TILMAN J. FERTITTA FAMILY COLLEGE OF MEDICINE ANNUAL RESEARCH DAY

Tilman J. Fertitta Family College of Medicine

UNIVERSITY OF HOUSTON

AUGUST 14, 2025

ABOUT STUDENT RESEARCH DAY

The College of Medicine Student Research Day celebrates the outstanding scholarly work of our medical students, highlighting the diverse research experiences they have undertaken across a range of institutions. These institutions include:

- University of Houston
- University of Texas Medical Branch
- University of Utah
- Rice University
- Stanford University
- Swansea University
- Washington University School of Medicine

This event is designed to provide a platform for students to share their contributions to advancing knowledge in their respective fields, foster interdisciplinary connections, and gain valuable experience presenting their work to peers, faculty, and the broader research community.

In addition to in-depth poster sessions, selected students will deliver 5-minute Lightning Talks—concise, engaging overviews of their research designed to spark interest and discussion. These talks complement the poster presentations, offering attendees both a broad and deep look at the innovative projects our students have pursued over the past year.

PROGRAM-AT-A-GLANCE

12:00pm - 12:15pm	Refreshments
12:15pm - 12:20pm	Opening Remarks Dr. Summer Chavez
12:20pm - 1:30pm	Lightning Talks
1:35pm - 2:20pm	Poster Session A
2:20pm - 3:05pm	Poster Session B
3:05pm - 3:10pm	Introduction of Keynote Speaker Dr. Tameka Clemons
3:10pm - 3:30pm	Keynote Address Dr. Debra Murray
3:30pm - 3:45pm	Awards & Closing Remarks Dr. Tameka Clemons & Dr. Summer Chavez

WELCOME BY DR. SUMMER CHAVEZ

Dr. Summer Chavez is a leader in medical education and a passionate advocate for advancing health through research and community impact. As Director of Medical Student Research, she co-directs the Student Scholarly Project Course and mentors students in developing meaningful, real-world research. She also teaches quality improvement and patient safety in the “Physicians, Patients and Populations” course.

Board-certified in Emergency Medicine, Dr. Chavez’s scholarly interests span non-medical drivers of health, health policy, and public health. She is a published researcher in emergency medicine, infectious diseases, and cardiac arrest care, and has contributed her expertise to medical missions in Haiti and El Salvador.

Dr. Chavez earned both her Doctor of Osteopathic Medicine and Master of Public Health from Nova Southeastern University in 2015 and completed her emergency medicine residency at Virginia Tech-Carilion, where she served as chief resident.

LIGHTNING TALKS

Talk #1	*Biomarker Discovery and Gene Therapy Approaches for Triple Negative Breast Cancer Risk in African American Women* **Presenter: Iyilia Falcon (Poster 13A/Abstract Page#18)**
Talk #2	*Association of Vision Impairment with Food Insecurity in US Children* **Presenter: Tushar Talaparthy (Poster 15B/Abstract Page#38)**
Talk #3	*Lateral Association in the Absence of Anti-parallel Dimer Formation in Two Patients with Dystrophic Epidermolysis Bullosa* **Presenter: Neha S. Momin (Poster 11B/Abstract Page#34)**
Talk #4	*Implementing MomRX, a Community-Based Model to Improve Maternal Hypertension Outcomes* **Presenter: Amber Hurd (Poster 7B/Abstract Page#30)**
Talk #5	*Barriers and Facilitators to Enrollment in a Hospital-Based Violence Intervention Program: A Qualitative Study* **Presenter: Jacqueline Garcia (Poster 8B/Abstract Page#31)**

LIGHTNING TALKS CONTINUED

Talk #6	*Investigating the Role of Tyramine in Activated β-Catenin-Induced Hepatic Enlargement in Zebrafish* **Presenter: Hannah Jenkins (Poster 1A/Abstract Page#6)**
Talk #7	*Reframing Caspase 1: A Feedforward Guardian Against Amyloid-β_{42} Toxicity* **Presenter: Caroline Lee (Poster 1B/Abstract Page#24)**
Talk #8	*Serum PI3KC2b: A Potential Indicator of Dysfunctional Glycogenesis In Type II Diabetes* **Presenter: Valery Kounga (Poster 3B/Abstract Page#26)**
Talk #9	*Stringent Response and Survival Gene Regulation of Vibrio cholerae: Virulence Factor Expression Analysis* **Presenter: Thai Tran (Poster 2B/Abstract Page#25)**
Talk #10	*From Innovation to Implantation: Assessing AI/ML Device Relevance for Primary Care* **Presenter: Ashlei Phillips (Poster 14B/Abstract Page#37)**
Talk #11	*Improving Maternal Health Through Education and Community: A Mixed-Methods Study of Project Match Participants* **Presenter: Cassie Leissner (Poster 7A/Abstract Page#12)**

POSTER SESSION A

Basic Sciences

Poster 1A

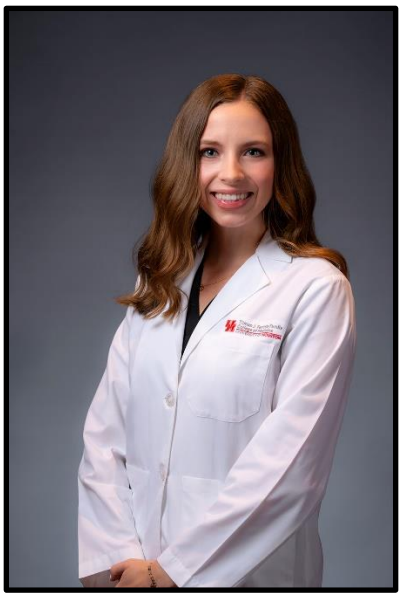
Investigating the Role of Tyramine in Activated β-Catenin-Induced Hepatic Enlargement in Zebrafish

Hannah Jenkins, Sharanya, Kimberley Evason

Presenter: Hannah Jenkins

Hepatocellular carcinoma (HCC) is a leading cause of cancer-related death worldwide and is often associated with activating mutations in β-catenin, a driver of tumorigenesis through Wnt signaling pathway. The sigma-1 receptor (S1R) is a chaperone protein known to protect cells from oxidative stress and regulate ferroptosis, a form of programmed cell death closely tied to cancer cell survival. A zebrafish model with hepatocyte-specific activated β-catenin (ABC) was used to investigate how activation of S1R influences liver tumor development. Transgenic larvae were treated with tyramine, an S1R agonist, during early development, and liver morphology was assessed at 6 days post fertilization. Results demonstrate that S1R activation with tyramine reduced liver enlargement in β-catenin-mutated zebrafish, suggesting S1R activation counters liver overgrowth. The effects mirrors amitriptyline, supporting S1R as a potential therapeutic target for β-catenin-driven hepatocellular carcinoma.

