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The Division of Surgical Research was established group in the Michael E. DeBakey Department of Surgery to meet the challenges of an increasingly competitive and rapidly advancing research climate. The mission of the division and its 15 primary (Ph.D.) and 14 joint faculty members is to promote the development and growth of highly successful research and training programs by providing a supportive environment for investigators and trainees.

Under the leadership of Changyi Johnny Chen, M.D., Ph.D., the division brings together department researchers to share ideas, to benefit from each other’s knowledge and experience, and to lend support in grant and publication efforts. At the same time, the division aims to create a critical mass of well-recognized researchers with whom other investigators at Baylor College of Medicine and elsewhere can readily collaborate.

Based on the fourth and fifth floors of the Margaret M. Alkek Building for Biomedical Research at BCM, the primary objective of the division is to understand the underlying mechanisms of surgical disease through basic science and translational research. Division members aspire to identify novel treatments and ultimately link laboratory discoveries directly with clinical care.

To further the department’s international reputation for excellence in surgical research, the division cultivates mentoring and training opportunities for junior faculty, surgical residents, fellows, and students in a structured environment. Division members are assisted with their research efforts by a core group of clinical trials coordinators, a biostatistician, a database manager, a medical editor, and pre- and post- grants managers led by department Vice Chair for Research Scott A. LeMaire, M.D.
Changyi (Johnny) Chen, M.D., Ph.D.
Professor and Chief, Division of Surgical Research
Michael E. DeBakey Department of Surgery
Molecular Surgery Endowed Chair
Department of Molecular and Cellular Biology
Baylor College of Medicine

Keywords
• Angiogenesis
• Atherosclerosis
• Cardiovascular disease
• Endothelial dysfunction

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.

Endothelial cell differentiation and angiogenesis
We are studying the role played by and the molecular mechanisms of hemodynamic factors and several novel molecules on endothelial cells differentiated from embryonic stem cells and from bone marrow-derived stem cells. We are identifying key regulatory genes that trigger endothelial cell differentiation and promote stable angiogenesis. These findings can potentially be applied to the design of novel therapeutic strategies to treat ischemic tissues using genetically engineered endothelial cells. In addition, these studies may provide useful information to genetically engineer novel tissues for vascular grafts.

Pancreatic cancer
We have been heavily involved in pancreatic cancer research programs for many years. We have several projects focusing on the role and on the mechanisms of several genes, such as microRNA 196a (miR-196a), X-inactive specific transcript (XIST), and Jude-2 in pancreatic cancer. Our comprehensive studies analyze human cancer specimens, clinical outcomes, established cell
lines, a nude mouse model, and a genetically engineered mouse model of pancreatic cancer called the KPC model. We are developing PLGA [poly(lactic-co-glycolic acid)]-based nanotechnology for molecular imaging and for specific drug and gene delivery, which has great potential clinical applications, such as molecular diagnostics and targeted therapies.

Contact information
Baylor College of Medicine
One Baylor Plaza, BCM 391
Houston, TX 77030
Phone: 713-798-4401
Fax: 713-798-6633
jchen@bcm.edu

Selected publications
Stuart Corr, BEng, MEng, Ph.D.
Assistant Professor and Director, Technology Development
Division of Surgical Research
Baylor College of Medicine

Keywords
- Nanomedicine
- Non-invasive radiofrequency hyperthermia
- Surgical Technology
- Nanomaterials characterization

Research interests
Dr. Corr obtained his BEng (hons) in Electronics with Music from The University of Glasgow. He went on to study an MEng in Electrical Systems majoring in Nano-electronics and Photonics at Dublin City University, Rep. of Ireland. During this period, he was selected for the Irish Government sponsored FÁS Science Challenge, which placed him in Dr. Lon J. Wilson's Nanomaterials group at Rice University, Department of Chemistry where he worked on building a prototype to quantify cyclic magnetic field absorption by gadolinium loaded ultrashort carbon nanotubes (Gd3+ US-SWNTs), which are used as superlative MRI contrast agents. Having returned to Dublin to finish his masters he then completed his PhD studies, over a period of two years, in the field of silver nanoparticles and thin-films for surface enhanced raman spectroscopy of strained silicon. He subsequently spent a 3-month period at the International Space University, Strasbourg, France, as part of their MSc. in Space Studies program - a program which he is still affiliated with. With this knowledge and experience he was asked to return to Rice as a postdoctoral fellow, to synthesize and apply silver nanoparticles to non-invasive radio frequency (RF) hyperthermia, which was part of an active collaboration between Prof Wilson and Dr. Steven A. Curley, at MD Anderson Cancer Center. Since working on this project in 2009, Dr. Corr eventually transferred over to MDACC in 2011 and has since been involved in the research and development of nanoparticle-assisted non-invasive RF hyperthermia.

RF technology is gaining prominence as a powerful new surgical oncology tool in the fight against cancer. Recent work has shown synergy when combining RF therapy with systemic chemotherapy administration. His current studies have also shown enhanced delivery and retention of chemotherapeutics into tumors when exposed to low levels of RF fields. He is currently active in this field and we are currently seeking FDA approval for full human trials.
Contact information
Alkek Building for Biomedical Research
One Baylor Plaza ABBR 515
Houston, Texas. 77030
stuart.corr@bcm.edu
713-798-3227

Selected publications

Xin-Xin-Hua Feng, Ph.D.
Professor of Surgery
Division of Surgical Research
Department of Molecular & Cellular Biology

Keywords
• Embryonic stem cells
• Tumor progression/metastasis
• Serine/threonine phosphatases
• SMADs
• Ubiquitination/SUMOylation
• TGF-β/BMP

Research interests
Dr. Feng’s research aims to elucidate the underlying mechanisms and interplays among protein modifications, signaling pathways, and gene transcription as well as understanding their roles in cell proliferation, tissue differentiation, and pathogenesis of human diseases.

His current research projects include:

*Phosphatome: genome-wide investigation of protein dephosphorylation*

Signal transduction pathways are often regulated by the dynamic interplay between protein kinases and phosphatases. Using all the human protein serine/threonine phosphatases available, we systematically investigate the effect of dephosphorylation on key proteins involved in cell signaling and cell functions. We are currently genetically disrupting individual phosphatases to elucidate their in vivo functions during development.

*SUMO, ubiquitin, and control of protein turnover and functions*

We examine the effect of post-translational modifications, particularly ubiquitination and SUMOylation of transcription factors, in normal and cancer cells. We attempt to understand the molecular mechanisms by which environmental and developmental cues regulate the ubiquitination/proteasome and SUMOylation systems. Our studies will provide insights into the relationships between protein deregulation and human cancers or abnormal development.

*TGF-β/BMP signal transduction*

SMADs are evolutionarily conserved signal transducers and transcription factors controlling TGF-β/BMP functions. A large number of mutations that inactivate SMADs have been linked to human cancers and genetic diseases. We address the molecular interactions, requirements, and functionality of SMADs in TGF-β/BMP responses using cellular, genomic, and proteomic approaches. We investigate how SMADs mediate transcription and how their actions are terminated. We also use in vitro and in vivo model systems to study how SMADs as tumor suppressors interplay with oncogenic pathways, in particular with those involved in lymphoma and in pancreatic and breast cancer.
Genetic screens, BMP/TGF-β signaling, and ES cells

We are conducting genome-wide studies (e.g. genetic screens using lentiviral RNAi library) to identify novel TGF-β signal modifiers or regulators involved in stem cell differentiation. Novel molecules that control TGF-β/BMP signaling or participate in human ES cell self-renewal and differentiation will be further studied and in model organisms to define the molecules’ physiological roles in tissue differentiation and organ development.

Immune suppression by TGF-β

TGF-β is a major inflammatory and immune-regulatory cytokine, but the mechanisms by which TGF-β exerts its actions are unclear. We are interested in investigating the signaling interactions between the TGF-β pathway and other cytokine pathways (such as TNF-alpha, IL-1, and IL-6 pathways) in immune responses. This area of research may lead to the discovery of drugs to treat cancer and inflammatory diseases.

Contact information

Baylor College of Medicine
One Baylor Plaza, Room R712
Houston, TX 77030
Phone: 713-798-4756
E-mail: xfeng@bcm.edu

Selected publications


Research interests

My research goal is to develop novel cancer therapies by identifying new key pathways for cancer development and progression.

There are three major areas of investigation in my laboratory:

Characterization of the function of DNA-repair proteins in tumor suppression using both knockout mouse models and clinical specimens
BRIT1/MCPH1 knockout mice have been generated in the lab and BRIT1’s role in the suppression of breast, liver, and pancreatic cancer is studied extensively using the unique knockout mouse model, as well as clinical specimens.

Development of cancer cell-specific therapies by targeting DNA repair deficiency in cancer
We use a synthetic lethality approach and combination therapy to develop more effective treatments for breast and liver cancer.

Identification of novel key oncogenes that drive breast and liver cancer development
Using a bio-informatics approach, we select candidate genes by analyzing The Cancer Genome Atlas (TCGA) data and we characterize the genuine functions of these candidate genes \textit{in vitro} and in animal models.

Contact information

Baylor College of Medicine
One Baylor Plaza, Rm. ABBR-R417
Mail Stop: BCM 391
Houston, TX 77030
Phone: 713-798-1323
kli@bcm.edu
Selected publications


Yulong Liang, Ph.D.
Instructor in Surgery
Division of Surgical Research
Baylor College of Medicine

Keywords
• Breast cancer
• DNA damage response
• Double-strand breaks
• Genomic instability
• Homologous recombination
• Liver cancer

Research interests
Dr. Liang’s research focuses on elucidating the roles and the underlying mechanisms of DNA damage and repair pathways in tumor development, progression, and metastasis, as well as developing novel therapeutic methods to target cancer cells.

DNA damage response and genomic instability in cancer
DNA repair deficiency and genomic instability are important hallmarks of cancer. By elucidating the roles of BRIT1/MCPH1, an important protein involved in DNA damage and repair pathways, we provide insights into the relationship of DNA repair deficiency with genomic instability, cancer initiation, progression, and/or metastasis.

Translational research and treatment of cancer
In this area, we investigate how to target cancer cells with genomic instability, which may eventually lead to the discovery of drugs for cancer treatment.

Contact information
ABBR Building, R431, MS-BCM391
One Baylor Plaza
Houston, TX 77030
713-798-1035
Selected publications

Research interests
Dr. Lin’s research interest is on cell functions under physiological and pathological conditions. Currently, we are investigating several cell functions such as cell proliferation, differentiation, and metabolism by focusing on protein phosphatase. Specifically, we are trying to identify protein phosphatases that regulate critical signal transduction pathways such as BMP, TGF-β, insulin pathways, and gluconeogenesis. By doing this, we hope to understand better the signaling pathways that regulate normal cellular functions, and the deregulation of them leads to human diseases such as cancer, which is our main focus, bone disease, and diabetes. Eventually, we hope to provide the rationale for protein phosphatases as potential therapeutic targets.

Another major focus of her research is on the functions and regulation of TGF-β signal transduction pathway. We also investigate the crosstalk of TGF-β signal with other signaling pathways such as oncogenic pathway and hormone receptor pathway, and the role of protein posttranslational modifications (e.g. phosphorylation, ubiquitination and sumoylation) in TGF-β functions. By using cell-based assays and animal models, we seek to determine the role of TGF-β in normal cellular functions, cancer initiation, and cancer progression. Ultimately, our studies will advance our knowledge on understanding the molecular mechanisms of cancer initiation and progression, and on the identification of potential targets for cancer therapy.

Contact information
Baylor College of Medicine One Baylor Plaza, BCM 391
Houston, TX 77030
Phone: 713-798-4899
Fax: 713-798-4093
xialin@bcm.edu
Selected publications


Megumi Mathison, M.D., Ph.D.
Associate Professor of Surgery
Division of Surgical Research
Baylor College of Medicine

Keywords
• Cardiovascular disease
• Cardiac regeneration

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.

Contact information
Baylor College of Medicine
One Baylor Plaza, BCM 390
Houston, TX 77030
Phone: 713-798-3259
Fax: 713-798-8258
Megumi.Mathison@bcm.edu
**Selected publications**


Jian-Ming Lü, Ph.D.
Assistant Professor of Surgery
Division of Surgical Research
Baylor College of Medicine

Keywords
• Cardiovascular disease
• Drug discovery and development
• Enzyme inhibitors, mechanisms
• Gout and hyperuricemia
• Natural substances and structure modification
• Organic synthesis, characterization
• Oxidative stress, free radicals, and antioxidants
• Pancreatic cancer
• Polymer nanoparticle drug/gene delivery

• Xanthine oxidase, HIV protease, cyclooxygenase, arginase

Research interests
My research is focused on several basic science and translational research projects that are highly relevant to clinical diseases and pancreatic cancer. I have a strong background and research experience in organic chemistry, medicinal and synthetic chemistry, and biochemistry, including enzyme activities and mechanisms.

In recent years, I have been studying the fields of translational medicine and medicinal chemistry, working with cell-free, well-established in vitro as well as in vivo models. The primary goal of my projects is to develop new, safe, and effective therapies using natural or naturally-derived substances. For example, I have been developing medicines for hyperuricemia-related diseases, such as gout, using natural substances and by modifying their structure to enhance their effects. Currently, I am also screening naturally-derived substances for inhibitors of enzymes such as myeloperoxidase, HIV protease, and arginase, key enzymes in the development of diseases.

Another focus of my research is the delivery of nanoparticle gene/drug complexes targeted to cancer cells as well as to vascular cells by using antibodies or other specific proteins conjugated to PLGA (poly(lactic-co-glycolic acid)-based nanoparticles. I am developing a new PLGA-based material for molecular imaging and specific drug and gene delivery, which has great potential clinical applications such as molecular diagnostics and targeted therapies.

