

13th Annual

Research Day

June 10-11
2025

Texas Medical Center

Baylor
College of
Medicine

MICHAEL E. DeBAKEY
DEPARTMENT OF
SURGERY

13th Annual Research Day

We are excited to present our thirteenth annual Research Day, 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.

Venue

**Jan and Dan Duncan
Neurological Research Institute
at Texas Children's Hospital
(Duncan NRI)**

1250 Moursund Street
7th Floor Ting Tsung and
Wei Fong Chao Foundation
Conference Center
Houston, Texas 77030

Program Chairs



Todd K. Rosengart, M.D., M.B.A.
Vice President for Hospital Operations
and Quality Improvement
Professor and Chair
DeBakey Bard Chair of Surgery
Michael E. DeBakey Department of Surgery
Baylor College of Medicine



Livia S. Eberlin, Ph.D.
Professor and Vice-Chair for Research
Michael E. DeBakey Department of Surgery
Translational Research and Innovations
Endowed Chair
Baylor College of Medicine

Tuesday, June 10, 2025

Poster Reception 4:00-6:00pm

Innovation

Poster No. 1

“A Minimally Invasive Surgically Implantable Hydrogel Therapeutic to Heal Heart Damage after Myocardial Infarction”

Dr. Tyler Guinn

Mentor: Dr. Ravi Ghanta

Poster No. 2

“Superior Performance of an Out-of-the-Box Large Language Model Compared to Logistic Regression in Predicting In-Hospital Mortality for Trauma Patients”

Dr. Harrison Kaplan

Mentor: Dr. Martin Zielinski

Poster No. 3

“Rethinking the Peg Transfer: A Dual-task Approach for Improving Laparoscopic Hand-Eye Coordination and Traction-Countertraction”

Archer Schaeffer

Mentor: Dr. Nilson Salas

Poster No. 4

“Implantable Bioartificial Kidney Components in Ovine Model”

Dr. Abigail Smith

Mentor: Dr. N. Thao N. Galvan

Poster No. 5

“From Bench to Bedside: A Practical Vascular Anastomosis Simulator for Advanced Surgical Training”

Dr. Jade Vorster

Mentor: Dr. Nilson Salas

Outcome Health Services & Quality Safety

Poster No. 6

“Predicting Adult Kidney Transplant Wait Times: A Novel Risk-based Model for Early Patient Stratification in the United States”

Abayomi Adeyemo

Mentor: Dr. Abbas Rana

Poster No. 7

“The Burden of End-Stage Renal Disease in Harris Health System, and the Case for Kidney Transplantation”

Dr. Alexandra Buda

Mentor: Dr. N. Thao N. Galvan

Poster No. 8

“Treatment Patterns and Outcomes for Locally Advanced Rectal Cancer 2015-2020: Total Neoadjuvant Therapy Versus Standard Chemoradiation”

Dr. Bennett Hartley

Mentor: Dr. Derek Erstad

Poster No. 9

“Utilization and Prognostic Significance of Immunotherapy in Advanced Gastric Adenocarcinoma”

Dr. Stephanie Keeling

Mentor: Dr. Eric J. Silberfein

Poster No. 10

“The Impact of a Novel Microbicidal Elastomeric Liquid Polymer (Preventogen) on Surgical Site Infections in Patient Undergoing Surgery”

Dr. Raymond Lopez

Mentor: Dr. Samir S. Awad

Poster No. 11

“The Impact of Donor Laboratory Values on Graft Failure in Liver Transplantation”

Dr. Fizza Mahmood

Mentor: Dr. Abbas Rana

Poster No. 12

“Impact of Medicaid Expansion on Racial Disparities among Patients with Gastrointestinal Cancer”

Dr. Naveen Manisundaram

Mentor: Dr. George Chang

Poster No. 13

“Redefining Success: Textbook Outcomes After Revascularization for Chronic Limb-Threatening Ischemia”

Dr. Ilse Ruiz

Mentor: Dr. Jayer Chung

Poster No. 14

“30 Years of Left Atrioventricular Valve Reoperations Following Index Atrioventricular Septal Defect Repair: Impact of Valvar Stenosis”

Dr. Santiago Villar

Mentor: Dr. Yishay Orr

Poster No. 15

“Obtaining Day-of-Surgery Written Surgical Consent is Associated with Operating Room Delay”

Dr. Victoria Yin

Mentor: Dr. Sean Wightman

Education

Poster No. 16

“Cardiothoracic Surgery Patient Education Spanish Translation and Assessment”

