OU Health Harold Hamm Diabetes Center Fall Newsletter

Jacob E. (Jed) Friedman, Ph.D.,
Director, OU Health Harold Hamm Diabetes Center
Chickasaw Nation Endowed Chair
University of Oklahoma Health Sciences

WHAT'S INSIDE

Director's Corner

As we reflect on the achievements and milestones of the year, I am filled with immense pride and excitement about the progress we are making in diabetes research, care, and prevention. Our collective efforts continue to make a profound impact on the lives of many, and I am pleased to share some key highlights herein.

Recently, our NIH-U54 Center aimed at reducing maternal morbidity and mortality hosted 4 NIH site visitors. One of these visits included a meaningful trip to the Southern Tribal Health Board, where we witnessed firsthand the positive effects of community activities on public health and disease prevention. Another highlight was camp Blue Hawk, where the staff welcomed over 100 children with Type 1 Diabetes for a week of fun and frolic. These engagements underscore our commitment to fostering strong partnerships and promoting health awareness and health equity across diverse communities.

We were also honored to welcome the new NIH Director, Dr. Monica Bertagnolli to the OUHSC campus. This visit was particularly noteworthy as it introduced a significant new NIH initiative that focuses on the collection and use of high-quality electronic health data for diabetes research, leveraging the power of machine learning. This innovative approach promises to advance our understanding of diabetes and improve patient outcomes.

This year, the Harold Hamm Diabetes Center awarded a record number of 22 Pilot Awards, totaling $2.08 million in funding for groundbreaking research projects. Additionally, I am proud to report a remarkable **return** on **investment** of $19.7 million from 2020 to 2023, demonstrating the impactful work and dedication of our researchers.

I would like to extend my heartfelt congratulations to Dr. Jeanie Tryggestad, who was honored with the 2024 Provost Award for Excellence in Clinical/Translational Research. This recognition is a testament to her outstanding contributions to the field and her unwavering commitment to advancing diabetes research. Her new NIH-U01-Identifying Metabolic and Psychosocial Antecedents and Characteristics of youth-onset Type 2 Diabetes (IMPACT), is set to launch this year.

We are also excited to announce a new initiative—our HHDC Speed Networking event! Join us on October 9 from 5 to 7 pm at City and State for a unique opportunity to connect directly with our five panelists who are at the forefront of clinical research. Enjoy a relaxed, happy hour setting while discussing cutting-edge topics and forming new collaborations.

Lastly, don't forget that Diabetes Research Day is approaching on Friday, November 15, 2024. This is a wonderful occasion to share your research findings and engage with peers. Please remember that abstracts are due by September 27th, and we look forward to your participation.

Thank you all for your continued dedication and support. Together, we are making significant strides toward a future free of diabetes.

Warm regards,

Jacob E. (Jed) Friedman, Ph.D.
Director, OU Health Harold Hamm Diabetes Center at the University of Oklahoma Health Sciences,
Chickasaw Nation Endowed Chair

OU Health | Harold Hamm Diabetes Center
The UNIVERSITY of OKLAHOMA HEALTH SCIENCES

The HHDC Newsletter is a quarterly newsletter that offers articles on HHDC events, funding opportunities, publications, research news, and training opportunities. Sign up below to receive our quarterly newsletter as well as periodic updates on the HHDC.
To submit an item for the newsletter, please send your announcement to lark-zink@ouhsc.edu.

Monica Bertagnoli, Director of the NIH, meets with Harold Hamm Diabetes Center Director, Jed Friedman, to discuss the future of diabetes research and treatment.

Dr. Friedman Meets with the Director of the National Institutes of Health, Dr. Monica Bertagnolli, at University of Oklahoma Health Sciences Center

Dr. Jed Friedman, Director of the Harold Hamm Diabetes Center at the University of Oklahoma Health Sciences Center, recently held a pivotal meeting with Dr. Monica Bertagnolli, Director of the National Institutes of Health (NIH), along with officials from the NIH Data Science Institute, NIH Office of Native American Affairs, and the NIH Director of the National Institutes of Drug Abuse. This significant encounter took place on August 21 at the Stephenson Cancer Center, and focused on advancing collaborative research initiatives aimed at addressing pressing health disparities.

During the meeting, Friedman and Bertagnolli discussed potential partnerships that could enhance research funding and facilitate innovative healthcare solutions. They emphasized the importance of interdisciplinary collaboration in tackling issues along a nexus of treatment protocols, such as diabetes therapy with GLP-1, nutritional and behavioral interventions, and as appropriate, mental health, cancer treatment and other interventions such as weight loss, which are critical to the well-being of communities nationwide.

Friedman expressed enthusiasm about the potential for synergistic efforts between the University of Oklahoma and the NIH, stating, “Working together, we can drive forward groundbreaking research that will ultimately benefit patients and public health.” Specifically, the HHDC has helped to create an electronic health data record containing over 600,000 patient records that can be mined using artificial intelligence and machine learning to improve policy decisions and gain insights into these ground-breaking drugs.

The meeting also highlighted ongoing projects at the University of Oklahoma Health Sciences Center, showcasing the institution’s commitment to advancing medical research and education. Bertagnolli praised the Center’s contributions to the field and underscored the NIH’s role in supporting such vital work.

As the collaboration progresses, both leaders are optimistic about the impact this partnership will have on the future of health research and the potential to improve healthcare outcomes across Oklahoma, Colorado and the nation.

Camp Blue Hawk Provides Summer Camp Getaway and Scholarships for over 100 Campers

Camp Blue Hawk experienced an exceptional summer camp session, surpassing our registration capacity for the season. This record-setting achievement reflects the high demand for our specialized programs and the positive impact we've made in the lives of children and teens with type 1 diabetes. We were thrilled to welcome around 20 former campers who returned to join our staff, bringing with them a wealth of experience and a deep understanding of the camp's unique environment. Their return not only enriched the program but also underscored the lasting, positive connections forged at Camp Blue Hawk.

> "This summer, Camp Blue Hawk proudly awarded over $116,000 in scholarships, providing 109 of our 120 campers with the financial support they needed to attend."

In our ongoing efforts to enhance both camper and staff experiences, we implemented several strategic changes to our schedule this year. These adjustments were designed to create a more engaging and supportive environment, allowing for greater flexibility and better management of daily activities. Feedback from campers and staff alike has

Blue Hawk campers climb to new heights.

