery
Cardiothoracic Surgery
Baylor College of Medicine

Keywords

- Aortic Aneurysm Repair
- Reoperative Cardiac Surgery
- Coronary Artery Bypass Surgery
- Mitral Valve Repair
- Adult Cardiac Surgery

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Research Interests

Dr. Moon, an expert and pioneer in the most advanced forms of cardiac surgery, has served as president of the American Association for Thoracic Surgery and as a member of numerous national and international scientific organizations, including the American College of Surgeons and the Society of Thoracic Surgeons. As a world class surgeon, Dr. Moon specializes in aortic and valve surgery and sees some of the most complex cardiac surgery cases. He has also been a leading advocate for diversity in the field of cardiac surgery. Dr. Moon's focus is to continue advancing cardiothoracic surgery and develop research to make the field even safer for the future.

Keywords

- Aortic Surgery
- Reoperative Cardiac surgery
- Valvular heart disease
- Endovascular Surgery

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Research Interests

Dr. Orozco's research focuses on improving the of clinical outcomes of Aortic surgery, particularly on reoperative cardiac surgery and thoracoabdominal aortic aneurysm repair. As one of the few surgeons in the country with formal training in both cardiothoracic surgery and vascular surgery, Dr. Orozco is constantly looking for ways to simplify, modify and apply the current surgical approaches during aortic repair.



Vivek Patel, MD
Assistant Professor of Surgery
Cardiothoracic Surgery
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Ourania Preventza, MD, MBA
Professor of Surgery
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Keywords

- Minimally invasive cardiac surgery
- Cardiac regeneration

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Research Interests

Dr. Patel has published numerous abstracts, manuscripts and textbook chapters in clinical and basic science research, while also filing a patent for a novel strategy for cardiac regeneration.

His research efforts had led to several national presentations at the Society of Vascular Surgery Conference, South Texas ACS meeting, Cardiovascular Research Institute at Baylor College of Medicine, American Association for Thoracic Surgery and more.

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Keywords

- Aortic Surgery, open and endovascular technology
- Structural heart disease
- Cardiac disease in women, and minorities
- Surgical Outcomes Research

Contact Information

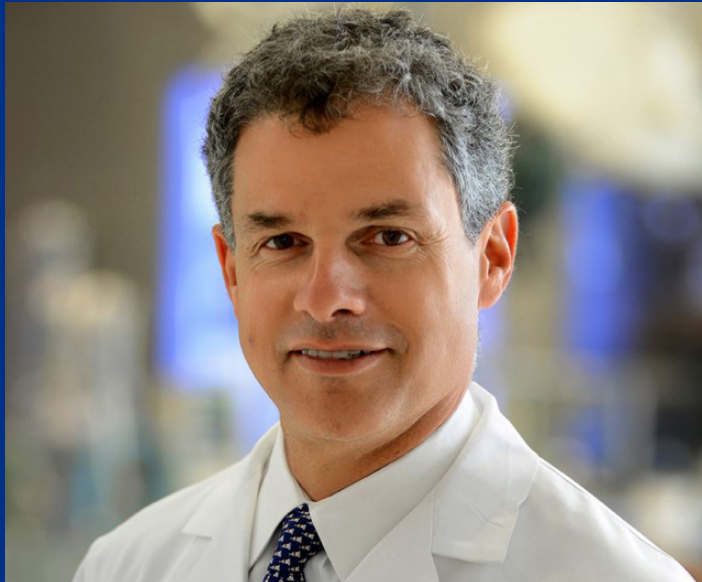
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Research Interests

Dr. Preventza's research focuses on the development of percutaneous techniques for valvular and thoracic aortic diseases, aortic root surgery, cardiac disease in women and surgical outcomes. She is the current President Elect of International Society of Endovascular Specialists. Dr Preventza has been very prolific in publishing clinical research, with more than 140 peer review publications and numerous presentations in national and international meetings.

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Todd K. Rosengart, MD
Professor and Chair
Department of Surgery
Baylor College of Medicine

Keywords

- Gene therapy
- Cellular reprogramming
- Angiogenesis

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Research Interests

Basic and translational research have been predominant in Dr. Todd Rosengart's academic career beginning with his serving as a clinical fellow at the NIH, and continuing with appointments as an independent investigator with American Heart Association sponsored research support and NIH extramural funding. This effort is highlighted by his role in developing angiogenic therapy as a potential treatment for atherosclerotic coronary artery and vascular occlusive disease, and in our lab's multi-year focus to study cardiac cellular reprogramming. This NIH-funded work includes the translation of in vivo examinations of angiogenic growth factors starting in the mid-1980s into the (first in the U.S.) adenovirus-mediated delivery of angiogenic vascular endothelial growth factor (VEGF) to the human heart. Together with this experience, our current investigations of cellular reprogramming offer the possibility of "bio-interventions" to treat hundreds of thousands with advanced heart disease.

Dr. Rosengart and others have demonstrated that administering a cardiac transcription factor cocktail results in as much as a 50% increase in ventricular function, reduced fibrosis, and increased induced cardiomyocytes (iCMs) populations in small animal myocardial infarction models. Given his goal to develop a new treatment for CHF, he is studying whether cellular reprogramming can improve cardiac infarct remodeling and function by testing the serial hypotheses that: a) inadequate up-regulation of requisite reprogramming genes limits cell transdifferentiation efficiency, b) that the density of (contractile) iCMs in infarct zones as well as indirect or paracrine mechanisms play critical roles in GMT/VEGF mediated infarct remodeling, and c) that cardiac fibroblasts can be made susceptible to reprogramming in a clinically relevant fashion. His team will use cutting edge molecular strategies and pre-clinical animal models to execute these aims.



Alexander Schutz, MD
Assistant Professor of Surgery
Cardiothoracic Surgery
Baylor College of Medicine



Ying H. Shen, MD, PhD
Professor of Surgery
Cardiothoracic Surgery
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Keywords

- Myocardial Protection
- ECMO
- Total Arterial Revascularization

Contact Information

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Research Interests

Dr. Schutz earned his medical degree from the University of Nebraska Medical Center in 2011 and completed his general surgery residency at the University of Oklahoma Health Sciences Center. During his residency, Dr. Schutz spent time at the Perelman School of Medicine at the University of Pennsylvania. During his cardiothoracic residency training at Baylor, Dr. Schutz served as administrative chief resident, published several papers in the field of cardiothoracic surgery, and presented at national meetings of renowned professional organizations, such as the STS and the AATS.

Keywords

- Aortic aneurysms and dissections
- Diabetic vascular diseases
- Vascular biology and diseases

Contact Information

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Research Interests

Dr. Shen's broad research interest is on vascular diseases. Her major focus is understanding the molecular mechanisms of aortic aneurysms and dissections, highly lethal but poorly understood conditions. Her lab has ongoing projects to investigate the signaling pathways and gene expression that control aortic destruction and inflammation as well as healing and remodeling. The ultimate goal of Dr. Shen's research is to discover pharmacological treatment to prevent progressive aortic degeneration and disease deterioration.

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Vivek Singh, PhD
Assistant Professor of Surgery
Cardiothoracic Surgery
Baylor College of Medicine

Keywords

- Heart Regeneration
- Cellular Reprogramming
- Transcription Factors
- Gene Therapy

Contact Information

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Research Interests

Dr. Singh's research focuses on molecular and genetic mechanisms that mediate myocardial remodeling and heart failure, and the development of new drug and gene-based therapies for heart disease. The research Dr. Singh accomplished during his doctoral and post-doctoral tenures has significantly contributed to a better understanding of the biochemical, molecular, and genetic mechanisms that regulate cardiac function.

A significant amount of Dr. Singh's work has focused on the renin-angiotensin system and its direct involvement in mediating cell growth in the heart. Dr. Singh has characterized an intracardiac intracellular renin-angiotensin system and has shown that the precursor genes of the system significantly modulate a number of pathological conditions such as diabetic cardiomyopathy. Recently, he identified the genetic biomarkers predisposing to sudden death in heart failure patients and studied the underlying mechanism of ventricular arrhythmias and increased risk of sudden cardiac death in dilated cardiomyopathy. More recently, Dr. Singh examined key developmental cardiac regulators, known as transcription factors GMT (GATA4, MEF2C and TBX5), that reprogram cardiac fibroblasts into functional, beating cardiomyocytes, a novel, promising gene therapy strategy to treat heart failure. Dr. Vivek has a vast experience working on cardiac myocytes and fibroblast both in vitro and in vivo, especially in cardiac electrophysiology. The overall summary of his work is to better understand the molecular signaling pathways, to identify genetic biomarkers and gene regulatory events that modulate cardiac function, and to better understand how these mechanisms may contribute to the development of interventions to modulate heart failure.



Matthew J. Wall Jr, MD
Professor of Surgery
Cardiothoracic Surgery
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Jianchang Yang, MD, PhD
Associate Professor of Surgery
and Medicine
Cardiothoracic Surgery
Baylor College of Medicine

Keywords

- Trauma
- Cardiac, Thoracic, Pulmonary, Vascular Trauma
- Resuscitation
- Trauma Systems

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Research Interests

Dr. Wall's research interests include the management of the injured patient, novel resuscitation strategies, and injuries to the chest and the vascular system.

Keywords

- Cardiac progenitor regulation and direct cellular reprogramming
- Epigenetic mechanisms of gene expression
- Normal and leukemic hematopoietic stem cell regulation
- Embryonic stem cells (ESCs)
- Generation of patient-specific pluripotent progenitor cells (iPS) for clinical therapies

Contact Information

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Research Interests

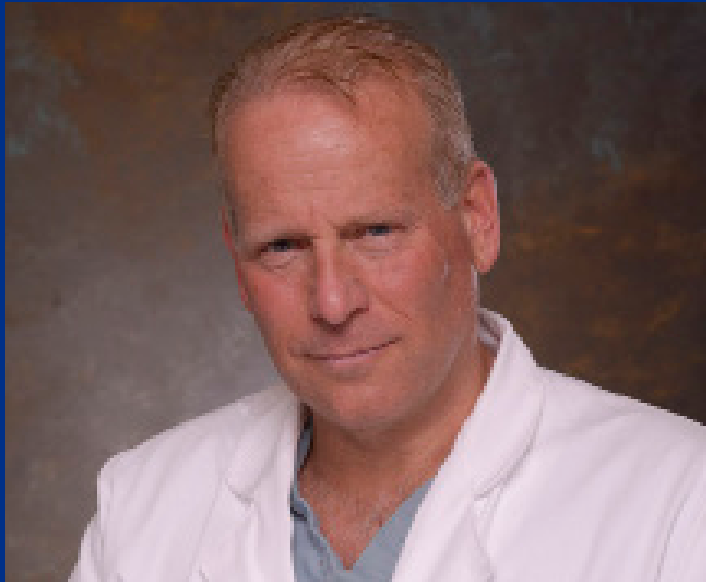
Dr. Yang received his MD from XinJiang University of Medical Sciences, MS of Medical Biochemistry from Sun Yat-sen University in China, and finished his Ph.D thesis in Molecular Cardiology from Charite University Campus Benjamin Franklin (Berlin)-magna cum laude. His research interests include cardiac progenitor cell and cellular reprogramming, normal and leukemic hematopoietic stem cell regulation, epigenetic control of gene expression, ES cells, generation of patient-specific pluripotent progenitor cells for clinical therapies.

Cardiothoracic Transplantation and Circulatory Support

A key area of Texas Heart Institute research involves using ventricular assist devices for patients with advanced heart failure. These devices can be implanted as a bridge to transplant, destination therapy, or bridge to recovery.

Texas Heart Institute/CHI Baylor St. Luke's Medical Center has one of the largest experiences in the country with LVADs. Devices include the HeartMate II, HeartMate III, HeartWare HVAD, Jarvik, and the Syncardia Total Artificial Heart.





William E. Cohn, MD
Professor of Surgery
Cardiothoracic Transplantation
and Circulatory Support
Baylor College of Medicine

Research Interests

Dr. Cohn is one of the leaders of the team of experts developing a total artificial heart that will deliver blood by means of continuous flow rather than pulsation. This research has grant support from the National Heart, Lung, and Blood Institute; the John S. Dunn Research Foundation; the Alexander Family Trust; and the McIngvale family Trust. This new artificial heart is smaller and more durable than previous generations of artificial hearts.

Dr. Cohn currently has 170 active or pending patents for his inventions and is the founder or co-founder of five venture-backed life science startups. Dr. Cohn serves as a vice president for Johnson & Johnson's Medical Device Companies and as the Executive Director of the Center for Device Innovation in the Texas Medical Center in Houston. Dr. Cohn has recently been inducted into the American Institute for Medical and Biological Engineering College of Fellows. Dr. Cohn was nominated, reviewed and elected for improving patient outcomes by inventing technologies that help doctors at all skill levels achieve excellent results and decrease procedural invasiveness.

Keywords

- Ventricular assist devices

Contact Information

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Abdussalam Elsenousi, MD

Instructor in Surgery
Cardiothoracic Transplantation
and Circulatory Support
Baylor College of Medicine

Contact Information

Texas Heart Institute
6770 Bertner Avenue
Cooley 355N
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Research Interests

Dr. Abdussalam Elsenousi is a cardiothoracic and transplant surgeon who specializes in advanced heart and lung failure and mechanical circulatory support. Dr. Elsenousi completed his Cardiovascular Surgery Fellowship at Texas Heart Institute in 2018. He joins the faculty of Baylor College of Medicine after completing his Cardiothoracic Transplantation Fellowship in March 2020.



O. Howard Frazier, MD
Professor of Surgery
Cardiothoracic Transplantation
and Circulatory Support
Baylor College of Medicine

Keywords

- Mechanical circulatory support

Contact Information

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Research Interests

Dr. Frazier's interest in mechanical circulatory support began in 1969, when, as a student at Baylor College of Medicine, he wrote a research paper about the experimental total artificial heart, which was first implanted in 1969 by Dr. Denton Cooley. Throughout the 1970s and 1980s, Dr. Frazier continued experimental work toward developing an implantable left ventricular assist device (LVAD) to aid the failing heart. He implanted the first LVAD in 1986 with the HeartMate I, followed in 2003 with the first HeartMate II. Since then, this device has become the most widely used implantable LVAD in the world. In 2011, Dr. Frazier implanted the first successful continuous-flow total artificial heart using two second generation HeartMate II LVADs to replace a patient's failing heart.

After more than 30 years as a pioneer in the surgical treatment of advanced heart failure, Dr. Frazier's current research endeavor is to develop an implantable total heart replacement (artificial heart). As Co-Director of the Center for Preclinical Surgical & Interventional Research at the Texas Heart Institute, he is one of the leaders of the team of experts developing a total artificial heart that will deliver blood by means of continuous flow rather than pulsation. This research has grant support from the National Heart, Lung, and Blood Institute; the John S. Dunn Research Foundation; the Alexander Family Trust; and the McIngvale family Trust. This new artificial heart is smaller and more durable than previous generations of artificial hearts.



