Summer 2025 Research Training Opportunity
Due March 10, 2025

Name: **Signature** **Date:**

University Email: **Non-University Email:** **Cell:**

==========

Eligibility Requirements

By submitting this application, I certify that I

- am a U.S. citizen or permanent resident
- will have completed the first year of medical school by the start of the program (June 2025)
- will not be enrolled in another program during the dates of this program (June 30, 2025 – August 22, 2025)
- agree to meet with my assigned mentor at least once a month from April 2025 to June 2025 to develop my summer research plan before the start of the program.

==========

Mentor Selection - From the list below, rank the top three mentors/projects you would like to be matched with in order of preference.

1. **Mentor:** _____ **Project:** _____
2. **Mentor:** _____ **Project:** _____
3. **Mentor:** _____ **Project:** _____

==========

Attachments

- I have attached a copy of my **CV/Resume**

- I have attached a **Personal Statement/Statement of Purpose** (1 page maximum) that provides details regarding any prior experience with research, your research interests, goals for the summer research experience and long-term career goals.

T35 Short-Term Research Training Program
Summer 2025
List of Mentors/Projects

#	*Mentor*	*Research Project*
1	**Tanika Kelly, PhD** **NIH Mission Area: Nephrology** Tanika Kelly, PhD is a Professor of Medicine in the Division of Nephrology. The overarching objective of Dr. Kelly's research is to advance precision health strategies for the prevention and treatment of chronic kidney disease and cardiovascular disease through cutting-edge multi-omics research.	***Clonal hematopoiesis of indeterminate potential (CHIP)*** Clonal hematopoiesis of indeterminate potential (CHIP) is an aging related blood condition that has been identified as a determinant of numerous chronic diseases, including cardiovascular disease, chronic kidney disease, and cognitive impairment. Despite its known impacts on healthy aging, its longitudinal relationship with physical functioning, or frailty, has been understudied. We have measured CHIP among 2,126 participants of the Chronic Renal Insufficiency Cohort (CRIC) study, a cohort of patients with chronic kidney disease who have undergone repeated assessments of physical functioning. With these data, we present an opportunity for a summer trainee to investigate the longitudinal associations of CHIP with frailty, potentially contributing important insights into the temporal role of this novel risk factor with an important aging-related condition.
2	**Ana Ricardo, MD, MPH** **NIH Mission Area: Nephrology** Ana Ricardo, MD, MPH is a Professor in the Division of Nephrology. She is studying the effects of poor sleep quality, short sleep duration and sleep-disordered breathing on the progressive loss of kidney function in patients with CKD. She has over 80 publications, and is a highly sought out mentor, particularly among URM students. Dr. Ricardo is a member of the COM Medical Scientist Training Program Advisory Committee and teaches the CKD unit for the first-year medical student pathophysiology course.	***Sleep disordered breathing as a predictor of hospitalizations in adults with chronic kidney disease*** Description: This project will analyze data from over 600 adults with mild to moderate chronic kidney disease enrolled in the Chronic Renal Insufficiency Cohort (CRIC) study who completed an in-home, overnight sleep apnea test measuring oximetry, nasal pressure, chest effort and snoring and were followed for a mean of three years. Using multivariable regression methods, this study will evaluate the association with sleep disordered breathing and hospitalizations due to cardiovascular and non-cardiovascular causes.
3	**Rosalba "Rose" Hernandez, PhD, FAHA** **NIH Mission Area: Nephrology** Rosalba "Rose" Hernandez, PhD, FAHA, is an Associate Professor and Associate Dean for Equity and Inclusion at the University of Illinois Chicago (UIC) College of Nursing. Her research examines the interplay between psychological well-being (e.g., optimism, happiness) and cardiovascular health in vulnerable populations, with a particular focus on racially/ethnically minoritized adults and individuals with chronic conditions such as kidney disease and lung cancer.	**3D virtual reality (VR) intervention for individuals undergoing hemodialysis with elevated symptoms of depression** The project will explore how perceptions of VR-based treatment vary among patients, with a specific focus on differences based on socioeconomic factors such as income, education, and access to technology. Through statistical and qualitative analyses, the student will help identify potential barriers to engagement and inform strategies for tailoring digital health interventions to diverse patient populations. This project provides hands-on experience in patient-centered research, survey analysis, and mixed-methods evaluation, with potential implications for improving the accessibility and acceptability of VR interventions in chronic disease management.