Dr. Sparling and Pediatric Diabetes Camp Coordinator, Elvie Ellis, welcome campers "to the circus!"

been overwhelmingly positive, highlighting the benefits of these changes. The result was a camp marked by increased satisfaction and a stronger sense of community, further solidifying Camp Blue Hawk's reputation as a transformative experience for all involved.

> "The result was a camp marked by increased satisfaction and a stronger sense of community"

This summer, Camp Blue Hawk proudly awarded over $116,000 in scholarships, providing 109 of our 120 campers with the financial support they needed to attend. This generous aid ensured that every child who wanted to be part of our camp could join, regardless of their financial situation. The success of our scholarship program is a testament to the critical role of donor support in making our mission possible. As we look toward future seasons, continued contributions from our supporters will be essential in maintaining and expanding these opportunities, ensuring that every camper has access to the life-changing experiences Camp Blue Hawk offers.

CAMP BLUE HAWK

Campers enjoy water recreation and sports.

All in a day's fun!

Diabetes and Heart Disease Risk: Researcher Studies Immature Platelets as Potential Culprit

Prabha Nagareddy, Ph.D., Professor of Medicine, Section of Cardiovascular Diseases, Department of Internal Medicine, University of Oklahoma Health Sciences

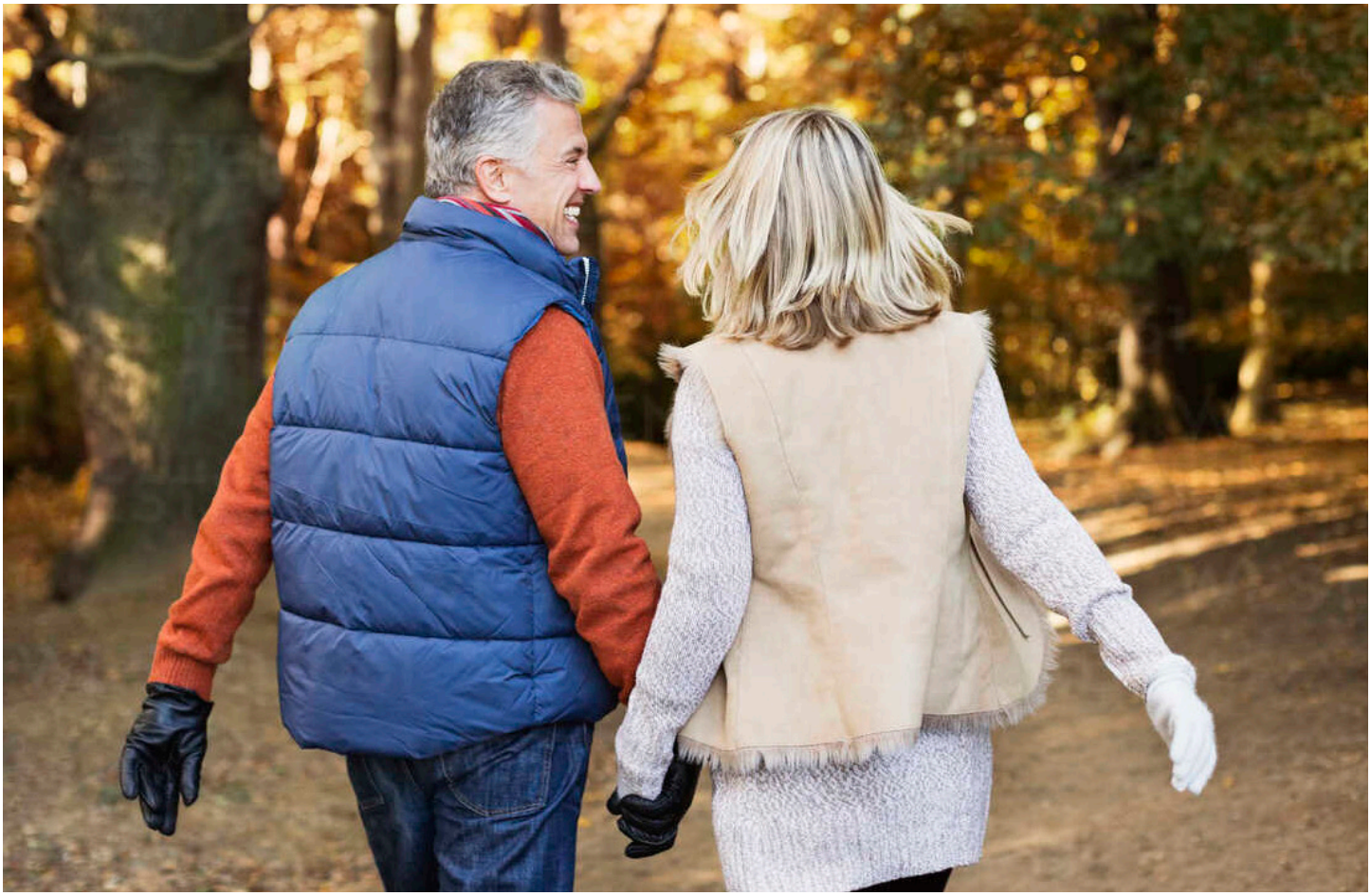
Diabetes and heart disease often go hand in hand. People with diabetes face a much greater risk for heart attack and stroke than those without diabetes, and an estimated two-thirds of people with diabetes eventually die because of heart disease.

To better understand that risk, University of Oklahoma researchers are studying the role of platelets, tiny blood cells that help the body form clots to stop a wound from bleeding. Prabha Nagareddy, Ph.D., a researcher at OU Health Harold Hamm Diabetes Center and a professor in the OU College of Medicine, is leading the project, which aims to understand what causes platelets to function abnormally in patients with diabetes and subsequently damage cardiovascular health.

"We know that people have a higher risk of cardiovascular disease if they are obese, smoke, drink excessively and don't exercise, but we are trying to understand how the risk actually causes the disease. And with this project, we are focusing on why diabetes is a risk for cardiovascular disease, specifically coronary artery disease," Nagareddy said.

Platelet production is a regular ongoing process in the body. The bone marrow produces platelets, which are released into the blood vessels, and when the platelets get older, the body removes them, and the production cycle starts over. However, in people with Type 1 or Type 2 diabetes, high levels of sugar (glucose) in the blood increase the production of platelets. A higher amount of platelets is not itself a risk factor for heart disease, Nagareddy said, but with the increase comes more immature platelets — those that are released when they are too young and less able to function properly.