Harveen Lamba, MD, MSc
Assistant Professor of Surgery
Cardiothoracic Transplantation
and Circulatory Support
Baylor College of Medicine



Kenneth K. Liao, MD, PhD
Professor and Chief,
Cardiothoracic Transplantation
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Keywords

- Heart Failure
- Transplant
- Mechanical Circulatory Support

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Research Interests

Dr. Lamba has worked at the intersection of bioengineering and cardiac surgery, leveraging an interdisciplinary and collaborative approach for addressing important clinical gaps. Dr. Lamba is responsible for the development of the largest ventricular assist device (VAD) clinical database in the United States and currently oversees clinical outcome projects in the division of cardiothoracic transplantation and mechanical circulatory support. Several of the clinical projects she has participated in include risk analysis and prediction for complications after VAD implantation in advanced heart failure patients. While VADs have been a promising technology in these patients, the risks of stroke, infection, and gastrointestinal bleeding associated with them remain a limitation and affect patient quality of life. Concurrently she works on clinical and preclinical projects aimed at expanding the heart donor pool for transplantation, which is vital for providing end stage heart failure patients with an option that extends their life without compromising their quality of life.

Keywords

- Robotic cardiac surgery
- Complex mitral valve repair surgery
- Heart transplantation
- Ventricular assist devices

Contact Information

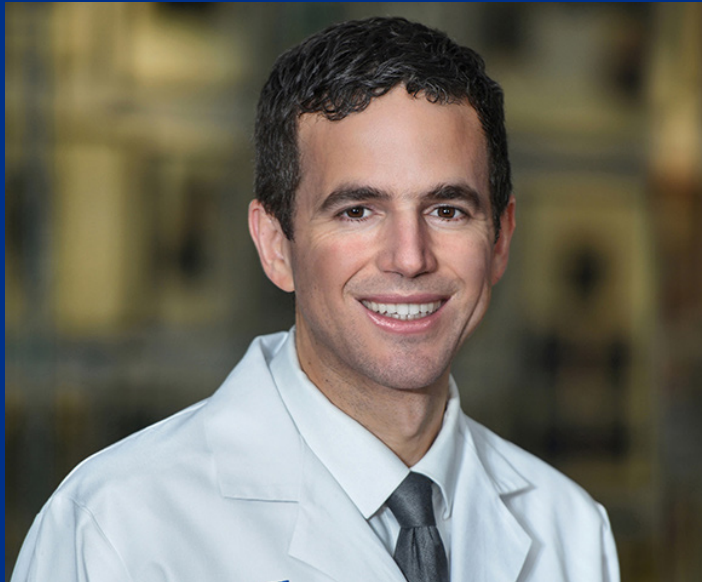
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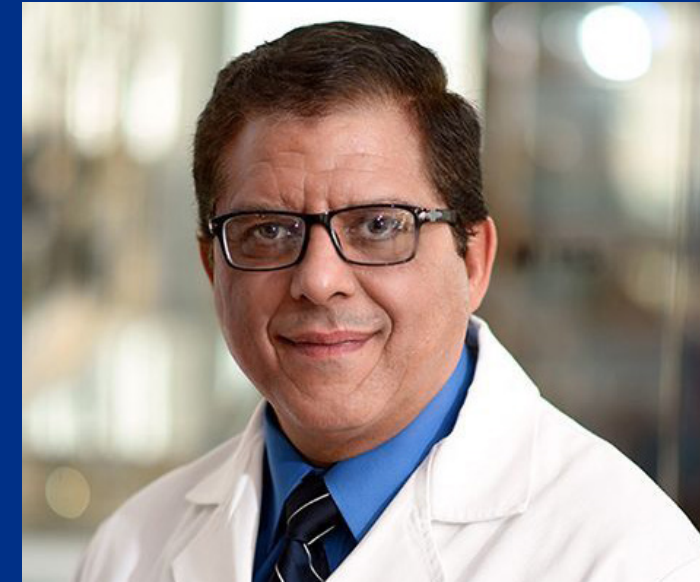


Research Interests

Dr. Liao has given numerous presentations both nationally and internationally. He has participated in over 20 clinical trials as a Principal Investigator or Co-Investigator. His work in the field of robotic cardiac surgery, complex mitral valve repair surgery, heart transplantation and ventricular assist device has been extensively published.



Gabriel Loor, MD
Associate Professor,
Cardiothoracic Transplantation
and Circulatory Support
Baylor College of Medicine



Aladdein Mattar, MD
Assistant Professor,
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Keywords

- EVLP
- Lung transplant

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Research Interests

Dr. Loor's research interests include improved donor lung utilization and recipient outcomes. He is a PI on several international trials using ex vivo lung perfusion platforms to increase donor yield and quality. He is credited with the first "breathing lung transplantation" in the Midwest performed in 2014 and in Texas in 2017. His translational lab focuses on the use of this technology to improve the quality and quantity of potential lung transplants. Dr. Loor has published several key papers on prolonged preservation of donor organs with an emphasis on reducing ischemic injury and the inflammatory response. He has also published several articles on blood conservation, safety checklists and surgical outcomes after adult cardiac surgery.

Keywords

- Heart and Lung Transplant
- Impella Circulatory Support
- ECMO

Contact Information

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Research Interests

Dr. Mattar's research interest focuses on methods to expand thoracic organ utilization and includes the use of the portable normothermic Organ Care Unit for hearts and lungs. Dr. Mattar was involved in the Expand Trial II which looked into the use of portable normothermic Ex Vivo Lung Perfusion (EVLP) for transportation and evaluation of extended criteria donor lungs using the Organ Care System (OCS).

Dr. Mattar is co-investigator in a research study with Dr. Liao, which is looking into increasing heart transplantation by using hearts from donors after circulatory death (DCD) and will set the benchmark for the criteria of DCD hearts for the future of heart transplantation.



Nandan Kumar Mondal,
MSC, MPhil, PhD
Assistant Professor,
Cardiothoracic Transplantation
and Circulatory Support
Baylor College of Medicine

Keywords

- Basic science and translational research
- Cardiothoracic surgery
- Heart failure and transplantation

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Research Interests

Dr. Mondal has approximately a decade's worth of experience in the field of clinical and basic science research. He has extensive biomedical research experience in the field of basic/translational pathophysiology related to critical illness such as cardiac failure, stroke, shock and trauma, with expertise in innovative methods and data science related to the study with special emphasis on infection, bleeding, thrombosis, inflammation, oxidative stress, mitochondrial dysfunction, microbiota and exosome, immune function etc.

Dr. Mondal's research has provided some of the most comprehensive studies resulting ground-breaking discoveries in platelet/leukocyte biology which are helping to advance science and improve the health of millions of people with heart failure and cardiovascular disease. Additionally, Dr. Mondal's mock-loop studies on in-vitro blood shearing experiments showed that non-physiological high shear stress generated by mechanical circulatory devices may be responsible for bleeding and thrombosis in heart failure patients with biomedical device support. Dr. Mondal is currently conducting multiple translational basic science research on (i) DCD heart under OCS support, (ii) hemostatic and thromboembolic dysfunction in LVAD recipients and (ii) immunomodulation of inflammation in other cardiac surgical cases (valvular surgeries, CABG surgeries via conventional or robotic approaches) at the division. Dr. Mondal published over 60 original research articles and conference abstracts (45 peer-reviewed papers: 38 first authored and 13 as senior authored). Dr. Mondal currently overseeing, managing, designing, monitoring, ensuring the integrity of laboratory experimentation for the basic science surgical research at the division. Dr Mondal's future goal is to expand the number of organs available for transplant by demonstrating the safety and feasibility of using DCD hearts. Future goal also includes advance the understanding of biomedical device-induced (shear stress) blood cell dysfunction and to use this knowledge to guide the clinical practice and the design improvement of biomedical devices.



Alexis Edward Shafii, MD
Associate Professor of Surgery
Cardiothoracic Transplantation
and Circulatory Support
Baylor College of Medicine

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Research Interests

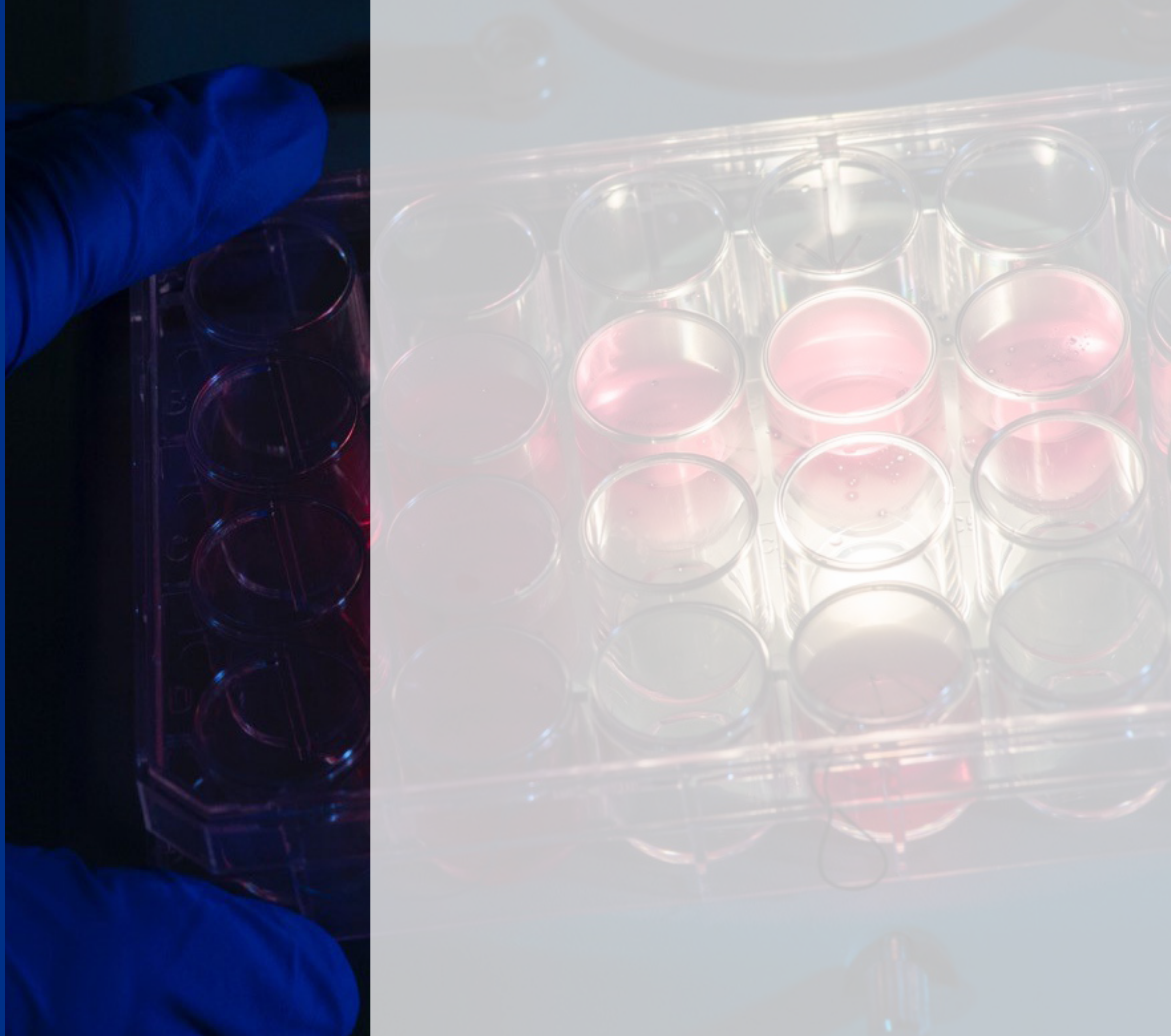
Dr. Shafii’s research focus includes both heart and lung transplantation, as well as the use of mechanical circulatory support devices to aid or substitute for the failing heart. Dr. Shafii has been a co-investigator on numerous seminal clinical trials involving the most current technology in left ventricular assist devices (LVADs), both for use as a bridge-to-transplant as well as destination therapy. Currently, Dr. Shafii is Baylor’s principle investigator on a multi-center study evaluating the Evaheart Centrifugal LVAS.

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Congenital Heart Surgery

The division maintains an active research program across a broad spectrum. The division focuses specifically on congenital heart surgical outcomes and quality, pediatric heart and lung transplantation, mechanical circulatory support, aortic reconstruction, surgical repair of congenital coronary anomalies, and, in collaboration with Rice University, pediatric bioengineering.





Iki Adachi, MD
Assistant Professor of Surgery
Congenital Heart Surgery
Baylor College of Medicine



Ziyad Binsalamah, MD, MSc
Instructor in Surgery
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Keywords

- Pediatric heart failure
- Mechanical circulatory support
- Myocardial recovery in children

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Keywords

- Congenital Cardiac Surgery
- Nanotechnology in Cardiovascular diseases
- Aortic Surgery

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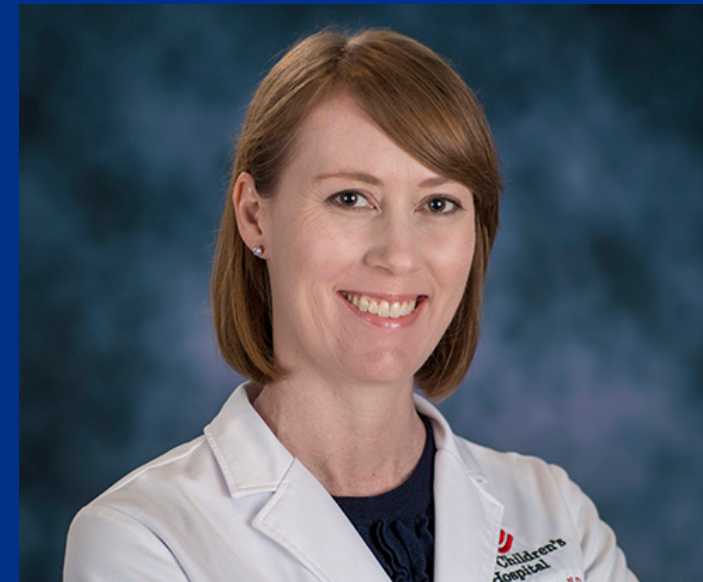
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Christopher Caldarone, MD
Professor and Chief
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Baylor College of Medicine



Lauren Goldie, PhD, CCRP
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Congenital Heart Surgery
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Research Interests

Dr. Caldarone's research interests include the role of apoptosis related mitochondrial dysfunction and remote ischemic preconditioning as mediators of reperfusion injury. Most recently, Dr. Caldarone has focused on pulmonary vein stenosis and tissue engineering of pulmonary valves.

Keywords

- Congenital heart surgery
- Pediatric congenital heart disease
- Research education

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Jeffrey Heinle, MD
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Edward John Hickey, MD
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Michiaki Imamura, MD, PhD
Professor of Surgery
Congenital Heart Surgery
Baylor College of Medicine



E. Dean McKenzie, MD
Professor of Surgery
Congenital Heart Surgery
Baylor College of Medicine

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Research Interests

Dr. Imamura's academic interests include clinical outcomes research and physiology/anatomy of congenital heart defects. Other academic interests include complex heart failure management, ventricular assist device implantation, and cardiothoracic and congenital surgical education.

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Research Interests

Dr. McKenzie's research centers on neurologic protection during cardiopulmonary bypass and the advancement of surgical and perfusion techniques to eliminate the use of deep hypothermic circulatory arrest (DHCA) during aortic reconstruction. He has extensive experience with and has developed innovative surgical techniques for repair of the aortic arch, including the ascending sliding arch aortoplasty.