Gilda Martinez

Mentor: Dr. Vicente Orozco-Sevilla

Poster No. 17

“Development of an Annual, Laparoscopic Simulation Bootcamp and Assessment of Efficacy”

Dr. Emma Burke

Mentor: Dr. Peter Boedecker

Staff – Basic Sciences

Poster No. 18

“Tr1 Cells and Heparan Sulfate-Mediated IL-2 Sequestration Regulate Scarring Outcomes”

Casey Baxter

Mentor: Dr. Swathi Balaji

Poster No. 19

“Extracellular Vesicle mRNA Profiles in Ex Vivo Lung Perfusion: Implications for Primary Graft Dysfunction in Lung Transplantation”

Rupa Kanchi

Mentor: Dr. Gabriel Loor

Poster No. 20

“Airway Delivery of Encapsulated Cytokine-Secreting Cells for Localized Immunomodulation to Attenuate Lung Injury”

Miguel Mendez Sosa

Mentor: Dr. Ravi Ghanta

Staff – Clinical

Poster No. 21

“The Sagittal Orbital-Globe Relationship: Establishing Age-Based Reference Values to Achieve Euophthalmos after Fronto-orbital Advancement – Preliminary Results”

Vamsi Mohan

Mentor: Dr. Edward Buchanan

Poster No. 22

“A Prospective Randomized, Controlled Study to Evaluate Device Efficacy for Cutting and/or Coagulation of Tissue during Mastectomy Procedures.”

Jessica Montalvan

Mentor: Dr. Alastair Thompson

Poster No. 23

“Surgical Intervention among Heritable Thoracic Aortic Disease Sibling Sets”

Dr. Brittany Rhoades

Mentor: Dr. Joseph Coselli

Poster No. 24

“Humeral External Rotation Orthosis (HERO) Strap: A Less Prohibitive, Viable Option for Decreasing Rates of Shoulder Dislocation and Orthopedic Surgery in Brachial Plexus Birth Injury”

Winston Owens

Mentor: Dr. William Pederson

Poster No. 25

“Impact of the B-Series System, Aided with ImgAssist, on Positive Margin Rates in Breast Conservation Surgery: Primary Effectiveness and Safety Outcomes from a Prospective, Multi-center, Randomized, Double-arm Clinical Trial”

Margarita Riojas-Barrett

Mentor: Dr. Alastair Thompson

Student – Basic Science

Poster No. 26

“Prognosticating Kidney Function Trajectories in Heart Failure Patients after Left Ventricular Assist Device Implantation Using Plasma Proteomics”

Adel Hassan

Mentor: Dr. Nandan Mondal

Poster No. 27

“Modulating Cartilage Differentiation and Typing in Human Periosteum with TGF-beta”

Richard Liu

Mentor: Dr. Lorenzo Deveza

Poster No. 28

“A Preliminary Pan-cancer Approach for Ambient Ionization Mass Spectrometry-based Early Cancer Detection.”

Jacob Mardick

Mentor: Dr. Livia S. Eberlin

Poster No. 29

“Cell Alterations that Drive Vascular Invasion and Dissemination in Pediatric Liver Cancer”

Priyanka Rao

Mentor: Dr. Sarah Woodfield

Student – Clinical

Poster No. 30

“Impact of the Area Deprivation Index on Knee and Hip Osteoarthritis Outcomes”

Dr. Luke Dotson

Mentor: Dr. Melvyn Harrington

Poster No. 31

“Survival and Recovery Outcomes of Normothermic Machine Perfusion after Adult Heart Transplant”

Dr. Chandler Fong

Mentor: Dr. Abbas Rana

Poster No. 32

“A Multi-site Evaluation of the Performance of the MasSpec Pen for Surgical Margin Analysis during Breast Cancer Surgeries”

Dr. Keziah Liebenberg

Mentor: Dr. Livia S. Eberlin

Poster No. 33

“Genomic Alterations of Cyclin-Dependent Kinase Inhibitor 2A (CDKN2A) Drive Immune Evasion and Poor Prognosis in Pancreatic Ductal Adenocarcinoma”

Dr. Sonali Mitra

Mentor: Dr. Hyun-Sung Lee

Poster No. 34

“Pediatric Cardiac Outcomes Following Retransplant Analysis (P-CORA): Development of a Scoring System to Predict Short-Term Survival Following Pediatric Cardiac Retransplant”

Dr. Jenny She

Mentor: Dr. Abbas Rana

Resident – Basic Science

Poster No. 35

“Evaluate the Role of MAA Modified Proteins and Anti-MAA Antibodies in Heart Failure Patient before and after LVAD Placement”

Dr. Ananya Mitra

Mentor: Dr. Geoffrey Thiele

Poster No. 36

“Aerobic Glycolysis Mediated by PKM2 Dimerization Underlies Patient Scarring Heterogeneity”

Dr. Mary Elizabeth Guerra

Mentor: Dr. Swathi Balaji

Resident – Clinical

Poster No. 37

“Recovery of Shoulder External Rotation in Brachial Plexus Birth Injury: Comparison of Outcomes Between Spinal Accessory-to-Suprascapular and Spinal Accessory-to-Infraspinatus Nerve Transfers”

Dr. Richard Appel

Mentor: Dr. William Pederson

Poster No. 38

“Pediatric Trigger Thumbs: An Institutional Review on Management and Outcomes”

Dr. John D. Bovill

Mentor: Dr. Jenny Lee Nguyen

Poster No. 39

“Donor Site Morbidity and Functional Outcomes in Pediatric Free Fibula Transfer to the Upper Extremity”

Dr. Heather H. Burns

Mentor: Dr. William Pederson

Poster No. 40

“Suture Retraction of the Liver in Laparoscopic Foregut Surgery”

Dr. Kayla J. Callaway

Mentor: Dr. Patrick Reardon

Poster No. 41

“Pediatric Scapholunate Ligament Injuries: Management and Outcomes”

Dr. Samuel Cole

Mentor: Dr. William Pederson

Poster No. 42

“Multicenter Evaluation of Prognostic Factors in Pediatric Ewing Sarcoma”

Dr. Andy F. Espinoza

Mentor: Dr. Sanjeev Vasudevan

Poster No. 43

“Staged Hybrid Repair: Open Surgery with Endograft Retention”

Dr. Armin Farazdaghi

Mentor: Dr. Joseph Coselli

Poster No. 44

“Launching a Complex Esophageal Reconstruction Program Long-Segment Supercharged Pedicled Jejunal Interposition”

Dr. Zachary Gao

Mentor: Dr. Shanda Blackmon

Poster No. 45

“Nerve Transfer Outcomes in Brachial Plexus Birth Injury”

Dr. Olivia Leonovicz

Mentor: Dr. Jenny Lee Nguyen

Poster No. 46

“A Novel Clinical Risk Score for Vasoplegic Shock After Adult Cardiac Surgery”

Dr. Travis Miles

Mentor: Dr. Ravi Ghanta

Poster No. 47

“Projected Survival Benefit of Fenestrated Endovascular Aneurysm Repair versus Observation for Complex Abdominal Aortic Aneurysms in Patients with Limited Life Expectancy”

Dr. Hataka Minami

Mentor: Dr. Neal R. Barshes

Poster No. 48

“Pediatric Gunshot Wounds of the Face, Head, and Neck”

Dr. Sofia Perez-Otero

Mentor: Dr. Larry Hollier, Jr.

Poster No. 49

“Intramuscular Dissection Technique to Maximize the Reach of the Pedicled Gastrocnemius Muscle Flap”

Dr. Linden Shih

Mentor: Dr. William Pederson

Poster No. 50

“Pediatric Gunshot Wounds of the Upper Extremity”

Dr. Mariana Trevino

Mentor: Dr. William Pederson

Poster No. 51

“Leveraging Community-Engaged Feedback to Identify Barriers in Research Participation for Underrepresented Populations with Rare Cancer”

Dr. Sophia Williams-Perez

Mentor: Dr. Elizabeth Grubbs

Postdoctoral Fellow – Basic Science

Poster No. 52

“Blood-Brain Barrier Dysfunction in Heart Failure Patients with a History of Stroke Predicts Subsequent Stroke after Left Ventricular Assist Device Implantation”

Dr. Shiyi Li

Mentor: Dr. Gabriel Loor

Poster No. 53

“Nanoparticle-based Delivery of Sting siRNA Mitigates Aortic Aneurysm and Dissection”

Dr. Sanjib Sarkar

Mentor: Dr. Ravi Ghanta

Poster No. 54

“Fibroblasts Role in Versican Expression During Ascending Thoracic Aortic Aneurysm and Dissection”

Dr. Robert Seniors

Mentor: Dr. Ying H. Shen

Poster No. 55

“Integrated Analysis of Single-cell Immune Profiling and Spatial Transcriptomics Uncovers Mechanisms of Immune Checkpoint Inhibitor-associated Myocarditis”

Dr. Ji Seon Shim

Mentor: Dr. Hyun-Sung Lee

Postdoctoral Fellow – Clinical

Poster No. 56

“Durable Ventricular Assist Device Support with Systemic Right Ventricle Cannulation”

Dr. Junsang Cho

Mentor: Dr. Iki Adachi

Poster No. 57

“Improving Intraoperative Tumor Margin Assessment in Lung Cancer Surgeries using the MasSpec Pen Technology”

Dr. Yasmin Shanneik

Mentor: Dr. Livia S. Eberlin

Scientific Committee



Kimberly Holloway, Ph.D.

Research Day Scientific Program Chair

Riham Abouleisa, Ph.D.

Ghanashyam Acharya, Ph.D.

Swathi Balaji, Ph.D.

Neal Barshes, M.D., MPH

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Jennifer Leonard, M.D., Ph.D.

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Samer Mattar, M.D.

Pabel Miah, D.O.

Tamer Mohamed, Ph.D.

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Hu Ying Shen, M.D., Ph.D.

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Sanjeev Vasudevan, M.D.

Chad Wilson, M.D., MPH

Amy Wood, MPH

Sarah Woodfield, Ph.D.

Yuan Xu, M.D., Ph.D.

Planning Committee

Jaye Chambers

Laura Crumpacker

Elicia Davis

Scott Holmes, CMI

Georgia Rochester

Holly Shilstone

Maria Vega

Maria Zueva

Wednesday, June 11, 2025

Research Symposium

6:30-7am Registration and Breakfast

7-7:30am Welcome
Dr. Todd K. Rosengart

College Remarks
Dr. Carolyn L. Smith

Cancer Center Remarks
Dr. Pavan Reddy

Office of Surgical Research Highlights
Dr. Livia S. Eberlin

7:30-8:10am Keynote Address
“A Different Look at Clinical Trials”
Dr. Erik van Zwet

8:10-8:30am “Report on UAB Resident Research Day Exchange Program”
Dr. Travis J. Miles (Baylor College of Medicine)

“Exosomes Transfer ST6GAL1-mediated Therapeutic Resistance in Rectal Cancer Cells”
Dr. Jeremie M.P. Lever (UAB)

8:30-9am Outcomes in Health Services & Quality Safety Research Abstracts of Distinction

Moderators: Dr. Lauren Barron, Holly Clayton and Dr. Atif Iqbal

“The Impact of Tumor Seeding from Preoperative Percutaneous Endoscopic Gastrostomy Tubes on Recurrence and Survival After Esophagectomy for Locally Advanced Esophageal Carcinoma”
Elizabeth Fontana
Mentor: Dr. Shawn Groth

“The Economic Cost of Delays in Diagnosis of Appendicitis due to Sociodemographic Risk Factors”
Dr. Dinushi Kulasekere
Mentor: Dr. Anne Stey

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Keynote Speaker

Dr. Erik van Zwet
Associate Professor, Department
of Biomedical Data Sciences
Leiden University Medical Center



“A Different Look at Clinical Trials”

Dr. Erik van Zwet is an associate professor of medical statistics at the Department of Biomedical Data Sciences of the Leiden University Medical Center in the Netherlands. Unusually for the Netherlands, the department has 10 permanent staff whose primary roles are to teach statistics, to provide statistical consultation for the medical researchers, and to do methodological research in statistics and data science.

Dr. van Zwet completed his BA and MA in mathematics at the University of Leiden, and a PhD in mathematical statistics at the University of Utrecht. After a post doc at the University of California at Berkeley, he joined the Mathematics Department of the University of Leiden as an Assistant Professor. After a few years, he joined the University Hospital to do more applied work.

Dr. van Zwet served on the regional Ethical Review Board for 13 years. After seeing hundreds of trial protocols, he became very interested in how medical research is actually done. He has found the Cochrane Database of Systematic Reviews (CDRS) to be the ideal resource to study this. The CSDR is arguably the most comprehensive collection of evidence on medical interventions. It holds thousands of meta-analyses covering tens of thousands of clinical trials. Dr. van Zwet has developed new methods to study these data, which has resulted in an entirely different look at clinical trials.

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“Increase in Congenital Anomalies in Infants Following 2021 Early Pregnancy Abortion Ban”

Dr. Sarah Peiffer

Mentor: Dr. Alice King

9-9:30am Student - Basic Science Abstracts of Distinction

Moderators: Drs. Tamer Mohamed, Crystal Shin and Sarah Woodfield

“Same Sample Analysis of Human Cancer Tissues with Spatial Metabolomics and Transcriptomics”

Trevor Godfrey

Mentor: Dr. Livia S. Eberlin

“Low Level Laser Irradiation Increases Blood Flow in Mouse Dorsal Skinfold Chamber Model”

Junsoo Lee

Mentor: Dr. Thomas Milner

“Small Molecule Modulators of NRF2 Give Mechanistic Insight into the NRF2/mTOR Axis in High-risk Hepatoblastoma”

Nicholas O’Brien

Mentor: Dr. Sarah Woodfield

9:30-9:45am Break – Refreshments

9:45-10:15am Student - Clinical Abstracts of Distinction

Moderators: Drs. Swathi Balaji and Ying H. Shen

“Cardiac Outcomes following Retransplantation Analysis (CORA): Development of System to Predict Short-term Survival following Cardiac Retransplant”

Cade Hines

Mentor: Dr. Abbas Rana

“Pediatric Ganglion Cyst Removal: A 12-Year Experience”

Alexandra Martinez

Mentor: Dr. Christine Yin

“To Open or Not: A Comparison of Techniques for Treating Lambdoid Craniosynostosis”

Josephine Schmidt

Mentor: Dr. Lucas Dvoracek

10:15-10:45am Resident - Clinical Abstracts of Distinction

Moderators: Drs. Lyahn Hwang and Eric Silberfein

“Pre-Clinical 30-day Survival Results of the BiVACOR TAH”

Dr. Trenton Gluck

Mentor: Dr. William Cohn

“Non-Anatomic Resection for Hepatoblastoma is Associated with Favorable Outcomes”

Dr. Brian Hickner

Mentor: Dr. Sanjeev Vasudevan

“Evaluation of Compounding Aortic Repairs: Index vs. Reoperative Total Arch Replacement”

Dr. Navyatha Mohan

Mentor: Dr. Joseph Coselli

10:45-11:15am Postdoctoral Fellow – Basic Science Abstracts of Distinction

Moderators: Drs. Thomas Milner, R. Taylor Ripley and Cathy Yao

“Fusion Imaging for Early Detection of Nascent Cutaneous Neurofibromas (cNF) using Sound and Light”

Dr. Nitesh Katta

Mentor: Dr. Thomas Milner

“Cytosolic DNA-STING-IRF3/4 Pathway Mediates Epigenetic Induction of Macrophage Phenotypic Polarization in Acute Thoracic Aortic Aneurysm and Dissection”

Dr. Bowen Li

Mentor: Dr. Hu Ying Shen

“CD36/FABP5/PPAR δ Signaling Axis Defines Spontaneously Proliferating Cardiomyocytes in Neonatal Stages”

Dr. Abou Baker Salama

Mentor: Dr. Tamer Mohamed

11:15-11:30am Break – Refreshments

11:30am-12pm

Quick Shot Scientific Scholar Award Presentations

Innovation

“In Vivo Metabolic Flux Analysis by MasSpec Pen Technology”

Dr. Michael Tuck

Mentor: Dr. Livia S. Eberlin

Education

“A Heart that Beats Equitably”

Dr. Henry Olana Soler

Mentor: Dr. Nilson Salas

Staff-Basic Science

“Synergistic Effects of Multiplexed Transcriptional Activation on Mitochondrial Biogenesis”

Saliha Pathan

Mentor: Dr. Ravi Ghanta

Staff-Clinical

“Modifiable Perioperative Factors are Associated with the Development of Chronic Lung Allograft Dysfunction”

Dr. Melissa Munoz Beilis

Mentor: Dr. Gabriel Loor

Resident - Basic Science

“HS3ST1 Expression Regulates Pulmonary Inflammation following Trauma and Hemorrhagic Shock”

Dr. Ava Mokhtari

Mentor: Dr. Jessica Cardenas

Postdoctoral Fellow - Clinical

“Increasing Clinical Experience and Changes in Practice Protocols Improved Outcomes of Fenestrated Branched Endovascular Repair of Complex Aortic Aneurysms”

Dr. Dora Babocs

Mentor: Dr. Gustavo Oderich

12-12:30pm

Award Announcements

Celebrating Excellence
in Resident Education,
Patient Care, Research and Innovation

Baylor
College of
Medicine