Although they are younger, immature platelets are actually larger than mature platelets. That is problematic because they have more surface space to carry "cargo" that triggers



inflammation in the blood vessels. As a result, immature platelets are more likely to clump together and activate themselves to form a clot.

> "Over the years, endocrinologists and researchers have begun focusing more and more on cardiac disease risk,"

"LDL cholesterol, the 'bad' type of cholesterol created by high blood sugar, has already inflamed the blood vessels, and immature platelets just aggravate that inflammation," Nagareddy said. "And if a clot is dislodged from the vessel, it can block the coronary artery and cause a heart attack."

Nagareddy has demonstrated this process in mice, and now he is ready to test his theory in humans. His study is enrolling two types of participants with diabetes — those with high blood sugar levels and those with normal (or controlled) blood sugar levels — in addition to patients without diabetes for comparison. Blood draws will allow him to measure the volume and type of platelets and their ability to clump together, then determine a possible correlation with high blood sugar levels.

Understanding how the process works is critical for devising a way to prevent or slow the increased production and abnormal functioning of immature platelets. Anti-platelet therapies exist, but they tend not to work well in patients with diabetes, Nagareddy said. He hopes his research contributes to an improved way to lower the risk of cardiovascular disease in patients with diabetes.

OU Health endocrinologist and professor of medicine Mary Zoe Baker, M.D., a clinical collaborator on the study, said the research is exciting for its potential to uncover what constitutes the risk for cardiovascular disease in people with diabetes.

"Over the years, endocrinologists and researchers have begun focusing more and more on cardiac disease risk," she said. "This is promising because researchers are honing in on exactly what the issue is. Once we characterize the problem, we'll have a better idea of what to do about it. Ultimately, I believe this will help our patients."

Dr. Ann Louise Olson (Edith Kinney Gaylord Foundation and Presidential Associates Presidential Professor, Department of Biochemistry & Physiology, OU Health Sciences) addresses 2023 Research Symposium audience.

Research Symposium

The 21st Annual Harold Hamm Diabetes Center Research Symposium will be held at the Samis Education Center on **Friday, November 15, 2024.**

The Symposium will feature keynote presentations by Matthew J. Potthoff, PhD, University of Iowa; and Sue Bodine, PhD, Oklahoma Medical Research Foundation and OU Health Sciences.

For more information about the Research Symposium, please visit our event webpage.

David Sparling, M.D., Ph.D.,
Assistant Professor
Associate Section Chief of Pediatric Endocrinology
CHF Paul and Ann Milburn Chair in Pediatric Diabetes

Clinic Updates

Pediatric Diabetes & Endocrinology Clinic

It is the end of the summer, beginning of the new school year, and as usual we're busier than ever with kids' back to school. This means diabetes medical management plans for every patient we have with diabetes, lots of conversations with families and school nurses, and more to come. Camp Blue Hawk wrapped up another successful year in Wewoka, with plenty of memories, and hopefully not too much sunburn. We've also completed another run of Tzield, and continue to optimize the use of this exciting new medication to slow the progression of Type 1 diabetes. All in all, busy times!

Mary Zoe Baker, M.D.,
David Ross Boyd Professor of Medicine
Department of Internal Medicine

Adult Diabetes & Endocrinology Clinic

The Adult Endocrinology section has started our new academic year. We welcomed 3 new fellows this July. Dr. Brandon Stone who did his residency in Naples, Florida; Dr. Mousab Diab who did his IM training out west in Amarillo; and Dr. Neha Bang, who travelled down the Turner Turnpike to join us from the OU School of Community Medicine in Tulsa, where she did her internal medicine residency. They have hit the ground running, joining Dr. John Lung, our second year fellow. We are looking forward to the new year.

Save The Dates

Metabolic Research Conference

The Metabolic Research Conference lecture series provides presentations in the Grand Rounds style. Presenters include distinguished visiting and internal, clinical and basic speakers, who share their work on various topic relating to diabetes research. The 2024-25 lecture series kicked off with a presentation from Willa Hsueh, MD, Director, Diabetes and Metabolism Research Center, The Ohio State University. Upcoming lectures include:

Monday, November 4, 2024
Roberta Leonardi, PhD, West Virginia University

Monday, November 18, 2024
Matt Robinson, PhD, Oregon State University

Visit our event webpage to find more information and upcoming dates.

2024 Diabetes Care Summit

The OU Health Harold Hamm Diabetes Care Summit, offers Oklahoma's premier Continuing Medical Education (CME) conference with a diabetes focus. Presenters share updates in clinical approaches to diabetes management, and inter-professional strategies for diabetes care and education.

This year's Summit welcomed over 130 participants, and offered attendees access to 14 exhibitors, 7 distinguished speakers, and a full program of diabetes-specific content. Co-sponsored by the Association of Diabetes Care & Education Specialists (ADCES), Summit provided 7 hours of CME content to practitioners across a wide spectrum of medical practice.

Presenters, attendees, speakers and exhibitors alike gathered at the Summit's new venue, at the Rose State College Jeanie Webb Student Union.

Our presentation roster featured nationally and locally renowned speakers, including 3 keynote presentations. Ajay Chaudhuri, MBS, MRCP(UK), FACE, Professor of Medicine at Jacobs School of Medicine, University at Buffalo, and Medical Director, Diabetes Center, Kaleidea Health, spoke to protocols for managing Hyperglycemia in hospitalized patients. Natalie Bellini, DNP, FNP-BC, BC-ADM, CDCES, Assistant Professor of Medicine, Case Western Reserve University and Program Director of Diabetes Technology, University Hospitals, discussed updates in the world of Diabetes Technology. Zain Ul Abideen Asad, MD, MS, Associate Professor of Internal Medicine, OUHSC, engaged the audience with a discussion on managing hypertension and hyperlipidemia, providing a cardiology perspective to the treatment of patients with diabetes mellitus. Rounding out the program, Timothy Little, PhD, Clinical Assistant Professor of Psychiatry & Behavioral Sciences, OUHSC, provided a clinical perspective on stigma and obesity; Nabeela Shakir, MD, Assistant Professor in Endocrinology, OUHSC, addressed Outpatient Management for patients with Type 2 diabetes mellitus; David Sparling, MD, PhD, Associate Professor and Section Chief of Pediatric Diabetes and Endocrinology, OUHSC, spoke to cutting edge pharmacotherapy treatments, with a presentation on The Changing World of Type 1 diabetes; and Marta Maxted, MD, Assistant Professor in Maternal-Fetal Medicine, OUHSC, provided insights about diabetes and pregnancy, with a presentation covering screening, glycemic targets and treatments.