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Lalita Wadhwa, PhD
Assistant Professor of Surgery
Congenital Heart Surgery
Baylor College of Medicine

Keywords

- Tissue banking
- Congenital heart defect genomics
- Pediatric developmental disorders

Contact Information

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Thoracic Surgery

The Division of Thoracic Surgery performs innovative translational research, in the clinic and in the laboratory, united by an overarching objective to improve the care of our patients. We offer an array of clinical trials that include investigator-initiated studies and collaborative multi-center national trials. The Thoracic Surgery Research Laboratory is National Institutes of Health-funded and investigates mechanisms of response to immunotherapy and mechanisms of carcinogenesis in thoracic cancers.





Bryan Burt, MD
Professor and Chief,
Thoracic Surgery
Baylor College of Medicine



Shawn Groth, MD
Associate Professor and
Associate Chief
Thoracic Surgery
Baylor College of Medicine

Keywords

- Tumor immunology
- Non-small cell lung cancer
- Malignant pleural mesothelioma

Research Interests

Dr. Burt's research efforts concentrate on immunologic determinants of pleural mesothelioma and non-small cell lung cancer; he is currently focusing efforts on novel therapeutic intraoperative treatments of pleural mesothelioma.

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Keywords

- Thoracic Surgery
- Outcome Assessment (Health Care)
- Translational Medical Research

Contact Information

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Hyun-Sung Lee, MD, PhD
Assistant Professor of Surgery
Thoracic Surgery
Baylor College of Medicine



R. Taylor Ripley, MD
Associate Professor of Surgery
Thoracic Surgery
Baylor College of Medicine

Keywords

- Systems Immunology
- CyTOF
- Imaging Mass Cytometry (IMC)
- Malignant pleural mesothelioma
- Lung cancer
- Esophageal cancer
- Thymic epithelial tumors

Contact Information

Alkek Building for Biomedical Research
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Research Interests

In the Systems Onco-Immunology Laboratory (SOIL) Dr. Hyun-Sung Lee uses and develops innovative methods within the context of multi-omics technologies to investigate cancer-immune system networks and inform the design of novel approaches to immunotherapy.

The lab is a hub for translational oncology research projects in thoracic oncology and unites an interdisciplinary team of surgeons, medical oncologists, immunologists, and bioinformaticians who are conducting research in the field of onco-immunology. Our work extends to encompass a broader interaction with the scientific community and educational opportunities in systems onco-immunology.

Keywords

- BH3 profiling
- Metabolomics
- Thoracic oncology

Contact Information

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Research Interests

Dr. Ripley was an associate professor of surgery in the Thoracic and Oncologic Surgery Branch of the National Cancer Institute (NCI). While at the NIH, Dr. Ripley was awarded the NCI Director's Innovation Award for targeting specific p53-mutations for the treatment of esophageal adenocarcinoma. He established the Foregut Team at the NIH Clinical Center for the management of patients with esophageal cancer. Additionally, he has been developing a novel assessment of thoracic cancers by profiling mitochondrial pathways, which he will continue with us.

Dr. Ripley has lectured nationally and published extensively on his work in the field of thoracic oncology and tumor metabolism. Prior to his faculty appointment at the NCI, Dr. Ripley trained extensively in the care of patients with mesothelioma under world-renowned surgeons during his fellowship at Memorial Sloan-Kettering Cancer Center in New York.

Metabolic and Bariatric Surgery

The dramatic health-improving effects of weight loss and metabolic surgery have resulted in an explosion of research endeavors that aim to better understand the molecular mechanisms of metabolic dysfunction.

Our division is heavily engaged in conducting such research, particularly in optimizing the outcomes of medical and surgical treatment of obesity, investigating new devices which may result in ever-decreasing invasive techniques, and achieving a better understanding of how metabolic surgery can improve the clinical outcomes of patients who proceed to other types of surgery, such as joint replacement and organ transplant operations.

The research opportunities offered by Baylor and our colleagues in the Texas Medical Center represent a collaborative system that is unrivaled in its potential to advance this field of medicine and reap enduring rewards for our patients.





Juliet Holder-Haynes, MD, MBA, MS
Associate Professor of Surgery
Metabolic and Bariatric Surgery
Baylor College of Medicine



S. Julie-Ann Lloyd, MD, PhD
Assistant Professor of Surgery
Metabolic and Bariatric Surgery
Baylor College of Medicine

Keywords

- Adult and adolescent obesity
- Gastroparesis
- Reflux
- Revision Bariatric Surgery

Contact Information

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Contact Information

Weight Loss and Metabolic Center
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Research Interests

Dr. Lloyd is a dedicated researcher and educator. Her research interests include understanding the pathophysiology of obesity and improving patient outcomes through optimization of perioperative care.

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Samer G. Mattar, MD
Professor of Surgery and Chief
Metabolic and Bariatric Surgery
Baylor College of Medicine

Keywords

- Metabolic surgery
- Clinical outcomes
- Radiofrequency energy
- Cryotherapy

Contact Information

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Research Interests

Dr. Mattar is a diplomate of the American Board of Obesity Medicine. Formerly, he was Professor of Surgery at Oregon Health & Science University and Professor of Surgery at Indiana University. He is also Past-President of the American Society of Metabolic and Bariatric Surgeons and the current President of the Fellowship Council. His practice is almost entirely bariatric in nature and his main clinical interests are in the area of standardizing pathways and optimizing patient outcomes. He also has an interest in the surgical and endoscopic treatment of acid reflux disease.

Dr. Mattar has developed comprehensive bariatric and metabolic programs with an emphasis on modern, high quality and compassionate care that squarely places the patient at the center. He has published numerous articles and book chapters in the field and he enjoys teaching and advocating for his patients.

Pediatric Surgery

Our groundbreaking and life-saving research initiatives are supported by the National Institutes of Health (NIH), private foundations, Texas Children's and Baylor College of Medicine. Dr. Sundeep Keswani, surgical director of Basic Science Research at Texas Children's, has recently established the division's core laboratory, which functions as a basic science and translational research center for faculty investigators.





Swathi Balaji, PhD
Assistant Professor of Surgery
Pediatric Surgery
Baylor College of Medicine



Sundeeep Keswani, MD
Professor and Chief
Pediatric Surgery
Baylor College of Medicine

Keywords

- Mechanical tension
- Murine models
- Skin and lung fibrosis
- Endothelial progenitor cells

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Research Interests

Dr. Balaji's research interests are to understand the underlying mechanisms of how the fetus heals cutaneous wounds without scar and translate the findings to achieve postnatal regenerative tissue repair in various organ systems. Dr. Balaji received her doctoral degree in bioengineering from University of Cincinnati and did her postdoctoral training in the Department of Pediatric Surgery at Cincinnati Children's Hospital Medical Center.

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Keywords

- Fetal Diagnosis and Therapy
- Wound Healing
- Regenerative Medicine

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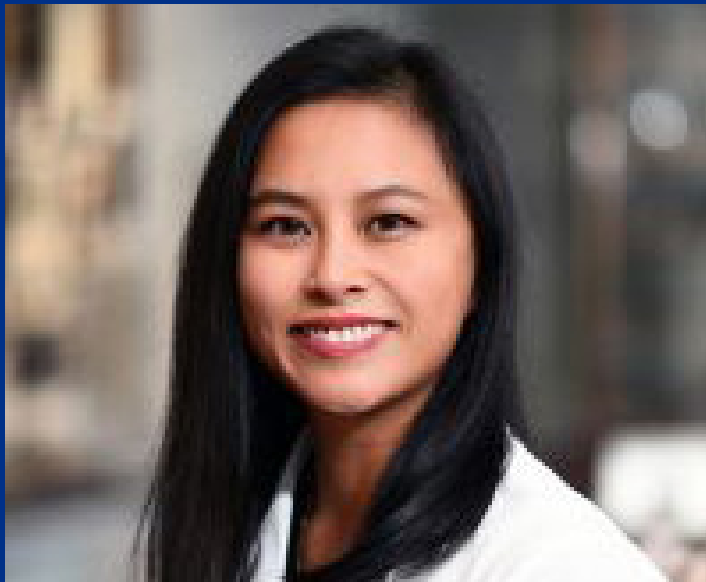
Research Interests

Dr. Keswani is a member of the pediatric surgery and fetal surgery team at Texas Children's Hospital and the principal investigator for the Texas Children's Laboratory for Regenerative Tissue Repair. Dr. Keswani completed his adult general surgery training at Louisiana State University in his hometown of New Orleans and completed his pediatric surgery fellowship at St. Louis Children's Hospital and the Washington University School of Medicine. He also completed a research fellowship and fetal surgery fellowship at the Children's Hospital of Philadelphia. Prior to coming to Texas Children's, Dr. Keswani was an attending surgeon at Cincinnati Children's Hospital.

Dr. Keswani's clinical interests are in fetal diagnosis and therapy, neonatal surgery, congenital diaphragmatic hernia, ECMO and pediatric wound care. His NIH-funded laboratory studies the molecular mechanisms of regenerative fetal tissue repair and is actively developing novel therapeutics to achieve postnatal regenerative wound healing.

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Alice King, MD
Assistant Professor of Surgery
Pediatric Surgery
Baylor College of Medicine



Louis Le, MD
Assistant Professor of Surgery
Pediatric Surgery
Baylor College of Medicine

Contact Information

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Research Interests

Prior to joining the fetal surgery team, Dr. King has done extensive research background in fetal regenerative wound healing. Her current research interests include fetal surgery to help treat life-threatening congenital abnormalities and to correct problems that would be too advance to correct after the baby is born.

Keywords

- Pediatric Surgery
- Pediatric trauma

Contact Information

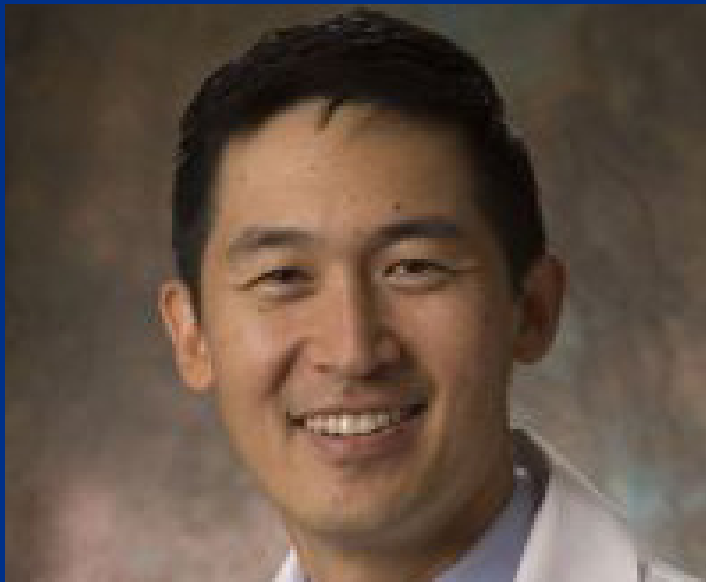
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Timothy C. Lee, MD
Professor of Surgery
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Baylor College of Medicine



Mark V. Mazziotti, MD
Professor of Surgery
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Keywords

- ECMO
- Congenital diaphragmatic hernia
- Gastroschisis
- Colorectal surgery

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Research Interests

Dr. Lee's primary focus is on improving clinical care and deriving protocol-driven patient care initiatives in the surgical neonatal ICU and within the Texas Children's Fetal Center and in the colorectal and pelvic health clinic at Texas Children's Hospital. Currently he is a collaborator in a randomized control trial on the benefit of early delivery of gastroschisis patients. Other areas of research interest include patients with congenital diaphragmatic hernia and the use of extracorporeal life support. Dr. Lee is pursuing a Masters in Clinical Research to develop expertise in management and initiation of clinical trials within the neonatal ICU and within the fetal center patient populations.

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Keywords

- Minimally-invasive pectus excavatum repair
- Minimally-invasive/robotic pediatric surgery
- Choledochal cyst laparoscopic excision

Contact Information

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Research Interests

Dr. Mazziotti's current focus is on the clinical practice of pediatric surgery in an educational setting. He has special interest and training in minimally invasive surgery, including thoracoscopic pectus excavatum repair. He has devised a novel technique for the minimally-invasive repair of pectus carinatum using conventional Nuss equipment with modifications. He has studied how various stabilization techniques have improved outcomes in pectus excavatum patients.

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Dr. Mazziotti's research interests are in clinical outcomes. He has interest in clinical outcomes for patients with biliary dyskinesia treated with laparoscopic cholecystectomy compared to patients with gallstones treated in the same fashion. He also has ongoing projects evaluating clinical outcomes in patients with perforated appendicitis, spontaneous pneumothorax, and in patients with ITP undergoing laparoscopic splenectomy.



Allen L. Milewicz, MD
Associate Professor of Surgery
Pediatric Surgery
Baylor College of Medicine



Paul Kim Miniffee, MD
Professor of Surgery
Pediatric Surgery
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Research Interests

Dr. Milewicz has extensive experience and expertise in the spectrum of pediatric surgery. He has specialized research training in liver transplant and cardiac surgery. Dr. Milewicz's current focus is on the clinical practice of pediatric surgery in an educational setting.

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Research Interests

Dr. Miniffee, primarily a clinical pediatric surgeon, has a commitment to education. He routinely provides high school and medical school mentorship through programs such as the High School Mentorship Program at Texas Children's Hospital, the Honors Premedical Academy, and the Longitudinal Ambulatory Clinical Experience (LACE) course at Baylor College of Medicine. Dr. Miniffee combines education and technology as he mentors Baylor residents and medical students on clinical rotations in pediatric surgery.

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Bindi Naik-Mathuria, MD
Associate Professor of Surgery
and Pediatrics
Pediatric Surgery
Baylor College of Medicine



Jed G. Nuchtern, MD
Professor of Surgery
Pediatric Surgery
Baylor College of Medicine

Keywords

- Pediatric trauma and injury prevention
- Pediatric surgical oncology
- Outcomes following pediatric surgery
- Global pediatric surgery

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Research Interests

Dr. Naik-Mathuria's research interest is primarily in pediatric trauma and finding ways to improve trauma care of children through prospective multi center studies, national database reviews, and system-based quality improvement. She is also interested in injury prevention, particularly firearm safety for children. Additionally, she performs outcomes studies on a variety of pediatric surgical problems, as well as solutions for global pediatric surgery. Residents who join our team would have a broad-based experience in clinical research. Obtaining a degree in public health concurrently with the research time would be an ideal complement, but is not a requirement.