Contact information
Baylor College of Medicine
One Baylor Plaza, BCM 391
Houston, TX 77030
713-798-1035
jian-ming.lu@bcm.edu
Selected publications

1. Jian-Ming Lü, Qizhi Yao, Changyi Chen. 3,4-Dihydroxy-5-nitrobenzaldehyde (DHNB) is a Potent Inhibitor of Xanthine Oxidase: A potential therapeutic agent for treatment of hyperuricemia and gout. Biochem Pharmacol. 2013, 86(9):1328-37


10. Lü JM, Rosokha SV, Neretin IS, Kochi JK. (2006), Quinones as electron acceptors. X-ray structures, spectral (EPR, UV-vis) characteristics and electron-transfer reactivities of their reduced anion radicals as separated vs contact ion pairs. J Am Chem Soc, 128(51), 16708-16719
Research interests
My broad research interest is on vascular diseases. One of my main focuses is the molecular mechanisms of aortic aneurysms and dissections, highly lethal but poorly understood conditions. We have ongoing projects to investigate the signaling pathways that control aortic destruction, inflammation, healing and remodeling. The ultimate goal of my research is to use pharmacological treatment to prevent progressive aortic destruction and disease deterioration.

Contact information
Cardiothoracic Surgery Research Laboratory
Michael E. DeBakey Department of Surgery
BCM 390, One Baylor Plaza, Houston, TX 77030
C-1095, Texas Heart Institute
6770 Bertner Ave., Houston, TX 77030
(832) 355-9952
hyshen@bcm.edu
Selected publications


Vivek Singh, Ph.D.
Assistant Professor of Surgery
Division of Surgical Research
Baylor College of Medicine

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

Research interests
Dr. Vivek 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 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.

Contact information
Jewish Institute for Research
Room: BCMD-R431J
Mail Stop: BCM390
Houston, Texas 77030

Selected publications


Barbara Wells Trautner, M.D., Ph.D.
Associate Professor
Departments of Surgery and Medicine

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

Research interests

Barbara W. Trautner, M.D., Ph.D., 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 (IQuESt). 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 13 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 recently completed a successful VA Health Services Research and Development merit review project utilizing guidelines implementation to decrease inappropriate treatment of catheter-associated asymptomatic bacteriuria. She is also involved in a nationwide project funded by the Agency for Healthcare Research and Quality to decrease CAUTI and antimicrobial overuse in long-term care facilities.

The overall goal of Trautner’s translational research has been to develop novel strategies for prevention of CAUTI in persons who have chronic bacteriuria, such as those with neurogenic bladders or chronic indwelling catheters. One area of investigation is bacterial interference, or using benign bacteria to prevent symptomatic infection with pathogens. In clinical trials Dr. Trautner’s group utilized urinary catheters coated with a biofilm of benign E. coli to achieve bladder colonization and protection from CAUTI. Previous work also included nanoscale modification of the urinary catheter surface to create a protective biofilm.
Contact information

Michael E. DeBakey VA Medical Center
VAMC-4A-330
Mail Stop: BCM285
Houston, Texas 77030
(713) 440-4400
trautner@bcm.edu

Selected publications

4. Trautner BW, Darouiche RO, Clarridge, JE. Skin antisepsis kits containing chlorhexidine gluconate or tincture of iodine are associated with low rates of blood culture contamination. Infection Control and Hospital Epidemiology 2002; 23:397-401.
Jianchang Yang, M.D., Ph.D.
Assistant Professor of Surgery & Medicine
Division of Surgical Research
Baylor College of Medicine

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

Research interests
Jianchang Yang received his MD from XinJiang University of Medical Sciences, MS of Medical Biochemistry from Sun Yat-sen University in China, and his degree 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.

Contact information
One Baylor Plaza
Suite 411
Mail Stop: BCM390
Houston, Texas 77030
Selected publications


Qizhi Cathy Yao, M.D., Ph.D.
Professor
Michael E. DeBakey Department of Surgery
Department of Molecular Virology and Microbiology
Department of Pathology and Immunology
Department of Pharmacology

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

Research interests

My research programs include HIV vaccine development, pancreatic cancer pathogenesis, and therapy. Specifically:

Developing chimeric virus-like particle HIV vaccines

Understanding the functional roles of mesothelin and Trop2 in pancreatic cancer pathogenesis

Understanding the functional roles of miR-198 in pancreatic cancer pathogenesis

Understanding the functional roles of axon guidance gene Semaphorin 3E in pancreatic cancer pathogenesis

Developing targeted nanoparticle therapy in pancreatic cancer

Developing immunotherapy for pancreatic cancer

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.

Contact information

Baylor College of Medicine
One Baylor Plaza, BCM 391
Houston, TX 77030
Phone: 713-798-1765
Fax: 713-798-6633
qizhiyao@bcm.edu
Selected publications


ABDOMINAL TRANSPLANTATION

The division’s commitment to research, in part funded through National Institutes of Health grants and conducted at the Advanced Liver Therapies Research Center at Baylor St. Luke’s Medical Center, gives patients access to the latest clinical trials, including those testing therapies for chronic viral hepatitis B and C infections and treatments for thrombocytopenia in liver disease.
Keywords
- Adult and pediatric liver transplantation
- Biliary resection/reconstruction
- Bile duct tumor
- Bile duct injury
- Cirrhosis
- Hepatobiliary surgery
- Liver disease
- Liver resection
- Liver tumors
- Portal hypertension
- Portosystemic shunts
- Radio frequency ablation
- Sugiura procedure
- Surgical management of liver tumors

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

Contact Information
Baylor Clinic
6620 Main Street
Suite 1450
Houston, Texas 77030
United States

Selected Publications


Ronald H. Kerman, Ph.D.

Professor of Surgery
Director, Immune Evaluation Laboratory
Abdominal Transplant Program
Baylor College of Medicine

Keywords
- Immune response - allogeneic stem cells
- Cellular and antibody immune responsiveness
- HLA antibodies

Research Interests
Dr. Kerman directs a clinical transplant immunology laboratory. Research interests are focused on determining the strength of transplant patient cellular and antibody immune responsiveness as it relates to immunologic rejection and graft loss. Studies are underway to determine the identity of HLA and non-HLA clinically relevant antibodies and their role in graft rejection. In addition, studies are being conducted to determine the immune response of patients receiving allogeneic stem cell infusions.

Contact Information
Baylor College of Medicine
One Baylor Plaza, BCM: MS 504
Houston, TX 77030
Phone: 713-798-3088
Fax: 713-798-2706
Email: Kerman@bcm.edu

Selected Publications:


Khozema B. Hussain, M.D.
Assistant Professor of Surgery
Division of Abdominal Transplantation
Baylor College of Medicine

Keywords
- Chronic viral hepatitis (HBV and HCV)
- Cirrhosis
- End-stage liver disease (ESLD)
- Gastroenterology
- Hepatocellular carcinoma
- Transplantation

Contact Information
Baylor Clinic
Suite 1450
Mail Stop: BCM620
Houston, Texas 77030
United States

Selected Publications


6. Hussain KB, Fontana RJ, Moyer CA, Su G, Sneed-Pee N, Lok ASF. Comorbid Illness is an important determinant of Health-related quality of life in patients with Chronic Hepatitis C. Am J Gastro 2001 Sep; 96(9): 2737-44.


Prasun K. Jalal, M.D., AGAF
Assistant Professor of Surgery and Medicine
Division of Abdominal Transplantation
Stan and Sue Partee Endowed Professorship in Surgery
Baylor College of Medicine

Keywords
- Autoimmune hepatitis
- Fatty Liver Disease
- Gastroenterology
- Hepatology
- Liver cancer
- Liver transplantation
- Viral hepatitis

Contact Information
Baylor Clinic
Suite 1450
Mail Stop: BCM620
Houston, Texas 77030
United States

Selected Publications
Keywords
- Anti-HLA antibodies
- Hematopoietic stem cell transplantation
- microRNA in the immune system

Research Interests
The role of anti-HLA antibodies in transplant rejection, the effect of single nucleotide polymorphisms on bone marrow transplant outcomes, the expression and function of microRNA in lymphocytes and murine models of transplantation.

Contact Information
Neurosensory Center
NA-404
Mail Stop: BCM504
Houston, Texas 77030
United States
(713) 798-3005
Saira A. Khaderi, M.D., M.P.H.
Assistant Professor of Surgery
Division of Abdominal Transplantation
Baylor College of Medicine

Keywords
- Hepatitis C
- Hepatocellular Carcinoma
- Liver transplant outcomes
- Portopulmonary HTN
- Project ECHO

Research Interests
Dr. Khaderi has research interest in liver transplant outcomes - specifically in patients transplanted with hepatitis C and hepatocellular carcinoma. She is also involved in Project ECHO ((Extension for Community Healthcare Outcomes) - a telementoring program whose aim is to improve medical resources in rural and underserved communities in Texas.

Contact Information
Baylor Clinic
Suite 1450
Mail Stop: BCM620
Houston, Texas 77030
United States

Selected Publications


Ayse Leyla Mindikoglu, M.D., M.P.H.

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

Research interests
Dr. Mindikoglu's research has been focused on kidney dysfunction in cirrhosis and development of new biomarkers of glomerular filtration rate and altered kidney hemodynamics in cirrhosis. Between 2010 and 2015, supported by NIH/NIDDK K23 award and University of Maryland School of Medicine, Department of Medicine funds, Dr. Mindikoglu conducted several clinical studies to understand key concepts of altered renal hemodynamics in cirrhosis.

Contact information
Baylor Clinic
6620 Main Street
Suite 1450
Houston, Texas 77030
Selected Publications


Christine A. O'Mahony, M.D.

Associate Professor of Surgery
Division of Abdominal Transplantation
Section Chief of Renal Transplantation
Baylor College of Medicine

Surgical Co-Director of Kidney Transplantation - Texas Children's Hospital
Surgical Director of Kidney Transplantation - Baylor St. Luke's Medical Center
Surgical Director of Kidney Transplantation - Michael E. DeBakey VA Medical Center

Keywords
- Adult and pediatric liver transplantation
- Bile duct resections
- Hepatobiliary surgery
- Intraoperative RFA
- Kidney transplantation
- Liver resection
- Portosystemic shunts
- Surgical management of liver tumors

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

Contact Information
Baylor Clinic
Suite 1450
Mail Stop: BCM620
Houston, Texas 77030
United States

Selected Publications


Bhamidipati V. Ramana Murthy, M.B.B.S., M.D., D.M.

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

Contact Information
Baylor Clinic
Suite 1450
Mail Stop: BCM620
Houston, Texas 77030
United States
Abbas Rana, M.D.
Assistant 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
- Liver resection
- Portosystemic shunts
- Surgical management of liver tumors

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
Baylor Clinic
Suite 1450
Mail Stop: BCM620
Houston, Texas 77030
United States

Selected Publications


Gagan K. Sood, M.D.
Associate Professor of Surgery and Medicine
Division of Abdominal Transplantation
Baylor College of Medicine

Keywords
- Ascites
- Cirrhosis
- Colonoscopy
- Endoscopy
- Esophagogastroduodenoscopy (EGD)
- Gastroenterology
- Hepatic encephalopathy
- Hepatitis B and C
- Hepatitis Hemochromatosis
- Hepatocellular carcinoma
- Non-alcoholic fatty liver disease (NAFLD)
- Portal hypertension
- Varices
- Wilson's disease

Research Interests
Dr. Sood's primary research focuses on clinical aspects of liver disease, viral hepatitis, portal hypertension and outcome based research in cirrhosis and liver transplantation. His area of main interest is non-alcoholic fatty liver disease (NAFLD/ NASH). He is particularly interested in studying spectrum of NAFLD in different ethnic groups, with focus on genetic and metabolic differences in Hispanic population. Dr. Sood is also interested in iron overload in patient with liver disease including patients with NAFLD. Studies are currently being conducted on non-HFE related genetic markers in patients with primary and secondary iron overload. He is also involved in clinical trials of new anti viral therapies in patients with hepatitis C.

Contact Information
Baylor Clinic
Suite 1450
Mail Stop: BCM620
Houston, Texas 77030
United States
Selected Publications


Risë J. Stribling, M.D.

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

Medical Director, Liver Transplantation - Michael E. DeBakey VA Medical Center
Medical Director, Liver Transplantation - Baylor St. Luke's Medical Center

Keywords
- Abdominal paracentesis
- Acute and chronic liver diseases
- Cirrhosis
- Gastroenterology
- Hepatitis
- Hepatocellular carcinoma
- Liver transplant

Research Interests
Dr. Stribling's primary research interests are in treatment of acute and chronic hepatitis C, hepatitis B, and liver failure.

Contact Information
Baylor Clinic
Suite 1450
Mail Stop: BCM620
Houston, Texas 77030
United States

Selected Publications
Keywords
- Assessment and management of acute liver failure
- Artificial liver support
- Complications of advanced cirrhosis
- New agents to treat viral hepatitis

Research Interests
Dr. Sussman is leading an effort to improve medical resources in rural and underserved communities in Texas using a videoconference outreach model. He is also continuing to refine methods of assessing risk in patient with acute liver failure.

Contact Information
Baylor Clinic
Suite 1450
Mail Stop: BCM620
Houston, Texas 77030
United States
Selected Publications

Keywords

- Acute liver failure
- Alcoholic and non-alcoholic fatty liver diseases
- Alpha-1-antitrypsin deficiency
- Autoimmune hepatitis
- Cholangiocarcinoma
- Cirrhosis
- Clinical therapeutic trials
- Drug-induced liver injury
- Gastroesophageal varices
- Genetic and metabolic diseases
- Hemochromatosis
- Hepatic encephalopathy pre and post liver transplantation care
- Hepatocellular carcinoma
- Primary biliary cirrhosis
- Primary sclerosing cholangitis
- Viral hepatitis
- Wilson's disease

Research Interests

Dr. Vierling’s primary research interests are the immunopathogenic mechanisms involved in hepatobiliary injury caused by viral infection, autoimmunity, alloimmunity, and non-alcoholic fatty liver disease. Dr. Vierling’s basic science laboratory investigations have used murine models to study the immunopathogenesis of non-suppurative destructive cholangitis, which destroys bile ducts in primary biliary cirrhosis, an autoimmune liver disease, as well as in two alloimmune diseases, hepatic allograft rejection and chronic graft-versus-host disease.