Thank you to everyone who attended, presented, volunteered and contributed in making this year's Summit a tremendous success!.

Dr. Zain Ul Abideen Asad addresses the attendees during his lecture at the Diabetes Care Summit.

New Grants to Harold Hamm Diabetes Center Members:

NIH/NIDDK R01 GRANT (05/2024 – 03/2029)

PI: Shaoning Jiang, PhD
Yale School of Medicine

Consultant: Jed Friedman, PhD
Department of Biochemistry and Physiology
Funding Organization: National Institutes of Health (NIH)/ National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK)
Grant Type: R01
Title of Grant: ***Macrophage miR-130b/301b and beige adipogenesis***
Dates: 05/01/24 – 03/30/29
Anticipated Cumulative Amount Awarded: $2,256,225*
*Research made possible through this grant is supported by the National Institutes of Health, under the award number R01DK138986.

NIH R33 GRANT (07/2024 – 06/2027)

PI: Arlan Richardson, PhD
Department of Biochemistry & Physiology
Oklahoma City VA Medical Center
Funding Organization: National Institutes of Health (NIH)
Grant Type: R33
Title of Grant: ***A New Translational Rat Model for Evaluating Anti-Aging Interventions***
Dates: 07/01/24 – 06/30/27
Anticipated Cumulative Amount Awarded: $2,186,000*
*Research made possible through this grant is supported by the National Institutes of Health, under the award number R33AG072137.

NIH R01 GRANT (07/2024 – 06/2029)

PI: Deepa Sathyaseelan, PhD
Department of Biochemistry and Physiology

Co-I: Veronica Galvan, PhD
Department of Biochemistry and Physiology

Co-I: Willard Freeman, PhD
Oklahoma Medical Research Foundation
Funding Organization: National Institutes of Health (NIH)
Grant Type: R01
Title of Grant: ***The role of hepatocyte necroptosis and inflammation in liver-brain crosstalk in aging***
Dates: 07/15/24 – 06/30/29
Anticipated Cumulative Amount Awarded: $2,049,444*
*Research made possible through this grant is supported by the National Institutes of Health, under the award number 2R01AG059718-06A1.

CIRCLE GRANT (09/2024 – 08/2025)

Pilot Project Leader: Marisol Castillo-Castrejon, PhD
Department of Pathology
Funding Organization: National Institute of Child Health and Human Development (NIHCD)/ Center for Indigenous Resilience, Culture, and Maternal Health Equity (CIRCLE)
Grant Type: NIHCD/CIRCLE Pilot Project Grant
Title of Grant: ***Social determinants of health on placental function***
Dates: 09/01/24 – 08/31/25
Amount Awarded: $25,000*
*Research made possible through this grant is supported by the National Institute of Child Health and Human Development, under the award number U54HD113173.

NIH/NIDDK R01 GRANT (05/2024 – 03/2029)

PI: Shaoning Jiang, PhD
Yale School of Medicine

Consultant: Jed Friedman, PhD
Department of Biochemistry and Physiology
Funding Organization: National Institutes of Health (NIH)/ National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK)
Grant Type: R01
Title of Grant: ***Macrophage miR-130b/301b and beige adipogenesis***
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PI: Arlan Richardson, PhD
Department of Biochemistry & Physiology
Oklahoma City VA Medical Center
Funding Organization: National Institutes of Health (NIH)
Grant Type: R33
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Dates: 07/01/24 – 06/30/27
Anticipated Cumulative Amount Awarded: $2,186,000*
*Research made possible through this grant is supported by the National Institutes of Health, under the award number R33AG072137.

NIH R01 GRANT (07/2024 – 06/2029)

PI: Deepa Sathyaseelan, PhD
Department of Biochemistry and Physiology
Co-I: Veronica Galvan, PhD
Department of Biochemistry and Physiology
Co-I: Willard Freeman, PhD
Oklahoma Medical Research Foundation
Funding Organization: National Institutes of Health (NIH)
Grant Type: R01
Title of Grant: ***The role of hepatocyte necroptosis and inflammation in liver-brain crosstalk in aging***
Dates: 07/15/24 – 06/30/29
Anticipated Cumulative Amount Awarded: $2,049,444*
*Research made possible through this grant is supported by the National Institutes of Health, under the award number 2R01AG059718-06A1.

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Pilot Project Leader: Marisol Castillo-Castrejon, PhD
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Funding Organization: National Institute of Child Health and Human Development (NIHCD)/ Center for Indigenous Resilience, Culture, and Maternal Health Equity (CIRCLE)
Grant Type: NIHCD/CIRCLE Pilot Project Grant
Title of Grant: ***Social determinants of health on placental function***
Dates: 09/01/24 – 08/31/25
Amount Awarded: $25,000*
*Research made possible through this grant is supported by the National Institute of Child Health and Human Development, under the award number U54HD113173.

TSET HEALTH PROMOTION RESEARCH CENTER GRANT (07/2024 – 06/2026)

PI: Adam Alexander, PhD
Department of Family and Preventive Medicine
Co-I: Kevin Short, PhD, FACSM
Department of Pediatrics
Funding Organization: TSET Health Promotion Research Center
Grant Type: TSET Health Promotion Research Center Grant
Title of Grant: ***Small Financial Incentives to Promote Smoking Cessation and Physical Activity among Black Adults: An App-Based Multiple Health Behavior Change Intervention***
Dates: 07/01/24 – 06/30/26
Amount Awarded: $99,905

VA MERIT GRANT (07/2024 – 06/2028)

PI: Arlan Richardson, PhD
Department of Biochemistry & Physiology
Oklahoma City VA Medical Center
Funding Organization: U.S. Department of Veterans Affairs (VA)
Grant Type: VA Merit Grant
Title of Grant: ***Effect of Necroptosis in Neurons on Neuroinflammation, Neuronal Function, and Cognition***
Dates: 07/01/24 – 06/30/28
Amount Awarded: $650,000

HHDC NOVEL PILOT PROJECT GRANTS

PI: Kathryn Burge, PhD
Department of Pediatrics
Funding Organization: Harold Hamm Diabetes Center (HHDC)
Grant Type: Novel Pilot Project – Year 2
Title of Grant: ***Microbiota-derived tryptophan metabolites and intestinal tuft cell signaling in vertical transmission of maternal metabolic phenotype***
Dates: 07/01/24 – 06/30/25
Amount Awarded: $70,000