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Keywords

- Neuroblastoma in infants
- Tumor progression
- Cancer target discovery

Contact Information

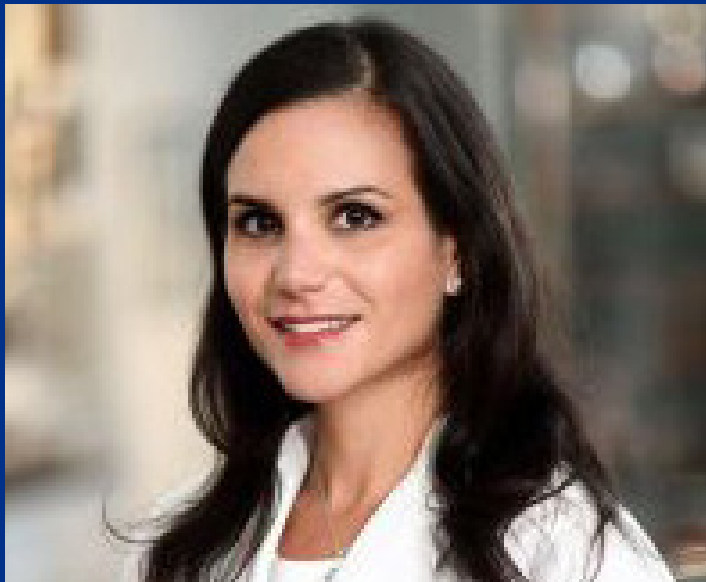
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Research Interests

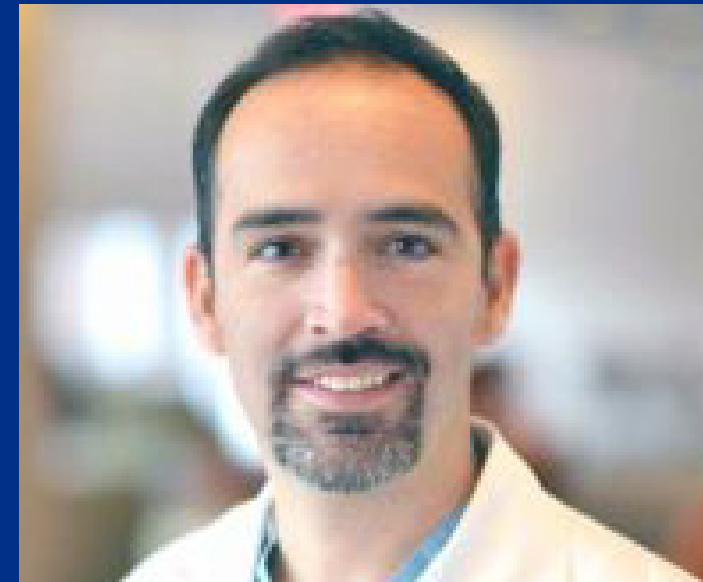
Dr. Nuchtern leads a collaborative research program that includes translational and clinical research on developing new treatments for pediatric solid tumors, particularly neuroblastoma. The primary focus in the laboratory is identifying new targets for neuroblastoma therapy. Bioinformatic studies have identified several proteins whose expression is increased in high risk neuroblastoma tumors; the laboratory has validated these findings and demonstrated that blocking expression of these targets decreases tumor growth and progression. Current research is directed toward identifying the pathways through which these molecules affect tumor progression. In addition to these translational studies, Dr. Nuchtern is involved in clinical research on neuroblastoma in infants. Through the Children's Oncology Group, he designed and implemented a prospective international study investigating the safety and efficacy of expectant observation as the primary treatment modality for infants with low risk adrenal tumors.

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Kristy Rialon, MD
Assistant Professor of Surgery
Pediatric Surgery
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Ruben Rodriguez, MD, MMSc
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Keywords

- Vascular anomalies
- Graduate medical education
- Surgical oncology

Contact Information

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Research Interests

During her residency, Dr. Rialon was awarded a research grant from the National Institutes of Health to study pancreatic cancer. She also subsequently completed a research fellowship in Vascular Anomalies at Boston Children's Hospital.

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Research Interests

Dr. José Ruben Rodríguez is a general pediatric surgeon whose research interests include improving outcomes and quality of care for pediatric trauma patients, and clinical trials to improve outcomes following general pediatric surgical operations.

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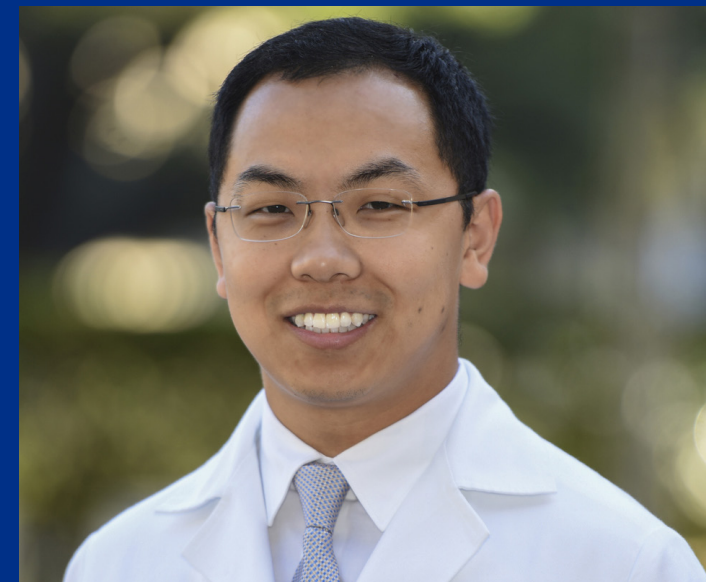


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Sohail Shah, MD, MSHA
Associate Professor of Surgery
and Pediatrics
Baylor College of Medicine



Yan Shi, MD
Assistant Professor of Surgery
Baylor College of Medicine

Keywords

- Pediatric surgery outcomes
- Patient-centered outcomes
- Healthcare delivery

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Research Interests

Dr. Shah's research interests focus on enhancing pediatric surgical outcomes, improving healthcare delivery, and establishing evidence-based practice guidelines. He has authored numerous peer-reviewed articles, written book chapters, and given dozens of presentations to national and international audiences on a full range of pediatric surgery topics. He is currently a candidate for a Master of Science in Clinical Research from the University of Kansas Medical Center.

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Research Interests

Dr. Yan Shi earned his undergraduate degree in cell biology and molecular genetics from the University of Maryland in College Park. He went on to complete a medical degree from the University of Arkansas for Medical Sciences followed by a residency in general surgery at Baylor College of Medicine. During his residency, he completed a fellowship in pediatric surgical oncology research at Baylor College of Medicine and Texas Children's Hospital. After his residency training, Dr. Shi completed a fellowship in pediatric surgery at Cohen Children's Medical Center/Northwell Health in Hyde Park, New York.

An avid researcher, Dr. Shi has written several academic papers on topics relating to pediatric malignant tumors, oncology surgery and treatment of solid pediatric tumors. He has also published several noteworthy studies related to the treatment of malignant tumors in children.

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Shawn Stafford, MD
Assistant Professor of Surgery
Pediatric Surgery
Baylor College of Medicine



Sanjeev A. Vasudevan, MD
Associate Professor of Surgery
Pediatric Surgery
Baylor College of Medicine

Keywords

- Minimally invasive surgery
- Congenital anomalies

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Research Interests

During his time at LSU he was involved in research looking at angiogenesis and its impact on malignancy and wound healing. Additionally, he was instrumental in the development of a novel injectable for sentinel lymph node dissection.

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Keywords

- Pediatric surgical oncology
- Neuroblastoma
- Pediatric liver cancer

Contact Information

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Research Interests

Dr. Vasudevan's laboratory focuses on validation of potential therapeutic targets found in pediatric solid tumors and cancer, in particular neuroblastoma and hepatoblastoma. During his postdoctoral training in the Texas Children's Cancer Center with Drs. Jed G. Nuchtern and Jianhua Yang, Dr. Vasudevan cloned two novel genes, NDSP and DUSP26, which were found to be specifically expressed in neuroblastoma and play critical roles in neuroblastoma tumor growth and chemosensitivity. Dr. Vasudevan is furthering this work as a principal investigator by focusing on the function and regulation of the p53 pathway in both neuroblastoma and hepatoblastoma. He is also helping to develop patient derived xenografts for these tumors in order to better study the biology and develop patient-specific therapies. Dr. Vasudevan's lab hopes to validate multiple targets in order to find novel and less toxic therapeutic agents to improve outcomes in neuroblastoma and hepatoblastoma.



Adam Vogel, MD
Associate Professor of Surgery
Pediatric Surgery
Baylor College of Medicine



Sarah Woodfield, PhD
Assistant Professor of Surgery
Pediatric Surgery
Baylor College of Medicine

Keywords

- Goal directed hemostatic resuscitation
- Pediatric trauma
- Extracorporeal life support

Contact Information

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Research Interests

Dr. Vogel's research focuses on improving clinical outcomes in critically ill children. He investigates the use of viscoelastic monitoring techniques in goal-directed hemostatic resuscitation and massive transfusion to improve outcomes in severely injured patients. His research focuses on the impact of nutritional adequacy on outcomes and techniques for optimizing systemic anticoagulation and mechanical ventilation during ECLS. Dr. Vogel is an active participant in several multicenter collaborative research networks whose goal is to improve the care and outcomes of pediatric surgical patients.

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Keywords

- Pediatric liver cancer

Contact Information

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Research Interests

Dr. Woodfield began as a postdoctoral trainee in the Pediatric Surgical Oncology Laboratory under the mentorship of Dr. Sanjeev A. Vasudevan, associate professor in the Division of Pediatric Surgery. Dr. Woodfield stayed in the PSOL as a co-principal investigator with Dr. Vasudevan and was a previous recipient of the Michael E. DeBaakey Department of Surgery Seed Grant and the Clayton Award from the Texas Children's Department of Surgery. Her work on pediatric liver cancer CTCs was philanthropically funded this past year by the Owls for Avery Foundation, now resulting in federal funding for this important work.

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Pediatric Plastic Surgery

Cleft palate repair has been an established surgical procedure for over 50 years, but faculty are implementing newly developed technology to bring this highly impactful procedure to children in low-resource communities around the world. As chairman of the medical board for Smile Train, Dr. Larry Hollier helps to oversee more than 2000 surgeons in 85 different countries, ensuring that cleft care is not only sustainable and scalable, but also of the highest quality. Under his leadership, Smile Train is pioneering the use of highly effective computerized simulation training, accelerating the number of qualified surgeons and support staff able to provide surgical cleft care safely. Newly integrated web-based platforms are enabling oversight of remote surgeries, providing evidence for effective and safe outcomes.

With refinement and value creation in craniofacial surgery as a focused priority among department faculty, our faculty are improving the care of patients with facial injuries and congenital impairments. Better treatments for mandibular fractures is one focus of the division, including studies evaluating the biologic response to resorbable plate and screw fixation, which enables realignment and stabilization while sidestepping future issues related to long-term metal implant complications.





Edward Buchanan, MD
Professor and Chief,
Pediatric Plastic Surgery
Baylor College of Medicine

Research Interests

Dr. Buchanan's primary research interest is in the evaluation and analysis of surgical outcomes in patients treated for cleft and craniofacial conditions. These patients suffer from specific anatomical malformations that need to be addressed at specific time points with specialized procedures. The success of these interventions is important for long-term health and quality of life. Dr. Buchanan's research focuses on understanding the best timing and types of operations for patients with cleft and craniofacial related issues.

As the head of the Cleft and Craniofacial Center at Texas Children's Hospital, I take a specific interest in patient centered outcomes. One of my primary goals is to ensure that our patients receive the world's best treatment. In order for me to do this, I must understand how the treatment experience affects them during every stage of their care. By thoroughly understanding the patient experience, their expectations, satisfactions and quality of life, our craniofacial team can truly take care of the whole patient. By studying patient centered outcomes, health care delivery can become more efficient and effective.

Keywords

- Cleft Lip and Palate
- Craniosynostosis
- Craniofacial syndromes
- Microtia Reconstruction
- Craniofacial Oncologic Reconstruction

Contact Information

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Larry H. Hollier Jr, MD
Professor of Surgery
Pediatric Plastic Surgery
Baylor College of Medicine

Keywords

- Reconstructive pediatric surgery
- Facial trauma
- Distraction osteogenesis

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Research Interests

Dr. Hollier has a broad background in craniofacial reconstruction procedures. As the chief of the largest group of full-time, academic craniofacial surgeons in the United States, he believes he has an opportunity to substantially contribute to this subject.

He has undertaken an enormous research effort focused on quantifying outcomes in craniofacial surgery. He and other senior researchers in the department are currently applying for a new NIH funded project, which will allow them to take that effort to the next level by stratifying craniosynostosis patients according to their unique genetic background. By accurately defining the true underlying genetic causes, procedures can be custom tailored for each patient and patients can be properly educated regarding their expected course of treatment. Dr. Hollier feels that this is something that has been sorely lacking in plastic surgery. For too long, plastic surgery has been a specialty where outcomes are deemed acceptable so long as the patient and their family are happy. He believes plastic surgery should be elevated to the next level of scientific scrutiny, and is dedicated to leading the endeavor.



Renata Maricevich, PhD
Associate Professor of Surgery
Pediatric Plastic Surgery
Baylor College of Medicine



Laura Monson, MD
Assistant Professor of Surgery
Pediatric Plastic Surgery
Baylor College of Medicine

Keywords

- Cleft lip and palate
- Pierre Robin Sequence
- DiGeorge Syndrome
- Craniosynostosis
- Vascular Anomalies
- Breast Surgery

Contact Information

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Research Interests

Dr. Maricevich's current research interests are in Morphology in Cleft, Pierre Robin Sequence and Craniosynostosis patients, speech outcomes on DiGeorge population, outcomes on Pediatric Breast Surgery as well as challenges in Vascular Anomalies.

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Keywords

- Clinical outcomes
- Quality of life
- Cleft lip and palate

Contact Information

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Research Interests

Dr. Monson's current research focus is on investigating the clinical outcomes of our pediatric plastic and craniofacial patients, especially our cleft patients from infancy through adulthood.



Shola Olorunnipa, MD
Assistant Professor of Surgery
Pediatric Plastic Surgery
Baylor College of Medicine



John Wirthlin, DDS, MSD
Associate Professor of Surgery
Pediatric Plastic Surgery
Baylor College of Medicine

Keywords

- 3DMD
- Cleft
- Telemedicine

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Research Interests

Dr. Olorunnipa received his undergraduate degree at Harvard University before obtaining his medical degree at Stanford University School of Medicine. He then entered the combined Plastic Surgery Residency at New York Presbyterian/Columbia and New York Presbyterian/ Weill Cornell Medical Centers in New York City. After residency, he completed additional fellowship training in craniofacial and pediatric plastic surgery at Baylor College of Medicine/Texas Children's Hospital in Houston.

