

OU Health Harold Hamm Diabetes Center Fall Newsletter



Jed Friedman, Ph.D.

Director,

OU Health Harold Hamm Diabetes Center
Chickasaw Nation Endowed Chair

Director's Corner

Welcome to the Harold Hamm Diabetes Center fall newsletter. In this issue, we congratulate our 2023 HHDC pilot grant and team science award winners. This year, Harold Hamm Diabetes Center awarded more than \$1.24M to 15 different investigators for up to 3 years of support, including 2 grants with co-sponsorship from Stephenson Cancer Center. I'm proud to say that researchers represented several different colleges and will include clinical trials and significant studies that are paving the way to novel and emerging areas of science for T2D and T1D. Special thanks to Kevin Short, Ph.D., FACS, (pediatric endocrinology) and Lark Zink for guiding a successful grant process. We welcome the newly funded scientists to the HHDC community and look forward to following their research in the years to come.

In addition to clinic updates, media presentations and new grants and publications, we highlight **Tiangang Li, Ph.D.** (Dept. of Physiology), who received a new NIH grant focusing on a novel pathway for the prevention of insulin resistance (patent pending) and fatty liver disease. We also congratulate **Beth Goetz**, our diabetes prevention program (DPP) coordinator, who was recognized and re-certified by the CDC for her successful DPP program for another 5 years. Lastly, we highlight **Ashley Weedn, M.D., MPH, FAAP**, director of the Pediatric weight management program and the new guideline for the treatment of childhood obesity.

Our [metabolic research conference](#), featuring grand rounds lectures from visiting and internal speakers, resumed in October. Presentations take place on most first and third Mondays of the month, through May. For more details on upcoming presentations, please visit the webpage. Our annual Research Symposium took place on November 10. This year's event was the **20th annual Research Symposium**. We commemorated two decades of showcasing pioneering research with presentations and short talks from more than 40 speakers. The day's events included a poster session, and keynote talk from **Mark Herman, M.D., E.L. Wagner, M.D.**, Chair of Internal Medicine II, and Chief of the Section of Endocrinology, Diabetes and Metabolism, Baylor College of Medicine.

In May, Sir Stephen O'Rahilly, M.D., FRCP, FRCIP, FRS, FMedSci, from Cambridge University in the UK, was named the recipient of the 6th biennial (2023) Harold Hamm International Prize for Biomedical Research in Diabetes. Among his many accomplishments, Prof. Sir O'Rahilly is credited with the discovery of several of the genes underlying monogenic forms of childhood obesity, including Leptin Receptor mutations and the physiology underlying these disorders. The field of applicants was exceptionally strong and included candidates among the best in their field. The official conferral of the Hamm Prize to Prof. Sir O'Rahilly will take place in person on **Tuesday, December 5**, and be followed by a Laureate Lecture, given by Prof. Sir O'Rahilly. Read more about the prize [here](#).

All the best,

Jacob E. (Jed) Friedman, Ph.D.

Director, OU Health Harold Hamm Diabetes Center

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2023 Hamm Prize Laureate Announced

The highly coveted biennial OU Health Harold Hamm International Prize for Biomedical Research in Diabetes was awarded to [Sir Stephen O’Rahilly, M.D., FRCP, FRCPI, FRS, FMedSci.](#), of the University of Cambridge for his outstanding research into the link between obesity and Type 2 diabetes.

“The honor includes a \$250,000 award — the largest of its kind in the world”

The Hamm Prize recognizes and encourages lasting advances in the field of diabetes research. It is awarded to an individual who has either demonstrated lifelong contributions to the field, or realized a singular advance, especially one that promotes curative potential. The honor

includes a \$250,000 award — the largest of its kind in the world. It was established to recognize and promote lasting achievements in diabetes research focused on progress toward a cure.

O’Rahilly was selected for his research that linked a specific mechanism to the development of obesity. Obesity is considered the biggest risk factor for Type 2 diabetes and O’Rahilly’s rigorous clinical research defined very specific molecular mechanisms and genes that are responsible for the condition of obesity.

[The Hamm Prize](#) is well-known in the field of Type 2 diabetes research and highlights the effort in Oklahoma and the Harold Hamm Diabetes Center to have an impact on this disease. Read the full press release [here](#).



Save the Date – Hamm Lecture in Diabetes Research

Join us for a special presentation from the 2023 Harold Hamm Prize Laureate

Tuesday, December 5, 2023

**Noon | Bird Library Faculty Atrium
2023 Harold Hamm Prize Laureate**

“Adventures in Metabolism, Endocrinology and Behavior”

Sir Stephen O’Rahilly, M.D., FRCP, FRCPI, FRS, FMedSci

*Professor of Clinical Biochemistry and Medicine,
University of Cambridge*

*Director, Medical Research Council Metabolic Diseases
Unit (MRC MDU)*

*Co-Director, Wellcome-MRC Institute of Metabolic
Science (IMS)*

Reminder for HHDC Members

Please help us update your profile on the HHDC website. Click on the icon to enter your information.