PI: John R. Clegg, PhD
Stephenson School of Biomedical Engineering
Funding Organization: Harold Hamm Diabetes Center (HHDC)
Grant Type: Novel Pilot Project – Year 2
Title of Grant: ***Maternal Macrophage Immunotherapy: A Novel Strategy to Prevent Developmental Programming of Metabolic Disease in Obese Pregnancy***
Dates: 07/01/24 – 06/30/25
Amount Awarded: $70,000

PI: Carlos Manlio Díaz-García, PhD
Department of Biochemistry and Physiology
Funding Organization: Harold Hamm Diabetes Center (HHDC)
Grant Type: Novel Pilot Project – Year 1
Title of Grant: ***Defining the regulatory roles of insulin on neuronal calcium and mitochondrial metabolism in live brain tissue***
Dates: 07/01/24 – 06/30/25
Amount Awarded: $70,000

PI: Aditya Joshi, PhD
Department of Pharmaceutical Sciences
Funding Organization: Harold Hamm Diabetes Center (HHDC)
Grant Type: Novel Pilot Project – Year 1
Title of Grant: ***Role of hepatic Aryl hydrocarbon Receptor Nuclear Translocator 2 (Arnt2) in Metabolic Disorders***
Dates: 07/01/24 – 06/30/25
Amount Awarded: $70,000

PI: Tiangang Li, PhD
Department of Biochemistry and Physiology
Funding Organization: Harold Hamm Diabetes Center (HHDC)
Grant Type: Novel Pilot Project – Year 1
Title of Grant: ***Identifying the mechanisms mediating the insulinotropic effect of cullin neddylation inhibitors***
Dates: 07/01/24 – 06/30/25
Amount Awarded: $70,000

PI: Marjorie Makoni, MD
Department of Pediatrics
Funding Organization: Harold Hamm Diabetes Center (HHDC)
Grant Type: Novel Pilot Project – Year 1
Title of Grant: ***Exploring Maternal Diabetes' Impact on Pulmonary Vasculature and miRNA Expression in Preterm Infants (EMPOWER)***
Dates: 07/01/24 – 06/30/25
Amount Awarded: $70,000

PI: Anna Nguyen, PhD, RN, CPN
College of Nursing
Funding Organization: Harold Hamm Diabetes Center (HHDC)
Grant Type: Novel Pilot Project – Year 1
Title of Grant: ***Implementing A Culturally Adapted mHealth Intervention at Community Clinics***
Dates: 07/01/24 – 06/30/25
Amount Awarded: $70,000

PI: Amanda Sharpe, PhD
Department of Pharmaceutical Sciences
Funding Organization: Harold Hamm Diabetes Center (HHDC)
Grant Type: Novel Pilot Project – Year 2
Title of Grant: ***The role of melanocortin-4 receptors on astrocytes in the hypothalamus on inflammaging, adipocity, and weight regulation***
Dates: 07/01/24 – 06/30/25
Amount Awarded: $70,000

PI: Kevin Short, PhD, FACSM
Department of Pediatrics
Co-I: Jed Friedman, PhD
Department of Biochemistry and Physiology
Funding Organization: Harold Hamm Diabetes Center (HHDC)
Grant Type: Novel Pilot Project – Year 2
Title of Grant: ***Maternal obesity and diet: Impact on NAFLD pathogenesis during pregnancy and post-partum***
Dates: 07/01/24 – 06/30/25
Amount Awarded: $70,000

HHDC-SCC NOVEL PILOT PROJECT GRANT

PI: Kerstin Reinschmidt, PhD, MPH
Department of Health Promotion Sciences
Funding Organization: Harold Hamm Diabetes Center (HHDC)
Grant Type: HHDC-SCC Novel Pilot Project – Year 1
Title of Grant: ***Managing diabetes and reducing the risk for cancer: A community-based participatory research and mixed methods pilot study to assess the feasibility and outcomes of a CHW diabetes intervention***
Dates: 07/01/24 – 06/30/25
Amount Awarded: $70,000

HHDC-SCC NOVEL PILOT PROJECT FOR POSTDOCS GRANT

PI: Elizabeth Wellberg, BS, PhD
Department of Pathology

Post-Doc: Nisha Thomas, PhD
Stephenson Cancer Center
Funding Organization: Harold Hamm Diabetes Center (HHDC)
Grant Type: ***Novel Pilot Project for Post-Docs – Year 2***
Title of Grant: Estrogen Receptor Inhibition Links Unhealthy Adipose Tissue to Diabetes After Breast Cancer
Dates: 07/01/24 – 06/30/25
Amount Awarded: $70,000

HHDC TEAM SCIENCE GRANTS

PI: Sarah Borengasser, PhD
Department of Nutritional Sciences
Funding Organization: Harold Hamm Diabetes Center (HHDC)
Grant Type: Team Science – Year 1
Title of Grant: ***The Role of Maternal Diabetes During Pregnancy on Novel Epigenetic Biomarkers at Birth***
Dates: 07/01/24 – 06/30/25
Amount Awarded: $100,000

PI: Marisol Castillo-Castrejon, PhD
Department of Pathology
Funding Organization: Harold Hamm Diabetes Center (HHDC)
Grant Type: Team Science – Year 2
Title of Grant: ***Contribution of B cells to obesity and menopause-associated diabetes risk***
Dates: 07/01/24 – 06/30/25
Amount Awarded: $100,000

PI: Mary Beth Humphrey, MD, PhD, FACP
Department of Internal Medicine
Funding Organization: Harold Hamm Diabetes Center (HHDC)
Grant Type: Team Science – Year 2
Title of Grant: ***Exploring the role of Trem2+ kidney resident macrophages in diabetic kidney disease***
Dates: 07/01/24 – 06/30/25
Amount Awarded: $100,000

PI: Stephanie Pierce, MD, MS
Department of Obstetrics and Gynecology
Funding Organization: Harold Hamm Diabetes Center (HHDC)
Grant Type: Team Science – Year 3
Title of Grant: ***Pilot RCT Intervention Targeting Elevated Triglycerides with a Point-of-Care Meter and Omega-3 Fatty Acids to Normalize Triglycerides and Fetal Growth***
Dates: 07/01/24 – 06/30/25
Amount Awarded: $298,301