Keywords

- Craniofacial development
- Pre-surgical infant orthopedics
- Cleft lip and palate orthodontics

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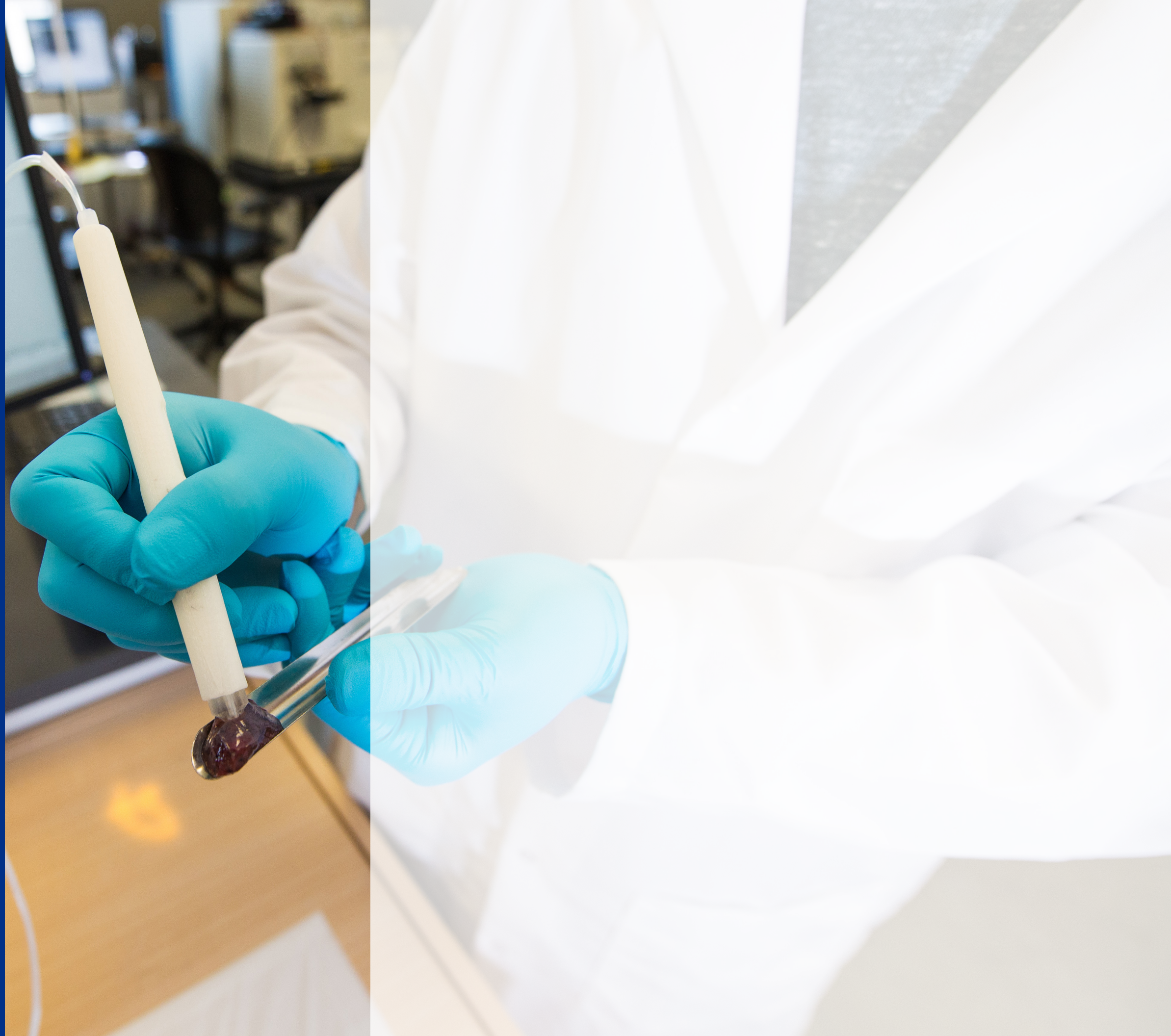
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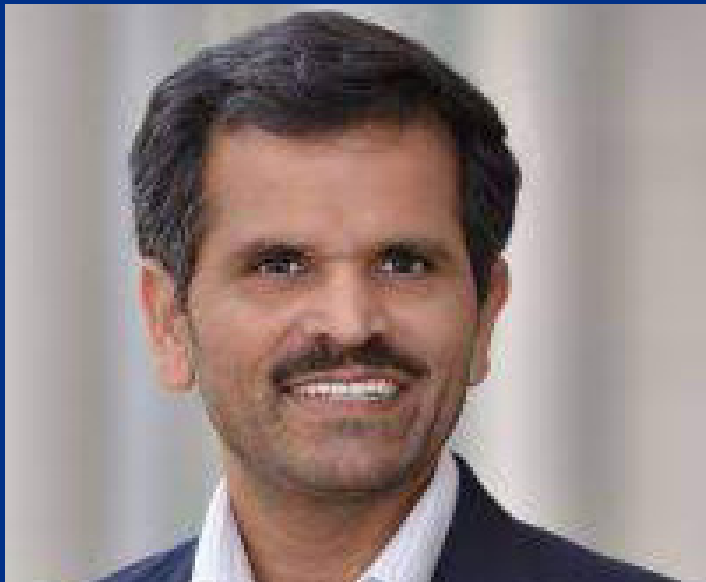


Surgical Oncology

Division researchers, in collaboration with the Dan L Duncan Comprehensive Cancer Center, specialize in translational research designed to move laboratory discoveries into the clinic to better diagnose, treat, and care for our patients. These research approaches include tissue and biomarker studies to learn more about the molecular processes that drive various diseases, development of new diagnostic devices and surgical techniques, and clinical trials for pharmaceuticals and cancer immunotherapies. Our breast surgeons are investigating management of pre-cancers of the breast and how to minimize surgery with the same outcomes by helping lead multicenter efforts to study both the development and the best method to treat ductal carcinoma in situ, a condition that can develop into breast cancer.

The pancreatic clinical research program has recently lead two NIH-funded investigator-initiated multicenter randomized clinical trials that generated practice-changing impact on the use of drains during pancreatectomy, and the subsequent development of a multicenter pancreatic surgery outcomes consortium. Our pancreas center is also a leader in correlative studies to improve diagnosis and management of CP and pancreas cancer. Our basic science lab has studied the influence of gastrointestinal hormones on pancreatic cancer growth, the relationship between diabetes and pancreatic cancer, and genomic analysis of pancreatic cancer, resulting in hundreds of recent peer-reviewed publications.





Ghanashyam Acharya, PhD
Associate Professor of Surgery
and Ophthalmology
Surgical Oncology
Baylor College of Medicine



Samir S. Awad, MD, MPH
Professor of Surgery
Vice Chair for Surgical Quality
and Safety
Baylor College of Medicine

Keywords

- Translational Nanomedicine
- Nanofabricated Drug Delivery Systems
- Ocular Drug Delivery
- Ocular Nanomedicine

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Research Interests

Dr. Acharya's research program focuses on the development of translational nanomedicine by integrating nanofabrication, 3D-nanolithography, and controlled drug delivery strategies. He works at the interface of medicine, bioengineering, chemistry and pharmaceuticals. He is currently working on developing controlled release nanowafer therapeutics, nanodrug delivery systems for wound healing and pain management, and theranostics for image-guided drug delivery. Dr. Acharya's research program is funded by NIH, CPRIT, and Alkek award for the Development of Experimental Therapeutics.

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Research Interests

Dr. Awad's research interests include investigating sepsis, decreasing surgical site infections, quality outcomes in robotic surgery, as well as investigating intra-abdominal and mesh infections.

Dr. Awad has authored more than 100 peer-reviewed and invited publications, and is the recipient of numerous awards for surgical and research achievements. Dr. Awad is certified by the American Board of Surgery and Surgical Critical Care.



Omar Barakat, MD
Associate Professor of Surgery
Surgical Oncology
Baylor College of Medicine

Keywords

- Neuroendocrine tumors
- Artificial liver

Contact Information

The Elkins Pancreas Center
Dan L Duncan Comprehensive Cancer Center
7200 Cambridge St, 7th floor
Houston, Texas 77030

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Research Interests

Dr. Barakat has developed new surgical techniques to minimize the complication rate and blood loss following pancreatic and liver surgeries. He utilizes image-guided therapies, such as radiofrequency ablation, microwave ablation, irreversible electroporation (Nanoknife system), trans-arterial chemotherapy, and selective internal radiotherapy (SIRT) with Yttrium-90 microspheres, to treat liver tumors while minimizing trauma to the patients.

Dr. Barakat's clinical and basic science research interests also include the study of neuroendocrine tumors and the development of off-the-shelf bio-artificial liver organs that can be suitable for liver transplantation in patients with end-stage liver disease.



E. Ramsay Camp, MD
Professor and Chief,
Surgical Oncology
Baylor College of Medicine

Research Interests

Dr. Camp leads an active externally funded research laboratory supported by a VA Merit Award with a focus on mechanisms of chemotherapy and radiation resistance in pancreatic and colorectal cancer. In addition, the research program is supported by an industry award from Merck to investigate a novel chemo-immunotherapy strategy for pancreatic cancer. His translational research program is focused on three overlapping concepts including: 1) Understanding the role of sphingolipid dysregulation in mediating therapy resistance for colorectal cancer; 2) Development of humanized mouse pancreatic ductal adenocarcinoma (PDAC) model to explore novel immunotherapy; and 3) Investigating ways to enhance anti-tumoral immunity for pancreatic cancer by manipulating the tumor microenvironment. His team employs a wide range of standard and advanced techniques including flow cytometry, cancer stem cell isolation and analysis, patient derived tumor organoid (PDO) and organoid biobank establishment, Patient derived xenografts (PDX), human Tumor infiltrating lymphocyte (TIL) culture, TIL mediated immunotherapy and humanized mouse models of rectal and pancreatic cancer.

Keywords

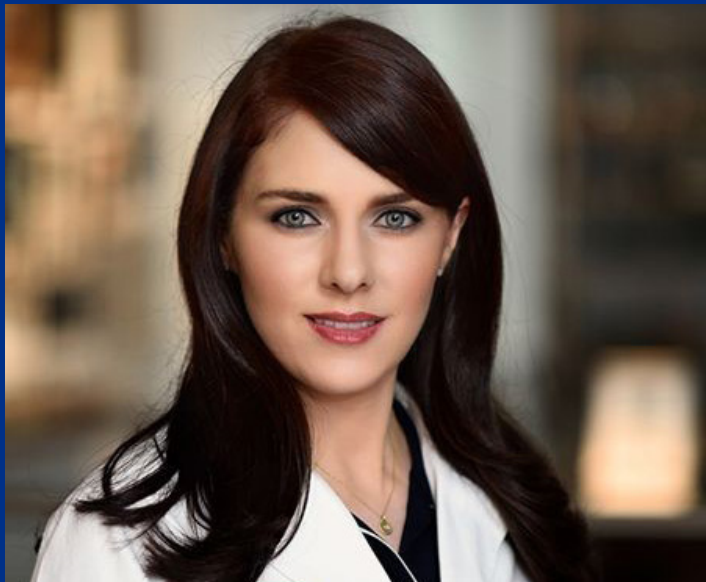
- Pancreatic cancer
- Colorectal cancer
- Immunotherapy
- Chemotherapy resistance

Contact Information

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7200 Cambridge Street
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Stacey Ann Carter, MD
Assistant Professor of Surgery
Surgical Oncology
Baylor College of Medicine



Christy Yoon-Hee Chai, MD
Associate Professor of Surgery
Surgical Oncology
Baylor College of Medicine

Keywords

- Clinical outcomes in breast cancer
- Oncoplastic surgery
- Pre-menopausal breast cancer
- Geriatric breast cancer

Contact Information

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Keywords

- Quality improvement
- Psychoneuroimmunology
- Preoperative optimization of cancer patients

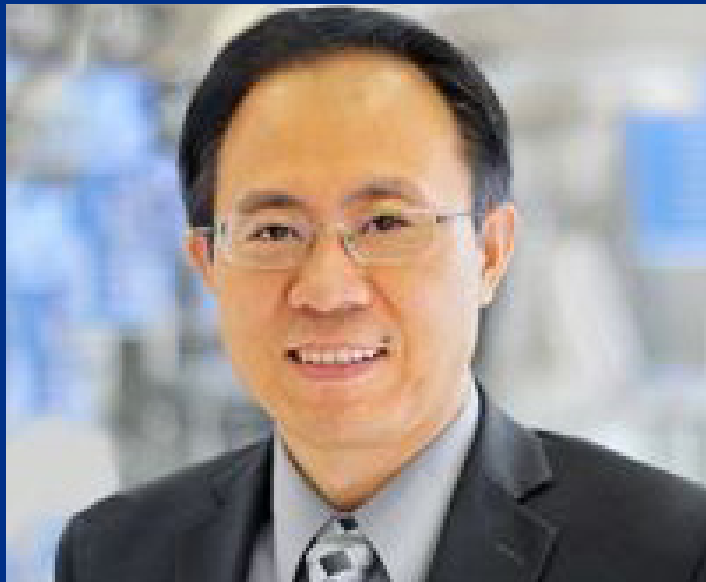
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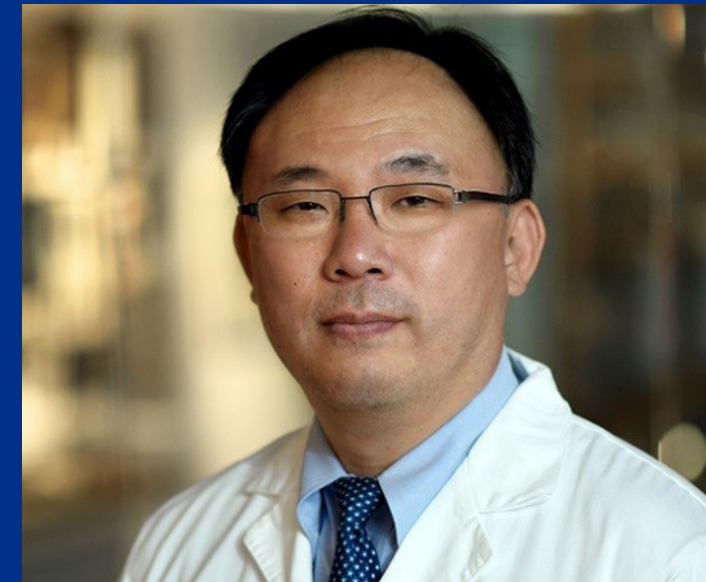
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Dr. Christy Chai is a board-certified general surgeon with advanced training in Surgical Oncology and is a fellow of American College of Surgeons. She earned her B.A in Physics and Biology from Washington University in St. Louis where she received Howard Hughes Research Scholarship and graduated with Magna Cum Laude. She continued on her education at Loma Linda University School of Medicine in California. She completed her general surgery residency at Baylor College of Medicine in Houston, TX and surgical oncology fellowship at Moffitt Cancer Center in Tampa, FL. Dr. Chai also served in the US Air Force providing cares to military service members, their dependents and veterans as a faculty at San Antonio Military Medical Center, TX. Since she separated from military service, she continues to serve our veterans at Michael E. DeBakey Veteran Affairs Medical Center as a section chief for the general surgery & surgical oncology.



Changyi Chen, MD, PhD
Professor of Surgery
Surgical Oncology
Baylor College of Medicine



Eugene Choi, MD
Associate Professor of Surgery
Surgical Oncology
Baylor College of Medicine

Keywords

- Pancreatic cancer
- Hyperuricemia and uric acid-lowering drugs
- LGA-PEI based nanotechnology
- ACE2 inhibitors and drug discovery

Contact Information

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Research Interests

Dr. Chen's laboratory is actively conducting several basic science and translational research projects that are highly relevant to clinical cardiovascular disease and pancreatic cancer. Cardiovascular risk factors and their molecular mechanisms in cardiovascular disease:

We are investigating the effects and the molecular mechanisms of several cardiovascular risk factors, including HIV protease inhibitors, the adipokine resistin, soluble CD40L, and uric acid, on biochemical pathways associated with endothelial cell functions. Some of the biochemical pathways under investigation are the endothelial nitric oxide synthase system, the oxidative stress system, and signal transduction pathways. We are carrying on these investigations using several experimental models, such as myographies, organ cultures, mouse models, human tissue samples, and different types of endothelial cells. Based on the molecular mechanisms we uncover, we develop effective therapeutic strategies to treat endothelial dysfunction and atherosclerosis.