#	*Mentor*	*Research Project*
4	**Santosh Saraf, MD** **NIH Mission Area: Hematology** Santosh Saraf, MD is an Associate Professor and the Director of the Comprehensive Sickle Cell Center in the Division of Hematology & Oncology. He investigates the genetic and molecular mechanisms for sickle cell disease-related complications with a particular focus on kidney disease.	***Develop a liquid biopsy for kidney damage in sickle cell disease*** The project that is available for a T35 scholar is to help develop a liquid biopsy for kidney damage in patients with sickle cell disease. Kidney biopsies are infrequently performed limiting our ability to directly evaluate molecular changes occurring in the kidneys of patients with sickle cell disease. Gene expression changes in urine bio samples may overcome this obstacle and help provide insight into how the kidneys are being damaged. Our lab has isolated mRNA from approximately 50 patients with sickle cell disease and quantified the level of expression in certain candidate genes. During the summer session, the mentee will work closely with the mentor to analyze associations between the candidate gene expression and measures of kidney function. The project will allow the trainee to develop hands-on skills on how to conduct biostatistical analyses and how to interpret findings into pathophysiologic mechanisms for sickle cell-related kidney disease.
5	**Waddah A. Alrefai, MD** **NIH Mission Area: Gastroenterology** Waddah A. Alrefai, MD is a professor in the division of gastroenterology and hepatology and the director of the physician-scientist development program (PSDP) in the internal medicine residency at the Department of Medicine. His research primarily focuses on studying the regulation of intestinal bile acid and cholesterol absorption, emphasizing their roles in maintaining cholesterol homeostasis and contributing to liver diseases.	***Investigating Cholesterol Absorption in Alcohol-Associated Liver Disease*** Dietary cholesterol has been identified as an independent risk factor for liver cirrhosis. However, it remains unclear whether variations in cholesterol absorption contribute to the development and severity of liver disorders, such as alcohol-associated liver disease (ALD). Our research aims to explore this question using cutting-edge **click-chemistry-based approaches**. As part of this project, we will analyze markers of intestinal cholesterol absorption in **serum samples from ALD patients** with varying disease severity. These studies will provide critical insights into how cholesterol absorption influences ALD progression and may lead to novel therapeutic strategies.
6	**Ravinder K. Gill, PhD** **NIH Mission Area: Gastroenterology** Ravinder K. Gill, PhD, is an Associate Professor in the Division of Gastroenterology and Hepatology. Dr. Gill's research group focuses on serotonin signaling and its impact on the intestinal epithelium, gut microbiome, and metabolism in both health and digestive disorders. Our lab integrates molecular biology, cell culture, and in vivo models to unravel key pathways that contribute to inflammatory and diarrheal diseases—offering students a hands-on, immersive research experience.	***Investigating how serotonin triggers oxidative stress in intestinal epithelial cells and its implications for gut inflammation*** Or ***Exploring the interplay between serotonin and bile acids in regulating epithelial transport, shedding light on novel therapeutic targets for gut disorders.***

#	*Mentor*	*Research Project*
7	**Cemal Yazici, MD** **NIH Mission Area: Gastroenterology** Cemal Yazici, MD is Associate Professor in the Division of Gastroenterology and Hepatology. Dr. Yazici is studying the contribution of diet and microbiome to the severity of acute pancreatitis. In collaboration with colleagues in the Division of Endocrinology, a main focus of research is the study of risks for and mechanisms of diabetes due to pancreatitis.	**The association of social vulnerability index with chronic pancreatitis (CP) and CP-driven outcomes** In this retrospective study, we aim determine if i) the social vulnerability index (SVI) is associated with chronic pancreatitis (CP), ii) minorities with CP have higher SVI compared non-Hispanic whites (NHW), and if iii) SVI is associated with development of CP-related health outcomes.
8	**Pamela Ann Martyn-Nemeth, PhD, RN, FAHA, FPCN, FAAN** **NIH Mission Area: Diabetes** Pamela Ann Martyn-Nemeth, PhD, RN, FAHA, FPCN, FAAN is a Professor in the Department of Biobehavioral Nursing Science in the UIC College of Nursing. Dr. Martyn-Nemeth is studying critical behavioral parameters impacting on the quality of life and metabolic health in people with type 1 diabetes, including fear of hypoglycemia, cardiovascular risk, and sleep quality.	***Sleep optimization to improve glycemic control in adults with type 1 diabetes (T1D)*** The overall goal of my program of research is to reduce cardiovascular disease (CVD) and improve quality of life in persons with type 1 diabetes (T1D). I have primarily addressed this through the development of technology-assisted behavioral interventions such as cognitive behavioral therapy with continuous glucose monitoring to reduce fear of hypoglycemia (FREE) and behavioral sleep intervention to improve sleep regularity and glucose control (SOPT). Students could get involved in analyzing the data from our sleep study. In particular, we will be working on determining if improvement in sleep (regularity or duration) is associated with an improvement in mood this summer.
9	**Pingwen Xu, PhD** **NIH Mission Area: Diabetes** Pingwen Xu, PhD is Associate Professor in the Division of Endocrinology, Diabetes, and Metabolism. Dr. Xu's research was focused on the central regulation of energy balance and glucose homeostasis. His laboratory employs sophisticated in vivo transgenic mouse models and metabolic phenotyping approaches to elucidate the central mechanisms underlying appetite regulation, energy expenditure, and glucose metabolism.	***How Western diet and FOS supplementation affect hypothalamic glial cells*** Studies have shown that obesity caused by diet leads to inflammation in the hypothalamus at an early stage. Our research demonstrates that adding dietary fiber, especially Fructooligosaccharides (FOS), helps prevent weight gain and reduces hypothalamic inflammation in mice. This suggests a promising link between fiber intake and lower inflammation in the hypothalamus. To explore this connection further, we are using two advanced technologies: PiP-seq scRNA for broadly analyzing individual hypothalamic cells and translating ribosome affinity purification (TRAP) with microglial-specific Cre lines for specifically analyzing hypothalamic microglia. These tools will reveal how Western diet and FOS supplementation affect hypothalamic glial cells, potentially leading to new treatments for obesity-related disorders.