PI: Jeanie Tryggestad, MD
Department of Pediatrics
Funding Organization: Harold Hamm Diabetes Center (HHDC)
Grant Type: Team Science – Year 2
Title of Grant: ***Metabolic And Glycemic Indices in Children with youth-onset type 2 Diabetes Mellitus (MAGIC DM)***
Dates: 07/01/24 – 06/30/25
Amount Awarded: $100,000

PI: Archana Unnikrishnan, PhD
Department of Biochemistry & Molecular Biology
Funding Organization: Harold Hamm Diabetes Center (HHDC)
Grant Type: Team Science – Year 3
Title of Grant: ***The Long-Term Effects of Maternal Obesity on Aging and Healthspan***
Dates: 07/01/24 – 06/30/25
Amount Awarded: $100,000

PI: Robert Wild, MD, PhD, MPH, FNLA, NCMP
Department of Obstetrics and Gynecology
Funding Organization: Harold Hamm Diabetes Center (HHDC)
Grant Type: Team Science – Year 1
Title of Grant: ***Dyslipidemia-induced cholesterol crystal formation increases the risk of preeclampsia in pregestational diabetics***
Dates: 07/01/24 – 06/30/25
Amount Awarded: $100,000

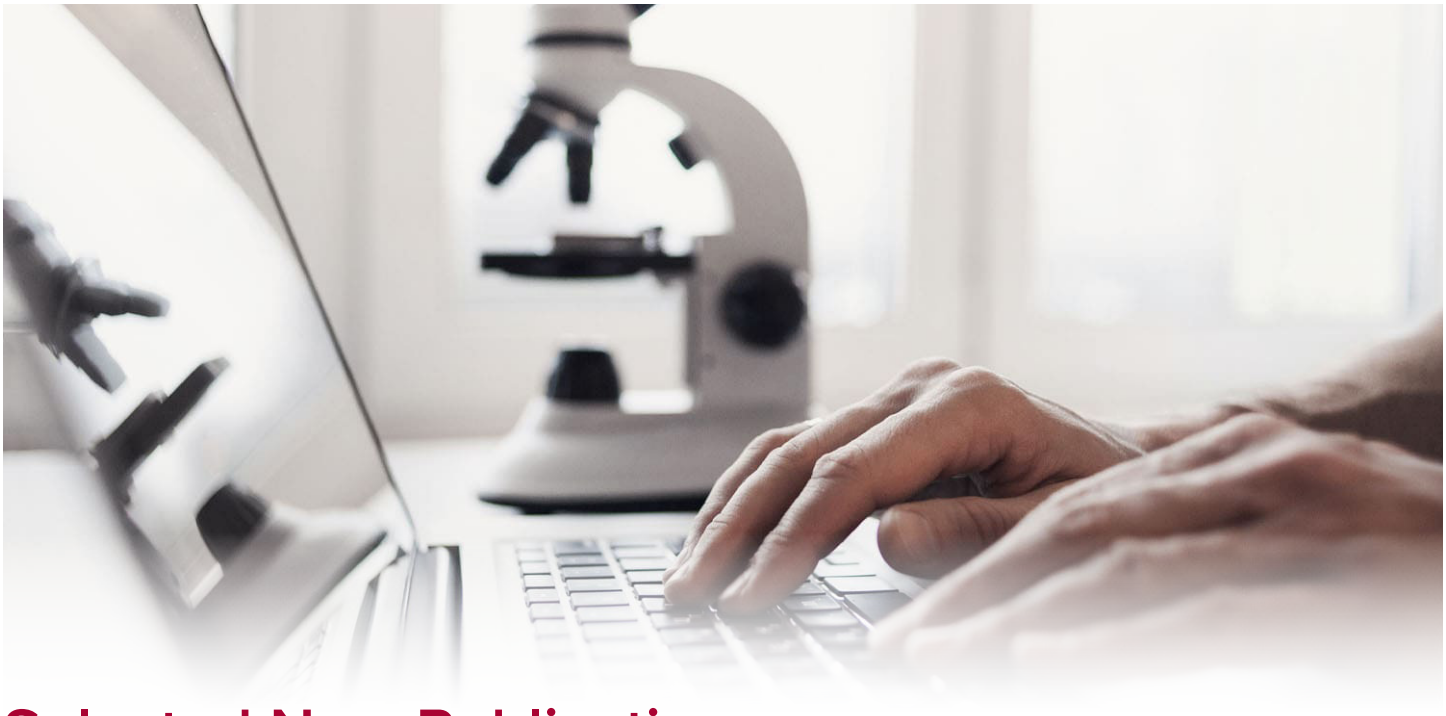
HHDC-SCC TEAM SCIENCE GRANTS

PI: Amy Cohn, PhD
Department of Pediatrics
Funding Organization: Harold Hamm Diabetes Center (HHDC)/ Stephenson Cancer Center (SCC)
Grant Type: HHDC-SCC Team Science – Year 1
Title of Grant: ***Impact of semaglutide administration on tobacco use behavior and related mechanisms among smokers with obesity***
Dates: 07/01/24 – 06/30/25
Amount Awarded: $100,000

PI: Kamiya Mehla, PhD
Department of Oncology Science
Funding Organization: Harold Hamm Diabetes Center (HHDC)/ Stephenson Cancer Center (SCC)
Grant Type: HHDC-SCC Team Science – Year 2
Title of Grant: ***Pancreatic Cancer and Hyperlipidemi***a
Dates: 07/01/24 – 06/30/25
Amount Awarded: $100,000

PI: Zachary Pope, PhD, ACSM-EP
Department of Health Promotion Sciences
Funding Organization: Harold Hamm Diabetes Center (HHDC)/ Stephenson Cancer Center (SCC)
Grant Type: HHDC-SCC Team Science – Year 1
Title of Grant: ***Cerebrovascular, Cognitive, Pro-Inflammatory, and Cardiometabolic Outcomes in Cancer Survivors with and without Type II Diabetes Reporting Chemo-Brain: Baseline Differences and Impact of Activity***
Dates: 07/01/24 – 06/30/25
Amount Awarded: $100,000

PI: Deepa Sathyaseelan, PhD
Department of Biochemistry and Physiology
Funding Organization: Harold Hamm Diabetes Center (HHDC)/ Stephenson Cancer Center (SCC)
Grant Type: ***HHDC-SCC Team Science – Year 1***
Title of Grant: The Role of Hepatocyte MLKL in T2DM-Associated HCC
Dates: 07/01/24 – 06/30/25
Amount Awarded: $100,000



Selected New Publications

Bolte E, Dean T, Garcia B, Seferovic MD, Sauter K, Hummel G, Bucher M, Li F, Hicks J, Qin X, Suter MA, Barrozo ER, Jochum M, Shope C, **Friedman JE**, Gannon M, Wesolowski SR, McCurdy CE, Kievit P, Aagaard KM. Initiation of metformin in early pregnancy results in fetal bioaccumulation, growth restriction, and renal dysmorphology in a primate model. *Am J Obstet Gynecol.* 2024 Sep; 231(3):352.e1-352.e16. PMID: 38871238.

Carroll DT, Miller A, Fuhr J, Elsakr JM, Ricciardi V, Del Bene AN, Stephens S, Krystofiak E, Lindsley SR, Kirigiti M, Takahashi DL, Dean TA, Wesolowski SR, McCurdy CE, **Friedman JE**, Aagaard KM, Kievit P, Gannon M. Analysis of beta-cell maturity and mitochondrial morphology in juvenile non-human primates exposed to maternal Western-style diet during development. *Front Endocrinol (Lausanne).* 2024 Jul 24;15:1417437. PMID: 39114287.

Chen J, Matye D, **Clayton YD**, Du Y, Hasan MN, Gu L, **Li T**. Deletion of hepatocyte cysteine dioxygenase type 1, a bile acid repressed gene, enhances glutathione synthesis and ameliorates acetaminophen hepatotoxicity. *Biochem Pharmacol.* 2024 Apr;222:116103. PMID: 38428825.

Esparham A, Roohi S, Moghaddam AA, Moghadam HA, Shoar S, **Khorgami Z**. The association of bariatric surgery with myocardial infarction and coronary revascularization: a propensity score match analysis of National Inpatient Sample. *Surg Obes Relat Dis.* 2024 Sep;20(9):856-863. PMID: 38744643.

Esparham A, Mehri A, Dalili A, Richards J, **Khorgami Z**. Safety and efficacy of glucagon-like peptide-1 (GLP-1) receptor agonists in patients with weight regain or insufficient weight loss after metabolic bariatric surgery: A systematic review and meta-analysis. *Obes Rev.* 2024 Aug;12:e13811. PMID: 39134066.

Esparham A, Shoar S, Mehri A, **Khorgami Z**, Modukuru V. The Impact of Metabolic Bariatric Surgery on Cardiovascular Diseases in Patients with Metabolic Dysfunction-Associated Steatotic Liver Disease. *Obes Surg.* 2024 Jul;34(7):2338-2346. PMID: 38662250.

Gu L, Du Y, Chen J, Hasan MN, **Clayton YD**, Matye DJ, **Friedman JF**, **Li T**. Cullin 3 RING E3 ligase inactivation causes NRF2-dependent NADH reductive stress, hepatic lipodystrophy, and systemic insulin resistance. *Proc Natl Acad Sci U S A.* 2024 Apr 23;121(17):e2320934121. PMID: 38630726.

Hasan MN, Wang H, Luo W, **Clayton YD**, Gu L, Du Y, **Palle SK**, Cheng J, **Li T**. Gly-β-MCA is a potent anti-cholestasis agent against "human-like" hydrophobic bile acid-induced biliary injury in mice. *J Lipid Res.* 2024 Sep 19;100649. DOI: 10.1016/j.jlr.2024.100649.

Selected New Publications

Johnson KE, Hernandez-Alvarado N, Blackstad M, Heisel T, Allert M, **Fields DA**, Isganaitis E, Jacobs KM, Knights D, Lock EF, **Rudolph MC**, Gale CA, Schleiss MR, Albert FW, Demerath EW, Blekhman R. Human cytomegalovirus in breast milk is associated with milk composition and the infant gut microbiome and growth. *Nat Commun.* 2024 Jul 23;15(1):6216. PMID: 39043677.

Li T, Chiang JYL. Bile acid signaling in metabolic and inflammatory diseases and drug development. *Pharmacol* Rev. 2024 Jul 8;PHARMREV-AR-2023-000978. PMID: 38977324.

Mathew M, **Pope ZC**, Schreiner PJ, Jacobs Jr. DR, VanWagner LB, Terry JG, Pereira MA. Non-alcoholic fatty liver modifies associations of body mass index and waist circumference with cardiometabolic risk: The CARDIA study. *Obes Sci Pract.* 2024 Apr 23;10(2):e751. PMID: 38655127.

Mitchell CM, Stinson EJ, Chang DC, Krakoff J. A mixed meal tolerance test predicts onset of type 2 diabetes in Southwestern Indigenous adults. *Nutr Diabetes.* 2024 Jul 10;14(1):50. PMID: 38987291.

Mohamed HH, Ehresmann K, Seburg EM, Vazquez-Benitez G, Demerath EW, **Fields DA**, Vesco KK, Kharbanda EO, Palmsten K. Characterisation and validation of lactation information from structured electronic health records for use in pharmacoepidemiological studies. *Paediatr Perinat Epidemiol.* 2024 Aug;38(6):505-514. PMID: 38494336.

Nelson BN, **Friedman JE**. Developmental Programming of the Fetal Immune System by Maternal Western-Style Diet: Mechanisms and Implications for Disease Pathways in the Offspring. *Int J Mol Sci.* 2024 May 29;25(11):5951. PMID: 38892139.

Redling D, Bialak S, Ghormli LE, **Chernausek SD**, Jones K, **Tryggestad JB**. Circulating MicroRNAs as Predictors of Beta Cell Function in Youth-Onset Type 2 Diabetes: The TODAY study. *J Clin Endocrinol Metab.* 2024 May 30;dgae376. PMID: 38815053.

Ruebel ML, **Borengasser SJ**, Zhong Y, Kang P, Faske J, Shankar K. Maternal Exercise Prior to and during Gestation Induces Sex-Specific Alterations in the Mouse Placenta. *Int J Mol Sci.* 2023 Nov 17;24(22):16441. PMID: 38003633.

Sewell H, Planas LG, Brown Jr. MR, Orcutt N, Johnson CE, **Lim J**, Skaggs JC, **O'Neal K**. Diabetes and Hearing Impairment: Knowledge, Attitudes, and Practices Among Providers and Patients. *Sci Diabetes Self Manag Care.* 2024 Jun;50(3):201-210. PMID: 38804076.