Keywords

- Metastasis
- Cell Signaling
- Gastrointestinal Cancers
- Soft tissue sarcoma
- GIST
- Melanoma

Contact Information

Dan L Duncan Comprehensive Cancer Center
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Houston, TX 77030

Research Interests

Dr. Choi's research interests include the signaling mechanisms of GI cancer and soft tissue sarcoma metastasis and development of novel drug therapies for peritoneal malignancies.

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Livia Schiavinato Eberlin, PhD

Associate Professor of Surgery
Surgical Oncology
Director, Interdisciplinary
Surgical Technology and
Innovation Center (INSTINCT)
Baylor College of Medicine

Keywords

- Mass spectrometry
- Cancer diagnosis
- Medical devices

Contact Information

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Dr. Eberlin and her research team are the recipients of many honors and awards for their scientific research, including a NIH/NCI K99/R00 Pathway to Independence Award, a Forbes 30 under 30 listing in the Healthcare category, a Moore Inventor Fellowship, and a MacArthur Fellowship in 2018. Her research group is funded by grants from the NIH, CPRIT and other research foundations. Additionally, Dr. Eberlin has published more than 80 peer-reviewed research articles in top-rated journals such as *PNAS*, *Science Translational Medicine*, *Nature Communications*, *Cancer Research*, and *Clinical Chemistry*.

Dr. Eberlin's research program centers around the development and application of novel mass spectrometry technologies in health-related research, with a particular focus on disease detection and diagnosis to improve patient care and clinical outcomes.



William E. Fisher, MD
Professor and Vice-Chair for
Clinical Affairs
Department of Surgery
Baylor College of Medicine

Keywords

- Pancreatic cancer
- Gene sequencing
- Clinical trials/outcomes/quality

Contact Information

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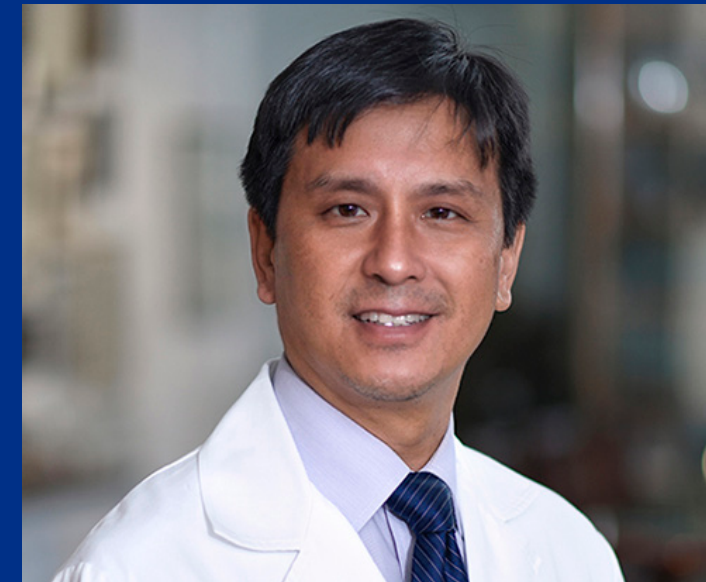


Research Interests

Dr. Fisher has focused his entire career on pancreatic cancer and is internationally known for his clinical work as a pancreatic surgeon, basic science research and clinical research in pancreatic cancer. As Director of the Elkins Pancreas Center at Baylor College of Medicine (BCM) he has developed and coordinates clinical care for a large pancreatic cancer patient population as well as basic science and clinical research related to pancreatic cancer being performed at BCM. Dr. Fisher established a pancreatic cancer tissue resource and extensive clinical database which serve as a vital resource for research. Dr. Fisher's lab has studied the influence of gastrointestinal hormones, particularly somatostatin and its receptors, on pancreatic cancer growth, and the relationship between diabetes and pancreatic cancer. Dr. Fisher has also collaborated on projects examining the role PDX-1 as an oncogene, gene therapy, oncolytic virotherapy, vaccination with virus-like particles, and adoptive T-cell immunotherapy for pancreatic cancer. Dr. Fisher is also actively collaborating with investigators in the Human Genome Sequencing Center at BCM on studies sequencing the genome of pancreatic cancer and the detection of circulating DNA in pancreatic cancer patients. Dr. Fisher leads a team of research clinicians dedicated to translating discoveries from the bench to the bedside and has served as principal investigator on more than 15 clinical trials for patients with pancreatic cancer.



Raymon Grogan, MD, MS
Associate Professor of Surgery
Surgical Oncology
Baylor College of Medicine



Cary Hsu, MD
Assistant Professor of Surgery
Surgical Oncology
Baylor College of Medicine

Keywords

- Parathyroid
- Thyroid
- Hyperparathyroidism

Contact Information

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Research Interests

Dr. Grogan runs a well-known translational research program. He has a Master of Science with a focus on epidemiology and biostatistics. He is the Principal Investigator and founder of the North American Thyroid Cancer Survivorship Study, which is a longitudinal cohort study that currently has nearly 3,000 participants enrolled and continues to expand. Through this work Dr. Grogan has published several novel findings related to thyroid cancer survivorship and has helped start a national discussion on ways to improve quality of life in these patients. In addition to this Dr. Grogan has published several papers on health outcomes related to endocrine surgery as well as translational papers on the genetics and epidemiology of endocrine diseases. Most recently Dr. Grogan has begun research on the relationship between the human microbiome and thyroid disease. In 2017 he was awarded the prestigious Paul LoGerfo Research Grant from the American Association of Endocrine Surgeons to study this relationship.

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Keywords

- Breast Surgery
- Surgical Oncology
- Clinical Trials

Contact Information

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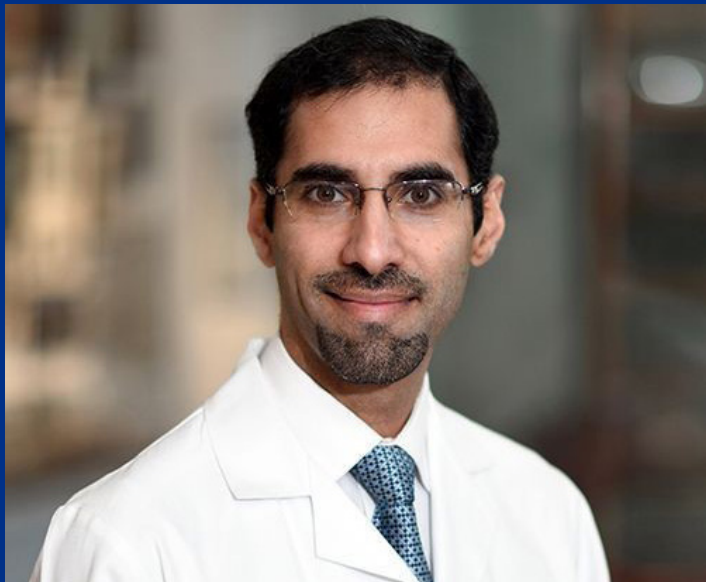
Research Interests

Dr. Hsu earned a degree in Cellular and Molecular Biology at the University of Michigan and completed medical school at Temple University School of Medicine. He completed his residency at UCLA and a clinical fellowship at the National Cancer Institute. Dr. Hsu received fellowship training in surgical oncology at MD Anderson Cancer Center.

Dr. Hsu's clinical interest is in the multidisciplinary management of solid tumors. The multidisciplinary team at Ben Taub is committed to providing evidence-based, state of the art care for all cancer patients. Dr. Hsu is also engaged in the training of students and residents at the Baylor College of Medicine. Dr. Hsu's research interests include clinical outcomes in surgical oncology, translational research, and clinical trials.

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Atif Iqbal, MD
Associate Professor and Chief,
Section of Colorectal Surgery
Division of Surgical Oncology
Baylor College of Medicine



Yesenia Rojas-Khalil, MD
Assistant Professor of Surgery
Surgical Oncology
Baylor College of Medicine

Keywords

- Health-science
- Outcomes
- Colorectal cancer
- Inflammatory Bowel Disease

Contact Information

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Research Interests

Dr. Iqbal's research interests focus on health services & outcome-based translational research in colorectal pathology with a focus on rectal cancer outcomes, inflammatory bowel disease markers and institution of enhanced recovery programs after surgery. Other interests include quality improvement projects to improve colorectal infection and leak rates, evaluating newer surgical techniques and integrating artificial intelligence into real-time surgery. He has >130 research publications, presentations and posters.

Dr. Iqbal is a member of Alpha Omega Alpha medical honor society. He is recognized nationally as a colorectal cancer expert and is currently serving as an elected surgical expert on the NCI Rectal-Anal Task Force and the Colon task force of the GI steering committee. He is actively involved with the American College of Surgeons (ACS), American Society of Colon and Rectal Surgeons, and NRG Oncology. He has earned honors for his research presentations to the ACS, Society of American Gastrointestinal and Endoscopic Surgeons and the Commission on Cancer.

Keywords

- Colon and rectal cancer
- Inflammatory bowel disease
- Pelvic floor disorders

Contact Information

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Research Interests

Dr. Rojas-Khalil has authored and co-authored many original research publications, in addition to contributing to surgical textbook chapters in Current Surgical Therapy, Scientific American Surgery, and The SCORE Curriculum for resident education. She is also the Spanish Video Commentator and Contributing Abstract Translator for Diseases of the Colon and Rectum (DC&R), the official journal for the American Society of Colon and Rectum Surgeons (ASCRS). Dr. Rojas-Khalil is an active member of the American College of Surgeons (ACS) and American Society of Colon and Rectum Surgeons (ASCRS).



Crystal S. Shin, PhD
Assistant Professor of Surgery
Surgical Oncology
Baylor College of Medicine



Eric J. Silberfein, MD
Associate Professor of Surgery
Surgical Oncology
Baylor College of Medicine

Keywords

- 3D-Fabrication
- Biomaterials
- Drug Delivery

Contact Information

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Research Interests

Dr. Shin's translational research program focuses on developing biomaterials for pharmaceutical and surgical applications. By integrating nanotechnology and 3D-fabrication technology including 3D bioprinting and electrospinning, she has developed broadly applicable drug delivery systems with enhanced therapeutic efficacy. Her current research focus is to develop biopolymer-based antimicrobial wound dressings and surgical meshes to improve clinical outcomes.

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Keywords

- Solid organ malignancy
- Resident training

Contact Information

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Research Interests

Dr. Silberfein's research interests include the natural history of solid organ tumors as well as the multidisciplinary therapy of solid organ malignancy. Further interests include the education of residents and medical students by improving knowledge and skills through formal curriculum.

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James W. Suliburk, MD
Associate Professor of Surgery
Surgical Oncology
Chief, Endocrine Surgery
Baylor College of Medicine

Keywords

- Mobile Technology
- Patient Engagement
- Safety & Quality in Surgery

Contact Information

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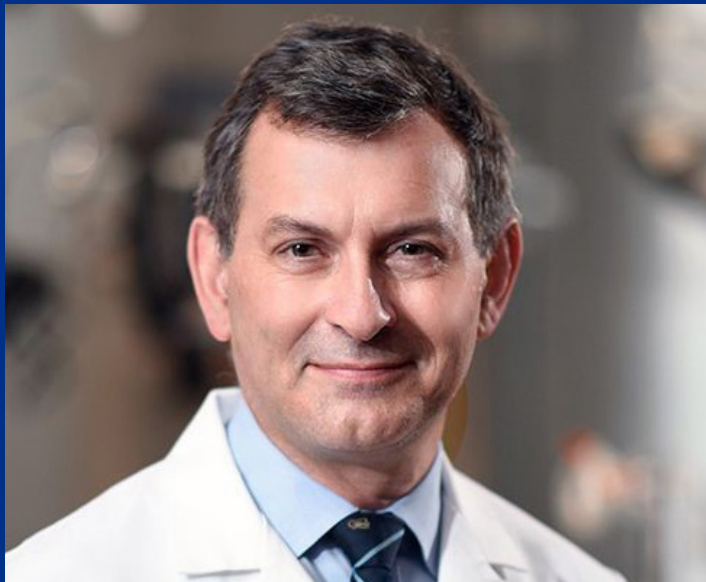


Research Interests

Dr. Suliburk's research program offers opportunities in translational science, clinical outcomes and technology development/innovation. Research interests include clinical outcomes in endocrine surgery, outcomes in acute care and trauma surgery, surgical disparities and application of mobile technology to improve peri-operative surgical care, patient engagement and communication. The research comes from the establishment of a comprehensive and multidisciplinary treatment of endocrine surgical program at Ben Taub Hospital and Baylor St. Luke's Medical Center.

Translational research opportunities include development of novel molecular markers to predict outcome in endocrine surgical disease (thyroid cancer, hyperthyroidism, hyperparathyroidism, and adrenal tumors) as well as metabolic markers of the endocrine response in severely injured major trauma patients. Clinical research includes outcomes analysis of access to care for underserved populations undergoing endocrine surgery along with developing novel percutaneous surgical approaches to treat thyroid, parathyroid and adrenal disease and ongoing refinement of hemorrhagic shock resuscitation strategies to improve survival in our trauma patients.

Exciting work has recently begun in technology and innovation. Mobile technology has become an ever-present part of daily life and we have now begun to study and apply methods of utilizing automated mobile technology to improve communication with patients for detection of impending complications and to supplement peri-operative care for surgical patients. Finally and perhaps most importantly, we have launched a program to enhance safety in surgery through the a human factors engineering based approach to analyze surgical complications across the entire adult hospital system of Baylor.



**Alastair Thompson,
BSc, MBChB, MD**
Professor and Chief,
Breast Surgery
Oncology
Baylor College of Medicine



George Van Buren, II, MD
Associate Professor of Surgery
Surgical Oncology
Baylor College of Medicine

Keywords

- DCIS
- Triple Negative Breast Cancer
- Clinical translational trials

Contact Information

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Research Interests

Dr. Thompson has served as principal investigator on landmark breast cancer clinical trials, including SOLE, MA 32, MINDACT and KRISTINE trials. He currently chairs the Translational Medicine Breast Group of the Southwest Oncology Group (SWOG); co-chairs the Loco-regional Steering Group of the Translational Breast Cancer Research Consortium (TBCRC), is a member of the NCI BOLD taskforce and of the Early Breast Cancer Trialists' Collaborative Group, is national co-investigator and correlative science lead for the Comparison of Operative to Monitoring and Endocrine Therapy (COMET) trial for low-risk DCIS, and co-chairs the NCI-Breast Cancer Steering Committee-proposed "no surgery" clinical trial planning committee. Dr. Thompson also continues to chair the Sloane Project (the NHS Breast Screening Programme non-invasive prospective cohort study of 13,000 women), which is the largest prospective study of screen detected DCIS in the world. He is co-author of over 350 publications.

Keywords

- Pancreatic cancer
- Gastrointestinal malignancies
- Whipple procedure

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Research Interests

Dr. Van Buren's primary area of interest is pancreatic cancer and gastrointestinal malignancies including gastric cancer and neuroendocrine tumors. I am interested in development of clinical trials, analysis of clinical outcomes in pancreatic cancer patients, and genomic analysis of pancreatic cancer patients. Currently he is involved in a Clinical Trial of a Phase III Study of FOLFIRINOX with or without HyperAcute®-Pancreas (algenpantucel-L) Immunotherapy in Subjects with Borderline Resectable or Locally Advanced disease. He is also involved with collaborations to perform genomic analysis of pancreatic cystic fluid and analysis of serum in pancreatic adenocarcinoma patients for circulating tumor cells. He also has an interest in evaluation of patients with pancreatitis and predicting pancreas cancer in that population.



