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 12 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, a medical illustrator, and pre- and post- grants managers led by department Vice Chair for Research Scott A. LeMaire, M.D.
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.

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Selected publications
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-ß signal modifiers or regulators involved in stem cell differentiation. Novel molecules that control TGF-ß/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-ß

TGF-ß is a major inflammatory and immune-regulatory cytokine, but the mechanisms by which TGF-ß exerts its actions are unclear. We are interested in investigating the signaling interactions between the TGF-ß 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.

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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 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 interested in testing the efficacy of modified chimeric VLP oral-mucosal immunization in non-human primates.

Pancreatic cancer pathogenesis and therapy

Pancreatic cancer has one of the highest mortality rates and ranks as the fourth 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 PLGA 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 to study prevention and the potential of our therapeutic regimens.

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Research interests
My laboratory is actively conducting several basic science and translational research projects that are highly relevant to clinical cardiovascular disease and regenerative medicine. The focus of my research group over the last decade and a half has been the transcriptional regulation of the pluripotent state in embryonic stem (ES) cells and their differentiation. Coming from a nuclear receptor, background I naturally focused on this family of ligand-activated transcription factors, which I found to play key roles in regulating ES cell differentiation. My research group has four broad focuses: (1) the maintenance of pluripotency through the nuclear receptor liver receptor homolog-1 (LRH-1), which interacts with Wnt/βCat enin signaling; (2) silencing of pluripotency gene expression via the nuclear receptor germ cell nuclear factor (GCNF); (3) generation of induced pluripotent stem (iPS) cells focusing on nuclear receptors (NRs); and (4) ES cell differentiation into cardiomyocytes.

Differentiation of ES and iPS cells into cardiomyocytes
In terms of differentiation into cardiomyocytes, we have several projects in progress. For the purpose of modeling regenerative medicine, we generated mouse iPS cells and efficiently differentiated them into functional cardiomyocytes to study the regulation of this process. With Robert Schwartz we collaborate on defining the roles of early lineage determinants in cardiac development. We have focused on the transcription factor Mesp1 and on Wnt signaling. However, it is our work with LRH-1 in ES cells that has pushed us further into understanding cardiac differentiation. We made the novel observation that over-expression of LRH-1 in ES cells leads to a dramatic increase in the number of beating colonies after differentiation. We have shown that the nodal coreceptor Cripto is an LRH-1 target gene. Cripto is highly expressed in ES cells, is rapidly down-regulated upon differentiation, and its expression is specific to the cardiac crescent. Using various Cre drivers developed in the Schwartz lab for early cardiac development, we will study the yin-yang roles of LRH-1 and GCNF in cardiac development using Cre/Lox approaches. In parallel with these genetic approaches, we will test the effects of LRH-1 and GCNF ligands on improving iPS generation and cardiomyocyte differentiation. Our goal is to translate these novel findings to human ES and iPS cells.
In vitro and in vivo cardiac regeneration

In collaboration with Dr. Todd K. Rosengart, we are developing virus-based strategies to treat cardiovascular diseases, such as infarction in situ. The goal is using viral vectors to induce transdifferentiation of cardiac fibroblasts and myofibroblasts into functional cardiomyocytes in situ in a patient’s heart. We are modeling and developing the processes in rats, pigs, and in human cardiac fibroblasts.

Silencing of pluripotency gene transcription

Lrh-1 and GCNF, which are orphan members of the steroid receptor gene family of ligand-activated transcription factors, play yin/yang roles in regulating pluripotent gene expression. We showed that Lrh-1 maintains pluripotent gene expression in response to canonical Wnt signaling through βCatenin. GCNF is the major transcriptional repressor of pluripotency gene expression during the exit from this distinct phase in development, which is initiated by differentiation or gastrulation. GCNF silences pluripotency gene expression by the recruitment of the DNA methylation machinery. We have established GCNF knockout (KO) ES cells as a genetic model. We use proteomic and genomic strategies to dissect the role of GCNF in the regulation of DNA methylation, which is of fundamental importance. We are also testing GCNF ligands, which act as antagonists on ES cell differentiation.