Lightning Talk #6



POSTER SESSION A

Basic Sciences

Poster 2A

Identifying Amyloid Beta 42 in urine using Matrix-associated laser desorption ionization time-of-flight (MALDI-TOF)

Mariana Garcia, Jenna Boykin, Caroline Lee, Gwynn Durham, Maryam Vasefi, and Diego Alvarez

Presenter: Mariana Garcia

Oligomerized amyloid beta is hypothesized to underline the pathology behind Alzheimer's disease. Cleaving and excreting mechanisms are essential for the degradation and clearance of circulating Aβ42, respectively. Aβ42 has been identified in urine that has been processed using immunoassays and immunoprecipitation techniques. However, diagnostic tools to identify Aβ42 in body secretions, such as urine, are not available for cost-efficient population-based screenings. Thus, we hypothesize that Matrix-assisted laser desorption ionization time-of-flight (MALDI-TOF) identifies Aβ42 in unprocessed urine. Recombinant Aβ42 was subjected to oligomerization for 24 hours and MALDI-TOF was performed. Spectra showed a prominent peak near the expected Aβ42 mass in both spiked and unspiked urine samples. The pure urine sample produced a signal compatible with the Aβ42-spiked sample, indicating the presence of endogenous Aβ42 in urine. Aβ42 peak was detected in all concentrations, indicating the sensitivity of the method.

POSTER SESSION A

Basic Sciences

Poster 3A

Establishing Baseline Serum IDE Levels: Implications for Targeting Alzheimer's and Diabetic Cognitive Disorders

Annise Green, Yamileth Bermudez, Meagan Tran, Valery Kounga, and Tameka A. Clemons

Presenter: Annise Green

The production and accumulation of beta-amyloid plaques in the central nervous system is a well-established hallmark associated with both Alzheimer's disease and diabetes related cognitive impairment. In these neurological disorders, insulin signaling pathways are impaired, leading to the development of insulin resistance, hyperinsulinemia, and ultimately progressive neuronal loss. These destructive plaques can be catabolized by insulin degrading enzymes (IDE), a protease that not only contributes to normal insulin and blood glucose levels but also plays a role in mitigating neurodegenerative pathology. Understanding baseline IDE levels in healthy individuals is critical to establishing a reference point and identifying deviations associated with disease states. Human serum samples from patients with or without normal A1C levels were analyzed using IDE ELISA assays. A reference range for IDE concentrations in metabolically healthy individuals was established.

POSTER SESSION A

Basic Sciences

Poster 4A

Characterizing the role of miR-155 in mast cell-mediated allergic inflammation

Johana Jose, Esther Gwa, Heather Caslin, and Gregorio Gomez

Presenter: Johana Jose

Mast cells are the main effector cell type of immediate hypersensitivity reactions and contribute to late-phase allergic reactions by producing cytokines that serve to recruit T cells and other cell types of the site of inflammation. The overarching goal of this study is to characterize the role of microRNA-155 in allergic reactions mediated by mast cells. This study aims to determine if the phosphatases SHIP-1 and/or SOCS1 could be targeted by miR-155 following FcεRI crosslinking on mast cells. Specifically, we aim to determine the expression profile of *SHIP-1* and *SOCS-1* genes in IgE-sensitized mast cells activated with allergen. We isolated bone marrow from femurs of three wild-type C57BL/6 mice and maintained separate single cell suspension in complete RPMI medium containing only IL-3 and stem cell factor (SCF) with weekly media changes to obtain a purified population of bone marrow-derived mast cells (BMMCs), which we have confirmed with Giemsa-Wright staining.

POSTER SESSION A

Basic Sciences

Poster 5A

Optimizing MTT Assay Conditions in SH-SY5Y Cells for Aβ Oligomer Toxicity

Olga Botwinick, Diego Alvarez, Maryam Vasefi

Presenter: Olga Botwinick

Alzheimer's disease (AD) is characterized by progressive neuronal dysfunction, driven in part by the accumulation of amyloid-beta (Aβ). Recent findings indicate that Aβ oligomers differ in toxicity depending on their size and conformation prompting a re-evaluation of their role in disease progression and therapeutic targeting SH-SY5Y neuroblastoma cells serve as a validated, cost-effective in vitro model for toxicity screening. However, accurate assessment of Aβ-induced cytotoxicity using an MTT assay can be compromised by confounding variables that reduce signal intensity and reliability, making protocol optimization a critical step for generating valid and interpretable results. The objective of this research project is to develop a reproducible MTT assay protocol for evaluating Aβ oligomer toxicity in SH-SY5Y cells by optimizing seeding density, serum conditions, incubation timing, and handling techniques.

POSTER SESSION A

Basic Sciences

Poster 6A

Neuroprotective Effects of Simvastatin on Aβ-treated SH-SY5Y Cells

Thao Dang, Diego Alvarez, Maryam Vasefi

Presenter: Thao Dang

Alzheimer's disease (AD) is a progressive neurodegenerative disorder characterized by amyloid beta (Aβ) aggregation and mitochondrial dysfunction. It is the seventh leading cause of death globally, with prevention and treatment strategies remaining elusive due to its multifaceted and complex nature. Statins, a class of medications widely used to manage high cholesterol, have been proposed to possess neuroprotective effects and mitigate Aβ-induced toxicity. This study evaluates the impact of various Simvastatin (SV) concentrations on SH-SY5Y cell viability and its potential neuroprotective effects against Aβ-induced toxicity. To evaluate this, $A\beta_{42}$ oligomers were prepared by dissolving the peptide in DMSO. A baseline MTT absorbance curve was generated by measuring absorbance across multiple cell densities to establish viability benchmarks and reduce experimental variability. Results showed that 3 μM Aβ reduced cell viability. SV pretreatment followed by co-treatment showed a trend toward improved viability compared to Aβ alone.

POSTER SESSION A

Clinical Science/Community/Other

Poster 7A

Improving Maternal Health Through Education and Community: A Mixed-Methods Study of Project Match Participants

Jasmin Ali, Alejandra Duque, Cassie Leissner, Hattie Meehan

Presenter: Jasmin Ali

In the United States, most maternal deaths are preventable and affect women of color. From 2018 to 2020, Texas maternal mortality rose 63% from 17.0 to 27.7 deaths per 100,000 live births. In Harris County, 1 in 20 women receive no prenatal care, with women of color more likely to delay or miss care due to limited access and systemic bias. The goal of Project Match was to support underserved pregnant women in Houston by providing educational sessions to improve maternal health. Pregnant patients at El Centro de Corazon, an FQHC, were enrolled in Project Match. Sessions covered pregnancy topics such as nutrition, changes during pregnancy, and postpartum depression. Pre- and post-session surveys were used to assess changes in attitudes, perceptions, and health literacy. Twelve individuals participated, including 11 pregnant women and one partner with attendance varying. Overall, they reported increased knowledge, confidence, and trust in navigating pregnancy, and emphasized a strong interest in ongoing culturally relevant community-based support.

Lightning Talk #11

POSTER SESSION A

Clinical Science/Community/Other

Poster 8A

PAD Patterns and Associated Healthcare Costs Among Adults with Diabetes in Border and Non-border Counties in Texas

Cori Grant, Lulu Xu, Ruth Bush, Priya Trakru, Jacqueline Garcia, Olamide Alabi, and Omolola Adepoju

Presenter: Priya Trakru

Individuals with diabetes are at a higher risk of developing peripheral arterial disease (PAD) which is a surrogate marker for coronary and cerebrovascular disease and may result in heart attack and stroke. Texas, one of the top five states with the highest burden of diabetes, presents an important setting for examining regional and demographic patterns in diabetes-related PAD. This study examines differences in diabetes-related PAD patients and associated healthcare cost, between border and non-border regions in Texas. Using a 10% random sample of the 2021-2022 Texas Inpatient Hospital Discharge Data, we identified 226, 259 diabetes related discharges based on ICD-10 codes, of which 37,795 (6%) also included a diagnosis of PAD. Females had lower odds of diabetes-related PAD and older adults, border county residence, medicare coverage, and having multiple comorbidities increased the odds of having diabetes-related PAD.

POSTER SESSION A

Clinical Science/Community/Other

Poster 9A

Risk Factors for Cardiovascular Disease patients at Health Care for the Homeless clinics versus Community Health Centers

Edgard Castillo, Ben King, Sarina Attri, Olivia D. Jones, David Buck

Presenter: Edgard Castillo

Cardiovascular disease (CVD) is the number one cause of mortality in the United States and those experiencing homelessness are at a higher risk for developing CVD. The American Heart Association's Life's Essential 8 (LE8)risk factors for CVD (diet, physical activity, sleep, tobacco use, weight, cholesterol, blood sugar, and blood pressure) are effective predictors of CVD and related mortality in the general population but are under-studied in patients experiencing homelessness. We utilized the Health Center Patient Survey (HCPS 2022) to compare client's risk factors for cardiovascular disease for those accessing Health Care for the Homeless (HCH) clinics to those visiting a Community Health Center (CHC) clinic to identify potential opportunities for intervention or care recommendations. HCH clinic patients were less likely to report sleeping between 7-9 hours (optimal), and more likely to report being overweight and engaging in moderate/vigorous physical activity 7 days per week compared with CHC patients.

POSTER SESSION A

Clinical Science/Community/Other

Poster 10A

Examining the Natural History of Peanut Allergy Resolution and its Association with Clinical Predictors in a Multicenter Cohort Study

Mark Mathews, Caglar Onal, Janssen Fang, Donyea Moore, Rachel Nolte, Lucy A Bilaver, Hemant Sharma, Amal Assa'ad, Ruchi S. Gupta, Christopher Warren, Mahboobeh Mahdavinia

Presenter: Mark Mathews

There are limited studies on the trajectory of peanut allergy over an extended period, and knowledge is limited on clinical parameters that serve as predictors of developing natural tolerance. Using long-term follow-up data from the NIAID-supported FORWARD study, we examined clinical and laboratory parameters – including comorbidities and peanut specific IgE (sIgE) – to assess its predictive value regarding whether peanut allergy resolves or persists. Analyses were conducted to obtain optimal sIgE cutoffs for predicting tolerance and anaphylaxis. A total of 1014 patients with peanut allergy were enrolled, with a mean age of 6.04 ± 3.66 years. Approximately 5% of these patients outgrew their allergy during a mean follow up period 4.6. ± 12 years. Age of peanut allergy diagnosis was 1 year earlier in those who outgrew their allergy. This data can inform clinical shared decision-making around peanut allergy treatment.

Lightning Talk #8

POSTER SESSION A

Clinical Science/Community/Other

Poster 11A

Left Waiting: Women Face Longer Delays for EKGs in Emergency Rooms, A Systematic Review

Emma Lakey, Isabella Martingano, Kevin Rowland

Presenter: Emma Lakey

Electrocardiograms are indispensable in diagnosing multiple conditions in the emergency department. One condition for which they are especially useful is diagnosing myocardial infarction in patients presenting with chest pain. Recent studies have shown that a patient's sex may influence their symptom presentation and ultimate treatment during their visit. However, no systematic review has evaluated gender disparities in EKG utilization throughout multiple emergency departments. The present study's purpose was to incorporate updated research on the influence patient sex may have on the usage of electrocardiograms in the emergency room setting. PubMed, Embase, Scopus, Cochrane and Web of Science databases were searched using appropriate key terms to identify all articles associated with sex and pain treatment. Our findings suggest women presenting with chest pain were less likely to have an EKG ordered and when ordered, waited on average longer for EKG administration than their male counterparts.

POSTER SESSION A

Clinical Science/Community/Other

Poster 12A

Ketorolac Anaphylaxis Case Report

Guillermo Saldana, Osvaldo Alquicira, Fernando Macedo-Alquicira

Presenter: Guillermo Saldana

Ketorolac is a highly effective nonsteroidal anti-inflammatory drug (NSAID) that is often used in perioperative pain management. It is a cyclooxygenase-1 and cyclooxygenase-2 inhibitor that can increase the risk of bronchospasms in patients due to the reduction in prostaglandins and other lipid mediators. Patients with asthma that also take ketorolac are at increased risk of adverse reactions and/or anaphylaxis especially those with aspirin exacerbated respiratory disease (AERD). Anaphylaxis is a life-threatening allergic reaction that requires early detection and intervention. This case demonstrates an extreme allergic reaction to Ketorolac in a high-risk patient. This case illustrates a classic Type I hypersensitivity reaction to Ketorolac with its clinical presentation and history. The case highlights the importance of chart review and obtaining a thorough patient history to minimize the risk of perioperative complications associated with administration of medications.

POSTER SESSION A

Clinical Science/Community/Other

Poster 13A

Biomarker Discovery and Gene Therapy Approaches for Triple Negative Breast Cancer Risk in African American Women

Abigayle Hoeft, Iyilia Falcon, Kumarswarmy Chitrala

Presenter: Abigayle Hoeft

Triple Negative Breast Cancer (TNBC) is a form of highly invasive breast cancer which accounts for 10-20% of all breast cancer cases. TNBC is defined by what it lacks – expression of human epidermal growth factor receptor 2 (HER2), estrogen, and progesterone receptors. TNBC has been shown to occur at higher incidences among Hispanic and African Americans. African Americans diagnosed with TNBC experience worse clinical outcomes, resulting in lower survival rates and increased mortality. The metastatic potential of TNBC is affected by its altered gene expression. Understanding the potential biomarkers that determine the prognosis of TNBC can help improve clinical outcomes among African Americans, thereby reducing mortality rates and social disparities. Additionally, finding differences in gene expression patterns may allow for the creation of new and targeted therapeutic strategies, such as gene therapy, to address the increased resistance of TNBC to current oncological treatments.