Qizhi Cathy Yao, MD, PhD
Professor of Surgery
Surgical Oncology
Baylor College of Medicine

Keywords

- Pancreatic cancer
- HIV
- Immunotherapy
- Mesothelin
- MicroRNA
- Nanoparticle targeted delivery
- Vaccine

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Research Interests

Dr. Yao's research programs include HIV vaccine development, pancreatic cancer pathogenesis, and therapy.

HIV Vaccines

My lab is interested in developing non-infectious HIV virus-like particles (VLPs) as candidate HIV mucosal vaccines for both preventive and therapeutic purposes. In preclinical studies, VLPs formed by structural proteins are highly immunogenic and capable of inducing protective immunity against various viral infections. We have modified vaccine immunogens into chimeric HIV VLPs which contain influenza viral surface glycoprotein HA or other immunologically functional molecules. We have shown that the chimeric HIV VLPs can induce enhanced humoral and cellular immune responses against HIV in a mouse model.

We have also studied the basic mechanisms of VLP-induced humoral and cellular immune responses, and other factors that affect these responses. For example, we found that VLP vaccines activate conventional B2 cells and promote B cell differentiation to IgG2a producing plasma cells; that VLP vaccines travel to the lymph nodes upon immunization and can be directly visualized by optical imaging techniques; and that intradermal immunization generates improved responses and might be a preferable delivery route for viral and cancer immunotherapeutic studies involving VLPs.

Since dendritic cells (DCs) have long been known to be pivotal in initiating immune responses, we are also interested in how VLPs modulate DC functions and will evaluate the efficacy of VLP-pulsed DC vaccines. In addition, we are testing the efficacy of modified chimeric VLP oral-mucosal immunization with novel vaccine adjuvants in non-human primates.

Pancreatic cancer pathogenesis and therapy

Pancreatic cancer has one of the highest mortality rates and ranks as the third leading cause of cancer death in North America. Survival is poor because there are no reliable tests for early diagnosis and no effective therapies to treat metastatic disease. There is a need to better understand the molecular mechanisms of pancreatic cancer tumorigenesis and to develop effective treatments. My lab currently focuses on the study of key molecules in pancreatic cancer, including mesothelin (MSLN), trop2, and semaphorin 3E, and in their mechanisms of regulation. I am also interested in the involvement of microRNAs (miR-198) in pancreatic cancer, and how their dysregulation leads to pathogenesis. We are also currently exploring tumor-associated molecule targeted therapies and RNA interference delivery by liposomes and nanoparticles in vivo. Our group has shown that vaccinating mice with chimeric virus-like particles containing MSLN significantly inhibited tumor progression, suggesting a new therapeutic vaccine strategy whereby MSLN is targeted to attempt to control pancreatic cancer progression. We are also employing a K-ras mutation spontaneous pancreatic cancer mouse model, humanized tumor-bearing mouse model, and patient-derived xenograft (PDX) model to study prevention and the potential of our therapeutic regimens in pancreatic cancer.

Trauma and Acute Care Surgery

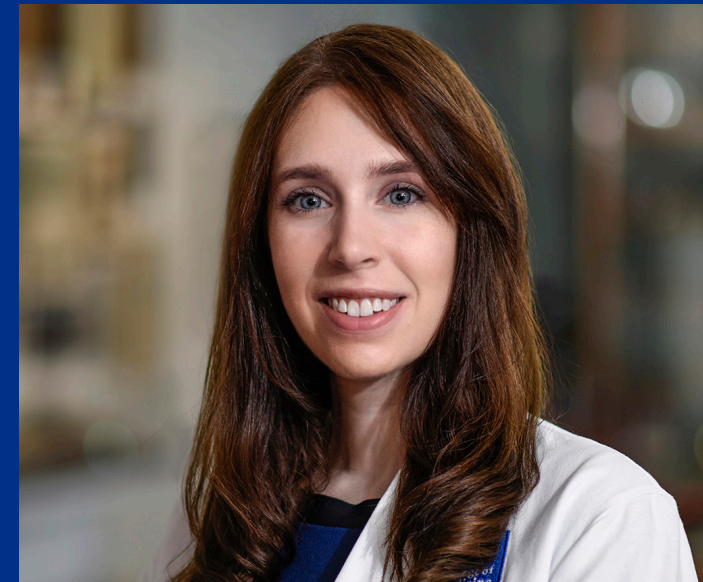
Our faculty are leaders in their field through their contributions to the advancement of surgical practice. The whole gamut of surgical research is embraced by our division members from basic science research, to outcomes research, to leadership on multicenter randomized clinical trials. As a result of our research efforts, patients receive specialized diagnostic assessment; access to the newest treatment modalities, including clinical trials of new pharmacologic therapies and emerging surgical techniques; and coordinated follow-up of their care at all of our clinical sites.

Faculty provide important evidenced-based care for some of Houston's most acutely injured patients. Faculty from the Division of Trauma and Acute Care Surgery staff the trauma center at Harris Health's Ben Taub Hospital. Our surgeons integrate the best of science and innovative technology with sound outcomes research as they treat patients suffering life-threatening injuries caused by blunt and ballistic trauma. Patients with acute surgical illness due to causes other than trauma at Ben Taub, the Michael E. DeBakey VA Medical Center, and Baylor St. Luke's Medical Center are treated by division clinicians who specialize in emergency general surgery and the management of critically ill patients in the intensive care unit.





Subhasis Chatterjee, MD
Associate Professor of Surgery
Trauma and Acute Care Surgery
Cardiothoracic Surgery
Baylor College of Medicine



Rachel W. Davis, MD
Assistant Professor of Surgery
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Keywords

- ICU scoring systems
- LVAD
- ECMO

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Research Interests

Dr. Chatterjee's basic science areas of investigation included an NIH-sponsored grant for gene therapy in ischemia-reperfusion injury after myocardial infarction. He has participated and served as an investigator in a number of clinical trials. His clinical focus in research is in mechanical circulatory support, resource utilization, and critical care scoring systems for the care of cardiothoracic surgical patients.

Keywords

- Global surgery

Contact Information

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Research Interests

Dr. Rachel W. Davis attended Baylor College of Medicine for both medical school and residency, where she was elected to the Alpha Omega Alpha Honor Medical Society and the Gold Humanism Honor Society. As a general surgery resident, she created and developed the Global Surgery Residency Track, the first dedicated global surgery training program in the NRMP match. Since 2014, she has worked with the Department of Surgery to build educational opportunities in global surgery for trainees and professionals, including the Diploma Course in Tropical Surgery, Obstetrics, and Gynecology in conjunction with the National School of Tropical Medicine. Dr. Davis has worked toward expansion of surgical access in Ecuador, Guatemala, Malawi, Mongolia, Nepal, and Tanzania. She is chair of the American College of Surgeons Resident and Associate Society (RAS-ACS) Global Surgery Work Group and a member of the Houston Global Health Collaborative Board of Directors.



Marcus Hoffman, MD
Assistant Professor of Surgery
Trauma and Acute Care Surgery
Baylor College of Medicine



Michele Loor, MD
Associate Professor of Surgery
Trauma and Acute Care Surgery
Vice-Chair, Outreach and Inclusion
Baylor College of Medicine

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Research Interests

Dr. Hoffman's research interests include frailty and debility of trauma and critical illness. Dr. Hoffman has a strong interest in medical student and resident education.

Contact Information

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Research Interests

Dr. Loor's research interests include surgical critical care, surgical infections, preoperative optimization, and enterocutaneous fistulas.

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Claire F. Ozaki, MD
Associate Professor of Surgery
Trauma and Acute Care Surgery
Baylor College of Medicine



Bradford G. Scott, MD
Professor of Surgery
Vice Chair for Education
Trauma and Acute Care Surgery
Baylor College of Medicine

Keywords

- Liver Disease

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Research Interests

Dr. Ozaki, was born in St. Louis, Missouri and grew up in Hawaii and Nebraska. In 1984, she received her M.D. degree from the University of Nebraska College of Medicine in Omaha. After completing a 6-year surgical residency which included one year of research, she stayed at the University of Nebraska and completed a two year transplant surgery fellowship, specializing in liver, kidney and pancreas transplantation.

Dr. Ozaki is board certified in general surgery and has been performing complex abdominal surgeries since 1990. She now specializes in acute care general surgery. Dr. Ozaki and the acute care surgery team apply the most innovative surgical techniques and evidence-based care delivery methods, work as a team to be readily available to our patients, and achieve the highest published standards of surgical outcomes.

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Research Interests

Dr. Scott's clinical and research studies focus on surgical education, resuscitation of the trauma patient, care for the open abdomen, methodologies for complex abdominal wall reconstruction, invention of novel materials repair of hernias and as well as surgery of the foregut.

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Catherine Seger, MD
Assistsant Professor of Surgery
Trauma and Acute Care Surgery
Baylor College of Medicine



Robert Ellis Southard, MD
Assistant Professor of Surgery
Trauma and Acute Care Surgery
Baylor College of Medicine

Keywords

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Research Interests

Catherine Seger, MD, received her medical degree from University of Texas Medical School at Houston. She completed her residency at Baylor College of Medicine in general surgery.

Dr. Seger completed her training with a fellowship in surgical critical care at University of Tennessee Health Science Center in Memphis, where she subsequently remained as a faculty physician before returning to Baylor College of Medicine.

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Keywords

- Trauma
- Immune function
- Infection

Contact Information

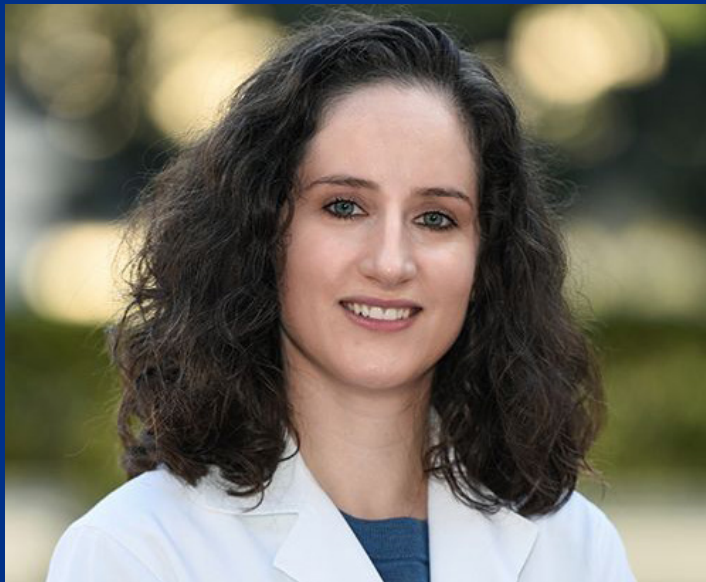
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Research Interests

Dr. Southard's research interests involve determining why critically ill and injured patients develop hospital-acquired infections.

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Galina Toneva, MD
Assistant Professor of Surgery
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Keywords

- Myocardial depression in septic shock

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Research Interests

Dr. Galina Toneva graduated from Rice University with a B.S. in Biochemistry and Cell Biology in 2008 and earned her M.D. from the University of Alabama School of Medicine in 2013. Following medical school, Dr. Toneva completed the General Surgery Residency Program as well as the Surgical Critical Care Fellowship (2018-2019) at Baylor College of Medicine.

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Barbara W. Trautner, MD, PhD

Professor of Surgery
Director of Clinical and Health
Services Research
Department of Surgery
Baylor College of Medicine

Keywords

- Urinary tract infections
- Healthcare-associated infections
- Antimicrobial stewardship

Contact Information

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Research Interests

Dr. Trautner is an infectious diseases clinician-investigator at Baylor College of Medicine and the Michael E. DeBakey Veterans Affairs Medical Center, affiliated with the Center for Innovations in Quality, Effectiveness, and Safety (IQuES_t). Her primary research interest is the development of new strategies for the prevention of catheter-associated urinary tract infection (CAUTI). She has worked in this area for the past 17 years, supported first by an NIH K23 award and then by a VA Career Development Award. While on career development award support, Dr. Trautner obtained her PhD in clinical investigation from Baylor College of Medicine Graduate School of Biomedical Sciences. Her interest in CAUTI prevention has led her to develop two productive branches of investigation, one in health services research and one in microbiology translational research.

Dr. Trautner's outcomes research has focused on reducing antimicrobial overuse, particularly for the extremely common condition of catheter-associated asymptomatic bacteriuria. Her team completed a successful VA Health Services Research and Development merit review project utilizing guidelines implementation to decrease inappropriate treatment of catheter-associated asymptomatic bacteriuria and is now disseminating this intervention, both inside and outside the VA.



R. Mario Vera, MD
Assistant Professor of Surgery
Trauma and Acute Care Surgery
Baylor College of Medicine



Jeremy Ward, MD
Assistant Professor of Surgery
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Keywords

- Trauma surgery
- General surgery
- Acute care surgery
- Critical care

Research Interests

Dr. Vera's interests are trauma, emergency general surgery, and critical care.

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Keywords

- Acute care surgery
- Trauma surgery
- Surgical critical care

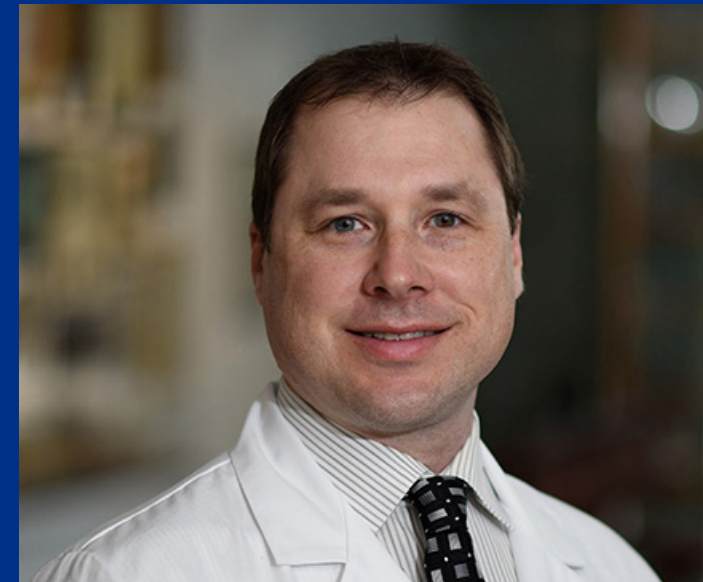
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Chad Wilson, MD, MPH
Associate Professor of Surgery
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Baylor College of Medicine



Martin D. Zielinski, MD
Chief, Division of Trauma and
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Baylor College of Medicine

Keywords

- Trauma epidemiology
- Global surgery
- Healthcare disparities

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Research Interests

During surgical residency, Dr. Wilson he took a two year hiatus from clinical work to concentrate on research and completed the VA Outcomes Fellowship at the White River Junction VA in Vermont while simultaneously earning a MPH in 2006 from the Dartmouth Medical School's Center for the Evaluative Clinical Sciences in Hanover, New Hampshire.