Generation of patient-specific iPS cell lines

We are using genetic and pharmaceutical approaches to study the roles of Lrh-1 and GCNF during iPS formation. Using Cre/lox approaches, we will analyze the roles of LRH-1 and GCNF in iPS formation to generate KO fibroblasts for each factor. We will also test the ligands for LRH-1 and GCNF to determine if they promote iPS formation and quality.

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Selected publications


Kaiyi (Kelly) Li, Ph.D.
Associate Professor
Michael E. DeBakey Department of Surgery
Department of Pathology and Immunology

Keywords
• Breast cancer
• DNA damage response pathways
• DNA repair
• Knockout mouse model
• Liver cancer
• Pancreatic cancer
• Synthetic lethality
• Targeted cancer therapy
• Tumor Suppressor

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 in vitro and in animal models.

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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.

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Selected publications


Dr. Rita Serda’s research team has demonstrated that nanoliposomes and porous silicon (pSi) microparticles presenting pathogen-associated molecular patterns (PAMPs) mimic pathogens, leading to enhanced internalization of the particles by antigen presenting dendritic cells (DC). Presentation of Toll-like receptor (TLR)-4 ligands, including monophosphoryl lipid A and lipopolysaccharide, on the particles stimulates DC surface presentation of costimulatory and major histocompatibility complex molecules, leading to enhanced activation of effector T cells. Currently the laboratory is developing cancer vaccines using the particle platforms to co-delivery immune stimulants and tumor antigens with a goal of achieving complete tumor cell ablation.

Barriers to the transport of therapeutics include the vascular endothelium, interstitial and stromal components, cellular membranes, and intracellular organelles. Sequential targeting and delivery of agents is achieved by presentation of agents in carrier particles, termed Logic-Embedded Vectors (LEVs). LEVs integrate micro- and nano-particles into multi-dimensional functional entities that have the ability to act at multiple levels to bypass biological barriers and deliver therapeutic payloads to desired cell populations and intracellular organelles. In contrast to the concept of nanoparticles and microparticles functioning as static intracellular drug depots, dynamic cellular events lead to physical transport of particles between cells, as well as particle release from dying cells in biovesicles, presenting novel intercellular communication mechanisms. State-of-the-art vital multiphoton and electron microscopy are used to capture dynamic in vivo transport phenomena.

In collaboration with Dr. Steven Curley and Dr. Stuart Corr, Dr. Serda's research team is using nanotechnology and radio waves to drive accumulation of therapeutics at sites of pathology with an overarching goal of eradicating cancer and stimulating anti-cancer immune responses. Using a portable radiofrequency (RF) device integrated with an intravital microscope, they have demonstrated that RF-induced hyperthermia stimulates an increase in intratumoral vascular flow and accumulation of macromolecules and nanoparticles (NPs). RF-induced hyperthermia further stimulates the production of immunogens, increases vascular permeability, and increases susceptibility to additional adjuvant therapies. Alterations in the tumor microenvironment are exploited to achieve specific localization of chemotherapeutic and immune modulating NPs. As an example, adeno-associated viral (AAV)-mediated gene
therapy is being used to simultaneously stimulate immune cells and to silence check point regulators.

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Selected publications


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.
Selected publications


Lidong Liu, Ph.D.
Assistant Professor of Surgery
Division of Surgical Research
Baylor College of Medicine

Keywords
- Cancer stem cell
- Epithelial-mesenchymal transition (EMT)
- Prostate cancer
- TGF-beta

Research interests
Dr. Liu is interested in understanding the signaling transduction mechanisms that regulate cancer initiation, progression, and metastasis.

His current research is focused on two areas:

TGF-β signaling in cancer
He is investigating the molecular mechanisms of TGF-β signaling involved in cancer progression and metastasis, with special emphasis on the roles Smads play as regulators and mediators of TGF-β signaling via cross-talk with other signaling pathways

EMT in cancer
He is studying the molecular basis of epithelial-mesenchymal transition (EMT) and the roles of EMT and stem-like cells generated by EMT in cancer invasion and metastasis. The ultimate goal of my research is to reveal the molecular basis of malignancy and discover targets for cancer treatment.

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Selected publications
Stuart Corr, BEng, MEng, Ph.D.
Assistant Professor of Surgery
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 Nano-materials 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.
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Selected publications

Jian-Ming Lü, Ph.D.
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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.

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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 interests is to study the molecular mechanisms of aortic aneurysms and dissections, highly lethal but poorly understood conditions. During the past few years, we have established mouse models of aortic aneurysms and dissections and developed various techniques to evaluate the aortic structure and functions. We have also developed several projects to study the regulation of aortic inflammation and destruction, as well as aortic repair and remodeling.

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Selected publications


Yulong Liang, Ph.D.
Instructor in Surgery
Division of Surgical Research
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Keywords
• Breast cancer
• DNA damage response
• Double-strand breaks
• Genomic instability
• Homologous recombination
• Liver cancer
• Synthetic lethality model
• Targeting therapy of cancer
• Tumorigenesis

Research interests
My 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, I will 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, I will investigate how to target cancer cells with genomic instability, which may eventually lead to the discovery of drugs for cancer treatment.

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Selected publications


Hongran Wang, M.D., Ph.D.
Instructor in Surgery
Division of Surgical Research

Instructor
Molecular and Cellular Biology
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Keywords
- Germ cell nuclear factor (GCNF)
- Stem cells
- Cellular reprogramming

Research interests
Dr. Hongran Wang focuses his research efforts on germ cell nuclear factor (GCNF), an orphan nuclear receptor function in regulating the pluripotent genes in ES cells, embryonic development and Induced pluripotent stem cells (iPS cells) cells. He showed that pluripotent genes like Oct4 have GCNF response element in their promoters that are targets of GCNF, which inhibits these genes in mouse ES cell, human ES cell and iPS cells during differentiation. Losing GCNF leads to the defect in differentiation of ES cells, iPS cells and defect in the gene expression of three germ lines.

Dr. Wang is also interested in cell therapy using reprogramming technology in degenerative diseases or/and repair injured organs and tissues, for examples: myocardial infarct, heart failure, neural degenerative diseases. He has established the technology platform of obtaining the functional cardiomyocytes from iPS cells, and is working on transdifferentiation of fibroblast into cardiomyocytes. iPS cells not only can be derived directly from healthy adult cells, but also can be made in a patient-matched manner. These individual pluripotent stem cell line that provides an unlimited supplies of autologous cells could be used to generate transplants without the risk of immune rejection. iPS cells will also being used in personalized drug discovery efforts and understanding the patient-specific basis of disease.

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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.
John A Goss, M.D., F.A.C.S.

Professor of Surgery and Chief, Division of Abdominal Transplantation
Baylor College of Medicine
JLH Foundation Chair in Transplant Surgery - Texas Children's Hospital
Director of Liver Transplantation - Baylor St. Luke's Medical Center
Director of Liver Transplantation - Texas Children's Hospital
Director of Liver Transplantation - Michael E. DeBakey Veterans Affairs Medical Center

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.

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Selected Publications


Ronald H. Kerman, Ph.D.
Professor of Surgery
Director, Immune Evaluation Laboratory
Abdominal Transplant Program
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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.

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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

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

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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.

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Saira A. Khaderi, M.D., M.P.H.
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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.

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Selected Publications


Christine A. O'Mahony, M.D.
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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

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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
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Keywords

- Colonoscopy
- Fatty liver disease
- Gastroenterology
- Hepatitis B and C
- Hepatology

Contact Information

BCM - Asian Center
16659 Southwest Freeway
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Selected Publications


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.

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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.

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Selected Publications


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.

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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.

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United States
Selected Publications


John M. Vierling, M.D., F.A.C.P., FAASLD

Professor of Medicine and Surgery
Division of Abdominal Transplantation
Director of Baylor Liver Health
Chief of Hepatology
Director of Advanced Liver Therapies
Baylor College of Medicine

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.
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**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.
Joseph S. Coselli, M.D.
Professor of Surgery
Chief, Division of Cardiothoracic Surgery
Cullen Foundation Endowed Chair
Baylor College of Medicine

**Keywords**

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

**Research interests**

The future of aortic surgery will undoubtedly be heavily influenced by advancements in multiple disciplines—genetics, cellular biology, biochemistry, engineering, and bioinformatics—as well as by innovations in imaging and endovascular technology. Coselli continuously seeks out new treatment paradigms and participates in numerous investigator-initiated and industry-sponsored research projects. Recently, Dr. Coselli was the first physician in Texas to implant the new Trifecta aortic valve (St. Jude Medical), which was performed at the Texas Heart Institute where Dr. Coselli has been an active surgeon since January 2005. Additionally, Dr. Coselli participated in groundbreaking pivotal trials of minimally invasive endovascular approaches to aortic valve replacement, i.e. transcatheter aortic valve replacement (TAVR). In this evolving technology, the native aortic valve is super fitted with a catheter-based aortic valve that expands to replace the native valve. Dr. Coselli participates in ongoing research of emerging “rapid-deployment” sutureless aortic valves that incorporate key aspects of both open and endovascular approaches. All of these developing aortic valve technologies will no doubt play a central role in future efforts, particularly as our population ages—Dr. Coselli is keenly aware of the needs of those patients that are advanced in age. Aortic repair in patients with connective tissue disorders is complex, as both extensive and durable repair is often indicated in these typically much younger patients; such need creates opportunities for innovation, including contemporary valve-sparing aortic repairs. Mentored by the legendary aortic surgeon, Dr. E. Stanley Crawford, Dr. Coselli is today one of the world’s most experienced aortic surgeons; he
has an extensive clinical database and routinely publishes on a wide variety of aortic repairs. Several key papers describe the outcomes of clinical studies designed to determine the best approaches towards preventing complications during thoracoabdominal aortic repair, for which Dr. Coselli is the world’s most renowned and experienced surgeon; these papers report the benefits of using cerebrospinal fluid drainage to protect the spinal cord (a technique now in widespread use in aortic repair), renal perfusion as a protective measure against renal ischemia, and 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 outcomes), aortic arch (Y-graft outcomes, hybrid combined open and endovascular approaches to aortic arch repair), and evolving adjuncts to thoracoabdominal aortic aneurysm repair (selecting adjuncts by extent of repair).

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**Selected publications**


Keywords

- Surgical Outcomes
- Surgical Education
- Clinical Trials

Research interests

Dr. Bakaeen and his team at the Michael E. DeBakey VA Medical Center (MEDVAMC) have a very active clinical research program. This program builds on a large and diverse surgical volume at one of the busiest and most successful VA cardiothoracic programs in the nation. The use of electronic medical records in the VA system, and access to rigorous clinical and administrative databases, have facilitated the team’s research efforts. Specific areas of clinical research include on- vs. off-pump coronary artery bypass grafting (CABG) and the impact of arterial conduits on CABG outcomes. In addition, the team conducts ongoing research on aortic stenosis and aortic aneurysm treatments including transcatheter options and outcomes. Research in surgical education and the impact of resident training on surgical morbidity and mortality are also important components of Dr. Bakaeen’s research portfolio. Dr. Bakaeen is actively involved with several multicenter clinical trials, including studies of radial artery grafts, endoscopic versus open harvest of conduits, antiplatelet therapy in CABG patients, and atrial fibrillation management.

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Selected publications


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.

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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

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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 2,200 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.
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Selected publications


* Resident, fellow or student co-author
George V. Letsou, M.D.
Professor of Surgery
Division of Cardiothoracic Surgery
Baylor College of Medicine

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.

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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.

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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.

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Selected publications


Ourania Preventza, M.D., F.A.C.S.

Assistant 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.

Contact information

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United States

Selected publications


Research interests

Dr. Rosengart is an NIH-supported scientist with uninterrupted extramural funding since 1998.

An extensively published investigator, he was recently named editor of Seminars in Thoracic and Cardiovascular Surgery and appointed member of the NIH Bioengineering, Technology, and Surgical Sciences (BTSS) study section.

He was one of the pioneers in the field of gene therapy, with work beginning in the early 1990s, and is now leading a team of scientists engaged in the study of cardiac cellular reprogramming.

He also holds nearly a dozen patents, including those for a method of inducing angiogenesis, a remote sensing gene therapy delivery device, and an apparatus for creating anastomoses.

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todd.rosengart@bcm.edu
Selected publications


Research interests
Cardiothoracic and Aortic Trauma. Interested in aneurysmal or traumatic presentations of aortic pathology requiring repair. In conjunction with Vascular Surgery, have devised custom-fenestrated endovascular stents to repair aortic transections or aneurysms involving arch or abdominal branches.

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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

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
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United States
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.
Research interests

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

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Selected publications


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.

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Selected publications


Research interests

Dr. Berger has an active research program in surgical outcomes and health services research. He is a member of iQuEST (Center for Innovations in Quality, Effectiveness and Safety), the VA Center of Excellence is health services research. Dr. Berger’s current work involves improving the patient discharge process in an attempt to reduce avoidable hospital readmissions. As part of this research Dr. Berger is working on using mobile technology to communicate with patients in the postop period. Another project is in collaboration with Dr. Panos Kougias. This project looks to use a scheduling algorithm that takes into account patient and surgeon factors in an attempt to better predict operative time. Dr. Berger is currently the secondary mentor for Aaron Scott. Dr. Berger was previously the primary mentor for Courtney Balentine, Celia Robinson, and Linda Li. These research residents have published more than 40 manuscripts and have won several national honors. All research residents have also been fellows of the HSRD center of Excellence.

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Selected publications


* signifies co-senior authors.
Elizabeth Bonefas, M.D.

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

Vice Chief of Staff, St. Joseph Medical Center
St. Joseph Medical Center

Contact information

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

Selected publications


Research interests

Dr. Braxton is the Director of Perioperative Services at the VA and in this role serves as project manager for several special projects aimed at increasing operating room efficiency and decreasing waste. Dr. Braxton is Lean Six Sigma certified. She has an academic interest in health care policy and management and has led the development of the Health Policy and Management Resident Curriculum for the Michael E. DeBakey Department of Surgery. She also serves as the faculty sponsor for the Student Health Policy Forum at Baylor College of Medicine.

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Selected publications

Louisa Chiu, M.D.
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Selected publications

Stephanie Gordy, M.D., F.A.C.S.
Assistant Professor of Surgery
Division of General Surgery
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

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Selected publications


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

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Selected publications

David S. Lee, M.D.
Assistant Professor of Surgery
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Selected publications

Kathleen R. Liscum, M.D.

Associate Professor
Division of General Surgery
Baylor College of Medicine

Keywords
- Surgical education
- Process improvement
- Breast disease

Research interests

Dr. Liscum is a full-time faculty at Ben Taub Hospital. Her professional career has been devoted to the care of indigent patients and the education of medical students and residents. She currently is one of two surgery faculty that staffs the elective surgery service. The majority of the cases performed on this service are oncologic in nature. Due to the demand for clinical service exceeding the available resources, Dr. Liscum’s research interests have included process improvement, clinical outcomes and health disparities. Close to 50% of the cases performed on this service are for breast disease and this is another area of research interest. In addition, Dr. Liscum completed a fellowship in Colorectal Surgery following her General Surgery residency. She created the Colorectal Clinic at Ben Taub and she has an interest in how to optimize care for patients with benign and malignant colorectal disease. Lastly, Dr. Liscum has held a number of positions at BCM and nationally related to surgical education, including more than 10 years of experience with the National Board of Medical Examiners. She is interested in educational scholarship with special interest in curriculum development and assessment.

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Selected publications

Konstantinos Makris, M.D.
Assistant Professor of Surgery
Division of General Surgery
Baylor College of Medicine

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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.

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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

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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

My research program at Ben Taub Hospital offers opportunities in translational science, clinical outcomes and technology development and innovation. Research interests include clinical outcomes in endocrine surgery in underserved and minority populations, outcomes in acute care and trauma surgery and application of mobile technology to improve peri-operative surgical care and communication. The research comes from the establishment of a comprehensive and multidisciplinary treatment of endocrine surgical program at Ben Taub Hospital in addition to the creation and standardization hemorrhagic shock resuscitation pathways for severely injured trauma patients. 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. Finally and perhaps most exciting is work recently begun in technology and innovation. Mobile technology has become an ever-present part of daily life and I 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.
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Selected publications


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

Selected publications

Roberto 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.

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Selected publications
Jeremy Ward, M.D.
Assistant Professor of Surgery
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Selected publications

GENERAL THORACIC SURGERY
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.

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Bryan Burt, M.D., FACS
Assistant 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

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United States
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.
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.

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Selected Publications


Research Interests

Dr. Brown’s research interests focus on clinical outcomes in a broad range of plastic surgery. He has ongoing projects looking at improving techniques in breast reconstruction, breast reduction, and chest wall reconstruction. He also has active research going on to investigate the role of post-operative antibiotics in reducing surgical infections.

Contact information

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

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

5. Fischer AS, Weathers WM, Wolfsinkel EM, Bollo RJ, Hollier LH, Jr, Buchanan EP. Ellis-van Creveld syndrome with sagittal craniosynostosis. Craniomaxillofacial Trauma and Reconstruction. accepted for publication 3/29/2014


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
Research interests

Dr. Khechoyan's research focuses on closely examining the surgical outcomes in craniosynostosis correction and potentially devising novel techniques that effectively achieve the most favorable and long-lasting.

Contact information

Texas Children's Hospital
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Selected publications


Edward Ilho Lee, MD
Assistant Professor of Surgery
Division of Plastic Surgery
Baylor College of Medicine

Keywords
- Scarring
- Vascular anomalies
- Cleft lip and palate

Research interests
Dr. Lee has research interests in many aspects of pediatric, craniofacial and general plastic surgery. He is currently involved in several projects that address surgical outcomes for pediatric and craniofacial patients, including those with cleft lip and/or palate, craniofacial anomalies, and dentofacial deformities. Going forward, he is planning to focus on research related to wound healing and scar maturation. This research will initially focus on clinical outcomes but with plans for basic science research in the future.

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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

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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

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Esther Yang, DDS
Assistant Professor of Surgery
Division of Plastic Surgery
Baylor College of Medicine

Contact information
Texas Children’s Hospital
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Anh Nguyen, MD
Associate Professor of Surgery
Division of Plastic Surgery
Baylor College of Medicine

Keywords

Contact information
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Selected publications

Mitchel Seruya, MD
Assistant Professor of Surgery
Division of Plastic Surgery
Baylor College of Medicine

Keywords
Hand reconstruction
Brachial Plexus
Facial Reanimation

Research interests
Dr. Seruya is engaged in clinical outcomes-based research as a means of optimizing treatment modalities as well providing realistic expectations for patients and their families.

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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

- 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 24 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.

Contact information

Dan Duncan Cancer Center
Baylor Clinic
6620 Main Street, Suite 1350
Selected publications


Keywords

- Colorectal cancer
- Health services
- Advanced laparoscopy training

Research interests

Dr. Albo's research has focused on translational and health services research in colorectal cancer. He has developed a unique retraining program that has successfully led to the conversion of open colorectal surgical units into minimally invasive ones. His acclaimed retraining program, putting emphasis on hands-on skills activities, has highly reproducible clinical successes. His work has resulted in over 100 publications, multiple book chapters, and multiple grants.

Contact information

Dan L. Duncan Cancer Center
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Selected publications


Keywords

- Hepato-pancreato-biliary malignancies
- Quality of cancer care
- Geriatric surgical oncology
- Program development and regionalization of cancer care

Research interests

The focus of Dr. Anaya’s research program directly derives from his clinical interest to appropriately balance the preoperative risk with the oncological benefit of surgical treatment in cancer patients. His research interests focus on improving the risk-appraisal and decision-making processes for elderly patients with complex cancer diagnosis, and on the implementation of telemedicine applications to provide multidisciplinary evaluations; thereby, improving quality of cancer care. Housed in the largest center for health services research in the southwest, Dr. Anaya is the Director of the Surgical Health Services Research & Outcomes Group. Dr. Anaya’s multidisciplinary research team of physician-scientists, biostatisticians, epidemiologists, programmers, trainees and health services researchers, has conducted several studies evaluating important outcomes in the cancer population, including post-operative, oncological, transitional and patient-centered (i.e., health-related quality of life). Additionally, Dr. Anaya’s team examines the impact and effect of dedicated infrastructures and programs on these outcomes. Currently, Dr. Anaya leads funded research to evaluate the association between traditional baseline characteristics and a preoperative comprehensive geriatric assessment with postoperative outcomes of care transitions, survival and health-related quality of life in cancer patients following surgery. Dr. Anaya recently has received a three-year contract to nationally disseminate the Houston Virtual Tumor Board Program using implementation methodology with the ultimate goal of improving quality of cancer care for vulnerable populations.
Contact information

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Selected publications


Avo Artinyan, M.D., M.S., F.A.C.S.
Assistant Professor of Surgery
Division of Surgical Oncology
Director, Simulation Center
Baylor College of Medicine

Keywords
• Hepato-pancreato-biliary malignancies
• Quality of cancer care
• Geriatric surgical oncology

Research interests
Dr. Artinyan’s clinical and research expertise is in the area of minimally invasive gastrointestinal surgical oncology, particularly laparoscopic, robotic and transanal colon and rectal cancer surgery. He has a special interest in sphincter-preserving techniques for rectal cancer resection aimed at reducing the need for permanent colostomy and improving quality of life.

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Selected publications


Research interests

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

Contact information

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Selected publications

1. Comparative assessment of the safety and effectiveness of radiofrequency ablation among elderly medicare beneficiaries with hepatocellular carcinoma. PMID: 21947695
2. Diagnostic imaging and biopsy use among elderly medicare beneficiaries with hepatocellular carcinoma. PMID: 21886495
3. A critical evaluation of the impact of Leapfrog's evidence-based hospital referral. PMID: 21193332
4. Trends in the utilization and impact of radiofrequency ablation for hepatocellular carcinoma. PMID: 20347736
5. Impact of advancing age on abdominal surgical outcomes. PMID: 20026827
6. The significance of discharge to skilled care after abdominopelvic surgery in older adults. PMID: 19212178
7. Role of intraoperative cholangiography in avoiding bile duct injury. PMID: 17382226
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.

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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.


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.

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Selected publications


TRANSPLANT & ASSIST DEVICES

A key area of Texas Heart Institute research involves using ventricular assist devices to allow a patient’s heart to rest and recover its normal function, after which the VAD can be removed.

Investigators are discovering which indicators best show that recovery has occurred, establishing test methods for confirming recovery, and refining surgical methods for removing the VAD in a minimally invasive manner.

Nine patients who underwent long-term support with one of the newer VADs called a HeartMate II have recovered to the extent that their improved heart function allowed removal of their devices.
Hari R. Mallidi, M.D., F.R.C.S.C.
Associate Professor of Surgery and Chief, Division of
Transplant & Assist Devices
Lester and Sue Smith Endowed Chair in Surgery
Director, Advanced Heart Failure and Heart Transplant
Center of Excellence
Baylor College of Medicine
Surgical Director, Heart-Lung & Lung Transplant
Baylor St. Luke’s Medical Center

Research interests

Dr. Mallidi’s primary interests include heart and lung transplantation, mechanical circulatory support (VAD and ECMO), adult congenital heart surgery, surgery for hypertrophic cardiomyopathy, and valvular heart disease. Dr. Mallidi’s research interests are primarily focused on evaluating the outcomes of cardiac surgical procedures and clinical effectiveness research.

Contact information

Baylor St. Luke’s Cooley Transplant Center
6770 Bertner Avenue, Suite C350
Houston, TX 77030
832-355-9910
Selected publications


10. Schaffer JM, Chiu P, Singh SK, Oyer PE, Reitz BA, Mallidi HR. Heart and combined heart-kidney transplantation in patients with concomitant renal insufficiency and end-stage heart failure. Am J Transplant. PMID: 24279876
Keywords

- Ventricular assist devices

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
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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


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; 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.

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Selected publications


George P. Noon, M.D.

Professor of Surgery
Division of Transplant and Assist Devices
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.

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Selected publications


Steve Kelvin Singh, M.D., MSc, FRCSC

Assistant Professor of Surgery
Division of Transplant & Assist Devices
Baylor College of Medicine

Keywords

- Heart failure
- End-stage lung disease
- Clinical trials
  - Adult Heart Surgery

Research interests

Dr. Singh’s research interests are heart failure, end-stage lung disease, mechanical support for both and clinical trials and research. He has written over 30 peer-reviewed publications, six book chapters, and presented at numerous national and international meetings. He holds multiple peer-reviewed grants as a principal investigator.

Contact information

Texas Heart Institute

6770 Bertner Avenue, C-355K

Houston, Texas 77030
Selected publications


VASCULAR SURGERY & ENDOVASCULAR THERAPY

Clinical research efforts in the division focus on new device development and outcomes analysis following surgical or endovascular treatment of aortic aneurysms, dialysis interventions, lower extremity occlusive disease, and carotid disease. These studies have helped define standards of care in vascular disease management. The division also has an active basic science research program located in the Molecular Surgeon Research and Education Center (MSREC). Funded in part by the National Institutes of Health, the MSREC conducts basic science programs in vascular biology and therapeutics.
Peter H. Lin, M.D.

Professor of Surgery
Division of Vascular Surgery & Endovascular Therapy
Baylor College of Medicine

Research interests

Dr. Lin has been involved in multiple clinical trials investigating endovascular treatment modalities in aortic aneurysm and carotid artery stenting. He has developed an active research program in clinical and basic science that includes several research grants funded by the National Institutes of Health to study the molecular pathogenesis of peripheral arterial occlusive disease.


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Charles Adger West, M.D., F.A.C.S.
Associate Professor of Surgery
Division of Vascular Surgery & Endovascular Therapy
Baylor College of Medicine

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Selected publications


Mun Jye Poi, M.D.

Assistant Professor of Surgery
Division of Vascular Surgery & Endovascular Therapy
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Selected publications


Jesus Matos, M.D., R.P.V.I.
Assistant Professor of Surgery
Division of Vascular Surgery & Endovascular Therapy
Baylor College of Medicine

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Selected publications

1. Matos JM, de la Cruz Kl, Ouzounian M, Preventza O, LeMaire SA, Coselli JS. "Endovascular repair as a bridge to surgical repair of an aortobronchial fistula complicating chronic residual aortic dissection Tex Heart Inst J.
3. Krajcer Z, Matos JM. "Totally Percutaneous EVAR: 30-Day Results From the Independent Access Site Closure Study of the PEVAR Trial – ProGlide vs. SEVAR Tex Heart Inst J.


Neal R. Barshes, M.D., M.P.H.
Assistant 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 with a focus on the prevention and management of the limb-threatening foot complications associated with diabetes mellitus and/or peripheral arterial 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.

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Selected publications


Ramyar Gilani, M.D.
Assistant Professor of Surgery
Division of Vascular Surgery & Endovascular Therapy
Baylor College of Medicine

Chief, Vascular Surgery
Medical Director, Vascular Laboratory
Ben Taub Hospital

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.

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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.

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George Pisimisis, M.D., F.A.C.S.
Assistant Professor of Surgery
Division of Vascular Surgery & Endovascular Therapy
Baylor College of Medicine

Keywords
- Intravascular thrombus imaging
- Endovascular complex aneurysm surgery
- Carotid stenting

Research interests
Dr. Pisimisis’s research interests have focused on endovascular treatment of aortic aneurysms, venous disease, and endovascular treatment of lower extremity occlusive disease. He 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.

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We in the **Research Core at the Michael E. DeBakey Department of Surgery** are pleased to offer 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, a medical editor, and a medical illustrator 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 [trautner@bcm.edu](mailto:trautner@bcm.edu).

For more information about our surgical research faculty, please see our website: [https://www.bcm.edu/research/clinical-trials](https://www.bcm.edu/research/clinical-trials)
Left to right: Scott Holmes (medical illustrator), Ana María Rodríguez (medical editor), Hoa Qua (database expert), Courtney Nalty (statistician), Scott LeMaire (Vice Chair for Research), Barbara Trautner (Director of Clinical Research), Rashad Mohammed (business manager), Deborah Horwitz (advanced practitioner), Emily Boeckman (research coordinator), Tunu Magwe (research coordinator). Not pictured: Laurie Fondren (research coordinator), Malesa Jackson (grants manager).