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



Keynote speaker, Satish Kumar, MD, MRCP, presents to conference attendees

Diabetes Care Summit

The Harold Hamm Diabetes Care Summit, Oklahoma's premier annual Continuing Medical Education (CME) conference, was held on September 8, 2023. We welcomed 99 participants, 14 speakers and 10 exhibitors.

The Diabetes Care Summit is accredited by the Association of Diabetes Care & Education Specialists (ADCES), and provides annual CME for physicians, educators, nurses, pharmacists, and other medical professionals.

This year's agenda featured three Keynote presentations: Diana Isaacs, PharmD, BCPS, BC-ADM, BCACP, CDCES, FADCES, FCCP, from the Cleveland Clinic Endocrinology & Metabolism Institute, spoke about Cutting Edge Developments in Diabetes Tech; Satish Kumar, MD, MRP, from the University of Oklahoma Health Sciences Center, presented on Treatment of Diabetic Kidney Disease; and Kathy Dowd, AuD, Executive Director of The Audiology Project, rounded out the keynote presentations with a discussion of Hearing and Balance in Diabetes Care.

In addition, breakout sessions featured presentations on the topics of diabetes complications and food and exercise as nutrition.

Thank you to everyone who attended, presented, volunteered, and contributed to make this year's Diabetes Care Summit a success!



Diana Isaacs, PharmD, BCPS, BC-ADM, BCACP, CDCES, FADCES, FCCP, from her Keynote presentation on Cutting Edge Developments in Diabetes Tech



Breakout session speaker, Heather Garrow, CHES, BS, speaking on What Can I eat? Diabetes Nutrition Education for American Indian and Alaska Natives with Type 2 diabetes



Jeanie Tryggstad, MD, Summit Committee Co-Chair

Research Spotlight

Researcher Discovers Novel Roles of Cullin-RING E3 Ligases in Liver Pathophysiology Link to Diabetes



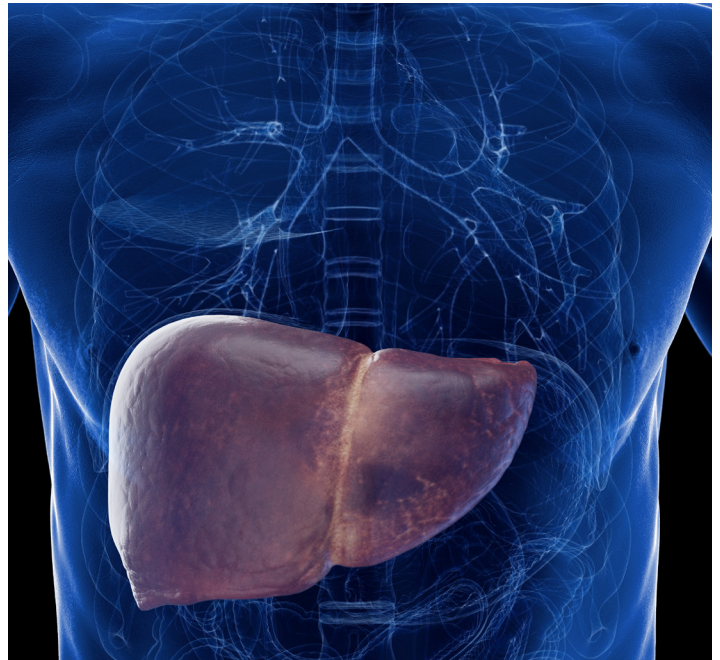
Tiangang Li, Ph.D.
Professor of Physiology
Harold Hamm Chair for
Adult Diabetes Research

Fatty liver disease is a condition where excessive fat accumulates in the liver, causing cell injury and inflammation. Obesity and diabetes are the leading causes of fatty liver disease because under these conditions, poorly controlled fatty acid released from the fat tissue preferentially deposits in the liver. Patients with advanced fatty liver disease have a higher risk of developing liver failure and liver cancer. Unfortunately, fatty liver is the most prevalent chronic liver disease without clinically approved treatments.

Research led by Tiangang Li, Ph.D., Professor of Physiology and Harold Hamm Chair for Adult Diabetes Research, and Harold Hamm Diabetes Center research member, focuses on improving the understanding of insulin resistance, as an underlying cause of diabetes, to identify much-needed novel therapeutic treatment targets.

“Obesity and diabetes are the leading cause of fatty liver disease...”