Sugino KY, Hernandez TL, Barbour LA, Kofonow JM, Frank DN, **Friedman JE**. Distinct Plasma Metabolomic and Gut Microbiome Profiles after Gestational Diabetes Mellitus Diet Treatment: Implications for Personalized Dietary Interventions. *Microorganisms.* 2024 Jul 4;12(7):1369. PMID: 39065137.

Sugino KY, **Janssen R**, McMahan R, Zimmerman C, **Friedman JE**, **Jonscher K**. Vertical Transfer of Maternal Gut Microbes to Offspring of Western Diet-Fed Dams Drives Reduced Levels of Tryptophan Metabolites and Postnatal Innate Immune Response. *Nutrients.* 2024 Jun 8;16(12):1808. PMID: 38931163.

Tryggestad JB, Kelsey MM, Drews KL, Zhou S, Chang N, Escaname E, Gidding SS, Isganaitis E, McKay S, Shah R, Van Name M, TODAY Study Group. Clinical Characteristics of Offspring Born to Parents with Type 2 Diabetes Diagnosed in Youth: Observations from TODAY. *Children (Basel).* 2024 May 24;11(6):630. PMID: 38929210.

Willig MR, Stinson EJ, Looker HC, Piaggi P, **Mitchell CM**, Hanson RL, Nelson RG, Krakoff J, Chang DC. Insulin resistance before type 2 diabetes onset is associated with increased risk of albuminuria after diabetes onset: A prospective cohort study. *Diabetes Obes Metab.* 2024 May;26(5):1888-1896. PMID: 38419421.

Selected New Presentations

Mary Brown (left), Christy Olson (center), and 2025 Association of Diabetes Care and Education Specialists (ADCES) President-Elect, Dr. O'Neal, at the ADCES Annual Meeting in New Orleans.

Friedman JE. *"Molecular Pathways of MASLD in the Pediatric Population."* Presentation at: The Endocrine Society meetings; June 3, 2024; Boston, MA.

Friedman JE. *"Maternal western diet triggers persistent and pathological immune tolerance in intrahepatic innate and adaptive immune cells in juvenile non-human primate offspring."* Presentation at: Keystone symposia on Innate Immunity Across the Molecular, Cellular, Tissue and Therapeutic; April 10, 2024; Banff, CN.

Isganaitis EM, Lu C, Dreyer J, **Kyere-Davies G, Short KR, Fields DA, Rudolph M.** *"Maternal exercise alters the human milk metabolome: associations with infant thermogenesis."* Presentation at: Annual Scientific Sessions of the American Diabetes Association (ADA); Jun 2024; Orlando, FL.

Lee WH, Nelson B, **Teague A, Short KR**, **Tryggestad JB**. *"Circulating microRNA in youth with type 1 diabetes in response to a meal challenge."* Presentation Annual Scientific Sessions of the American Diabetes Association (ADA); Jun 2024; Orlando, FL.

O'Neal KS, Hormachea S. *"Overcome challenges with GLP-1 RA Therapy for the treatment of Type 2 Diabetes."* Presentation at: Association of Diabetes Care and Education Specialists (ADCES) Annual Meeting; August 2024; New Orleans, LA.

Sathyaseelan D. *"The Role of Hepatocyte MLKL in Liver-Brain Crosstalk."* Presentation at: Cell Death Gordon Research Conference; July 28 - August 2, 2024; Newry, Maine.

Short KR, **Palle S**, **Friedman JE**, Wang L, Summers SA. *"Altered serum ceramides as part of dyslipidemia in adolescents with metabolic dysfunction-associated steatotic liver disease."* Presentation at: Annual Scientific Sessions of the American Diabetes Association (ADA); Jun 2024; Orlando, FL.

Stout H, Tadros M, Planas LG, Sewell HE, Nadig AP, **O'Neal KS**. *"Impact of social determinants of health barriers on the initiation and utilization of continuous glucose monitors for adults with type 2 diabetes mellitus."* Poster presented at: Vizient Pharmacy Network Conference; December 2023; Anaheim, CA.

Sugino KY, Mandala A, **Janssen RC**, **Teague AM**, Zhao W, **Friedman JE**, **Jonscher KR**. *"Maternal Indole Supplementation Alters Adult Offspring Liver Tryptophan Metabolism through Microbiome-Dependent and -Independent Processes."* Poster presented at:Society of Reproductive Investigation; March 12-16, 2024; Vancouver, CA.

Teague A, **Kim Y**, **Tryggestad JB**, **Friedman JE**, **Palle SK**, **Short KR**. *"Phenotyping of adolescents with metabolic dysfunction-associated steatotic liver disease."* Presentation at:Annual meeting of the American Society for Nutrition; Jun 2024; Chicago, IL.

Wahid N, **O'Neal KS**, Sewell H, Badaracco C. *"Implementing novel, patient-centered digital quality measures based on data from continuous glucose monitors for patients with diabetes: A feasibility study."* Poster presented at: Advanced Technologies and Treatment for Diabetes (ATTD); March 2024; Florence, Italy.

Media and Distinctions

Katherine O'Neal, PharmD, MBA, BCACP, CDCES, BC-ADM, AE-C, CLS, FADCES. Elected President-Elect 2025 for the Association of Diabetes Care and Education Specialists (ADCES).

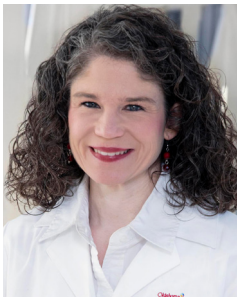
Jeanie Tryggestad, MD. Received 2024 Provost Award for excellence in 'Clinical/Translational Research.'

HHDC In The Community

HHDC was represented this year at the Oklahoma City Memorial Marathon by members and staff.

Pictured: Dr. Sarah Borengasser (center) and family enjoyed the course.

Harold Hamm Diabetes Center Updates



Congratulations to Jeanie Tryggestad, MD, who was granted Tenure! She is now a Tenured Associate Professor.

Jeanie Tryggestad, M.D.
Tenured Associate Professor
Paul and Ruth Jonas Chair
Department of Pediatrics
Member, Harold Hamm Diabetes Center
University of Oklahoma Health Sciences

New Hire

Keenan Greyslak, Ph.D.
Postdoctoral Research Fellow

New Hire

Red Day Johnson, M.B.A.
Tribal Liason & Clinical Research Coordinator

New Harold Hamm Diabetes Center Members

Doris Benbrook, Ph.D.
Member

Ashlea Braun, Ph.D., R.D.
Affiliate Member