Lightning Talk #1

Clinical Science/Community/Other

Poster 14A

Comparing Relapsing-Remitting MS to Secondary Progressive MS: A Study on Symptom Progression

Rolake Feyisetan, Jeff Rodgers, Rod Middleton

Presenter: Rolake Feyisetan

The UK Multiple Sclerosis Register (UKMSR) has collected data on people with Multiple Sclerosis (MS) since 2011 in the form of Patient Reported Outcome measures (PROs) and clinical data via the National Health Service. MS is a chronic autoimmune disorder characterized by inflammation and demyelination in the central nervous system. MS typically begins as Relapsing Remitting MS (RRMS) and often progresses to Secondary Progressive MS (SPMS), with limited treatment options beyond symptom management. Our objective was to investigate differences in disease progression between RRMS and SPMS by analyzing changes in symptom prevalence and intensity using data from UKMSR. Data processing and analysis were performed using the R language and we used the Multiple Sclerosis Impact Scale-29 (MSIS), a PRO that assesses the physical (MSIS-phys) and psychological (MSIS-psych). Results show that there was a significant increase from RRMS to SPMS in MSIS-phys and MSIS-psych.

Clinical Science/Community/Other

Poster 16A

Impact of total intravenous anesthesia (TIVA) vs volatile opioid-based anesthesia on CRS-HIPEC surgery patients

Jasmin Ali, Nishanth Napa, Juan P Cata

Presenter: Nishanth Napa

Cytoreductive surgery (CRS) combined with hyperthermic intraperitoneal chemotherapy (HIPEC) is a targeted cancer treatment where heated chemotherapy is applied directly to the abdominal cavity during surgery, enhancing treatment efficacy and minimizing systemic side effects. CRS-HIPEC is commonly used for cancers. Anesthesia choice in CRS-HIPEC may influence cancer outcomes. Propofol-based total TIVA has shown potential benefits in reducing side effects like nausea and promoting smoother recovery, while also potentially offering anti-tumor effects through pathways that limit cancer cell proliferation. Our objective was to determine if TIVA versus Volatile Opioid-Based Anesthesia in CRS-HIPEC surgery patients is associated with better oncological outcomes, including the rate of recurrence and survival. Our results show that recurrence rates were similar across groups and while the TIVA group had slightly higher death rates, this difference was not statistically significant.

POSTER SESSION A

Clinical Science/Community/Other

Poster 17A

The Impact of Area Deprivation Index on Postoperative Outcomes Following Brain Tumor Treatment: A Systematic Review

Mathew Mendoza, Jenna Boykin, Keith Kerr

Presenter: Mathew Mendoza

Brain tumors represent some of the most life-threatening conditions in neurosurgery, and addressing patients' social determinants of health can support favorable outcomes. The Area Deprivation Index (ADI) has increasingly been utilized to assess neighborhood-level social disadvantage that contributes to health disparities and brain tumor outcomes. While recent studies have evaluated treatment outcomes in relation to socioeconomic status, there is sparse literature on direct comparisons involving ADI. We performed a systematic review of the current body of literature on the relationship between ADI and brain tumor treatment outcomes. An exhaustive search strategy was applied to PubMed, Web of Science, Embase, and Scopus and screened by two independent reviewers. Inclusion criteria involved primary studies directly comparing ADI and brain tumor outcomes. The existing literature suggests that patients with higher ADI may experience higher mortality rates compared to those from less deprived areas, despite showing no significant differences in many other clinical outcomes.

POSTER SESSION A

Clinical Science/Community/Other

Poster 18A

Impact of Curriculum Interventions on Emergency Medicine Resident ITE Scores

Jake Valentine, Skyler Kilgore, Credo Djedje, Susan Guajardo, Victoria Gordon, Alexander Teshon, Shane Jenks

Presenter: Skyler Kilgore

There is little guidance on how to create an effective emergency medicine didactics curriculum. Our aim was to create a curriculum with discrete replicable elements fit for dissemination broadly to emergency medicine residency programs and to analyze the resulting impact on in-training exam scores. Twenty-one emergency medicine residents were exposed to a curricular intervention incorporating Kern's Six Step for curriculum design. Pre-exposure data was each resident's prior in-training exam score. Long term knowledge retention was measured by performance on the subsequent emergency medicine in-training exam. The resulting in-training exam performance data from the twenty-one self matched pairs was analyzed using a two-tailed paired t-test. There was a small-moderate effect of the curriculum on ITE performance. This study provides evidence that curricular interventions can improve long term knowledge retention as measured on the emergency medicine in-training exam scores.

POSTER SESSION B

Basic Sciences

Poster 1B

Reframing Caspase 1: A Feedforward Guardian Against Amyloid-β_{42} Toxicity

Caroline Lee, Mariana Garcia, Jenna Boykin, Maryam Vasefi, Diego Alvarez

Presenter: Caroline Lee

Oligomerization of amyloid beta 42 ($A\beta_{42}$) monomers is associated with the development of Alzheimer's disease and implicated in systemic effects, including multi-organ dysfunction. Caspase 1, a system protease typically implicated in detrimental hyperinflammatory responses, has been shown to be activated by $A\beta_{42}$. However, whether caspase 1 cleaves $A\beta_{42}$ and plays a protective role in amyloid-driven pathology is unclear. Thus, we hypothesize that caspase 1 prevents $A\beta_{42}$ oligomerization as a feedforward protective mechanism. We used Thioflavin T (ThT) fluorescence to monitor $A\beta_{42}$ oligomerization using a monochromator with an excitation of 440γ and an emission of 482γ over the course of 10 hours. Our experiments found that $A\beta_{42}$ displayed a higher rate of oligomerization within the first 10-100 minutes of measurement after which oligomerization rate decreased rapidly and subsequently plateaued for the following 9 hours of measurement.

Lightning Talk #7

POSTER SESSION B

Basic Sciences

Poster 2B

Stringent Response and Survival Gene Regulation of Vibrio cholerae: Virulence Factor Expression Analysis

Thai Tran and David Raskin

Presenter: Thai Tran

Vibrio cholerae is a Gram-negative bacilli that causes the epidemic diarrheal disease cholera, through ingestion of contaminated water or foods. Infection commonly leads to profuse diarrhea and vomiting, leading to increased risk of dehydration, malnutrition and death. V. cholerae produces a pilus, TCP, that allows the bacteria to attach to the intestinal microvilli, and produces cholera toxin (CT), which is mainly responsible for producing diarrhea. The genes for TCP and CT are regulated by a transcription factor, ToxT. The ToxT gene is regulated by two membrane bound transcription factors, TcpP and ToxR. This regulatory system is referred to as the ToxR regulation. This work tests whether the stringent response, which is a conserved bacterial regulatory system that allows bacteria to respond to nutrient changes in their environment, is involved in the regulation of the TCP and CT.

Lightning Talk #9

POSTER SESSION B

Basic Sciences

Poster 3B

Serum PI3KC2β: A Potential Indicator of Dysfunctional Glycogenesis in Type II Diabetes

Valery Kounga, Meagan Tran, Yamileth Bermudez, Annise Green, Tameka A. Clemons

Presenter: Valery Kounga

A thorough understanding of how uncontrolled Type II Diabetes impacts glycogen stores has yet to be elucidated. Glycogen stores are essential to the prevention of obesity because under normal circumstances when glucose levels become high insulin responds by triggering glucose to be moved into the needed cells and excess glucose to be moved into liver cells and stored in the form of glycogen. Glycogenesis involves several cell signaling factors including PI3KC2β, which is a Class II Phosphatidylinositol-3-Kinase. When insulin binds its receptor, it triggers a process called autophosphorylation, which activates PI3K and PI3KC2β, and therefore glycolysis and glycogenesis, respectively. However, clarity around what happens to glycogenesis in individuals who have uncontrolled Type II Diabetes needs further exploration. This study focused on understanding the changes in PI3KC2β secretion in individuals with Type II Diabetes and preliminary data shows higher PI3KC2β levels from serum of Pre-diabetes/Type II Diabetes individuals.

POSTER SESSION B

Basic Sciences

Poster 4B

Impact of NSAIDS on Platelet Function in PRP-Based Interventions

Ashley Roland and Jasna Marjanovic

Presenter: Ashley Roland

Platelet-rich plasma (PRP) therapy is the administration of supraphysiologic concentrations of platelets suspended in plasma. Obtained by the centrifugation of autologous whole blood, the platelet product is believed to exert therapeutic effects throughout platelet activation and the subsequent release of growth facts and cytokines from platelets alpha granules, which play a crucial role in tissue repair and regeneration. In patients with osteoarthritis, PRP is increasingly used as an alternative to corticosteroids to reduce joint pain and potentially slow disease progression. Concurrently, non-steroidal anti-inflammatory drugs (NSAIDS) are commonly recommended as a pharmacologic therapy for OA symptoms. Understanding how platelet activation is impacted by NSAID type and dosage is expected to influence pre-procedure instructions, which has potential to improve patient outcomes.

POSTER SESSION B

Basic Sciences

Poster 5B

Dual-Drug Analysis in Lumbriculus variegatus: Irreversible Lidocaine Suppression and Dantrolene Protection

Daniel Osayi and Aidan Seely

Presenter: Daniel Osayi

Lidocaine is a local anesthetic used in clinical and outpatient settings. Lidocaine blocks voltage-gated Na^+ channels in nerves, preventing the influx of sodium ions needed to generate an action potential. Dantrolene blocks the ryanodine receptor (RyR1) in skeletal muscle, which minimizes the release of Ca^{2+} from the sarcoplasmic reticulum. This results in muscle relaxation and is especially useful in surgical settings. Research concerning dose-dependent neuromuscular effects and toxicity is limited. By studying the behavior of Lumbriculus variegatus with different concentrations of lidocaine and dantrolene, our goal is to draw correlations to the effects of pharmaceutical agents in the nervous system of humans. Women were exposed to lidocaine at varying concentrations followed by washout and reassessment at 10 minutes and 24 hours using a free locomotion assay. Movement and survivability were used as outcome measures. Results from this experiment show how this model can be used in clinical settings.

POSTER SESSION B

Basic Sciences

Poster 6B

Development of a High Throughput MALDI—TOF Protocol for Detecting Amyloid Beta Oligomers in Urine

Jenna Boykin, Caroline Lee, Mariana Garcia, Maryam Vasefi, Diego Alvarez

Presenter: Jenna Boykin

Amyloid-β (Aβ) oligomers are believed to be the most neurotoxic species in Alzheimer's disease. Unfortunately, most methods detect insoluble fibrils or plaques, which appear later in disease progression. Matrix-Assisted Laser Desorption/Ionization Time-of-Flight (MALDI-TOF) mass spectrometry offers a rapid, label-free approach to detect Aβ, but preserving oligomers during ionization remains a challenge. We hypothesize that a reproducible MALDI-TOF mass spectrometry protocol can detect $A\beta_{42}$ oligomers, providing a foundation for non-invasive diagnostics. $A\beta_{42}$ oligomers were prepared and mixed with sinapinic acid (SA) matrix in TA30 then spotted onto a MALDI plate pre-coated with dried SA in ethanol. This study provides a viable foundation for non-invasive $A\beta_{42}$ oligomer detection using MALDI-TOF under standard conditions.

POSTER SESSION B

Clinical Science/Community/Other

Poster 7B

Implementing MomRX, A Community-Based Model to Improve Maternal Hypertension Outcomes

Cori Grant, Summer Chavez, Veronica Sanchez, Amber Hurd, Cassie Leissner, Omolola Adepoju

Presenter: Cassie Leissner

Hypertensive disorders during pregnancy are a leading contributor to maternal morbidity and mortality, particularly among Black and Hispanic/Latina populations in Houston, Texas. Despite established clinical guidelines and validated tools, implementation gaps persist, especially in underserved communities where structural inequities and limited access to care impede intervention uptake. While neonatal mortality has decline, maternal mortality continues to rise- an alarming trend disproportionately affecting women of color. For instance, in Harris County, the maternal mortality rate in predominantly Black and Hispanic precincts is significantly higher, with nearly 1 in 20 women lacking prenatal care and Black infant mortality rates three times higher than those of white infants. The MomRX initiative seeks to integrate and evaluate a multicomponent, community-engaged intervention to prevent and manage maternal hypertension by leveraging culturally responsive strategies and health equity frameworks.

Lightning Talk #11

POSTER SESSION B

Clinical Science/Community/Other

Poster 8B

Barriers and facilitators to enrollment in a hospital-based violence intervention program: a qualitative study

Jacqueline Garcia, Kateri Chapman, Kristen Mueller

Presenter: Jacqueline Garcia

Life Outside of Violence (LOV) is the St. Louis, Missouri region-wide hospital-based violence intervention program (HVIP). During the 2018-2022 pilot period, LOV enrolled 6% of eligible patients. Our objective was to assess barriers and facilitators to enrollment in LOV. This was a qualitative study using focus groups with staff from the LOV program and community-based organization (CBO) partners conducted between 9/1/2024 and 3/31/2025. Participants were identified through purposive sampling. Focus groups were guided by a semi-structured protocol developed with input from key informants to enhance authenticity and credibility. Focus groups were conducted in-person by LOV program research staff trained in medicine and social work. This study revealed several actionable themes that may lead to improved HVIP enrollment among traumatized patients.

Lightning Talk #5

POSTER SESSION B

Clinical Science/Community/Other

Poster 9B

Integrating Human Milk Collection into Postpartum Care: A Community-Based Model in Midwifery Clinics

Ayesha Javed, Niku Tabatabai, Samaneh Karami, Tasneem Bawa-Khalfe

Presenter: Niku Tabatabai

Postpartum women remain underrepresented in biomedical research, despite evidence that lactation and pregnancy history influence long-term health, including postpartum breast cancer (PPBC) risk. PPBC is an aggressive breast cancer subtype that emerges within 5-10 years of childbirth, affects 35-55% of younger women (<45) and is associated with elevated metastasis and poor prognosis. PPBC disproportionately impacts African American and Hispanic women, who are more likely to have higher parity, an established risk factor. Our pilot study evaluated the feasibility of integrating milk sample collection and health surveys into postpartum care at The Texas Rose Birth Center, a community-based midwifery. Following an NIH-approved IRB protocol, we collected samples from lactating women aged 30-45, including African American, Hispanic, and Non-Hispanic Caucasian participants. This pilot study establishes the feasibility of utilizing midwifery clinics as effective research hubs for human milk collection.

POSTER SESSION B

Clinical Science/Community/Other

Poster 10B

Assessing Barriers to Treatment for Lower Back Pain in Local Houston Communities

Edgard Castillo, Albert Sarpong, Kevin Rowland

Presenter: Albert Sarpong

Chronic lower back pain (LBP), defined as lumbar pain persisting for more than 12 weeks, affects approximately 13% of adults in the United States and is a leading cause of disability and healthcare expenditure globally. There is limited data on barriers to underserved communities/ The University of Houston (UH) Academic Health Circle can help identify barriers to care in the local underserved Houston population. The objective of this study was to leverage partnership[s with the Academic Health Circle to identify common barriers to care and help address these concerns in the local Houston population through Community-Based Population Research (CBPR). A total of 4 participants from the local community were interviewed about their experience with lower back pain. Many had to resort to multiple different treatment modalities before experiencing pain relief, if at all. Future work should focus on leveraging systems, rather than individual efforts, to reach a larger local population.

POSTER SESSION B

Clinical Science/Community/Other

Poster 11B

Lateral association in the absence of anti-parallel dimer formation in two patients with dystrophic epidermolysis bullosa

Neha S. Momin, I. Sinem Bagci, John A. Dolorito, Sara F. Tufa, Pragya Tripathi, Kunju J. Sridhar, Douglas R. Keene, M. Peter Marinkovich

Presenter: Neha S. Momin

Type VII collagen (C7) assembles into anchoring fibrils (AFs) which are basement membrane zone (BMZ) structures that reinforce dermal-epidermal cohesion. Mutations in COL7A1, which encodes C7, cause dystrophic epidermolysis bullosa (DEB), a blistering disorder characterized by skin fragility. C7 consists of a central collagenous domain flanked by non-collagenous NC1 and NC2 regions. During fibril assembly, C-proteinase-mediated cleavage of the NC2 domain enables anti-parallel dimer formation, followed by lateral association into mature, banded AFs that loop through the dermis to anchor the epidermis. Here, we report two DEB patients expressing near full-length C7 truncated just proximal to the C-proteinase cleavage site, which produces anti-parallel dimerization. These findings demonstrate that C7 lateral association can occur independently of anti-parallel dimer formation. This work also highlights the importance of AF looping in maintaining skin integrity.

Lightning Talk #3

Clinical Science/Community/Other

Poster 12B

Comparing the Outcomes of AI Beta Tool vs Human Translated Aphasia Friendly Research Summaries

Esther Bonojo, Mai Christina, Marquez Mike, Heather Dial

Presenter: Esther Bonojo

Aphasia is a language disorder that impacts the brains' ability for people to comprehend, formulate, and express themselves through speech and writing. For most studies on aphasia, the patients with aphasia that participate are unlikely to be able to read the reports published. Translating scientific research papers into aphasia friendly summaries greatly aids the aphasia community by ensuring they can be knowledgeable of the important information about them that was only able to be discovered by their continuous involvement. This study approached the available works and tools for summarizing in an aphasia friendly manner in order to quantitatively evaluate the strengths and weaknesses of *Kasdan's Practical Guide* (2025) and beta tool, *Article Friend*. Both were utilized to write a total of 6 aphasia friendly versions of studies published by Dr. Heather R. Dial and were then rated by Dial's team with use of an online survey checking for proper following of the rubric outline. The study found that human -generated translations followed the criteria better than the AI tool.

POSTER SESSION B

Clinical Science/Community/Other

Poster 13B

Intersecting Refractory Hypotension Case Report

Osvaldo Alquicira, Guillermo Saldana, Jacob R. McAnally, Cory A. Smith, Fernando Macedo-Alquicira

Presenter: Guillermo Saldana

Pre-operative medication management is a critical component of a patient's optimization form surgery. Following medication recommendations for continuing or stopping medications is essential for patient safety and to avoid perioperative complications. We present this case of refractory hypotension in which medication management played a role. Refractory hypotension in response to ACE-inhibitors or ARBs has been well documented. In this case, the patient's hypotension was likely caused by the preoperative dose of ACE-inhibitors in conjunction with standard anesthetic agents. Discontinuing the ACE-inhibitor perioperatively will likely reduce future episodes. However, significant rebound hypertension has been documented to occur intra/postoperatively when withholding ACE-inhibitors/ARBs. This case underlies the importance of thorough preoperative planning for high-risk patients undergoing surgeries.

POSTER SESSION B

Clinical Science/Community/Other

Poster 14B

From Innovation to Implementation: Assessing AI/ML Device Relevance for Primary Care

Ashlei Phillips, Raven Hollis, Connor Nguyen, Winston Liaw

Presenter: Raven Hollis

The use of Artificial Intelligence (AI) in medicine has increased in the past decade. Devices in radiology or pathology contribute to the increased accuracy and speed of medical diagnoses. Because of AI's benefits, there is a particular interest in finding ways that AI can be applied across all specialties. Primary care serves as the main hub for a patient's well-being throughout their life. Consistent access to a primary care provider is associated with greater life expectancy and accounts for half of all office visits in the US, yet only 5% of healthcare spending is allocated to it. This underinvestment has led to burnout and shortages. AI has the potential to elevate primary care by streamlining documentation, improving diagnostic accuracy, tailoring care to individual needs, and restoring the focus on meaningful patient experiences. In this cross-sectional study, data were collected and analysis showed that less than 10% of the FDA-approved AI/ML devices are relevant to primary care, even though primary care serves as the foundation of comprehensive healthcare.

Lightning Talk #10

POSTER SESSION B

Clinical Science/Community/Other

Poster 15B

Association of Vision Impairment with Food Insecurity in US Children

Tushar Talaparthy, Yacoub Zumlot, Ayman Al-Zubi, Isdin Oke, Abdelrahman M. Elhusseiny

Presenter: Tushar Talaparthy

The objective of this study was to determine the association between caregiver-reported vision impairment (VI) in children and household food insecurity (FI) in a nationally representative United States sample. We hypothesized that the presence of a child with VI would be associated with an increased likelihood and severity of household FI. We conducted a cross-sectional study using survey-weighted multivariable logistic and ordinal regression models to examine the association between child VI and household FI. Models were adjusted for child age, sex, race/ethnicity, household income, parental education, household size, and marital status. Childhood VI is significantly associated with an increased likelihood and severity of household FI, independent of key socioeconomic factors. These findings identify families of children with VI as a high-risk population, underscoring the need for routine FI screening in pediatric and ophthalmology clinics and for policies that better integrate social and medical support.

Lightning Talk #2

POSTER SESSION B

Clinical Science/Community/Other

Poster 16B

A Mixed Methods Evaluation of Biweekly Cooking Demonstrations on Produce Consumption Among Adults in Houston's Third Ward

Mohammed Alzubaidi, Dhwani Mulani, Aleesha Ogunleye, Ali Qureshi, Anna Maria Trabulsi, Iman Yousaf, Mathew Mendoza, Jessica Kirschmann, Erin Herder, Craig Johnston

Presenter: Mathew Mendoza

Food insecurity remains a significant barrier to adequate vegetable intake among urban residents of lower socioeconomic status. Limited access to grocery stores, transportation, and farmers markets restricts the availability of fresh produce for dietary consumption. An increased intake of fruit and vegetables in a healthy diet prevents and mitigates chronic disease progression. This study examined 23 adult residents living in Houston's Third Ward to evaluate the impact of a biweekly cooking demonstration program on fruit and vegetable consumption, as measured by self-reported intake and VeggieMeter® scores. Fruit and vegetable consumption was assessed using both objective and subjective measures. Average VeggieMeter® scores increased from 180.09 to 202.22 from month 0 to month 6. While VeggieMeter® scores showed a slight increase, the change was not statistically significant due to a limited sample size (n=23).

POSTER SESSION B

Clinical Science/Community/Other

Poster 17B

Prevalence of Lower Urinary Tract Symptoms in Patients with Fibromyalgia: A Systematic Review

Alfonzo E. Muñoz, Raymundo A. Muñoz, Audi Hoang, Mathew Mendoza, Tushar Talaparthy, Chakravarthy M. Sadacharan

Presenter: Alfonzo E. Muñoz

Fibromyalgia is a chronic disorder characterized by multifocal musculoskeletal pain due to heightened central sensitization. It often presents together with other conditions such as irritable bowel syndrome, auditory hypersensitivities, migraine, and depression. The urinary system has also been noted to be affected in patients with fibromyalgia, increasing the occurrence of lower urinary tract symptoms. The purpose of this systematic review is to access the prevalence of lower urinary tract symptoms (LUTS) in patients with fibromyalgia in comparison with healthy individuals. A systematic literature search was conducted using ScienceDirect, Cochrane, Scopus, and PubMed, following the PRISMA 2020 guidelines. Out of 675 studies screened, five met the inclusion criteria. Three studies reported statistically significantly higher LUTS scores in fibromyalgia patients, while the remaining two identified at least one LUTS that was significantly more prevalent in the fibromyalgia group.

POSTER SESSION B

Clinical Science/Community/Other

Poster 18B

Study of Oil-Based Tetracaine for Herpes (SOOTHE): Protocol for A Randomized Controlled Trial Evaluating Topical Pain Relief in Genital Herpes

Emma Lakey, Isabella Martingano, Stephen Pulliam, Mariana Garcia, Alejandra Duque, Jamie Everett, Kimberly Pilkinton, and Kevin Rowland

Presenter: Isabella Martingano

Herpes simplex virus types 1 and 2 are widespread infections affecting about 1 in 5 adults globally, presenting with painful lesions and symptoms like itching, burning, and tingling. After initial infection via direct contact, the virus replicates, causes inflammation, and resides in ganglia where it may later reactive. HSV-2 tends to recur genetically and HSV-1 orally, though both share similar symptoms during reactivation. Antiviral medications remain the standard treatment, reducing the outbreak severity and frequency by inhibiting viral replication. The SOOTHE study investigates a 2% tetracaine in mineral oil gel as an adjunct for pain relief in recurrent genital herpes. Tetracaine blocks nerve signals by inhibiting sodium channels, and prior research shows it rapidly reduces pain and lesion severity. We hypothesize that participants in the Topical Gel + Standard of Care group will report significantly greater pain relief compared to those in the Standard of Care Only group.

INTRODUCTION OF KEYNOTE BY DR. TAMEKA CLEMONS

Dr. Tameka A. Clemons is a dedicated educator, mentor, and researcher whose work bridges the gap between science and medical education. She earned her B.S. in Chemistry from Xavier University of Louisiana and her Ph.D. in Biochemistry from Meharry Medical College. As Assistant Director of Medical Student Research, Dr. Clemons has guided numerous students in projects exploring the link between Type II Diabetes and Alzheimer's disease—her primary area of research expertise.

Beyond her laboratory and mentoring work, Dr. Clemons is active in advancing medical education. She serves as Vice-Chair of the International Association of Medical Science Educators (IAMSE) Café, is a member of the Association of Biochemistry Educators, and is co-chairing the inaugural Tilman J. Fertitta Family College of Medicine Student Research Day.

KEYNOTE ADDRESS BY DR. DEBRA MURRAY

Dr. Debra Murray is a nationally recognized leader in mentoring and research education. A recipient of the prestigious Norton Rose Fulbright Faculty Excellence Award in Educational Leadership, she has also been awarded the *All of Us Evenings With Genetics Research Program* grant from the NIH *All of Us* Research Program. At Baylor College of Medicine, Dr. Murray directs Genetics/Genomics Education Programs, co-leads the Office of Community Engagement, and serves as Associate Professor in the Department of Molecular and Human Genetics. She develops and delivers faculty training initiatives and medical genetics programs for first- and second-year medical students. As part of the Engagement, Communication, and Education (ECE) Team, Dr. Murray also advances community-engaged research for the Intellectual and Developmental Disabilities Research Center (IDDRC).

MEET THE JUDGES

Omolola E. Adepoju, Ph.D., M.P.H.

Dr. Omolola Adepoju is Director of the Humana Integrated Health Sciences Institute at the University of Houston and a Clinical Professor in the Department of Health Systems and Population Health Sciences. A health services researcher, she teaches evidence-based medicine and research methods, drawing on experience in government, academia, and the health care industry. Her work focuses on chronic disease management, value-based care, and the use of predictive analytics to improve health outcomes and address cost, quality, and access challenges. Prior to joining the Fertitta Family College of Medicine, she served as Associate Director of Health Economics at UnitedHealth Group. Dr. Adepoju has authored numerous peer-reviewed publications and is dedicated to mentoring the next generation of physician-researchers. She holds degrees from the University of Lagos, Emory University, and Texas A&M University.

Michelle Carroll-Turpin, Ph.D.

Michelle A. Carroll Turpin, PhD, is the Associate Dean of Admissions & Outreach and a Clinical Associate Professor at the Tilman J. Fertitta Family College of Medicine at the University of Houston. She earned her PhD in the Department of Pharmacology, Toxicology and Neuroscience at LSU Health Sciences Center – Shreveport in 2015. She joined the TJFFCOM as a founding faculty member in June 2019. Dr. Carroll Turpin proudly plays an integral role in helping the College achieve the mission of improving healthcare in Houston, the state of Texas and beyond by training a diverse group of future primary care physicians with particular interest in urban and rural under-served communities. She has been previously awarded NSF grants designed to provide research experience and mentorship to under-represented high school and undergraduate students who aspire to careers in STEMM fields. Besides Admissions & Outreach activities, Dr. Carroll Turpin continues to deliver pharmacology content in the medical school curriculum and has authored multiple peer-reviewed journal articles and book chapters on topics of addiction, pain, anesthesia and toxicology.

MEET THE JUDGES- CONTINUED

Benjamin King, Ph.D., M.P.H.

Benjamin King, PhD, MPH, is a clinical assistant professor at the Tilman J. Fertitta Family College of Medicine. He is responsible for analytical support of the department's program evaluations and teaching evidence-based medicine and other quantitative methods. In addition, he is a statistician with the Humana Integrated Health Sciences Systems Institute at UH. King's work focuses on the design and support of programs to help the homeless community. His experience includes managing and analyzing large clinical datasets, community-based studies of non-medical drivers of health, and clinical trials in acute and emergency care settings. He is passionate about issues related to ending homelessness and serves on the board of the Texas Homeless Network, the National Health Care for the Homeless Council's Research Committee and chairs the Medical Care section of the American Public Health Association. King has a bachelor's degree in neuroscience from Bard College. He earned a master's degree in public health and a doctorate in epidemiology from the UTHealth School of Public Health.

Jasna Marjanovic, Ph.D.

Jasna Marjanovic, Ph.D., is a clinical professor of Pharmacology in the Department of Biomedical Sciences at the Tilman J. Fertitta Family College of Medicine. She teaches pharmacology topics throughout the pre-clerkship curriculum and co-coordinates integration of pharmacological and clinical sciences in the program. Marjanovic received her professional degree in pharmacy from the University of Belgrade in Belgrade, Serbia. She obtained her Doctorate in Pharmacology from the University of Illinois College of Medicine at Chicago and completed a postdoctoral fellowship in hematology at the Washington University in St. Louis, School of Medicine. Her research background and interest is focused on molecular pharmacology of blood platelets. Throughout her academic career, Dr. Marjanovic has mentored many medical professions' students interested in basic biomedical research on multiple aspects of the research process. Her students have been reporting their research progress at regional conferences on a regular basis and presented collective result of the NIH-funded research project at the premier discipline-related international meeting, the Annual Meeting of the American Society of Hematology (ASH).

MEET THE JUDGES- CONTINUED

Niazur Rahman, Ph.D., MSc, M.D.

Niazur Rahman, Ph.D., MSc, M.D., is a clinical assistant professor in the Department of Biomedical Sciences at the Tilman J. Fertitta Family College of Medicine. His current responsibilities include course directorship, serving on the evaluation and assessment committee, and teaching clinical anatomy. He earned his Ph.D. in physiology from the University of Toronto, a master's degree in Anatomical Sciences from Queen's University, and a medical degree from the University of Dhaka. Dr. Rahman has authored over a dozen peer-reviewed publications in the fields of obesity-associated diabetes, human anatomy, histology, and medical education. He has presented his work at major international conferences and is an active member of several professional organizations.

Laura de la Roche, Ph.D., MSc

Laura de la Roche is a post-doctoral fellow working in the Department of Health Systems and Population Health Sciences at the University of Houston Tilman J. Fertitta Family College of Medicine. She completed her doctoral studies in developmental psychology at Queen's university. Her research is focused on parent perceptions of the accessibility and utility of critical resources to support their family, including mental health resources, early childhood resources, and autism interventions. She is primarily a qualitative researcher and therefore focuses on the lived experiences of individuals to identify influential factors impacting their access and uptake of resources, as well as inform the development and dissemination of resources and policies.

Aaryani Sajja, Ph.D.

Aaryani Tipirneni-Sajja Ph.D. joined the University of Houston as an associate professor in the Department of Biomedical Engineering, Cullen College of Engineering and the Department of Biomedical Sciences at the Tilman J. Fertitta Family College of Medicine in the fall of 2024. Dr. Sajja's research focuses on developing accurate and automated magnetic resonance imaging (MRI) and NMR spectroscopy methods for early diagnosis and treatment monitoring. She has led several federal and university grants as a principal investigator and published in numerous journals. She served as K-12 outreach chair for Society of Women Engineers and has utmost interests in enriching student education in STEM.

MEET THE JUDGES- CONTINUED

Maryam Vasefi, Ph.D.

Maryam Vasefi, Ph.D. joined the University of Houston as a Clinical Associate Professor in the Department of Biomedical Sciences at the Tilman J. Fertitta Family College of Medicine in 2024. She earned her Ph.D. from the University of Waterloo and currently hold several roles including course directorship, curriculum development, neuroscience instruction, and Learning Community Professor. As a Learning Community Professor, she provides longitudinal mentorship and academic coaching to medical students, supporting their professional identity formation and fostering both personal and career development throughout their training. Her research focuses on the field of neuroscience, with a particular emphasis on neurodegenerative diseases. She remains actively engaged in scholarly work alongside her educational contributions.

Tonghui Xu, Ph.D.

Tonghui Xu, Ph.D. is a Postdoctoral Fellow at the Humana Integrated Health Systems Sciences Institute at the University of Houston. His research focuses on applying statistical and machine learning methods to study medical, public health, and social and behavioral issues, with an emphasis on vulnerable populations and health disparities. His interests include big data analysis, mental health, autism, ADHD, and aging with chronic diseases.

SPECIAL THANKS

We extend our heartfelt thanks to all faculty mentors for their invaluable guidance, and to the dedicated faculty and staff whose efforts made the inaugural Student Research Day possible.

Special thanks to our judging panel—Dr. Omolola Adepoju, Dr. Michelle Carroll-Turpin, Dr. Benjamin King, Dr. Jasna Marjanovic, Dr. Niazur Rahman, Dr. Laura de la Roche, Dr. Aaryani Sajja, Dr. Maryam Vasefi, and Dr. Tonghui Xu for evaluating this year's presentations.

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