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Keywords

- Hemorrhage resuscitation
- Small bowel obstruction
- Artificial Intelligence solutions

Contact Information

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Dr. Martin Zielinski received his undergraduate and medical degree at the University of Minnesota in Minneapolis. After his formal education was complete, he transitioned to Mayo Clinic in Rochester, MN as a resident in Surgery. He stayed at Mayo Clinic for additional training in Surgical Critical Care. He was then hired as a staff surgeon in the Division of Trauma, Critical Care and General Surgery. While there, he developed research interests in small bowel obstruction management and novel blood products for hemorrhage resuscitation. He quickly advanced and was named the first Professor of Surgery within his Division. After 18 years at Mayo Clinic, he is excited to transition his career to leadership as the Chief of Trauma and Acute Care Surgery at Baylor Medical Center.

Vascular Surgery and Endovascular Therapy

Our research ventures are broad and focus on the development of new technologies and methods to prevent and treat a variety of vascular conditions. This research covers a wide range of endeavors from preventing falls and measuring frailty with wearable technologies, to preventing amputations by developing novel endovascular techniques to treat peripheral artery disease, to developing novel open, hybrid and endovascular therapies. A major focus at all three institutions is limb salvage and amputation prevention, which is based on the internationally accepted SVS WiFi classification system, developed by our faculty, and utilizes seamless integration of vascular and podiatric care.

Our group is a leader in peripheral arterial disease (PAD), endovascular aneurysm repair (EVAR) and fenestrated EVAR (FEVAR) trials. One of our faculty, Dr. Panos Kougiyas, is the driving force and national PI of a \$17 million Federal grant to study postoperative anemia and the threshold for transfusion in vascular surgery patients. We collaborate with multiple facilities, analysts, and research teams worldwide to foster advances in the field of vascular health. Among many other grants funded by federal or non-governmental agencies, we recently completed a PCORI grant to reduce amputations and disparities within Harris Health System, our municipal health authority. Our faculty and trainees routinely present their work at the annual meetings of nearly all of the major vascular professional societies, with subsequent publications in the highest ranked surgical journals.





Neal R. Barshes, MD, MPH
Associate Professor of Surgery
Vascular Surgery and
Endovascular Therapy
Baylor College of Medicine



Justin Chin-Bong Choi, MD
Assistant Professor of Surgery
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Keywords

- Diabetic foot ulcers
- Diabetic limb salvage
- Infrainguinal bypass

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Research Interests

Dr. Barshes is an academic vascular surgeon who focuses on the treatment of foot infections and peripheral artery disease. His research activities have spanned the spectrum of care for this problem, including: foot ulcer prevention efforts; the microbiology of isolates involved in foot infections; patient selection for revascularization; the timing of soft tissue reconstruction after revascularization; and the cost-effectiveness of prevention and management strategies for peripheral arterial disease and non-healing foot ulcers. The clinical research methodologies used to investigate the research questions for these clinical topics have included randomized controlled trials, large database research, retrospective cohort studies with multivariate analyses and/or propensity scoring, and Markov model simulation with formal cost-utility analyses. Current efforts and plans for future direction include further studies are also focused on further optimizing the value of limb preservation efforts, especially through the improved coordination of multidisciplinary care within the context of a vertically-integrated health care system.

Keywords

- Patient Quality and Safety
- Limb Salvage

Contact Information

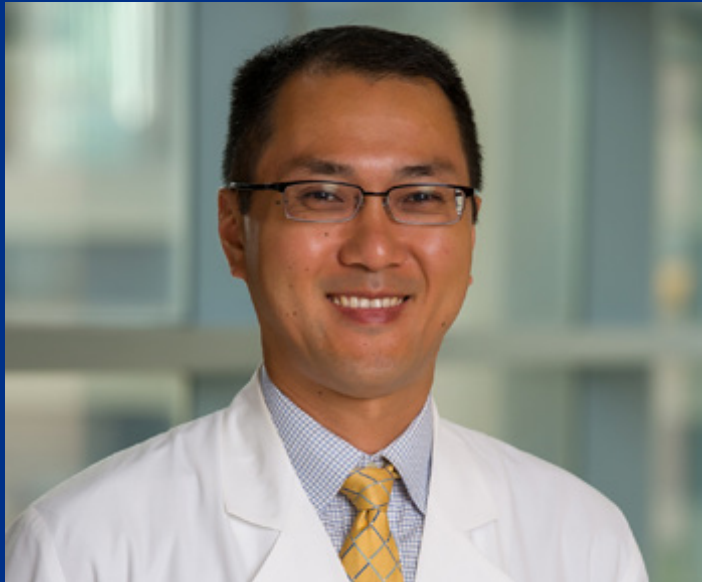
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Research Interests

Dr. Choi is a vascular surgeon specializing in all aspects of the diagnosis and treatment of vascular diseases, including a wide variety of arterial and venous disorders. Dr. Choi received his undergraduate degree in Biomedical Engineering with a focus on Cell and Tissue Engineering at The University of Texas at Austin and his medical degree from Baylor College of Medicine. He completed his internship, general surgery residency, and a postdoctoral research fellowship in the Division of Cardiothoracic Surgery at Baylor College of Medicine. He subsequently completed a fellowship in Patient Quality and Safety at the MEDVAMC. He then completed his vascular surgery fellowship at MedStar Washington Hospital Center/Georgetown University.



Jayer Chung, MD, MSc
Associate Professor of Surgery
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Ramyar Gilani, MD
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Keywords

- Diabetic foot
- Lower extremity revascularization
- Chronic critical limb ischemia

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Keywords

- Vascular and endovascular interventions
- New paradigms in hemorrhage control
- Blood vessel prosthesis implantation

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Research Interests

Dr. Gilani's research interest is in the clinical outcome of vascular surgical reconstructions and endovascular interventions, specifically in endovascular treatment of aortic aneurysms, venous disease, and endovascular treatment of lower extremity occlusive disease.

Dr. Gilani has contributed numerous articles to scholarly and professional journals such as Journal of Vascular Surgery, Vascular and Endovascular Surgery, Vascular Journal, and Journal of Endovascular Therapy. He has written many book chapters related to vascular disease management.



Erin Greenleaf, MD
Assistant Professor of Surgery
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Natasha Hansraj, MD
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Keywords

- Clinical outcomes
- Vascular surgery

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Research Interests

Dr. Erin K. Greenleaf completed her master's degree in forensic science at George Washington University in Washington, D.C., while working for the federal government. She received her medical degree from Jefferson Medical College of Thomas Jefferson University in Philadelphia and went on to complete a general surgery internship and residency at Penn State M.S. Hershey Medical Center in Hershey, Pennsylvania.

Dr. Greenleaf also completed a research fellowship in clinical outcomes, with academic contributions in the fields of vascular surgery and oncology. Following her residency, she completed her fellowship in vascular surgery at the Washington University School of Medicine in St. Louis. Dr. Greenleaf is certified by the American Board of Surgery in general surgery and is currently serving in the U.S. Army Reserves as a general surgeon.

Keywords

- Limb salvage
- Tibial intervention
- Cerebrovascular disease
- Blood vessel prosthesis implantation

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Research Interests

Dr. Natasha Hansraj has extensive experience in an array of endovascular procedures with a focus on aortic aneurysms and limb salvage. She is currently involved in a few key research projects including, "Gender and race disparities in early operations for symptomatic carotid disease in Texas Hospitals."

Dr. Hansraj has published 16 papers in major medical journals, over half as first author. She has also written three book chapters, including "Parathyroid Carcinoma" in the Textbook of General Surgical Oncology. Along with colleague Dr. Miguel Montero, associate professor in the Division of Vascular Surgery and Endovascular Therapy, she co-created the Houston Technical Forum, which brings together different specialties to discuss complex cases in vascular disease.



Brian D. Lepow, DPM
Assistant Professor of Surgery
Vascular Surgery and
Endovascular Therapy
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Joseph L. Mills Jr., MD
Professor and Chief
Vascular Surgery and
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Keywords

- Diabetic foot
- Limb salvage
- Amputation prevention

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Keywords

- Limb salvage/Diabetic Foot
- Peripheral artery disease (PAD)
- Vein graft stenosis
- Endovascular therapy
- AAA

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Research Interests

Dr. Mills has authored nearly 300 peer-reviewed journal articles and book chapters, focused on his clinical and research interests in noninvasive diagnosis, vein graft stenosis, intimal hyperplasia and limb-salvage in patients with diabetes mellitus. He has been the principal investigator for over 40 clinical trials, including a number of current investigations.



Bijan Najafi, PhD, MSc
Professor of Surgery
Director, Clinical Research
Vascular Surgery and
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Zachary Pallister, MD
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Keywords

- Wearable technology
- Movement science
- Digital health
- Exergame/Exercise Science

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Research Interests

Dr Najafi has over two decades of experience in designing bio-inspired sensors for objective evaluation of healthy state of patients with locomotor dysfunctions, over 200 scientific publications in peer reviewed journals or conference proceeding with more than 5000 citations, 20+ issued or pending patents, and have been PI or a key investigator on over 50 industrial, national and international grants (\$50M+). He worked with a wide network of clinical and bioengineering collaborators across the globe primarily in the clinical areas of falls, frailty, gait, cognitive impairment, dementia, and diabetes and diabetic foot ulcers. He has assisted in successful translation of several innovative technologies for commercialization in the area of remote health monitoring, precision medicine, and movement assessment including several wearable and mHealth technologies for activities monitoring, gait analysis, balance assessment, automatic fall detection, patient adherence, smart home design for people with dementia, and various technologies for foot problems management including prevention of diabetic foot ulcers and wound management.

Keywords

- Vascular Ultrasound
- Hemodialysis Access
- Vascular Trauma

Contact Information

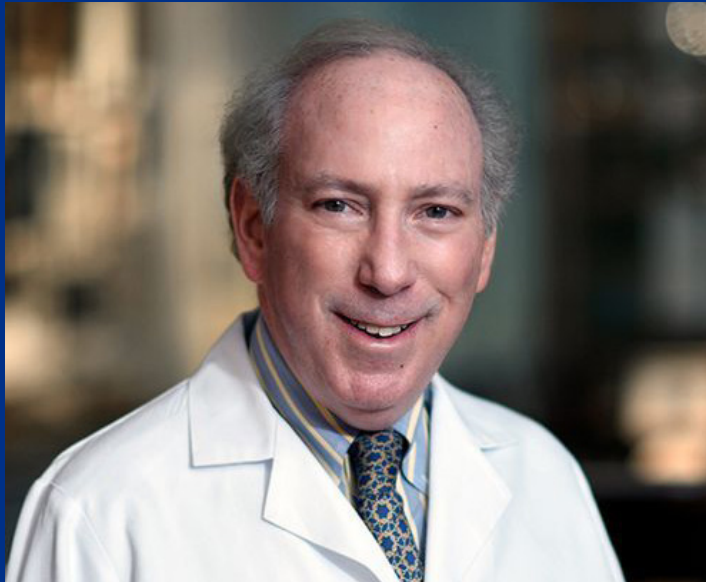
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Research Interests

Dr. Pallister's research interests involve clinical outcomes research in peripheral vascular intervention.



Jeffrey Alan Ross, DPM, MD
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Baylor College of Medicine

Keywords

- Vascular Ultrasound
- Hemodialysis Access
- Vascular Trauma

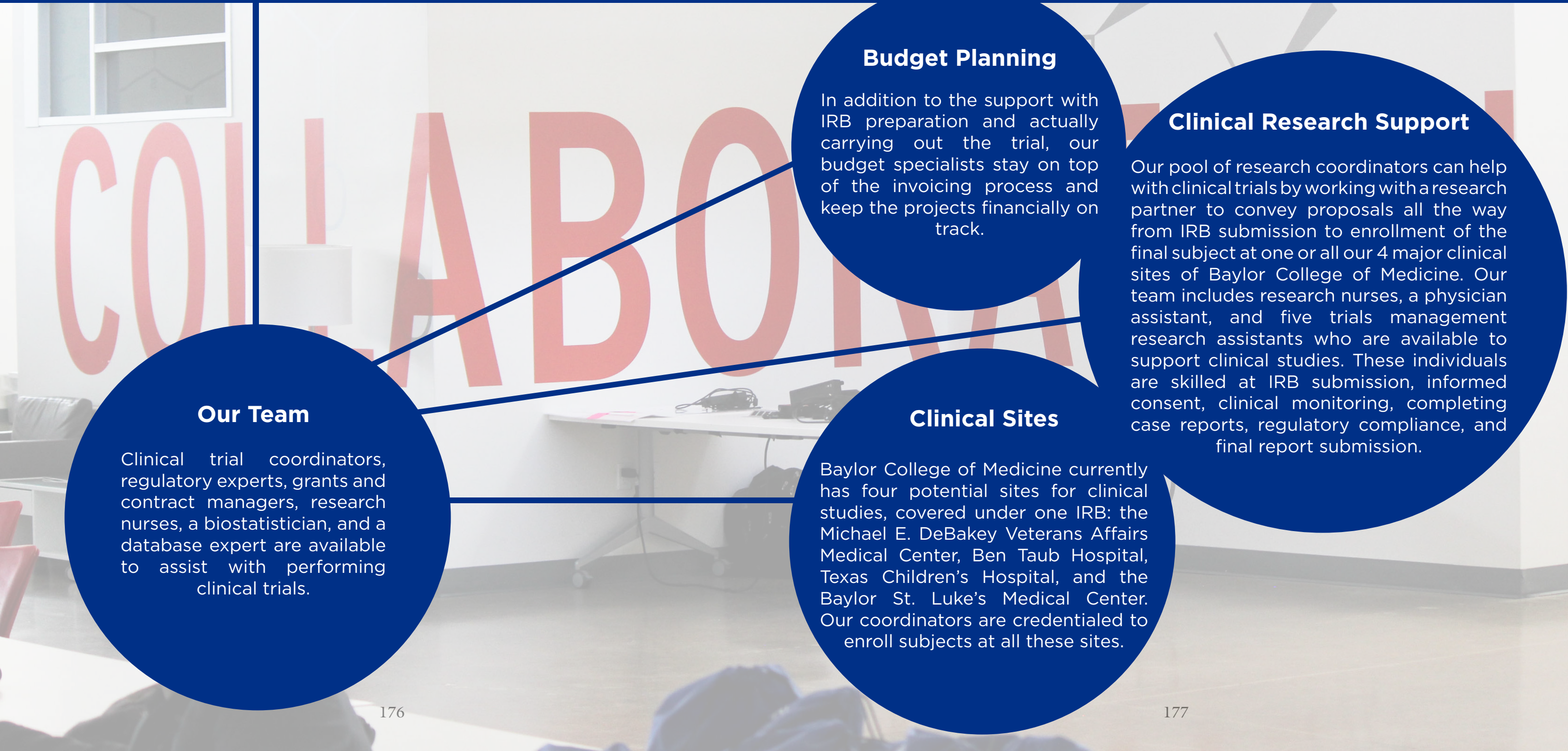
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Our comprehensive clinical trial management services, provided by the dedicated research support team housed in our department, allow us to offer you, as our research partner, an efficient, cost-effective, and high-fidelity way of performing clinical trials under a single IRB platform.

Our experienced research core team can be a resource to you in getting your product tested. Please, consider the Department of Surgery at Baylor College of Medicine as a potential partner in your next trial. For more information about our core or conducting a trial with us, feel free to contact Dr. Barbara Trautner, at surgicalresearch@bcm.edu.



Baylor
College of
Medicine