By emphasizing a "laboratory bench to bedside" philosophy, Dr. Vierling has also been active in the design and execution of clinical therapeutic trials of antiviral agents for treatment of hepatitis B and C infections in patients before and after liver transplantation, trials of immunosuppressive drugs in liver transplantation and autoimmune liver diseases, trials of new therapies for hepatic encephalopathy and antifibrotic agents to prevent or reverse cirrhosis. Dr. Vierling is the author of numerous research publications, reviews and chapters on these topics.
Selected Publications


Ronald T. Cotton, M.D.
Assistant Professor
Division of Abdominal Transplantation
Baylor College of Medicine

Keywords
- Hepatocellular carcinoma (HCC)
- Genomic differences of Hepatitis B and Hepatitis C

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.

Contact Information
Baylor Clinic
Suite 1450
Mail Stop: BCM620
Houston, Texas 77030
United States

Selected Publications


N. Thao N. Galvan, M.D., M.P.H.
Instructor in Surgery
Division of Abdominal Transplantation
Baylor College of Medicine

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

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.

Contact Information
Baylor Clinic
Suite 1450
Mail Stop: BCM620
Houston, Texas 77030
United States

Selected publications
Matthew Cusick, Ph.D., D(ABHI)
Assistant Professor of Surgery
Division of Abdominal Transplantation
Baylor College of Medicine

Keywords
- Immune response - allogeneic stem cells
- Cellular and antibody immune responsiveness
- HLA antibodies

Research interests
Dr. Matthew Cusick specializes in Transplant Diagnostic Testing and is a Laboratory Director in the Immune Evaluation Laboratory at Baylor College of Medicine. He is certified by the American Board of Histocompatibility and Immunogenetics. His research interests are directed towards studying immunological aspects of the human immune system in transplantation and research of infectious diseases.

Contact information
Immune Evaluation (Lab)
Neurosensory Center
Room: NEUR-NA 420C
Mail Stop: BCM390
Houston, Texas 77030
Lab: (713) 798-3005

Selected publications


10. Cusick MF, Libbey JE, Cox Gill J, Fujinami RS, Eckels DD. "CD4 T-cell engagement by both wild-type and variant HCV peptides modulates the conversion of viral clearing helper T cells to Tregs." Future Virology.
CARDIOTHORACIC TRANSPLANTATION & 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.
Keywords

- Advanced heart failure
- Mechanical circulatory support
- Transplantation

Research interests

Dr. Morgan’s research is focused on advanced heart failure with numerous publications, national and international presentations, and book chapters. He is the section editor for Adult Mechanical Circulatory Support for the American Society of Artificial Internal Organs (ASAIO) Journal and is on the Editorial Board of The Journal of Heart and Lung Transplantation. He is also a reviewer for several other journals including The Annals of Thoracic Surgery and the Journal of the American College of Cardiology. Dr. Morgan served on the ISHLT Standards and Guidelines Committee and was a Task Force chair for the ISHLT Guidelines for MCS. He is also a previous chair of the Cardiac Track Programming Committee for the ASAIO Annual Conference. Dr. Morgan has moderated numerous sessions on mechanical support and transplant at ASAIO, ISHLT, and the American College of Cardiology.

Dr. Morgan is passionate about improving outcomes in patients with advanced heart or lung failure. He has participated in numerous clinical trials including Thoratec’s HeartMate II BTT and DT trials, Heartware’s HVAD BTT and DT trials, the HeartMate III trial, and Syncardia’s 50 cc TAH trial. Dr. Morgan is also investigating the utility of stem cells as an adjunct measure for myocardial recovery, as part of the LVAD MPC II trial.

Contact information
Texas Heart Institute
Cooley 355N
6770 Bertner Avenue
Houston, Texas 77030
jeffrey.morgan@bcm.edu

Selected publications


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, less expensive, and predicted to be more reliable than previous generations of artificial hearts.

William E. Cohn currently has 80 active or pending patents for his inventions and is the founder or co-founder of five venture-backed life science startups. In addition, Dr. Cohn is a venture partner at Santé Health Ventures, a venture capital firm focused on capitalizing early-stage life science technology.

Contact information

Baylor St. Luke's Cooley Transplant Center

6720 Bertner Avenue.

Houston, TX 77030

832-355-3000

Selected publications


4. Gregoric ID, Cohn WE, Frazier OH. Diaphragmatic implantation of the HeartWare ventricular assist device. J. Heart Lung Transplant. 2011 April;30(4):467-70. PMID: 21211994


O. Howard Frazier, M.D.
Professor of Surgery
Division of Cardiothoracic Transplantation & Circulatory Support
Baylor College of Medicine
Chief, Transplant Services
Baylor St. Luke's Medical Center
Chief, Cardiopulmonary Transplantation
Program Director and Chief, Center for Cardiac Support
Director, Surgical Research, Cullen Cardiovascular Research Laboratories
Texas Heart Institute

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.

Contact information

Baylor St. Luke's Cooley Transplant Center

6720 Bertner Avenue.

Houston, TX 77030

832-355-3000
Selected publications

Gabriel Loor, M.D.

Division of Cardiothoracic Transplantation & Circulatory Support
Baylor College of Medicine

Surgical Director, Lung Transplant Program
Baylor St. Luke’s Medical Center

Keywords
- EVLP
- Lung injury
- Clinical outcomes

Research interests

Dr. Loor’s research interests include improved donor utilization and maximizing recipient outcomes. He is the national principal investigator on several 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. 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.

Contact information

6770 Bertner Avenue
Cooley 355N
Houston, Texas 77030
United States
(832) 355-3000
gabriel.loor@bcm.edu

Selected publications


2. Bahr N, Janssen K, Billings J, Loor G, Green J. Respiratory failure due to possible donor derived Sporothrix schenckii infection in a lung transplant recipient. Case Reports in

3. Loor G, Schuster A, Cruz V, Rafael A, Stewart W, Diaz J, McCurry K. The Carpentier-
Edwards perimount magna mitral valve bioprosthesis: intermediate-term efficacy and

Model for the Assessment of Ex Vivo Lung Perfusion Methodologies and Treatments.

5. Loor G, Rodosevich DM, Kelly RF, et al. The University of Minnesota Donor Lung Quality
Index (UMN-DLQI): A Consensus-Based Scoring App Improves Donor Lung Utilization.

6. Loor G, Doud A, Nguyen TC, Antonoff MB, Morancy JD, Robich MP, Odell D, Yarboro L,
Vaporciyan AA, Roselli E. Development and evaluation of a three-dimensional

7. Hutchins J, Apostolidou I, Shumway S, Kelly RF, Loor G. Paravertebral catheter use for
postoperative pain control in patients after lung transplant surgery: A prospective
observational study. Journal of Cardiothoracic and Vasc Anesth 2016; S1053-
0770(16)30099-4. doi: 10.1053/j.jvca.2016.05.006. [Epub ahead of print]

Alsalhi M, Koch C. Process improvement in thoracic organ donor retrieval:

Air Leak Following Lung Transplantation in a Patient with Multiple Connective Tissue
http://dx.doi.org/10.1016/j.jtcvs.2016.09.069

Prolonged EVLP Using OCS Lung: Cellular and Acellular Perfusates. Journal of
Transplantation (ahead of print) 12/2016. doi: 10.1097/TP.0000000000001616
George P. Noon, M.D.

Professor of Surgery
Division of Cardiothoracic Transplantation
& Circulatory Support
Meyer-DeBakey Chair in Investigative Surgery
Baylor College of Medicine

Research interests

Dr. George P. Noon has focused his surgical career in organ transplantation and cardiac assist devices. In 1968, Dr. Noon, Dr. Michael E. DeBakey, and their surgical team performed their first heart and later lung transplant.

In 1988, Drs. Noon and DeBakey met with engineers from NASA to develop a miniature axial flow blood pump. Ten years later, Dr. Noon participated in the care of President Boris Yeltsin, who needed a coronary bypass operation. In the same year, the first MicroMed DeBakey-Noon human implants were performed in Berlin, Germany. In 1999, Dr. Noon was inducted into the Space Technology Hall of Fame.

Contact information

Fondren Brown Bldg.
6565 Fannin Street, Suite A979
Houston, TX 77030
713-790-3155
Selected publications


Masahiro Ono, M.D., Ph.D.
Assistant Professor of Surgery
Cardiothoracic Transplant and Circulatory Support
Baylor College of Medicine

Keywords

- Neurological dysfunction associated with cardiac surgery and mechanical circulatory support
- Cerebral autoregulation associated with cardiac surgery and mechanical circulatory support
- Acute kidney injury associated with cardiac surgery and mechanical circulatory support

Research interests

Dr. Ono’s research focuses on advanced monitoring technology of cerebral autoregulation and developing patient management strategy for prevention of neurologic dysfunction.

Contact information

Texas Heart Institute
Baylor St. Luke’s Medical Center
6770 Bertner Avenue C355
Houston, Texas 77030

Selected publications


Cardiothoracic Surgery

Under the supervision of Scott A. LeMaire, M.D., director of research for the Division and Vice Chair for Research in the Department, the cardiac surgery research team pursues several research projects and maintains one of the world’s most extensive and well-cataloged aortic tissue banks. This core resource facilitates investigations into the causes and progression of aortic disease pursued by our researchers, as well as researchers from other academic institutions.
Keywords

- Aortic Valve Disease
- Connective Tissue Disorders
- Aortic Aneurysm
- Aortic Dissection

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—he recently published a 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 is patients with Marfan syndrome), aortic arch (Y-graft approaches, hybrid procedures), and thoracoabdominal aortic aneurysm repair (postoperative quality of life 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 transcatheter aortic valve replacement, rapid-deployment sutureless aortic valves, and a wide variety of stent-grafts.

**Contact information**

Baylor College of Medicine

One Baylor Plaza, BCM 390

Houston, TX 77030

Phone: 832-355-9910

Fax: 832-355-9920

E-mail: jcoselli@bcm.edu

**Selected publications**


* Resident, fellow, visiting researcher, or student co-author
Lorraine D. Cornwell, M.D.
Assistant Professor of Surgery
Baylor College of Medicine
Section Head of General Thoracic Surgery
Michael E. DeBakey VA Medical Center

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.

Contact information
Michael E. DeBakey VA Medical Center
2002 Holcombe Blvd
Room: VAMC-5A342
Mail Stop: BCM390
Houston, Texas 77030
Kim I. de la Cruz, M.D.
Assistant Professor of Surgery
Division of Cardiothoracic Surgery
Baylor College of Medicine

Keywords
- Aorta requiring complex open/endovascular repairs
- Heart valve repair or replacement
- Heart and lung transplantation

Research interests
Dr. de la Cruz specializes in clinical research in cardiothoracic surgery with special interest in diseases of the aorta requiring complex open or endovascular repairs, heart valve repair or replacement, myocardial revascularization, redo operations, mechanical circulatory support, and heart and lung transplantation.

Contact Information
Texas Heart Institute at Baylor St. Luke’s Medical Center
6770 Bertner Avenue, C320A
Houston, TX 77030

Mailing Address:
One Baylor Plaza, BCM 390
Houston, TX 77030

Office: (832) 355-9916
Fax: (832) 355-9948
Email: kimdlc@bcm.edu
Pager: (713) 404-8211
Selected publications


Ravi Kiran Ghanta, M.D.
Division of Cardiothoracic Surgery
Baylor College of Medicine
Chief, Cardiac Surgery
Ben Taub Hospital

Keywords
- Heart Failure
- Ventricular Remodeling
- Clinical Outcomes

Research interests
Dr. Ghanta’s laboratory focuses on ventricular remodeling in heart failure including restraint therapy, stem cell therapy, and tissue engineering. Dr. Ghanta is a member of the Southern Thoracic Surgery Association, Society of Thoracic Surgeons, American College of Surgeons, and the American Heart Association.

Contact Information
6620 Main Street
Suite 1350
Houston, Texas 77030
ravi.ghanta@bcm.edu

Selected publications


Research interests

Dr. Jimenez’s research on the effects of ischemia on myocardial intracellular calcium accumulation has helped to significantly improve the make-up of cardioplegia solutions in order to best ameliorate the effects of ischemia on the heart during cardiac arrest. Most recently, he has investigated the effects of both human umbilical stem cells and chitogen hydrogels on the ischemic myocardium. His clinical research has primarily focused on improving cardiac surgical outcomes within the veteran population.

Contact information

2002 Holcombe Boulevard
OCL-112
Mail Stop: BCM390
Houston, Texas 77030
(713) 791-1414
Joseph Lamelas, M.D.
Professor of Surgery
Associate Chief of Cardiac Surgery
Division of Cardiothoracic Surgery
Baylor College of Medicine

Research interests

Dr. Lamelas has developed techniques to facilitate minimally invasive approaches for repairing simple congenital cardiac defects, removal of cardiac tumors, aortic valve surgery, mitral valve surgery, double and triple valve surgery, and replacement of the ascending aorta without splitting the sternum.

Contact information

Cardiothoracic Surgery
Baylor Clinic
6620 Main Street
Suite 1325
Houston, Texas 77030
Selected publications


Scott A. LeMaire, M.D.

Professor, Departments of Surgery and of Molecular Physiology and Biophysics
Vice Chair for Research
Department of Surgery
Director of Research
Division of Cardiothoracic Surgery
Baylor College of Medicine

Keywords
- Aortic aneurysm
- Thoracic aortic surgery
- Aortic dissection

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 research group initiated the Thoracic Aortic Disease Tissue Bank, which currently houses samples and corresponding phenotypic data from over 3,000 patients with thoracic aortic disease and has served as a core for the NHLBI supported Specialized Center of Clinical Oriented Research in Thoracic Aortic Aneurysms and Dissection, as well as a resource for numerous collaborative studies evaluating the genetic factors and molecular mechanisms involved in the development of thoracic aortic disease. Dr. LeMaire’s basic science laboratory is currently focusing 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, such as inflammatory cells and proteases, as well as reparative mechanisms, such as stem cell recruitment and transformation, during the development of aortic aneurysms and dissections.
Contact information

Baylor College of Medicine
One Baylor Plaza, BCM 390
Houston, TX 77030
Phone: 832-355-9942
Fax: 832-355-9928
E-mail: slemaire@bcm.edu

Selected publications


* Resident, fellow or student co-author
Research interests

Dr. Letsou maintains active investigational programs in both clinical and basic science research. He was on the medical school faculties at Yale and the University of Texas, where he was tenured Professor of Cardiac and Vascular Surgery, before rejoining the Baylor College of Medicine as Professor of Surgery. He has published more than 100 articles concerning cardiothoracic surgery and speaks across the United States as well as internationally on these topics.

Contact information

Baylor Clinic
Suite 1225
6620 Main Street
Houston, Texas 77030
Phone: 713-798-3020
Selected publications

Kenneth L. Mattox, M.D.
Distinguished Service Professor
Division of Cardiothoracic Surgery
Baylor College of Medicine
Chief of Staff and Surgeon-in-Chief
Ben Taub Hospital

Research interests

His reputation as an innovator in trauma care is known worldwide. Dr. Mattox is past President of the American Association for the Surgery of Trauma and 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.

Currently, Dr. Mattox serves as consultant to the Center for Biologic Evaluation and Research of the FDA. Dr. Mattox has served 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 serves as Chairman of the Board of the John P. McGovern Museum for Health & Medical Science.

Contact information

Baylor College of Medicine
One Baylor Plaza
Mail Stop: BCM390
Houston, Texas 77030
(713) 798-4557
Selected publications


Shuab Omer, M.D., M.B.B.S.
Assistant Professor of Surgery
Division of Cardiothoracic Surgery
Baylor College of Medicine

Keywords
- Coronary revascularization
- Valvular heart disease
- Thoracic and thoracoabdominal aorta

Research interests
Dr. Omer is involved in cutting edge research in the VA system in all aspects of cardiothoracic surgery. Dr. Omer’s research focuses on coronary revascularization and transcatheter aortic valve interventions.

Contact information
Michael E. DeBakey VA Medical Center
2002 Holcombe Blvd.
OCL-112
Mail Stop: BCM390
Houston, Texas 77030

Selected publications


Ourania Preventza, M.D., FACS, M.B.A.

Associate Professor of Surgery
Division of Cardiothoracic Surgery
Baylor College of Medicine

Keywords
- Aortic Surgery
- Endovascular technology
- Surgical Outcomes Research

Research interests

Dr. Preventza’s research focuses on the development of percutaneous techniques for valvular and thoracic aortic diseases, aortic root surgery and surgical outcomes. During the last few years, Dr Preventza has been very prolific in publishing clinical research which has been presented in national and international meetings.

Contact information

Baylor College of Medicine
One Baylor Plaza, BCM 390
Houston, TX 77030
Phone: 832-355-9910
Fax: 832-355-9920
preventz@bcm.edu

Selected publications


Research interests

Basic and translational research have occupied a predominant position in his 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 has been highlighted by his role in the bench-to-bedside development of angiogenic therapy as a potential treatment for atherosclerotic coronary artery and vascular occlusive disease, and in our lab’s current, multi-year focus to study cardiac cellular reprogramming. This NIH-funded work includes the translation of early in vivo examinations of angiogenic growth factors in the mid-1980s and early 1990s into the (first in the US) adenovirus-mediated delivery of angiogenic vascular endothelial growth factor (VEGF) to the human heart, as part of a Phase I/II clinical trial in 1997-1999. Together with this experience, our current investigations of cellular reprogramming offer the exciting possibility of “bio-interventions” for the treatment of hundreds of thousands with advanced heart disease still not treatable by conventional therapies.

Congestive heart failure typically occurring as a result of myocardial infarction remains the leading cause of mortality from heart disease. Cardiac stem cell therapy has offered promise in animal and clinical studies, but remains inherently constrained by the logistical challenges of delivering and integrating exogenous cells into a host myocardium. The recent discovery that induced cardiomyocytes (iCMs) could be generated directly from somatic cells offers the exciting possibility of bypassing stem cell staging and, perhaps more importantly, converting scar fibroblasts in situ into iCMs, obviating entirely the challenges of cell implantation into a host myocardium. Rosengart and others have recently demonstrated that the administration of a cardiac transcription factor cocktail (e.g., GATA4, MEF2c and TBX5 [GMT]) results in as much as a 50% increase in ventricular function, reduced fibrosis, and increased iCM populations in
small animal myocardial infarction models. Intriguingly, also demonstrating that reductions in infarct size appear to far exceed the extent of scar re-population with iCMs, and that GMT also appears to reduce the population of (scar-producing) myofibroblasts as well as the expression of key scar remodeling cytokines. These data, and our observation that GMT efficacy is enhanced by the angiogenic pre-treatment of myocardial scar with vascular endothelial growth factor (VEGF), suggest the existence of unexplored and non-optimized underlying mechanisms. Given his long-term goal to develop a potentially important new treatment for CHF, he is studying whether cellular reprogramming can be applied to improve cardiac infarct remodeling and function by testing the serial hypotheses that: a) inadequate up-regulation of requisite reprogramming genes limits cell transdifferentiation efficiency, which can be optimized beyond current thresholds via the comprehensive application of genomic activation strategies, b) that the density of (contractile) iCMs in infarct zones as well as indirect or paracrine (i.e., anti-fibrotic) 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.

**Contact Information**

Baylor College of Medicine

One Baylor Plaza, BCM 390

Houston, TX 77030

Phone: 713-798-1317

todd.rosengart@bcm.edu
Selected publications

Matthew J. Wall Jr, M.D.
Professor of Surgery
Division of Cardiothoracic Surgery
Baylor College of Medicine

Deputy Chief of Surgery
Chief, Cardiothoracic Surgery
Executive Director, Trauma and Critical Care
Ben Taub Hospital

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

Research interests
His research interests include the management of the injured patient, novel resuscitation strategies, and injuries to the chest and the vascular system.

Contact information
Ben Taub Hospital
1504 Taub Loop
Houston, Texas 77030
United States

Selected publications


Congenital Heart Surgery

The Division of Congenital Heart Surgery 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, neurodevelopmental protection, minimally invasive repair of congenital heart defects, aortic reconstruction, surgical repair of congenital coronary anomalies, and, in collaboration with Rice University, pediatric bioengineering. Dr. Fraser and his team at Texas Children’s were the lead institution for the 17-center Berlin Heart study and implanted more Berlin Heart devices than any other center during the study. Dr. Fraser and his team were instrumental in the FDA approval process for the Berlin Heart EXCOR® device. The Berlin Heart is now the only long-term pediatric VAD now approved for use in the United States.

The Pediatric Cardiac Bioengineering Laboratory within the Division of Congenital Heart Surgery is a joint effort between the Baylor College of Medicine, Texas Children’s Hospital, and Rice University. The lab is led by Jeff Jacot, Ph.D., and is committed to developing innovative therapies that translate into clinically relevant and beneficial solutions for our patients. Research is concentrated on investigating the influences of biophysical cues such as stress, strain, shear, substrate stiffness, and electrical stimulation on the development and maturation of heart cells and tissues.

Since 2011, the Division of Congenital Heart Surgery has been an active member of the Pediatric Heart Transplant Study (PHTS), which is dedicated to the advancement of the science and treatment of children during listing for and following heart transplantation. The purposes of the group are to establish and maintain an international, prospective, event-driven database for heart transplantation, to use the database to encourage and stimulate basic and clinical research in the field of pediatric heart transplantation and to promote new therapeutic strategies.
Charles D. Fraser, Jr., M.D.

Surgeon-in-Chief, Chief of Congenital Heart Surgery, Donovan Chair and Clayton Chair in Surgery, Texas Children’s Hospital  
Professor of Surgery and Pediatrics, Baylor College of Medicine

Keywords

- Congenital Heart Surgery

Contact Information

Texas Children’s Hospital  
Congenital Heart Surgery  
6621 Fannin St., MC – 19345H  
Phone: 832-826-1929  
Fax: 832-825-1905  
Email: charlesf@bcm.edu

Selected publications


Iki Adachi, M.D.
Assistant Professor of Surgery

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

Contact Information
Texas Children’s Hospital
Congenital Heart Surgery
6621 Fannin St., 20th Floor
Houston, Texas 77030

Selected publications

10. Adachi, I., Morales, D. S. L. Implantation of Total Artificial Heart in Congenital Heart Disease. J. Vis. Exp. (89), e51569
Jeffrey S. Heinle, M.D.
Associate Professor of Surgery and Pediatrics, Baylor College of Medicine
Associate Chief, Congenital Heart Surgery, Texas Children’s Hospital
Surgical Director, Heart and Lung Transplant, Texas Children’s Hospital
Associate Director, Residency Program, Texas Children’s Hospital

Contact Information
Texas Children’s Hospital
Congenital Heart Surgery
6621 Fannin St., WT19345H
Phone: 832-826-1929
Fax: 832-825-1905
Email: jsheinle@texaschildrens.org

Selected publications:
Carlos M. Mery, M.D., M.P.H.
Assistant Professor of Surgery and Pediatrics

Contact Information
Congenital Heart Surgery
Texas Children’s Hospital
6621 Fannin St., WT-19345H
Houston, TX 77030

Selected publications


Lalita Wadhwa, Ph.D.
Assistant Professor of Surgery

Keywords
- Tissue banking
- Congenital heart defect genomics
- Metabolomics

Contact information
Texas Children's Hospital
Room: TXCH-B19
Mail Stop: BCM390
Houston, Texas 77030
United States

Selected publications


Ziyad Binsalamah, M.D., M.Sc., F.R.C.S(C)
Instructor in Surgery

Keywords

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

Contact information

Texas Children's Hospital
Room: TXCH-WT 19345-H
Mail Stop: BCM390
Houston, Texas 77030
United States

Selected publications

GENERAL SURGERY

The success of the individual programs is recognizable through research funding, publications, presentations, training and academic services, which significantly enhance the national and international reputations of the department.

In the areas of clinical and basic science research, individual programs have been recognized through research funding, publications, presentations, training, and academic services.

One five-year long study published in the prestigious journal *Nature* was the first to report 16 significantly mutated genes in actual human pancreatic cancer primary tumors, including genes not previously known to be associated with the disease.

As a result of the division’s clinical expertise and research programs patients receive a highly specialized assessment, the newest treatment modalities, including clinical trials for new medications and emerging surgical techniques, and coordinated follow up of their care.
Dr. William E. Fisher, M.D. is the Professor and Chief of the Division of General Surgery at George L. Jordan, M.D. Chair in General Surgery. He is also the Chair in General Surgery at Michael E. DeBakey Department of Surgery and the Director of the Elkins Pancreas Center at Baylor College of Medicine (BCM). Dr. Fisher's research interests include Pancreatic cancer, Gene sequencing, and Clinical trials/outcomes/quality.

Dr. Fisher was awarded two NIH grants in 2015. One grant is focused on creating a consortium among 3 high-volume pancreas centers to study outcomes of pancreatic surgery. The other grant is composed of 10 centers studying the relationship between new onset diabetes, chronic pancreatitis, and pancreatic cancer.

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 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.

Contact information
Dan L Duncan Comprehensive Cancer Center
6620 Main Street, Suite 1350
Houston, TX 77030
Selected publications


Samir S. Awad, M.D., M.P.H.

Professor and Chief, Section of Surgical Critical Care
Director, Surgical Critical Care Residency
Baylor College of Medicine

Operative Care Line Executive & Chief of Surgery
Medical Director Surgical Intensive Care Unit
Michael E. DeBakey VA Medical Center

Research interests

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.

Contact information

Michael E. DeBakey VA Medical Center

2002 Holcombe Blvd.

VAMC-112

Houston, Texas 77030

Selected publications

Natasha Becker, M.D.
Assistant Professor of Surgery
Division of General Surgery
Baylor College of Medicine

Keywords
- Emergency care
- Outcomes improvement
- Patient-centered outcomes

Research interests

Natasha Sarkari Becker, M.D., M.P.H., is an assistant professor that specializes in emergency general surgery and surgical critical care. Dr. Becker joins the department in the Division of General Surgery. After earning her medical degree from the University of Kentucky College of Medicine in Lexington, Kentucky, Dr. Becker completed both her General Surgery Residency and Surgical Critical Care Fellowship here at Baylor College of Medicine.

While training at Baylor, Dr. Becker spent two years concentrating on clinical research and at the same time obtained a Masters of Public Health from The University of Texas Health Science Center in Houston. Following this she relocated to Geisinger Wyoming Valley Medical Center in Pennsylvania where she served as the director of Surgical Research and as the associate program director for the Geisinger Northeast Osteopathic surgery residency program.

Dr. Becker’s research interests are patient satisfaction, communication, and improving the care delivered in emergent situations in addition to improving outcomes after emergency general surgery and the open abdomen.

Contact information

Michael E. DeBakey VA Medical Center
Mail Stop: BCM390
Houston, Texas 77030
Selected publications


David H. Berger, M.D., M.H.C.M.
Professor of Surgery
Michael E. DeBakey Department of Surgery
Baylor College of Medicine
Senior Vice President and Chief Operating Officer
Baylor St. Luke’s Medical Center

Keywords
- Healthcare Economics
- Quality and patient safety
- Readmissions after surgery
- Health care delivery

Research interests
Dr. Berger has an active research program in surgical outcomes and health services research. Dr. Berger is currently the Senior Vice-President and Chief Operating Officer at Baylor St. Luke’s Medical Center. Dr. Berger is specifically interested in how digital technology can improve the delivery of healthcare to hospital populations. Dr. Berger is working on using mobile technology to communicate with patients in the postop period. Dr. Berger serves as an advisor for TMCx in digital health, and the Rice Jones School of Business.

Contact information
Baylor St. Luke’s Medical Center
6720 Bertner Blvd
Suite P544
Houston, Texas 77030
Division of General Surgery
Phone: 832-355-5579

Selected publications


* signifies co-senior authors.
Elizabeth Bonefas, M.D.
Assistant Professor of Surgery
Division of General Surgery
Baylor College of Medicine

Contact information

Dan L Duncan Comprehensive Cancer Center
Baylor Clinic
6620 Main Street, Suite 1350
Houston, Texas 77030

Selected publications

Christy Chai, M.D.
Assistant Professor of Surgery
Division of General Surgery
Division of Surgical Oncology
Baylor College of Medicine

Keywords
- Quality improvement
- Clinical outcomes
- Psychoneuroimmunology

Contact information
Michael E. DeBakey VA Medical Center
2002 Holcombe Blvd, OCL 112
Houston, Texas 77030
(713) 794-5857
email: christy.chai@bcm.edu

Selected publications
1. Yi M, Cormier JN, Xing Y et al. "Other primary malignancies in breast cancer patients treated with breast conserving surgery and radiation therapy.." Annals of Surgical Oncology 2013; 20(5):1514-
Subhasis Chatterjee, M.D.
Assistant Professor of Surgery
Division of General Surgery
Baylor College of Medicine

Keywords
- ICU scoring systems
- LVAD
- ECMO

Research interests

His 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.

Contact information

CHI St. Luke’s Hospital/ Texas Heart Institute

6720 Bertner St.

Houston, TX 77030

(713) 798-8051

Selected publications


Louisa Chiu, M.D.
Assistant Professor of Surgery
Division of General Surgery
Baylor College of Medicine

Contact information

Michael E. DeBakey VA Medical Center

2002 Holcombe Boulevard

Room: VAMC-5

Mail Stop: BCM390

Houston, Texas 77030

louisa.chiu@bcm.edu

Selected publications


M. Andrew Davis, M.D.
Assistant Professor of Surgery
Division of General Surgery
Baylor College of Medicine

Keywords
- Patient through-put in the ER

Research interests

M. Andrew Davis, M.D. is an assistant professor of surgery in the Division of General Surgery. Born and raised in Richmond, Virginia, he attended the University of Virginia where he graduated with a B.A. in Mathematics. After spending a postgraduate year abroad in London teaching math, he then went on to attend medical school at the Virginia Commonwealth University School of Medicine/Medical College of Virginia. Upon graduation he pursued his general surgery residency at Emory University in Atlanta, Georgia with a significant amount of time spent at Grady Memorial Hospital, one of the city's main trauma and indigent care facilities. After working in private practice at the completion of his residency, Dr. Davis then came back to Emory to complete a two-year fellowship in Trauma Surgery/Surgical Critical Care at Grady.

Prior research projects have included analysis and implementation of more efficient models of patient through-put in the emergency room setting. He enjoys the teaching and mentoring of residents and medical students, helping them gain an understanding of the complexities in treating surgical patients and fostering their growth within the discipline of surgery itself.

Contact information
Neurosensory Center
NC114
Mail Stop: BCM390
Houston, Texas 77030
email: millard.davis@bcm.edu
Lauren Gillory, M.D.
Assistant Professor of Surgery
Division of General Surgery
Baylor College of Medicine

Keywords
- Emergency General surgery
- Surgical Critical Care
- Surgical Education

Contact information
Michael E. DeBakey VA Medical Center
2002 Holcombe Blvd. VAMC-15
Mail Stop: BCM390
Houston, Texas 77030

Selected publications


Stephanie Gordy, M.D., F.A.C.S.

Assistant Professor of Surgery
Division of General Surgery
Director General Surgery Sub Internship and Electives
Assistant Student Clerkship Director
Department of Surgery
Baylor College of Medicine

Keywords
- Surgical Sepsis
- Critical Care Nutrition
- Hemostatic Dressings
- Spinal Cord Trauma and Timing of Tracheostomy
- Advance Directives in the ICU
- Post Rib Fracture Disability

Research interests
Dr. Stephanie D. Gordy specializes in acute care surgery and surgical critical care. After completing her fellowship she was hired at Oregon Health and Science University as an assistant professor of surgery in the Department of Trauma, Emergency General Surgery and Surgical Critical Care. She now practices Acute Care Surgery and Surgical Critical Care at Ben Taub Hospital

Contact information
Baylor College of Medicine
Department of Surgery
One Baylor Plaza
Mail Stop: BCM390
Houston, Texas 77030
stephanie.gordy@bcm.edu

Selected publications


Marcus Hoffman, M.D.
Assistant Professor of Surgery
Division of General Surgery
Baylor College of Medicine

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

Ben Taub Hospital
1504 Taub Loop
Mail Stop: BCM390
Houston, Texas 77030
(713) 873-2000

Selected publications

Nitric Oxide Synthase Contributes to Immune Dysfunction Following Trauma." Shock. Pubmed PMID: 23042189


Juliet Holder-Haynes, M.D.
Assistant Professor of Surgery
Division of General Surgery
Director, Surgery Core Clerkship
Department of Surgery
Baylor College of Medicine

Keywords
- Adult and adolescent obesity

Contact information
Dan L Duncan Comprehensive Cancer Center
Baylor Clinic Suite 1350
6620 Main Street
Houston, Texas 77030
holderha@bcm.edu

Selected publications
Lisa Haubert, M.D.
Assistant Professor of Surgery
Division of General Surgery
Department of Surgery
Baylor College of Medicine

Research interests

Lisa Marie Haubert, M.D., M.S., assistant professor of surgery, is a board-certified colorectal surgeon in Houston. Dr. Haubert obtained her medical degree from The Ohio State University College of Medicine and completed her General Surgery residency at The Ohio State University Medical Center. During her residency training, Dr. Haubert also received a Master of Science degree in Anatomy from The Ohio State University and performed research in surgical education. Her research was used to develop a novel medical student curriculum with greater involvement of surgeons in student education and experience. She then completed a fellowship in Colon and Rectal Surgery at the esteemed Cleveland Clinic Florida.

Contact information

Baylor Clinic Suite 1350
6620 Main Street
Houston, Texas 77030
haubert@bcm.edu

Selected publications

David S. Lee, M.D.
Assistant Professor of Surgery
Division of General Surgery
Baylor College of Medicine

Contact information

Michael E. DeBakey VA Medical Center
2002 Holcombe Blvd.
VAMC-15
Mail Stop: BCM390
Houston, Texas 77030
david.lee3@bcm.edu

Selected publications

Konstantinos Makris, M.D., FACS

Assistant Professor of Surgery
Division of General Surgery
Baylor College of Medicine

Keywords

- Benign foregut diseases
- Endocrine Surgery

Research interests

Dr. Konstantinos (Kostas) Makris graduated cum laude from the University of Athens Medical School in Greece. He received his General Surgery training at the Mayo Clinic in Rochester, MN and Creighton University Medical Center in Omaha, NE and has been certified by the American Board of Surgery. He pursued fellowship training in Advanced Laparoscopy and Surgical Endoscopy at Legacy Health in Portland, OR, as well as further training in Endocrine Surgery at Johns Hopkins University in Baltimore, MD. He has received awards and acknowledgements by the American College of Surgeons for his participation in the contest of surgical knowledge and in the competition of surgical trainee essay, as well as a traveling fellowship award by the Society of American Gastrointestinal and Endoscopic Surgeons.

He joined Baylor College of Medicine and the Michael E. DeBakey VA Medical Center in November of 2013, where he proudly serves the veterans as a staff surgeon. His clinical practice includes all aspects of General Surgery with emphasis on Minimally Invasive Surgery, benign foregut diseases and endocrine surgery. He is the author of numerous articles, scientific abstracts and book chapters in the fields of his clinical and research interests.

Contact information

Michael E. DeBakey VA Medical Center (Hospital)
2002 Holcombe Blvd.
OCL-112
Mail Stop: BCM390
Houston, Texas 77030
konstantinos.makris2@bcm.edu
Selected publications

Claire F. Ozaki, M.D.
Division of General Surgery
Baylor College of Medicine

Keywords
- Liver Disease

Research interests

Claire F. Ozaki, M.D. 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.

Contact information

Dan L Duncan Comprehensive Cancer Center

6620 Main Street, Suite 1350

Houston, Texas 77030
Selected publications


Bradford Glenn Scott, M.D.

Professor of Surgery
Division of General Surgery
Section Chief of Trauma Surgery
Vice-Chair for Education
Director, General Surgery Residency Program
Department of Surgery
Baylor College of Medicine

Director, Ginni and Richard Mithoff Trauma Center
Ben Taub Hospital

Research interests

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

Contact information

Ben Taub Hospital
1504 Taub Loop
BTH-83-005
Mail Stop: BCM390
Houston, Texas 77030

bradford.scott@bcm.edu
Selected publications


4. Thoracoabdominal Shotgun Wounds: an evaluation of factors associated with the need for surgical intervention MM Carrick, CA Morrison, DA Jacob, MA Feanny, HQ Pham, FJ Welsh, MA Norman, BG Scott. The American Journal of Surgery 2008


10. Assessment and standardization of resident handoff practices: PACT projectTapia NM, Fallon SC, Brandt ML, Scott BG, Suliburk JW. Journal of Surgical Research 2013 September; 184(1):71-7
Robert Ellis Southard, MD
Assistant Professor of Surgery
Division of General Surgery
Baylor College of Medicine

Keywords
• Trauma
• Immune function
• Infection

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

Contact information
Neurosensory Center
6501 Fannin Street
Suite NA 416
Houston, Texas 77030
robert.southard@bcm.edu

Selected publications
5. Perme CS, Southard RE, Joyce DL, Noon GP, Loebe M. "Early mobilization of LVAD recipients who require prolonged mechanical ventilation." Tex Heart Inst J.


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 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 a human factors engineering based approach to analyze surgical complications across the entire adult hospital system of Baylor College of Medicine.

Contact information

Dan L Duncan Comprehensive Cancer Center  
6620 Main Street, Suite 1350  
Houston, Texas 77030  
suliburk@bcm.edu

Selected publications

S. Rob Todd, M.D., F.A.C.S.
Professor of Surgery
Division of General Surgery
Baylor College of Medicine

Chief, General Surgery
Ben Taub Hospital
Keywords

- Blood product utilization
- Trauma outcomes research

Research interests

Dr. Todd’s research focus is blood product utilization in the surgical population.

Selected publications


R. Mario Vera, M.D.
Assistant Professor of Surgery
Division of General Surgery
Baylor College of Medicine

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

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

Contact information
Neurosensory Center
6501 Fannin Street
Suite NA416
Mail Stop: BCM390
Houston, Texas 77030
roberto.vera@bcm.edu

Selected publications
Jeremy Ward, M.D.
Assistant Professor of Surgery
Division of General Surgery
Baylor College of Medicine

Contact information

Baylor College of Medicine
One Baylor Plaza
MS: BCM390
Houston, Texas 77030

jeremy.ward@bcm.edu

Selected publications

Chad Wilson, M.D., MPH  
Division of General Surgery  
Baylor College of Medicine  

Associate Trauma Director  
Ben Taub Hospital  

Keywords
- Trauma epidemiology
- Global surgery
- Healthcare disparities

Research interests

During surgical residency, Dr. Wilson 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.

Contact information

1504 Taub Loop  
Mail Stop: BCM390  
Houston, Texas 77030  
United States  
(713) 873-2000  

Selected publications

Carlos Galvani, M.D.
Division of General Surgery
Baylor College of Medicine
Chief, Metabolic and Bariatric Surgery
Baylor College of Medicine

Research interests

Dr. Galvani has been an invited lecturer numerous of times, nationally and internationally and has been involved in multiple surgical research projects. He is an active member of the American College of Surgeons, holds membership in other professional societies, including SAGES, and the American Society for Metabolic & Bariatric Surgery, the American Hernia Society, and the Surgical Society of the Alimentary Tract.

Contact information

Baylor Clinic Suite 1350
6620 Main Street
Houston, Texas 77030
Carlos.Galvani@bcm.edu

Selected publications

3. Nielsen VG, Galvani CA, Boyle PK, Steinbrenner EB, Matika RW; Bariatric patients have plasmatic hypercoagulability and systemic upregulation of heme oxygenase activity; Blood Coagulation & Fibrinolysis; 2014 Aug 6. [Epub ahead of Print] PMID: 25101516


8. Habib S, Samamé J, Galvani CA; Treatment of Morbid Obesity; Surgery Current Research; 2013; 3; 135. doi: 10.4172/2161-1076.1000135


10. Galvani CA, Gallo AC, Gorodner MV; Single-Incision and dual-incision Laparoscopic Adjustable Gastric Band: Evaluation of initial experience; Surgery for Obesity and Related Diseases; 2012 Mar-Apr; 8(2); 194-200. [Epub 2010 Oct 30]
Michele Loor, M.D.
Assistant Professor of Surgery
Division of General Surgery
Baylor College of Medicine

Research interests

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

Contact information

Baylor Clinic Suite 1350
6620 Main Street
Houston, Texas 77030
mloor@bcm.edu

Selected publications

The division’s surgeons and staff are committed to providing outstanding clinical care, and in developing new treatments for thoracic disease through research and innovation. The surgeons perform surgical techniques and new therapies that are on the cutting edge. New technology drives their innovative techniques that lead to less pain after surgery and a speedier postoperative recovery. These surgeons are well suited to provide the best possible care available for patients stricken with lung cancer, esophageal cancer, mesothelioma and a host of other chest diseases. Together, these surgeons are leading the field of thoracic surgery forward.
David J. Sugarbaker, M.D.

Professor and Chief
Division of General Thoracic Surgery
Division of General Thoracic Surgery
Director, Lung Institute
Olga Keith Wiess Chair in Surgery
Baylor College of Medicine

Keywords
- Mesothelioma

Research interests

In 1989, Dr. Sugarbaker was a leader in the establishment of the Tissue and Blood Repository at Brigham and Women’s Hospital. One of the first tissue repositories in the US, the Tissue and Blood Repository has led to extremely fruitful collaborative research projects. Dr. Sugarbaker has mentored hundreds of residents and fellows during his time at Brigham and Women’s Hospital, a reflection of his deep commitment to teaching the next generation of physicians. His contributions to education also include establishing a unique fellowship in thoracic oncology, a minimally invasive thoracic surgery fellowship, and a visiting scholar program for thoracic surgery.

Contact information

Baylor Clinic
6620 Main Street
Suite 1325
Houston, Texas 77030
United States
(713) 798-6376
Bryan Burt, M.D., FACS
Associate Professor of Surgery
Director, General Thoracic Surgery Research
Associate Chief, General 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.

Contact information
Baylor Clinic
6620 Main Street
Suite 1325
Houston, Texas 77030
Selected publications

2. Burt BM, Kosinski AS, Shrager JB, Onaitis MW, Weigel T. "Thoracoscopic lobectomy is associated with acceptable morbidity and mortality in patients with predicted postoperative forced expiratory volume in 1 second or diffusing capacity for carbon monoxide less than 40% of normal." *J Thorac Cardiovasc Surg.*
Shawn Groth, M.D.
Assistant Professor of Surgery
Division of General Thoracic Surgery
Baylor College of Medicine

Director of Esophageal Surgical Services
Baylor St. Luke’s Medical Center

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

Research interests
Dr. Groth’s clinical research focuses on thoracic oncology outcomes research, health care disparities research, and clinical trials. He has explored several topics directed towards improving the guideline treatment of cancer patients. His basic science and translational research efforts are directed towards advancing personalized oncology.

Contact information
Baylor Clinic
6620 Main Street
Suite 1325
Houston, Texas 77030
United States
Selected publications


The Pediatric Surgery Division at Texas Children’s Hospital has the depth of expertise and specialization to provide optimal care across the surgical spectrum – from the most routine cases to the most rare and complex. Each child receives personalized care from the physician most suited to the case, ensuring the best possible outcomes. The range of surgical procedures performed by the division include fetal surgery, abdominal and thoracic surgery, minimally invasive surgery including laparoscopic and thorascoscopic diagnosis and treatment, endocrine and biliary surgery, and adolescent bariatric surgery. Our research programs are supported by the National Institutes of Health (NIH), private foundations, Texas Children’s Hospital and Baylor College of Medicine.

The Pediatric Surgery Clinical Research and Outcomes Program, in conjunction with the Texas Children’s Evidence-Based Outcomes Center and Outcomes and Impact Services, has developed and evaluated evidence-based protocols for the management of children with appendicitis. The team standardized broad-spectrum antibiotic monotherapy, the use of clinical discharge criteria and guidelines for antibiotic treatment duration in cases of advanced appendicitis. These initiatives have led to decreased resource utilization and costs and, most importantly, improved patient outcomes. Additionally, the creation of a patient and family education pamphlet has helped set expectations and shorten length of hospital stay. Future research directions include the implementation of clinical decision support tools and comparative effectiveness clinical trials.

Partnering with Texas Children’s Cancer Center, one of the largest pediatric cancer centers in the country, the Surgical Oncology Program within the Pediatric General Surgery Division performs more than 500 operations annually for children with solid tumors. Because of the volume of patients and the dedication of these surgeons to this particular population, we are able to achieve outcomes among the best in the nation.

Pediatric Surgical Oncology has an active research program. The team is studying neuroblastoma in their own basic science labs. They are also engaged in clinical research on neuroblastoma, Wilm's tumors and hepatoblastoma, as well as leading a multidisciplinary study with Oncology, Radiology and Pathology to determine how the number of cycles of chemotherapy prior to surgery affects patient outcomes.
Jed G. Nuchtern, MD
Professor of Surgery and Pediatrics
Division of Pediatric Surgery
Chief, Division of Pediatric Surgery
Texas Children’s Hospital
Program Director, Pediatric Surgery Residency Program

Keywords
- Neuroblastoma in infants
- Tumor progression
- Cancer target discovery

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.

Contact information
6701 Fannin St. Suite 1210
Houston, TX 77030
Phone: 832 822-3135
Fax: 832 825-3141
Email: nuchtern@bcm.edu
Selected publications
Mary L. Brandt, MD
Professor of Surgery and Pediatrics
Division of Pediatric Surgery
Director, Adolescent Bariatric Surgery Program
Texas Children’s Hospital

Keywords

- Outcomes in pediatric surgical disease
- Necrotizing enterocolitis
- Biliary atresia
- Adolescent Bariatric Surgery

Research Interests
Dr. Brandt has an active clinical research program to improve outcomes in children with surgical diseases. She is the site PI for Teen LABS, an NIH funded study of adolescents undergoing bariatric surgery. She is also the BCM director for a funded multi-center study to improve diagnostic criteria and prognostic markers in neonates with necrotizing enterocolitis. She is a co-investigator on a national study of biliary atresia.

Dr. Brandt is director of the William J. Pokorny Clinical Research Fellowship and mentors residents and students in the design and implementation of pediatric surgical clinical studies.

Contact information
Division of Pediatric Surgery
Michael E. DeBakey Department of Surgery
6701 Fannin St. Suite 1210
832-822-3135
brandt@bcm.edu
Selected Publications

Timothy C. Lee, MD
Associate Professor of Surgery
Division of Pediatric Surgery

Keywords
- ECMO
- Congenital diaphragmatic hernia
- Gastrochisis

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. 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.

Contact information
Texas Children’s Hospital
6701 Fannin St. Suite 1210
Houston, TX 77030
Phone: 832 822-3135
Fax: 832 825-3141
Email: timlee@bcm.edu
Selected publications


Monica E. Lopez, MD

Associate Professor of Surgery
Division of Pediatric Surgery
Baylor College of Medicine

Research Interests
Dr. López’s research interests focus on the design and implementation of retrospective and prospective pediatric surgical clinical outcomes studies. She regularly mentors residents and students in clinical research. She is also investigating the development of clinical research trials that lead to the implementation of evidence-based practice guidelines in the management of common pediatric surgical diseases and improved patient outcomes.

Contact Information

6701 Fannin, CC1210.00

Houston, TX 77030

Phone: 832-822-3135

Fax: 832-825-3141

melopez@bcm.edu
Selected publications


Mark V. Mazziotti, MD
Associate Professor of Surgery and Pediatrics
Division of Pediatric Surgery
Baylor College of Medicine

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

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.

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.

Contact information
6701 Fannin St. Suite 1210
Houston, TX 77030
Phone: 832 822-3135
Fax: 832 825-3141
Email: mazziott@bcm.edu
Selected publications
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.

Contact information
6701 Fannin St. Suite 1210
Houston, TX 77030
Phone: 832 822-3135
Fax: 832 825-3141
milewicz@bcm.edu


Research interests
Dr. Minifee, 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. Minifee combines education and technology as he mentors Baylor residents and medical students on clinical rotations in pediatric surgery.

Contact information
6701 Fannin St. Suite 1210
Houston, TX 77030
Phone: 832 822-3135
Fax: 832 825-3141
pminifee@bcm.edu
Selected publications


Bindi Naik-Mathuria, MD, FACS  
Assistant Professor of Surgery and Pediatrics  
Division of Pediatric Surgery  
Baylor College of Medicine  
Trauma Medical Director  
Texas Children’s Hospital  

Keywords  
- Pediatric trauma  
- Pediatric oncology  
- Congenital anorectal malformations and gastrointestinal anomalies  

Research interests  
Dr. Naik-Mathuria’s research interest is in pediatric trauma; specifically in the areas of quality improvement and outcomes. Our team develops protocols to improve our hospital's pediatric trauma program, and then studies the effects of the protocols. Additionally, we study outcomes from various aspects of pediatric trauma based on our hospital registry as well as national data registries. We are also involved with several multicenter prospective studies in order to understand the best options for optimal care of pediatric trauma patients. Residents would also have the opportunity to participate in injury prevention studies and community interventions, as well as in educational projects. Obtaining a degree in masters in public health concurrently with the research time would be an ideal complement, but is not a requirement.  

Contact information  
6701 Fannin Street, Suite 1210  
Houston, TX 77030  
Phone: (832) 822-3135  
Email: bnaik@bcm.edu
Selected publications


Oluyinka O. Olutoye, MBChB, PhD
Professor of Surgery and of Pediatrics and Obstetrics & Gynecology
Division of Pediatric Surgery
Baylor College of Medicine
Co-Director, Texas Children’s Fetal Center
Texas Children’s Hospital

Keywords
- Congenital diaphragmatic hernia
- Necrotizing enterocolitis
- Fetal neurotoxicity

Research Interests
Dr. Olutoye has a broad range of research endeavors ranging from basic science research using animal models of disease to robust clinical research. He has an active basic science laboratory currently focused on three main areas of research: wound healing, necrotizing enterocolitis (NEC) and fetal interventions. Hypertrophic scarring and keloids can be disfiguring conditions for many patients. Working with a pig model for hypertrophic scars he is studying the effects of Serum Amyloid P (SAP) on fibrocyte inhibition with hopes of developing a therapy that may be translated to treatment of keloids in humans. Early diagnosis of Necrotizing Enterocolitis (NEC) continues to be a clinical challenge. Using a premature piglet model of NEC, he is attempting to identify non-invasive measures as well as serum biomarkers that will allow for early detection of neonates at risk for NEC. In collaboration with multiple subspecialty colleagues he is using time-dated pregnant sheep models to study innovative techniques in fetal intervention to treat conditions such as spina bifida and congenital diaphragmatic hernia (CDH) as well as the effects of fetal anesthesia on the developing brain. Dr. Olutoye also has a great deal of interest in the clinical application of NIRS technology for a variety of neonatal conditions: CDH patients before and after surgical correction, those undergoing extracorporeal membrane oxygenation (ECMO), neonates pre and post patent ductus arteriosus (PDA) ligation and abdominal complications in neonates with congenital heart defects.

Dr. Olutoye has a special interest in surgical education, especially global surgery.

Contact information
6701 Fannin St. Suite 1210
Houston, TX 77030
Phone: 832 822-3135
Fax: 832 825-3141
oolutoye@bcm.edu
Selected publications
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.

Contact information
Texas Children's Hospital
Clinical Care Center 1210
6701 Fannin Street
Mail Stop: BCM390
Houston, Texas 77030

Selected publications
Sanjeev A. Vasudevan, MD  
Assistant Professor of Surgery and Pediatrics  
Division of Pediatric Surgery and Surgical Research  
Baylor College of Medicine  

Keywords  
- Pediatric surgical oncology  
- Neuroblastoma  
- Pediatric liver cancer  
- p53 regulation, and MYCN tumorigenesis  

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.

Contact information  
6701 Fannin, Suite 1210  
Houston, TX 77030  
Phone: (832)822-3135  
Fax: (832)825-3141  
sanjeev@bcm.edu
Selected publications


Keywords
- Pediatric trauma
- Pediatric injury prevention
- GI disorders

Research Interests
Dr. Wesson has been interested in research relating to pediatric trauma and pediatric injury prevention for over 30 years. For example, he participated in some of the earliest definitive studies on the non-operative treatment of solid organ injuries in children. This research helped to define the indications for operation in children with splenic trauma. This approach was very controversial when first described but it has since become the standard of care for children around the world, and more recently in all age groups. Dr. Wesson’s interest in pediatric injury prevention grew out of his experience in pediatric trauma care. This led to his research into the promotion of bike helmet use and the subsequent impact on the incidence of fatal bicycling injuries in a defined population of children. Dr. Wesson also played a role in the development of the trauma system in the City of Toronto and the Province of Ontario, Canada. His research into the incidence of preventable trauma deaths among children in Ontario documented a significant overall reduction in the incidence of fatal injuries and in the proportion of preventable deaths over the period from the late 1980’s to the early 2000’s. His research supported the hypothesis that these improvements were attributable to improvements in the system of care. Dr. Wesson has a variety of other research interests particularly in gastrointestinal disorders in children. He published one of the earliest studies of the results of restorative proctocolectomy in children with ulcerative colitis and familial polyposis. He also has a strong interest in the treatment of biliary atresia and entered many of his patients with this disease into the NIH funded study of this problem by the Bilary Atresia Research Consortium (BARC).
Selected publications
Jingling Jin, PhD
Assistant Professor of Surgery
Division of Pediatric Surgery
Baylor College of Medicine

Keywords
- Hepatoblastoma
- Hepatocellular carcinoma
- Neuroblastoma

Research interests

1. The discovery and development of therapeutic targets in hepatoblastoma, hepatocellular carcinoma and neuroblastoma: Dr. Jin's main focuses of interest are in applying comprehensive basic science approaches to validate novel drug targets for molecular pathways of hepatoblastoma, hepatocellular carcinoma and neuroblastoma in animal and cell models and in human tissues and to develop potential treatments for patients with these diseases. Recently, we found that NR5A2 (nuclear receptor subfamily 5, group A, member 2) may play an important role in the development of hepatoblastoma. The work is directly relevant for the developing new treatment options for pediatric patients with liver cancer.

2. Diet, energy balance, metabolic diseases and liver cancer: The liver is a major metabolic organ for the regulation of fatty acid, insulin and glucose signaling. Metabolic diseases such as diabetes and obesity are risk factors for liver cancer, suggesting an important role for energy balance. Diet including sugars and fats may also contribute to the development of liver cancer. Dr. Jin found that the development of non-alcoholic fatty liver disease (NAFLD) is associated with the epigenetic increase of triglyceride synthesis through the activated p300-C/EBPα/β pathway under high fat diet protocols and in livers of patients with NAFLD. We aim to use these findings to better understand the interaction of dietary and environmental exposures that affect liver function and regeneration, as well as liver cancer.

3. Mechanisms and implications of age-related changes in the liver: Dr. Jin is interested in translational projects to determine the role of transcription factors in aging and in age-related diseases such as age-related loss of liver regeneration and liver cancer. Dr. Jin found that the age-associated liver cancer is caused by the elimination of C/EBPα through the ubiquitin-proteasome system. In addition, she discovered a novel mechanism of liver cancer development is through a tight regulation of levels of C/EBPβ-HDAC1 complexes on the levels of transcription, translation, and posttranslational modifications. These findings may increase our understanding of cancer pathogenesis and rejuvenation of aging liver and suggest novel approaches to therapies.
Contact information

Office address: Department of Surgery/Pediatric Surgery Division.
Baylor College of medicine, Texas Children’s Hospital
1102 Bates Avenue, Feigin Center Suite C 0780.02, Houston, TX. 77030, U.S.A.

Phone: 832-824-4794
Cell phone: 832-643-3460  T-Mobile
Email: jinglinj@bcm.edu or jxjin@texaschildrenshospital.org

Selected publications


Sundeep Keswani, M.D.
Associate Professor of Surgery
Division of Pediatric Surgery
Baylor College of Medicine

Keywords
- Fetal Diagnosis and Therapy
- Wound Healing
- Regenerative Medicine

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.

Contact information
Feigin Center
1102 Bates Street
C.0470.01
Houston, Texas 77030

Selected publications
Sohail Rashmi Shah, M.D., M.S.H.A.

Assistant Professor of Surgery
Division of Pediatric Surgery
Baylor College of Medicine

Keywords

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

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.

Contact information

Clinical Care Center
6701 Fannin Street
8th Floor
Houston, Texas 77030
Selected publications


Swathi Balaji, Ph.D.
Assistant Professor of Surgery
Division of Pediatric Surgery

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

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.

Contact information

1102 Bates Avenue, C.450.05, Feigin Building,
Houston, Texas, 77030
Office: 832-824-0461
balaji@bcm.edu
Selected publications


Adam Vogel, M.D.
Associate Professor of Surgery
Division of Pediatric Surgery
Baylor College of Medicine

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

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.

Contact information

Texas Children's Hospital
6621 Fannin St. 8th Floor
Houston, Texas 77030
832-824-2778

Selected publications


Plastic Surgery

Division faculty members pursue a wide variety of clinical and basic science research projects. The majority of this work focuses on improving the care of patients with facial injuries or congenital deficiencies.

The division, for example, is currently leading a large-scale study of outcomes in pediatric craniofacial surgery. Faculty members have also been studying new and better treatments for mandibular fractures, including studies evaluating the biologic response to resorbable plate and screw fixation, and a clinical study to determine the optimal method to stabilize mandibular fractures.
Keywords

- Reconstructive surgery
- Mandibular fractures
- Distraction osteogenesis

Research Interests

Dr. Hollier has a broad background in craniosynostosis 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.

Contact Information

Baylor College of Medicine
6701 Fannin St. Suite 610.00
Houston, TX 77030
Phone: 832-822-3190
Fax: 832-825-3192
larryh@bcm.edu
Selected Publications


Edward Reece, M.D., EMBA

Chief, Adult Plastic Surgery
Division of Plastic Surgery
Baylor College of Medicine

Keywords
- Telehealth
- Nerves
- Reconstruction

Research interests

Educated at the University of Virginia, he graduated with distinction with a Bachelor of Arts. He has a passion for research enterprises from the cellular level to the clinical and societal levels which have led to peer reviewed publications and lectures. His completion of medical school at Case Western Reserve University School of Medicine produced both a Doctor of Medicine degree and a Master’s degree for applied anatomical sciences.

He is the founder of several biomedical companies which seek to find efficiency and cost savings for institutions while preserving the highest quality to patients. System analysis of Supply Chain in Hospitals has been another of his interests and he has served as a Healthcare Supply Chain consultant at Dignity Health, in Phoenix, Arizona.

Contact information

1977 Butler Blvd.

Suite E6.100

Houston, Texas 77030

United States

ereece@bcm.edu
Selected publications

Edward Buchanan, MD

Assistant Professor of Surgery
Division of Plastic Surgery
Baylor College of Medicine

Keywords
- Cleft Lip and Palate
- Craniofacial syndromes
- Plastic Reconstruction

Contact information

Texas Children's Hospital
Clinical Care Center
6621 Fannin Street, Suite 610.00
Mail Stop: BCM340
Houston, Texas 77030
Selected Publications

Amy Dao Huynh-Tran, DDS
Assistant Professor of Surgery
Division of Plastic Surgery
Baylor College of Medicine

Keywords
- Children with developmental differences
- Pediatric plastic surgery

Contact information
Clinical Care Center
TXCL-610.00
Mail Stop: BCM340
Houston, Texas 77030

amy.huynh-tran@bcm.edu
Selected publications

Shayan Izaddoost, MD, PhD, FACS
Assistant Professor of Surgery and of Molecular & Cellular Biology
Division of Plastic Surgery
Program Director, Integrated Residency in Plastic Surgery
Baylor College of Medicine
Chief of Plastic Surgery
Ben Taub Hospital

Keywords

- Fat grafting and stem cell action and irradiated fields
- Treatment of device infections and sternal wounds

Contact information

Center for Aesthetic Surgery
Jamail Specialty Care Center, Suite E6.100
1977 Butler Blvd.
Houston, Texas 77030
Selected publications

2. Echo A., Weathers, WM. McKnight, AJ and Izaddoost S. The use of a 3-D model to optimize a Medpor implant for delayed reconstruction of a suprastructure maxillectomy defect. Craniomaxillofac Trauma Reconstr. 2013
Renata Maricevich, MD
Assistant Professor of Surgery
Division of Plastic Surgery
Baylor College of Medicine

Contact information
Texas Children's Hospital
Clinical Care Center 610
6701 Fannin Street
Houston, Texas 77030
(832) 822-3190

Selected publications


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

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

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.

Contact information
Texas Children's Hospital  
Clinical Care Center 610  
6701 Fannin Street  
Mail Stop: BCM340  
Houston, Texas 77030
Selected publications


Shola Olorunnipa, M.D.
Assistant Professor of Surgery
Division of Plastic Surgery
Baylor College of Medicine

Keywords
• 3DMD
• Cleft
• Telemedicine

Contact information
Texas Children's Hospital
Clinical Care Center
Room: TXCC-610
Mail Stop: BCM630
Houston, Texas 77030

Selected publications
Research interests

His research interests are cranial vault remodeling, facial fractures, midfacial and mandibular distraction, orthognathic surgery, and virtual surgical planning.

Contact information

Clinical Care Center
6621 Fannin St.
8th Floor
Houston, Texas 77030
832-822-3000
Sebastian Winocour, M.D., M.Sc.
Assistant Professor of Surgery
Division of Plastic Surgery
Baylor College of Medicine

Research interests
Dr. Winocour’s research interests focus on breast reconstruction, aesthetic surgery and the treatment of pathological scarring.

Contact information
Center for Aesthetic Surgery
Jamail Specialty Care Center
Suite E6.100
1977 Butler Blvd.
Houston, Texas 77030

winocour@bcm.edu

Selected publications


John Wirthlin, DDS, MSD
Assistant Professor of Surgery
Division of Plastic Surgery
Baylor College of Medicine

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

Contact information
Texas Children's Hospital
Clinical Care Center Floor 8
6701 Fannin Street
Mail Stop: BCM340
Houston, Texas 77030
Selected publications


Research interests

As a member of the cleft and craniofacial team, Dr. Yang helps treat patients born with a variety of facial abnormalities including, cleft lip and palate, hemifacial microsomia, Crouzon Syndrome, Pierre Robin, and a variety of other abnormalities. Treating these patients with a team-centered approach allows optimal treatment results as professionals from plastic surgery, speech pathology, orthodontics, pediatric dentistry, otolaryngology, and several other specialties can coordinate and optimize each step of the treatment.

Contact information

Texas Children's Hospital
Clinical Care Center Floor 8
6701 Fannin Street
Mail Stop: BCM340
Houston, Texas 77030
Marco Maricevich, MD
Assistant Professor of Surgery
Division of Plastic Surgery
Baylor College of Medicine

Contact information
Jamail Specialty Care Center
Suite E6.100
1977 Butler Blvd.
Houston, Texas 77030
United States
(713) 798-6141

Selected publications


SURGICAL ONCOLOGY

Developing novel approaches for cancer gene therapy, immunotherapy, non-invasive radiofrequency field therapy to enhance tumor blood flow and produce modulated tumor-specific hyperthermia, use of nanotechnology to improve cancer detection, and robotic surgery are among the division's several basic science research pursuits. Areas of recent translational research focus have included the compilation of tissue-based databases that help track and understand patient outcomes in pancreatic, hepatobiliary, and colorectal cancers. Additionally, our clinical research initiatives include detecting genetic profiles and differences in circulating tumor cells in patients with primary and metastatic colorectal cancer, developing hyperthermic treatment programs for patients with peritoneal-based malignancies, and expanding neoadjuvant treatments in patients with pancreatic, hepatobiliary, colorectal, and breast malignancies.
Keywords

- 3D printing of human liver
- Testing of novel devices to increase negative-margin surgical resection of malignant disease
- Electromagnetic fields in diagnosis and treatment of disease
- Novel cancer therapies
- Nanotechnology applications in biomedical research and treatments

Research interests

Dr. Curley has been leading a basic sciences laboratory for 25 years. Currently, his research centers on the design, bench testing, and clinical study of novel noninvasive radiofrequency (RF) field treatment devices. Having developed two FDA-approved devices for invasive radiofrequency ablation needles to treat unresectable liver cancers, his current studies focus on targeted delivery of metallic or semiconducting nanoparticles that release heat under RF field induction to cause thermal cytotoxicity in cancer cells. His group has also performed complex physicochemical measurements of nanoparticles, and has conjugated them to antibodies, peptides, and pharmacologic agents to target cancer cells. He hopes to test these novel treatments in human clinical trials at BCM within the next two to three years, pending FDA approval. State-of-the-art techniques in molecular biology, cancer immunotherapy, medicinal chemistry, intravital microscopy, cancer cell culture and testing, preclinical animal models of cancer, and scanning electron microscopy are among the techniques trainees will learn and use during their time in the highly productive laboratory environment.
**Contact information**

Dan Duncan Cancer Center  
6620 Main Street, Suite 1350  
Houston, Texas 77030  
Appointment: (713) 798-2262  
Fax: (713) 798-3504  
Steven.curley@bcm.edu

Allison Horner, PA  
Phone: (713) 798-3214

**Selected publications**


Stacey Ann Carter, M.D.
Assistant Professor of Surgery
Division of Surgical Oncology
Baylor College of Medicine

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

Contact information
Baylor Clinic - Surgical Oncology
6620 Main Street
Suite 1350
Houston, Texas 77030

Selected publications


Eugene Choi, MD

Associate Professor of Surgery
Michael E. DeBakey Department of Surgery

Keywords
- Metastasis
- Cell Signaling
- Pancreatic Cancer

Research Interests

Dr. Choi’s research interests include the signaling mechanisms of colorectal and pancreatic cancer metastasis and development of novel drug therapies.

Contact information

Dan Duncan Cancer Center
Baylor Clinic
6620 Main Street, Suite 1350
713-798-8070

Selected publications


Nader Massarweh, M.D., M.P.H.

Assistant Professor of Surgery
Division of Surgical Oncology
Baylor College of Medicine

Keywords

- Health services
- Health policy
- Surgical quality improvement
- Cancer outcomes

Research interests

Dr. Massarweh’s research interests include health services, health policy, and healthcare quality improvement work.

Contact information

Michael E. DeBakey VA Medical Center
2002 Holcombe Blvd.
VAMC-OCL112
Mail Stop: BCM390
Houston, Texas 77030
Selected publications


Eric J. Silberfein, M.D., F.A.C.S.

Assistant Professor of Surgery
Division of Surgical Oncology
Michael E. DeBakey Department of Surgery

Research interests

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.

Contact information

Baylor College of Medicine
One Baylor Plaza, MS:390
Houston, TX 77030
Phone: 713-873-5324
Fax: 713-795-5622
Email: ejs@bcm.edu
Selected publications


3. Perrier ND, Silberfein EJ. How to take the ambiguity out of parathyroidectomy: A unique classification system and precise preoperative imaging lead to a safe and minimally invasive operation. Contemporary Surgery 2007; 63: 452-454.


George Van Buren, II, M.D.
Assistant Professor of Surgery
Division of Surgical Oncology
Baylor College of Medicine

Keywords
- Pancreatic cancer
- Gastrointestinal malignancies
- Whipple procedure

Research interests
Dr. Van Buren’s primary area of interest is pancreatic cancer and gastrointestinal malignancies. 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 pancreatic cancer and comparisons between various races.

Contact information
Elkins Pancreas Center
6620 Main St., Suite 1450
Houston, Texas 77030
email: george.vanburen@bcm.edu
Office: 713-798-8070
Cell phone: Cell 713-213-6494
Selected publications


Hop S. Tran Cao, M.D., FACS
Assistant Professor of Surgery
Division of Surgical Oncology
Baylor College of Medicine

Keywords
- Pancreas cancer & hepatobiliary malignancies
- Gastric cancer
- Fluorescence-guided surgery
- Malnutrition impact on cancer care and outcomes

Research interests
Dr. Tran Cao’s research interests include foregut malignancies (hepatobiliary, pancreatic, gastric cancers), fluorescence-guided surgery, and the impact of malnutrition on cancer care and outcomes.

Contact information
2002 Holcombe Blvd
Room: VAMC-OCL112
Mail Stop: BCM390
Houston, Texas 77030
email: hop.trancao@bcm.edu

Selected publications


Cary Hsu, M.D.
Assistant Professor of Surgery
Division of Surgical Oncology
Baylor College of Medicine

Keywords
- Cancer biology
- Cancer immunotherapy
- Clinical outcomes

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 and cancer immunotherapy.

Contact information
Ben Taub Hospital (Hospital)

1504 Taub Loop

Mail Stop: BCM390

Houston, Texas 77030
Selected publications

3. Doorn JA, Sorenson RC, Billecke SS, Hsu C, and La Du BN. "Evidence that several conserved histidine residues are required for hydrolytic activity of human paraoxonase/arylesterase." Pubmed PMID: 10421457
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.

Contact information
Baylor Clinic

6620 Main Street

Suite 1350

Houston, Texas 77030
Selected publications


3. Barakat O, Ozaki CF, Wood RP. "Topically applied 2-octyl cyanoacrylate (Dermabond) for prevention of postoperative pancreatic fistula after pancreaticoduodenectomy."


5. Omar Barakat, MD, FRCS, Gabriela C. Rodriguez, MD, Isaac Raijman, MD, Paul M. Allison, MD, Javier Nieto, MD, Claire F. Ozaki, MD, FACS, Robert P. Wood, MD, FACS, and David A. Engler, PhD. "Clinical Value of Plasma Hepatocyte Growth Factor Measurement for the Diagnosis of Periampullary Cancer and Prognosis after Pancreaticoduodenectomy."


Our faculty physicians in the Division of Vascular Surgery and Endovascular Therapy at Baylor College of Medicine are widely recognized as leaders in the fields of vascular surgery and endovascular therapy at several institutions in the Texas Medical Center, including Baylor St. Luke’s Medical Center, the Texas Heart Institute, Texas Children’s Hospital, the Michael E. DeBakey VA Medical Center and Ben Taub Hospital.

Equipped with state-of-the-art resources and funded by the National Institutes of Health, the American Cancer Society, the Dan L Duncan Comprehensive Cancer Center, the National Institute of Neurology Disorders and Strokes, and the Department of Veterans Affairs, the research center conducts basic science programs in vascular biology, pancreatic cancer research, surgical immunology, and cancer vaccination.

To ensure that the newest treatment options are available to patients with vascular disease, the division actively participates in several clinical trials that evaluate new devices for the treatment of abdominal aortic aneurysms and peripheral arterial disease.

Our research efforts in clinical outcomes following surgical or endovascular treatment of aneurysms, dialysis interventions, lower extremity occlusive disease, and carotid disease, have helped define standards of care in vascular disease management.

Interdisciplinary Consortium on Advanced Motion Performance (iCAMP) is an interdisciplinary research and development collaboration led by Bijan Najafi, Ph.D., between a host of productive, exciting, creative teams - from Vascular Surgery, Orthopedics, Podiatrist, Nursing, Geriatrics, Anthropology and Engineering at the Baylor College of Medicine (Michael E. DeBakey Department of Surgery, Division of Vascular Surgery and Endovascular Therapy).
Joseph L. Mills Sr. M.D., F.A.C.S.

Professor of Surgery and Chief
Division of Vascular Surgery & Endovascular Therapy

Michael E. DeBakey Department of Surgery
Baylor College of Medicine

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

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.

Contact information
Baylor Clinic
6620 Main Street
Suite 1325
Houston, Texas 77030

Selected publications


Neal R. Barshes, M.D., M.P.H.
Associate Professor of Surgery
Division of Vascular Surgery & Endovascular Therapy
Baylor College of Medicine

Keywords
- Diabetic foot ulcers
- Diabetic limb salvage
- Infrainguinal bypass

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.

Contact information
Michael E. DeBakey VA Medical Center
2002 Holcombe Blvd.
Houston, TX 77030
(713) 794-7892
barshes@bcm.edu
Selected publications


Research interests

Dr. Braun’s areas of academic interest include cost-effectiveness in management of vascular disease, functional outcomes in peripheral artery disease treatment, and perfusion assessment in diabetic foot wounds. He has contributed articles to peer-reviewed journals such as Journal of Vascular Surgery and presented at national and regional meetings. He has also served as a co-author for Surgical CORE curriculum in carotid disease.

Contact information

Michael E. DeBakey VA Medical Center
VAMC-OCL-112
Mail Stop: BCM390
Houston, Texas 77030

Selected publications

Jayer Chung, M.D., M.Sc.
Assistant Professor of Surgery
Division of Vascular Surgery & Endovascular Therapy
Baylor College of Medicine

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

Contact information
Baylor Clinic
6620 Main Street
13th Floor, Suite 1325
Houston, Texas 77030
jayer.chung@bcm.edu

Selected publications


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

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.

Contact information
Ben Taub Hospital
1504 Taub Loop
Room: BTGH-3NO920
Mail Stop: BCM390
Houston, Texas 77030
rgilani@bcm.edu
Selected publications


Panos Kougias, M.D.
Associate Professor of Surgery
Division of Vascular Surgery & Endovascular Therapy
Baylor College of Medicine
Vascular Surgery Section Chief
Michael E. DeBakey VA Medical Center

Keywords
- Endovascular treatment abdominal aortic aneurysms
- Systems re-design and health care delivery optimization
- Carotid endarterectomy and stenting

Research interests

Dr. Kougias’s research interest focuses exclusively on clinical research within the following two areas:
1) Randomized controlled trials to answer critical clinical questions and address systems re-design issues
2) Observational studies utilizing large datasets from institutional or nationwide databases.

He currently runs two randomized controlled trials funded from a VHA Career Development Award and a VHA Merritt Review Award. Our group also runs more than 25 observational studies on topics that cover the areas of limb salvage, operating room time utilization, carotid disease and vascular infections, among others. He has mentored 12 students and/or residents over the past 3 years with a philosophy that emphasizes a progressive initiation of the mentee into the principles of clinical research; research question inception, data collection, data analysis, and scientific presentation/writing. Two of his current mentees are pursuing formal training in Clinical Research and/or Epidemiology as part of their research curriculum.

Contact information

Michael E. DeBakey VA Medical Center

2002 Holcombe Blvd, OCL-112

Houston, TX 77030

713-794-7700

pkougias@bcm.edu
Selected publications


Brian D. Lepow, D.P.M.
Assistant Professor of Surgery
Division of Vascular Surgery and Endovascular Therapy
Baylor College of Medicine

Keywords
- Diabetic foot
- Limb salvage
- Amputation prevention

Contact information
Baylor Clinic
6620 Main Street
Suite 1325
Houston, Texas 77030
lepow@bcm.edu

Selected publications
1. Lepow, BD, Bluthe, DB. "It Takes a Team." Podiatry Management.
2. Lepow, GM; Lepow, BD. "Emerging Insights on Fixation for Austin/Chevron Bunionectomies." Podiatry Today.
Bijan Najafi, PH.D., MSc.
Professor of Surgery and Director, Clinical Research
Division of Vascular Surgery and Endovascular Therapy
Director, Interdisciplinary Consortium on Advanced
Motion Performance (iCAMP)
Baylor College of Medicine

Keywords

- Wearable technology
- Movement science
- Digital health
- Exergame/Exercise Science
- Internet of Things (IoT)
- Motor Cognitive Performance
- Frailty

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, 6+ issued patents and 12+ 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 (PAMSys™, LEGSys™, BalanSens™, ACTIVPers™, etc), patient adherence (PAMTag™), and various technologies for foot problems management including prevention of diabetic foot ulcers (SmartSox Novinoor, SurroSens Orpyx, SmartMat Podimetrics).
He has mentored over 200 postdoctoral, research fellows/interns, graduate, undergraduate, premed, and medical students - several of them received prestigious awards from their achievements while working in his team. He also serves as editor, associate editor, and guest editor for several scientific journals including as a section editor for Gerontology, ‘Regenerative and Technological Section’, Journal of Diabetes Science and Technology, and the Journal of American Podiatric Medical Association (JAPMA). He has served as the chair of research operation at the Southern Arizona Limb Salvage Alliance (SALSA), a collaborative clinical and research alliance dedicated to advancing care of the diabetic foot and preventing amputations in North America and worldwide.

**Contact information**

iCAMP  
Suite B01.532  
7200 Cambridge Street (McNair Hospital)  
Houston, Texas 77030  
[bijan.najafi@bcm.edu](mailto:bijan.najafi@bcm.edu)

Page: [www.bcm.edu/icamp](http://www.bcm.edu/icamp)

**Selected publications**


Miguel Montero-Baker, M.D.

Associate Professor of Surgery
Division of Vascular Surgery and Endovascular Therapy
Baylor College of Medicine

Keywords
- Critical limb ischemia
- Endovascular
- Implantable technology

Research interests

Dr. Montero-Baker graduated with honors both from medical school and his residency in Vascular Surgery at the University of Costa Rica. After his residency training, he was awarded a DAAD (German Academic Exchange Service) scholarship to further pursue his interest in interventional therapies in Leipzig, Germany and completed a peripheral vascular ultrasound fellowship, as well as an advanced peripheral endovascular interventions fellowship. Driven by his passion for research and development of new diagnostic techniques for ischemic limbs, Dr. Montero-Baker completed an Integrated Vascular Surgery Residency at the University of Arizona and went on to join the faculty as an assistant professor.

Dr. Montero-Baker is author of numerous journal publications, has co-authored several textbook chapters and is a well-recognized opinion leader for the Latin American medical community. Dr. Montero-Baker’s main clinical interests are critical limb ischemia, implantable micro-technology and endovascular carotid disease management.

He is an active member of the Society for Vascular Surgery, the International Society for Vascular Surgery, the International Society of Endovascular Surgeons, Endovascular Surgeons of Latin America and the Latin America Society of Vascular Surgeons.

Contact information

Baylor Clinic
6620 Main Street
Suite 1325
Houston, Texas 77030
miguel.montero@bcm.edu
Selected publications


Jeffrey Alan Ross, D.P.M, M.D.
Associate Professor of Surgery
Division of Vascular Surgery and Endovascular Therapy
Baylor College of Medicine

Contact information
Baylor Clinic
6620 Main Street
Suite 1325
Houston, Texas 77030

Selected publications
Houssam Younes, M.D., RPVI
Assistant Professor of Surgery
Division of Vascular Surgery and Endovascular Therapy
Baylor College of Medicine

Keywords
- Endovascular surgery outcomes
- Vascular imaging
- Vascular access

Research interests
Dr. Younes’ research interests include endovascular surgery outcome, vascular imaging, dialysis access and limb salvage. He has presented multiple national presentations and has authored numerous published articles. His knowledge and proficiency in vascular surgery is recognized by receipt of the Society for Clinical Vascular Surgery Peter Samuel’s Award and the Allstair Karmody Finalist Award and the Society for Vascular and Endovascular Surgery Fellow Award.

Contact information
Michael E. DeBakey VA Medical Center
2002 Holcombe Boulevard
VAMC-OCL-112
Mail Stop: BCM390
Houston, Texas 77030

Selected publications
1. Younes, HK, El-Sayed, HF & Davies, MG Retrograde transpopliteal access is safe and effective - It should be added to the vascular surgeon's portfolio 2015, Annals of Vascular Surgery, vol 29, no. 2, pp. 260-265. DOI:


The Research Core at the Michael E. DeBakey Department of Surgery are pleased to offer you an opportunity to conduct clinical trials through our department representing 130+ faculty members, four major academic clinical centers, and 100,000+ patient visits per year. 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.

1) Our team: Clinical trial coordinators, regulatory experts, grants and contract managers, research nurses, a biostatistician, a database expert, and a medical editor are available to assist with performing clinical trials and preparing the results for presentation.

2) Clinical research support: Our pool of research coordinators can help with clinical trials by working with a research partner to convey proposals all the way from IRB submission to enrollment of the final subject at one or all our 4 major clinical sites of Baylor College of Medicine. Our team includes research nurses, a physician assistant, and five trials management research assistants who are available to support clinical studies. These individuals are skilled at IRB submission, informed consent, clinical monitoring, completing case reports, regulatory compliance, and final report submission.

3) Budget planning: In addition to the support with IRB preparation and actually carrying out the trial, our budget specialists stay on top of the invoicing process and keep the projects financially on track.

4) Our clinical sites: Baylor College of Medicine currently has four potential sites for clinical studies, covered under one IRB: the Michael E. DeBakey Veterans Affairs Medical Center, Ben Taub Hospital, Texas Children’s Hospital, and the Baylor St. Luke’s Medical Center. Our coordinators are credentialed to enroll subjects at all these sites.

Our experienced research core team can be a resource to you in getting your products 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.

For more information about our surgical research faculty, please see our website:
www.bcm.edu/departments/surgery/research

Barbara W. Trautner, MD, PhD  
Director of Clinical Research  
Michael E. DeBakey  
Department of Surgery  
Baylor College of Medicine

Todd K. Rosengart, MD  
Professor and Chairman  
DeBakey-Bard Chair of Surgery  
Michael E. DeBakey  
Department of Surgery  
Baylor College of Medicine

Scott A. LeMaire, MD  
Professor of Surgery and of Molecular Physiology and Biophysics  
Vice Chair for Research, Michael E. DeBakey  
Department of Surgery  
Baylor College of Medicine