Cullin-RING E3 ligases (CRLs) are a unique sub-class of ubiquitin ligases, which are enzymes involved in degrading cellular proteins to support the key cellular process of protein turnover. As a result, CRLs are considered promising drug targets due to their regulation of many disease relevant pathways. As an example, CRLs have been shown to regulate proteins involved in cancer cell growth, and inhibitors of CRLs have been developed and shown promising effect in treating certain types of cancers. In this project, Dr. Li and team aim to obtain new mechanistic understanding of how CRLs regulate glucose and fat metabolism in the liver under obesity, ultimately with the goal of identifying CRLs as potential therapeutic targets for treating pathological conditions associated with fatty liver disease and diabetes, including insulin resistance and excess fat accumulation in the liver. The results were published in the journal: Proceedings of the National Academy of Sciences, 2022. [PMID: 35115401](#).



This project is developed based on the researchers' key findings that CRLs are abnormally activated in human and murine fatty livers, and inhibition of aberrant CRL activity in fatty liver by pharmacological CRL inhibitors improves liver response to insulin, decreases glucose production, and reduces blood glucose concentration in obese mice. At the molecular level, insulin receptor substrate, a key protein that allows the cells to respond to insulin, is degraded in fatty liver, rendering fatty livers less responsive to insulin stimulation. Dr. Li's research found that inhibition of CRLs can restore the level of insulin receptor substrate and response to insulin in fatty livers because CRLs mediate insulin receptor substrate degradation.

However, because CRLs regulate a large number of cellular pathways other than insulin signaling, much more work using genetic and molecular approaches is still needed. As Dr. Li explains, "Continued study in this line of research can help dissect the complex roles CRLs play in regulation of liver pathophysiology and disease pathogenesis, needed to establish the molecular basis for future development of CRL targeting agents as potential therapeutics in fatty liver disease and diabetes." With research ongoing and a patent pending, Dr. Li and the researchers at the Harold Hamm Diabetes Center continue to advance the field of diabetes research towards treatment and a cure.

Carter Healthcare Presents Check

On Wednesday, April 19, Jodi Osborn, Public Relations with Carter Healthcare here in Oklahoma City, presented Dr. Friedman with a check in the amount of \$4,544.00, to support research at Harold Hamm Diabetes Center. In addition to 19 locations in Oklahoma, Carter Healthcare provides services in Texas, Kansas, Missouri, Ohio and West Virginia. Throughout the year, employees raise money by participating in several activities that include auctions, t-shirt sales, and individual donations through payroll deductions. Through their philanthropic arm, the Carter Community Foundation, they support a selected charity (or charities) each year. Last year employees wanted to support a diabetes charity, and we were excited to learn that they had selected research at Harold Hamm Diabetes Center as one of this year's recipients. One of the many programs offered by Carter Healthcare is the Diabetes Management Program. The program is personalized to empower patients with diabetes self-



Jodi Osborn with Carter Healthcare presents check to Dr. Friedman.

management tools, education, and awareness. This is to better manage diabetes, reduce related health problems and improve their quality of life.

PreventT2 Renewed Certification

The Harold Hamm Diabetes Center PreventT2 Diabetes program has received CDC national certification, with CDC Full Plus Recognition. The Full Plus certification is the highest national recognition given by the CDC, and it provides a total of five years recognition to a program.

Led by Beth Goetz, a certified diabetes lifestyle coach, PreventT2 is a yearlong program for people with prediabetes or other risk factors, that aims to help participants lose weight through healthy eating and physical activity. These steps can prevent or delay the risk of onset of Type 2 diabetes by more than half.

Participants meet regularly to engage in classes that teach cooking, stress management, eating well, coping with triggers, physical activity, and other skills to promote the prevention of Type 2 diabetes. The goals of the class are to reach between 5-7% loss of body weight, to log 150 minutes a week of moderate intensity activity, and to look for a reduction in baseline hemoglobin A1C. Participants keep a food and activity log in which they track their progress.

In order to qualify for the program, the participant must have a fasting blood glucose A1C in the pre-diabetic range of 5.7-6.4, a BMI over 25, or score high enough on a risk assessment test.

A referral from an M.D. is not required to participate in the program. Medicare will cover the cost of the program, if the blood glucose is 110 to 125 mg/dL, or based upon a risk assessment and qualifying BMI.

The program offers expertise from a lifestyle coach, trained to provide the best support available and help participants reach their goals.



Eating well can be fun! Beth Goetz (left) pictured with class participant, Ana Wood.

AAP Issues its First Clinical Practice Guideline on the Evaluation and Treatment of Children and Adolescents with Obesity

Obesity is one of the most common diseases in pediatrics with nearly 15 million children and adolescents in the US struggling with excess weight gain. Obesity is a complex disease resulting from an interaction between genetic, physiologic, social, and environmental factors. For years, obesity has been stigmatized and access to care has been limited, which has worsened the problem.

It has been 15 years since the American Academy of Pediatrics (AAP) released recommendations to pediatricians on pediatric overweight and obesity. Since then, a wealth of new evidence has accumulated that changes the culture of obesity treatment and informs the AAP's first clinical practice guideline (CPG). The CPG is based on evidence accumulated over the past two decades that calls for obesity to be evaluated using a comprehensive whole-child approach and treated within a chronic care model. Pediatricians should utilize long-term treatment strategies, provide ongoing medical monitoring, and initiate concurrent treatment for comorbidities.

The comprehensive process to develop the CPG began in 2017. The Subcommittee reviewed 16,000 abstracts, 1,642 full text articles, and included guidance from 382 studies. The new guideline, [published online](#) January 9th and in the February 2023 Pediatrics journal, includes an executive summary and is accompanied by two technical reports, one on treatment interventions and one on comorbidities. In the article below, Co-Author Dr. Weedn shares highlights of the CPG:

- Obesity is a complex and chronic disease that affects the immediate and long-term health of children.
- Comprehensive whole child evaluations are critical to guide effective treatment.
- Weight bias and stigma are pervasive and harmful and are barriers to treatment.
- All children with overweight and obesity should be offered longitudinal treatment using a patient-centered and family-based approach.
- Treatment should begin as early as possible at the highest level of intensity available.
- There are multiple evidence-based treatment strategies that are successful (motivational interviewing, intensive health behavior and lifestyle treatment, pharmacotherapy,

and metabolic and bariatric surgery) for pediatricians to develop tailored treatment plans.

- Comprehensive obesity treatment includes nutrition support, physical activity treatment, and behavioral therapy, and can also include pharmacotherapy and metabolic and bariatric surgery, dependent on patient's age and severity of obesity, as an adjunct to lifestyle treatment.
- Treatment of obesity also means treating comorbidities.
- Evidence-based behavioral and medical treatment delivered by trained health care professionals with active parent or caregiver involvement is safe and effective with no evidence of harm.

The pediatric obesity CPG is focused on evaluation and treatment of overweight and obesity, and the AAP has developed education and implementation resources to facilitate adoption and integration of these recommendations into clinical practice, available at www.aap.org/obesitycpg. Additionally, the AAP is currently writing a comprehensive policy statement on obesity prevention to be released later this year.



Ashley Weedn, M.D., MPH, FAAP, Associate Professor of Pediatrics Medical Director, Healthy Futures Clinic Director, Pediatric Obesity Research Program

Native American Research Partners



**Jennifer Chadwick, B.S.
(Choctaw)**
Native American Diabetes
Research Program Coordinator
Department of Pediatrics

This summer, the Harold Hamm Diabetes Center was invited to participate in two community health fairs. Attending health fairs throughout Oklahoma is an opportunity for the Harold Hamm Diabetes Center to meet Oklahomans and to provide prevention and treatment education information, including diabetes services offered at the Harold Hamm Diabetes Center.

On Thursday, June 15th, the Iowa Tribe of Oklahoma invited the Harold Hamm Diabetes Center to share diabetes care information at their Annual Health Fair “Honoring our Past with a Healthy Future” in Tryon, OK. This large event provided medical resources and information for all in attendance.

Then on July 6th, the Harold Hamm Diabetes Center was invited to have a booth at the Sac and Fox Nation Annual Health Fair, in Stroud, OK. This yearly health fair and walk kicks off the Sac and Fox Nation Annual Pow Wow. Though it rained heavily that morning, the storm did not keep almost 700 people from attending the event.



Health Fair participant reading diabetes literature while visiting the Harold Hamm Diabetes informational booth.



Harold Hamm Diabetes Native American Coordinator, Jennifer Chadwick photographed with Mr. Eagle from the Eagle Books Series. The book series aims to encourage young readers to live healthy lifestyles through traditional ways.

2023 HHDC Pilot Program Funding Awards \$1.24 Million

For this year's funding cycle, the Harold Hamm Diabetes Center Pilot Program received 23 total applications, with 15 selected for funding in the amount of \$1,243,365. Proposals centered on three thematic areas: Diabetes and Obesity across the lifespan; Pancreas and Beta Cell function; and Diabetes, Obesity and Cancer.

Proposals included Novel Pilot, Novel Pilot for Post-Docs, Team Science grants, and Equipment grants. In collaboration with the Stephenson Cancer Center, the HHDC Pilot Program also evaluated Novel Pilot and Team Science proposals that explored the relationship between diabetes and cancer.

Each proposal underwent a pre-review of letter of intent, followed by external review by 2 outside subject matter experts, internal review by an independent reviewer, and concluded with a review by the Pilot Review Committee. At the helm of outreach efforts, Kevin Short, PhD, FACSM, helped the committee to orchestrate obtaining reviews from local and national experts in various areas of diabetes research, ranging from COVID-19 infection and diabetes, to the Contribution of β Cells to menopause-associated diabetes risk, and the mechanistic roles of CD82 in type-2 diabetes, to name a few.

"These grants support preliminary experiments that help our scientists justify extremely competitive research grants from the National Institutes of Health (NIH)," explains Jed Friedman, Ph.D., Harold Hamm Diabetes Center Director and Chickasaw Nation Endowed Chair, Departments of Physiology, Pediatrics, Division of Endocrinology and Metabolism, and Biochemistry & Molecular Biology, at the University of Oklahoma Health Sciences. "Our first 3 years of pilot awards ending in 2022 have been outstanding, with an investment of \$3.9 Million yielding a return of over \$13.8 Million in NIH grants. Over the last few years, we've seen remarkable health discoveries at the Oklahoma Health Sciences campus, all with the aim of improving the quality of diabetes healthcare available to all Oklahomans. We are extremely grateful to the Hamm Foundation and the donors that have helped provide a 25% match, allowing us to obtain the critical data needed to advance our work even further," said Dr. Friedman.



Camp Blue Hawk

Camp Blue Hawk: Summer Camp 2023 took place during the first week of August and once again it was a huge success! We had 114 campers, aged 9-16, with type 1 diabetes attend, with over 70 staff serving as Counselors, Jr. Counselors, Medical Staff, Juice Fairies, and Operations Staff. This year we were excited to have a record number of previous campers return to work on our camp staff! In addition to Summer Camp, earlier in the year, we hosted a Spring Fling Lock-in for our camp families at Celebration Station in Oklahoma City, OK. Despite some cold temperatures, the campers and their families got to enjoy unlimited go-karts, a free round of mini golf, \$30 in arcade game play, and some delicious pizza and desserts. We are looking forward to another successful camp season in 2024!



Metabolic Research Conference

The Metabolic Research Conference is a series of lectures in the style of Grand Rounds. Guests include distinguished visiting and internal speakers, who will share their research on various subjects relating to diabetes. Talks are held twice monthly during the academic year at noon, on the first and third Mondays of each month during the academic year. The series kicked off on October 2, 2023, with a presentation from Prabha Nagareddy, Ph.D., on Neutrophil during Myocardial Infarction.

Our most recent visiting speaker was James G. Granneman, Ph.D., from Wayne State University School of Medicine, who spoke about Lipolysis regulation in the light of co-evolution.

Our next speaker will be:

Monday, December 4, 2023

Charlie Rioux, Ph.D.

Assistant Professor of Psychology

Affiliate, Health Promotion Research Center,

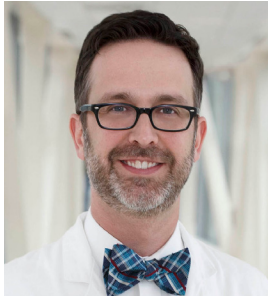
Institute for Community and Society Transformation,

Data Institute for Societal Challenges

University of Oklahoma

Presentation title: Developmental models of person-environment interactions: Studies of mental health and implications for metabolic health

Find upcoming dates and more information [here](#).



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

With the start of the school year, the smell of freshly sharpened pencils, new backpacks, and the drying ink on all the “Diabetes Medical Management Plans” (or DMMPs) we’re sending out fills the air. Diabetes at school is always a worry for families, especially if it’s the first year a child is going to school with diabetes. Luckily, there are strong laws in place that govern how schools have to manage diabetes, and this ties to the standardized plans we send out for every kid we see. We have taken the ADA guidelines and forms but have streamlined them a bit, and have had great success with schools in making sure our kids are never prevented from participating in ANY school activity (including holiday parties!) In the Type 2 arena, we continue to have more and more access to new medications, and our care for our kids continues to evolve under **Drs. George and Tryggestad**. We’re also aware of several new and exciting medications and technologies that are just around the corner for our kids. As always, it’s going to be a busy year!



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

Clinic Updates

Adult Diabetes & Endocrinology Clinic

The Adult Endocrinology Clinic has survived the Epic Electronic Medical Record (EMR) Go Live conversion in early June. While a bit rocky at first, I think we can see that this EMR will make caring for our patients much better and make our lives easier.

We have started the new academic year. We welcomed our 2 new fellows – **Dr. Arthi Kovvali**, who did her residency in Texas, and **Dr. John Lung**, who did his training in Nevada, on July 1. They join **Drs. Anshinee Mahaldar** and **Hamsa Al Jumaili**, our second year fellows. We are looking forward to the new year.

New Grants to HHDC Members:

NIH/NIDDK R01 GRANT (02/2023 – 01/2027)

PI: Tiangang Li, PhD

Co-I: Jed Friedman, PhD

Department of Physiology

Funding Organization: National Institutes of Health (NIH)/
National Institute of Diabetes and Digestive and Kidney
Diseases (NIDDK)

Grant Type: R01

Title of Grant: *Novel Roles of Cullin-RING E3 Ligases in
Liver Pathophysiology*

Dates: 02/16/23 – 01/31/27

Amount Awarded: \$1,571,476*

*Research made possible through this grant is supported by
the National Institute of Diabetes and Digestive and Kidney
Diseases, a component of the National Institutes of Health,
under the award number R01DK134316.

NIH/NIDDK U01 GRANT (02/2023 – 01/2029)

PI: Jeanie Tryggestad, MD

Department of Pediatrics

Funding Organization: National Institutes of Health (NIH)/
National Institute of Diabetes and Digestive and Kidney
Diseases (NIDDK)

Grant Type: U01

Title of Grant: *Identifying Metabolic and Psychosocial
Antecedents and Characteristics of youth-onset Type 2
diabetes (IMPACT DM)*

Dates: 02/23/23 – 01/31/29

Amount Awarded: \$3,151,228*

*Research made possible through this grant is supported by
the National Institute of Diabetes and Digestive and Kidney
Diseases, a component of the National Institutes of Health,
under the award number U01DK135007.

OCASCR GRANT (07/2023 – 06/2024)

PI: Archana Unnikrishnan, PhD

Department of Biochemistry & Molecular Biology

Funding Organization: Oklahoma Center for Adult Stem Cell
Research (OCASCR)

Grant Type: Research

Title of Grant: *Characterization of the molecular
heterogeneity of the Intestinal Stem Cells*

Dates: 07/01/23 – 06/30/24

Anticipated Cumulative Amount Awarded: \$149,780

OCAST GRANT (04/2023 – 3/31/2026)

PI: Marisol Castillo-Castrejon, PhD

Department of Pathology

Funding Organization: Center for Advancement of Science
& Technology (OCAST)

Grant Type: HR23

Title of Grant: *Reduced B cell Estrogen Signaling
Contributes to Menopause-associated Weight Gain*

Dates: 04/01/2023 – 3/31/2026

Anticipated Cumulative Amount Awarded: \$135,000

PHF Team Science GRANTS

PI: Mary Beth Humphrey, MD, PhD, FACP

Department of Internal Medicine

Funding Organization: Presbyterian Health Foundation (PHF)

Grant Type: Team Science

Title of Grant: *Gut Microbiome and bone remodeling*

Dates: 07/03/2023 – 07/02/2024

Amount Awarded: \$100,000

PI: Dean Myers, PhD

Department of Physiology

Funding Organization: Presbyterian Health Foundation (PHF)

Grant Type: Team Science

Title of Grant: *Development of a Baboon (Papio
anubis) Model of Western Diet and Paternal Obesity –
Mechanisms for Fetal/Offspring Epigenetic Programming
of Metabolic Disorders*

Dates: 07/03/2023 – 07/02/2024

Amount Awarded: \$100,000

PI: Michael Rudolph, PhD

Department of Physiology

Funding Organization: Presbyterian Health Foundation (PHF)

Grant Type: Team Science (year 3)

Title of Grant: *Maternal Exercise Induces Milk Thermogenic
Brown Adipose Tissue Activators that Stimulate Infant
Metabolism*

Dates: 07/03/2023 – 07/02/2024

Amount Awarded: \$100,000

New Grants to HHDC Members (continued):

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 1

Title of Grant: *Microbiota-derived tryptophan metabolites and intestinal tuft cell signaling in vertical transmission of maternal metabolic phenotype*

Dates: 07/01/23 – 06/30/24

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 1

Title of Grant: *Maternal Macrophage Immunotherapy: A Novel Strategy to Prevent Developmental Programming of Metabolic Disease in Obese Pregnancy*

Dates: 07/01/23 – 06/30/24

Amount Awarded: \$70,000

PI: Sirish Palle, MD

Department of Pediatrics

Funding Organization: Harold Hamm Diabetes Center (HHDC)

Grant Type: Novel Pilot Project – Year 1

Title of Grant: *Metabolomic profiling for pediatric NAFLD*

Dates: 07/01/23 – 06/30/24

Amount Awarded: \$60,457

PI: Amanda Sharpe, PhD

Department of Pharmaceutical Sciences

Funding Organization: Harold Hamm Diabetes Center (HHDC)

Grant Type: Novel Pilot Project – Year 1

Title of Grant: *The role of melanocortin-4 receptors on astrocytes in the hypothalamus on inflammaging, adiposity, and weight regulation*

Dates: 07/01/23 – 06/30/24

Amount Awarded: \$70,000

PI: Kevin Short, PhD, FACS

Department of Pediatrics

Co-I: Jed Friedman, PhD

Department of Physiology

Funding Organization: Harold Hamm Diabetes Center (HHDC)

Grant Type: Novel Pilot Project – Year 1

Title of Grant: *Maternal obesity and diet: Impact on liver and metabolic health during pregnancy and post-partum*

Dates: 07/01/23 – 06/30/24

Amount Awarded: \$70,000

PI: David Sparling, MD, PhD

Department of Pediatrics

Funding Organization: Harold Hamm Diabetes Center (HHDC)

Grant Type: Novel Pilot Project – Year 1

Title of Grant: *Changes in CRISPLD2 Secretion During Progression of Type 2 Diabetes Mellitus*

Dates: 07/01/23 – 06/30/24

Amount Awarded: \$63,000

PI: Jian Xu, PhD

Department of Physiology

Funding Organization: Harold Hamm Diabetes Center (HHDC)

Grant Type: Novel Pilot Project – Year 1

Title of Grant: *Endothelial Cell-derived FGF21 and Pancreatic β -Cell Survival in Diabetes*

Dates: 07/01/23 – 06/30/24

Amount Awarded: \$70,000

HHDC NOVEL PILOT PROJECT FOR POSTDOCS GRANT (07/2023 – 06/2024)

PI: Nisha Thomas, PhD

Stephenson Cancer Center

Funding Organization: Harold Hamm Diabetes Center (HHDC)

Grant Type: Novel Pilot Project for Post-Docs – Year 1

Title of Grant: *Estrogen Receptor Inhibition Links Unhealthy Adipose Tissue to Diabetes After Breast Cancer*

Dates: 07/01/23 – 06/30/24

Amount Awarded: \$70,000

HHDC TEAM SCIENCE GRANTS

PI: Joni Beck, PharmD, BC-ADM, CDE

Department of Pediatrics

Funding Organization: Harold Hamm Diabetes Center (HHDC)

Grant Type: Team Science – Year 1

Title of Grant: *Wavelengths-Transitioning for Adolescents to Young Adult with Diabetes*

Dates: 07/01/23 – 06/30/24

Amount Awarded: \$100,000

PI: Marisol Castillo-Castrejon, PhD

Department of Pathology

Funding Organization: Harold Hamm Diabetes Center (HHDC)

Grant Type: Team Science – Year 1

Title of Grant: *Contribution of B cells to obesity and menopause-associated diabetes risk*

Dates: 07/01/23 – 06/30/24

Amount Awarded: \$100,000

New Grants to HHDC Members (continued):

PI: Mary Beth Humphrey, MD, PhD, FACP

Department of Internal Medicine

Funding Organization: Harold Hamm Diabetes Center (HHDC)

Grant Type: Team Science

Title of Grant: *Exploring the role of Trem2+ kidney resident macrophages in diabetic kidney disease*

Dates: 07/01/23 – 06/30/24

Amount Awarded: \$100,000

PI: Stephanie Pierce, MD

Department of Obstetrics and Gynecology

Funding Organization: Harold Hamm Diabetes Center (HHDC)

Grant Type: Team Science – Year 2 addendum

Title of Grant: *Pilot RCT Intervention Targeting Elevated Triglycerides with a Point-of-Care Meter and Omega-3 Fatty Acid to Normalize Triglycerides and Fetal Growth*

Dates: 07/01/23 – 06/30/24

Amount Awarded: \$289,532

PI: Jeanie Tryggestad, MD

Department of Pediatrics

Funding Organization: Harold Hamm Diabetes Center (HHDC)

Grant Type: Team Science – Year 1

Title of Grant: *Metabolic And Glycemic Indices in Children with youth-onset type 2 Diabetes Mellitus (MAGIC DM)*

Dates: 07/01/23 – 06/30/24

Amount Awarded: \$100,000

PI: Sangpil Yoon, PhD

School of Electrical and Computer Engineering

Funding Organization: Harold Hamm Diabetes Center (HHDC)

Grant Type: Team Science – Year 1

Title of Grant: *Multiplexed imaging of immune cells after islet and beta cell transplantation*

Dates: 07/01/23 – 06/30/24

Amount Awarded: \$99,908

HHDC-SCC TEAM SCIENCE GRANTS

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 1

Title of Grant: *Pancreatic Cancer and Hyperlipidemia*

Dates: 07/01/23 – 06/30/24

Amount Awarded: \$100,000

PI: Elizabeth Wellberg, PhD

Department of Pathology

Funding Organization: Harold Hamm Diabetes Center (HHDC)/ Stephenson Cancer Center (SCC)

Grant Type: HHDC-SCC Team Science – Year 1

Title of Grant: *Characterization of the influence of obesity on the in-situ-to-invasive transition of breast cancer*

Dates: 07/01/23 – 06/30/24

Amount Awarded: \$100,000

American Heart Association Grant

Recipient: Rahul Rajala, Doctoral Candidate

Griffin Laboratory: Cardiovascular Biology (OMRF)

Funding Organization: American Heart Association (AHA)

Grant Type: AHA Predoctoral Fellowship


Title of Grant: *The Role of Endothelial Protease-Activated Receptors in Modulating Insulin Signaling*


Dates: 2022 – 2024


Amount Awarded: \$65,106




Media and Distinctions:

Dr. Mohammad Hasan's research work for Dr. Tiangang Li's Lab was featured in The American Society for Biochemistry and Molecular Biology (ASBMB) News. 

Dr. Mohammad Hasan was also interviewed as part of Postdoc Appreciation Week, in recognition of having one of the most-read papers in ASBMB Journals. 

Dr. Cammi Valdez has been selected to participate in the AEVR Emerging Vision Scientists Program in mid-September in DC. The Program provided an opportunity to advocate for more funding for vision research with Congress and included a research poster presentation. More information on the program can be found here. 

Dr. Kruti Shah's article, Human Milk Exosomal MicroRNA: Associations with Maternal Overweight/Obesity and Infant Body Composition at 1 Month of Life, has garnered attention with 26 citations, and has been selected for Editor's Choice Articles, by the Journal Nutrients MDPI. Dr. Shah's article can be found here. 



New Publications

Alexander BT, South AM, August P, Bertagnolli M, Ferranti EP, Grobe JL, **Jones EJ**, Loria AS, Safdar B, Sequeira-Lopez MLS and American Heart Association Council on the Kidney in Cardiovascular Disease; Council on Cardiovascular and Stroke Nursing; Council on Cardiovascular Radiology and Intervention; Council on Hypertension; and Council on Lifestyle and Cardiometabolic Health, 2023. Appraising the Preclinical Evidence of the Role of the Renin-Angiotensin-Aldosterone System in Antenatal Programming of Maternal and Offspring Cardiovascular Health Across the Life Course: Moving the Field Forward: A Scientific Statement From the American Heart Association. *Hypertension*. 2023. [PMID: 36951054](https://pubmed.ncbi.nlm.nih.gov/36951054/).

New Publications (continued)

Altieri MS, Rogers A, Afaneh C, Moustarah F, Grover B, **Khorgami Z**, Eisenberg D. Bariatric emergencies for the general surgeon. *Surg Obes Relat Dis*. 2023 Feb 14; S1550-7289(23)00077-1. [PMID: 37024348](#).

Beck JK, Allen RA, Jeter KM, Fisher RS, Dattilo TM, Traino KA, Anderson M, Cutler J, **Sparling DP**. Real-Time Continuous Glucose Monitoring Reduced Costly Diabetes-Related Events in Adolescents and Young Adults despite Lack of Short-Term Reduction in Hemoglobin A1c. *Pediatric Diabetes*, vol. 2023, Article ID 5253515. <https://doi.org/10.1155/2023/5253515>.

Buxton MA, Heydarzadeh S, Gronlund CJ, **Castillo-Castrejon M**, Godines-Enriquez M, O'Neill MS, Vadillo-Ortega F. Associations Between Air Pollution Exposure and Blood Pressure During Pregnancy Among PRINCESA Cohort Participants. *Toxins* 2023 May 3;11(5):424. [PMID: 37235239](#).

Carroll DT, Elsagr JM, Miller A, Fuhr J, Lindsley SR, Kirigiti M, Takahashi DL, Dean TA, Wesolowski SR, McCurdy CE, **Friedman JE**, Aagaard KM, Kievit P, Gannon M. Maternal Western-style diet in nonhuman primates leads to offspring islet adaptations including altered gene expression and insulin hypersecretion. *Am J Physiol Endocrinol Metab*. 2023 June 1:324(6):E577-E588. [PMID: 37134140](#).

Eliason NL, **Sharpe AL**. Proopiomelanocortin projections to the nucleus accumbens modulate acquisition and maintenance of operant palatable pellet administration in mice. *Physiology & Behavior*. 2023 Mar 23:114176. [PMID: 36965574](#).

Esparham A, Roohi S, Ahmadyar S, Dalili A, Nelson PR, **Khorgami Z**. Impact of bariatric surgery on carotid intima-media thickness, flow-mediated dilation, and nitrite-mediated dilation: a systematic review and meta-analysis. *Surg Obes Relat Dis*. 2023 May 23 23;S1550-7289(23)00523-3. [PMID: 37429755](#).

Geitgey DK, Lee M, Cottrill KA, Jaffe M, Pilcher W, Bhasin S, Randall J, Ross AJ, Salemi M, **Castillo-Castrejon M**, Kilgore MB, Brown AC, Boss JM, Johnston R, Fitzpatrick AM, Kemp ML, English R, Weaver E, Bagchi P, Walsh R, Scharer CD, Bhasin M, Chandler JD, Haynes KA, **Wellberg EA**, Henry CJ. The 'omics of obesity in B-cell acute lymphoblastic leukemia. *J Natl Cancer Inst Monogr*. 2023 May 4;2023(61):12-29. [PMID: 37139973](#).

Hasan MN, Chen J, