Michael E. DeBakey Department of Surgery

10th Annual Research Symposium

May 31
June 1
2022

Denton A. Cooley Auditorium
Texas Heart Institute
10th Annual Research Symposium

The Pursuit of Excellence is Our Objective

The overarching mission of the Michael E. DeBakey Department of Surgery is to be internationally recognized as the premier department of surgery in innovating breakthrough improvements in the quality and efficiency of patient care, and for training the next generation of surgical scientists, educators and innovators as leaders of our field.

We are excited to present our 10th Annual Research Symposium, which highlights the academic achievements of our department trainees and staff. The mission of the department’s research program is to conduct important research in surgical disease that will improve treatment and quality of life for affected patients and to train future leaders in academic surgery. This year’s symposium underscores both aspects of this mission by highlighting the exciting research activities of our residents, fellows, staff, and students. Our trainees and staff will present work that spans our divisions and affiliated hospitals. Their accomplishments also reflect the outstanding mentorship provided by our faculty members.
Keynote Speaker

Omaida Velazquez, M.D., FACS

Dr. Omaida C. Velazquez, serves as Professor and Chair, David Kimmelman Endowed Chair and Surgeon-in-Chief, at University of Miami and Jackson Health Systems. She is a member of the American Surgical Association and is a nationally and internationally renowned surgeon-scientist. Her seminal contributions allowed her induction into the American Society for Clinical Investigators.

Her preclinical research focuses on stem cells and angiogenesis, wound healing, atherosclerosis, and limb salvage, all related to peripheral vascular disease and vascular complications of diabetes. She publishes in high-impact scientific journals such as Annals of Surgery, Journal of Vascular Surgery, Stem Cells, Journal Clinical Investigation, Mol Cell Biol, Atherosclerosis, and PLoS One. She has continuous NIH funding for 15 years and her discoveries yielded several patents with great translational potential.

She discovered mechanisms for homing and pro-repair functions of stem cells in post-natal revascularization of ischemic tissue. These findings have paved the way to ongoing clinical trials for PVD and diabetic non-healing wounds. These unsolved pathologies account for over one hundred thousand amputations annually, in the U.S. alone.

Recently, Velazquez’s work led to the development of a new gene and cell therapy that may one-day eradicate the need for most amputations. She has advanced clinical endovascular treatments. Her work is highly quoted, accounting for an H-index of 45. She has enhanced clinical protocols for several unsolved vascular diseases. Her leadership as an academic surgeon is greatly valued as evidenced by her appointment as the first Latina Chair of Surgery and Surgeon-Chief in the USA, in 2015. In 2021, she received the Latina Pioneer of the Year Award.

In addition to her roles as a surgeon, educator, and scientist, Dr. Velazquez served as the Executive Dean of Research at the University of Miami Miller School of Medicine from 2012 to 2015. Under her leadership, investigators across campus welcomed many administrative advances to the clinical and pre-clinical research infrastructure; processes were de-mystified and interdepartmental communications increased in transparency and efficiency. She is currently a member of the Joint Operational Leadership Team for the University of Miami Health System and Chairs the Workforce Management Committee (Resilience and Recovery) during the COVID-19 pandemic crisis.

Dr. Velazquez obtained her B.S. from Stevens Institute of Technology in 1987 with High Honors & Scientific Thesis and obtained her M.D. degree from the UMDNJ/NJMS-Rutgers graduating Valedictorian in her class of 1991. She completed post-graduate training in General Surgery, Vascular Surgery, and Surgical Research training at University of Pennsylvania. She was the recipient of the Jonathan E. Rhoads Research Award, the von Liebig Foundation Award, and the Joel J. Roslyn Faculty Research Award (2003) from the Society of University Surgeons. In 2015, Velazquez received the Penn Surgery Julius A. Mackie Distinguished Graduate Award from the University of Pennsylvania, an honor bestowed to the most distinguished former trainees. Before joining the Miller School of Medicine, She served on the faculty at the University of Pennsylvania for eight years and became an Associate Professor with tenure.
Poster Reception

Tuesday, May 31, 2022 | 4-6 p.m.

Resident and Fellow Poster Competition
Moderators: Drs. Qizhi Cathy Yao and Martin Zielinski

Poster #1
“Impact of Autonomic Regulation on Burnout and Performance inThoracic Surgery Residents”
Dr. Lauren Barron
Mentor: Dr. Marc Moon

Poster #2
“Digital Biomarker to Predict Adverse Events Associated with Cancer-Related Toxicity”
Dr. Md Moin U. Atique
Mentors: Drs. Bijan Najafi

Poster #3
“Variation in Hospital Mortality After Inpatient Pediatric Surgery”
Dr. Steven Mehl
Mentor: Dr. Nader Massarweh

Poster #4
“STING Pathway Activation Promotes the Epigenetic Induction of Smooth Muscle Cell Phenotypic Alterations in the Aortic Wall”
Dr. Abhijit Chakraborty
Mentor: Drs. Ying Shen and Scott LeMaire

Poster #5
“National Trends in Racial Disparities for CABG versus PCI Treatment of Coronary Artery Disease”
Dr. Rodrigo Zea-Vera
Mentor: Dr. Ravi Ghanta

Poster #6
“Surgical Management and Outcomes of Patients with Multifocal Hepatoblastoma”
Dr. Richard Whitlock
Mentor: Dr. Sanjeev Vasudevan

Poster #7
“Global Surgery Training Programs Increase Exposure to Essential Surgeries for Operating in Resource-Limited Settings”
Dr. Youmna Sherif
Mentor: Dr. Rachel Davis

Poster #8
“cGAS-STING Pathway-Mediated Cholesterol Metabolism Promotes the Development of Atherosclerosis”
Dr. Yang Li
Mentors: Drs. Ying Shen and Scott LeMaire

Poster #9
“Hospital Variation in Resident Operative Autonomy”
Dr. Jorge Portuondo
Mentor: Dr. Nader Massarweh
Student Poster Competition
Moderators: Drs. Erin Greenleaf and Chad Wilson

Poster #23
“The Role of Endogenously Expressed IL-10 in Wound Closure and Tissue Repair”
Benjamin Padon
Mentor: Dr. Swathi Balaji

Poster #24
“The Impact of Pulsed Electromagnetic Fields (PEMF) on Postoperative Pain in Patients Undergoing Cardiothoracic Surgery”
Ryan Nowrouzi
Mentor: Dr. Samir Awad

Poster #25
“The Marginal Lung Allograft: A Re-Evaluation”
John Miggins
Mentor: Dr. Abbas Rana

Poster #26
“Outcomes and Readmissions after Bioprosthetic versus Mechanical Mitral Valve Replacement in Endocarditis in the United States”
Katie Hogan
Mentor: Dr. Ravi Ghanta

Poster #27
“Hospital Payer Mix and Amputation Rates Among Patients with Peripheral Artery Disease Complications”
Deeksha Bidare
Mentor: Dr. Neal Barshes

Poster #28
“Use of Diagnostic Laparoscopy for Gastric Adenocarcinoma in a Safety-Net Hospital”
Sommert Luu
Mentor: Dr. Eric Silberfien

Poster #29
“NQO1 Expression is a Biomarker of Sensitivity to mTOR Inhibitor Sapanisertib in Hepatoblastoma”
Saibhiroop Govindu
Mentor: Dr. Sarah Woodfield

Poster #30
“Pleurectomy and Decortication is Associated with Better Survival for Bicavitary Cytoreductive Surgery for Mesothelioma Compared to Extrapleural Pneumonectomy”
Hudson Holmes
Mentor: Dr. R. Taylor Ripley

Poster #31
“Aortic Regurgitation After Root Replacement Surgery in Patients with Marfan Syndrome”
Nandita Ramkumar
Mentors: Drs. Joseph Coselli and Irina Volguina

Clinical, Research, and Education Staff Poster Competition
Moderators: Drs. Harveen Lamba and Alexander Schutz

Poster #43
“Effects of Intradialytic Plantar Electrical Nerve Stimulation on Gait Performance in Individuals with Diabetes and End-Stage Renal Disease - Initial Results”
Naima Rodriguez
Mentor: Dr. Bijan Najafi

Poster #44
“Safety and Efficacy of Robotic First Rib Resection with Adjuvant Endovascular Therapy for Paget Schroetter Syndrome”
Alejandro Zulbaran-Rojas
Mentor: Dr. Bryan Burt

Poster #45
“SentiNOT2: Delayed Sentinel Lymph Node Biopsy in Ductal Cancer In Situ”
Ivan Marin
Mentor: Dr. Alastair Thompson

Poster #46
“Improving Daily Physical Activity in Patients Undergoing Routine Hemodialysis Using Plantar Electrical Nerve Stimulation - A Randomized Double-Blinded Controlled Trial”
Anmol Momin
Mentor: Dr. Bijan Najafi
Symposium

Wednesday, June 1, 2022

7:00 – 7:35 am **Welcome**
Dr. Todd Rosengart

**Opening Remarks**
Dr. Mary Dickinson
Dr. Joseph Rogers

**INSTINCT Highlights**
Dr. Livia S. Eberlin

**Office of Surgical Research Highlights**
Dr. Lara Landry
Dr. Carmen de La Penha

**Announcement of Recipients: Quality Improvement Seed Grant Awards for Advanced Practice Providers**
Dr. Atif Iqbal

7:35 – 8:25 am **Keynote Address**
“The Surgeon Scientist: Is Extinction Inevitable”
Dr. Omaida Velazquez

8:25 – 9:15 am **Resident and Fellow Quick Shot Presentations**
Moderators: Drs. Rachel W. Davis and Yan Shi

“Right Ventricular Outflow Tract Obstruction After the Arterial Switch Operation for Taussig-Bing Anomaly Repair”
Dr. Carlos Bonilla-Ramirez
Mentor: Dr. E. Dean McKenzie

“In Vitro Evaluation of 3D Printed Hydroxyapatite, B-Tricalcium Phosphate, and Pore Architecture Gradients on Osteogenesis”
Dr. Brandon Smith
Mentor: Dr. Antonios Mikos

“The Application of Digital Frailty Screening to Triage Non-Healing and Complex Wounds”
Dr. Ram Mishra
Mentor: Dr. Bijan Najafi

“Dynamic Risk Prediction for Hospital-Acquired Pressure Injury in Adult Critical Care Patients”
Dr. Vamsi Aribindi
Mentor: Dr. Hanmin Lee

“Differential Gene Expression in the Pancreatic Cancer Tumor Immune Microenvironment is Associated with Worse Outcomes in African American Populations”
Dr. Zachary Gao
Mentor: Dr. E. Ramsay Camp

“Use of Feedback Orientation Scale for General Surgery Residency Recruitment”
Dr. Jennifer Chen
Mentor: Dr. Aimee Gardner

“Aortic Stress Activates an Adaptive Program in Thoracic Aortic Smooth Muscle Cells That Maintains Aortic Strength and Protects Against Dissection”
Dr. Chen Zhang
Mentors: Drs. Ying Shen and Scott LeMaire

9:15 - 9:30 **Coffee Break**
Clinical Research Abstracts of Distinction – Residents and Fellows
Moderators: Drs. Neal R. Barshes and Jessie Z. Yu

“The Impact of Psychosocial Distress on Perioperative Morbidity and Survival Following Hepato-Pancreatico-Biliary Surgery”
Dr. Naveen Manisundaram
Mentor: Dr. E. Ramsay Camp
Invited discussant: Dr. Eric J. Silberfein

“The Impact of Frailty on Wound Healing in People with Diabetes-Related Foot Ulcers Treated with Skin Substitutes – A Randomized Controlled Trial”
Dr. Catherine Park
Mentor: Dr. Bijan Najafi
Invited discussant: Dr. Natasha Hansraj

Surgical Resection for Pediatric Synovial Sarcoma: What Margin is Adequate?”
Dr. Andy Espinoza
Mentor: Dr. Sanjeev Vasudevan
Invited discussant: Dr. Eugene Choi

Crowdsourcing Complication Data Entry Using a Smartphone Application”
Dr. Lisa Brubaker
Mentor: Dr. William Fisher
Invited discussant: Dr. James W. Suliburk

Basic Science Research Abstracts of Distinction – Residents and Fellows
Moderators: Drs. Nilesh Chitnis and Crystal Shin

“Type 1 Regulatory T-Cells Improve Dysregulated Angiogenesis in Mouse Wounds”
Dr. Walker Short
Mentor: Dr. Sundeep Keswani
Invited discussant: Dr. Ying Shen

“Tumor-Derived Fibrinogen Promotes Basal Subtype of Pancreatic Ductal Adenocarcinoma Progression by Activating Epithelial-Mesenchymal Transition and IL-6/TNF-alpha Related AKT Signaling Pathways”
Dr. Dongliang Liu
Mentor: Dr. Qizhi Cathy Yao
Invited discussant: Dr. Hyun-Sung Lee

“Role of RIPK3-Mediated Smooth Muscle Cell Death in Sporadic Aortic Aneurysm and Dissection Development”
Dr. Kimberly Rebello
Mentors: Drs. Scott LeMaire and Ying Shen
Invited discussant: Dr. Megumi Mathison

“A Novel Role for Biomechanical Forces in the Pathogenesis of Idiopathic Constipation”
Dr. Oluyinka Olutoye, II
Mentor: Dr. Lily Cheng
Invited discussant: Dr. Alice King

Student Quick Shot Presentations
Moderators: Drs. Juliet Holder-Haynes and Zachary Pallister

“Shifts to Aerobic Glycolysis Drive Physiological Responses to Injury Resulting in Diverse Wound Repair”
Fayiz Faruk
Mentor: Dr. Swathi Balaji

“The Clinical Utility of Intraoperative Pathology in Surgical Treatment of Breast Cancer”
Rishabh Lohray
Mentor: Dr. Stacey Carter

Midterm Outcomes of Aortic Root Surgery in Patients with Marfan Syndrome: A Prospective, Multicenter, Comparative Study”
Nathaniel Riggan
Mentors: Drs. Joseph Coselli and Irina Volguina

Engineering Antioxidant and Oxygen-Releasing Lignin Hydrogel Composites to Accelerate Wound Healing”
Tanuj Prajapati
Mentor: Dr. Swathi Balaji
“Outcomes and Readmissions After Mitral Valve Replacement in Patients with Atrial Fibrillation and Pulmonary Hypertension”
John Trefalls
Mentor: Dr. Subhasis Chatterjee

11:20 – 11:50 Clinical, Research, and Education Staff Quick Shot Presentations
Moderators: Drs. Cary Hsu and Catherine Seger

“Continuous Delivery of Oxygen for Surgically-Closed Wounds Post Bilateral Breast Reduction”
Rasha Bara
Mentor: Dr. Bijan Najafi

“The Human Breast Cell Atlas”
Jessica Montalvan
Mentor: Dr. Alastair Thompson

“Training Program for Fetoscopic Repair of Gastroschisis”
Luc Joyeux
Mentor: Dr. Sundeep Keswani

“Favorable Results with Open Repair of Extent IV Thoracoabdominal Aortic Aneurysms”
Dr. Cuneyt Koksoy
Mentor: Dr. Joseph Coselli

“A Prospective, Multi-Center, Randomized, Double-Arm Trial to Determine the Impact of the SELENE System on Positive Margin Rates in Breast Conservation Surgery”
Huma Javaid
Mentor: Dr. Alastair Thompson

11:50 – 12:00 pm Awards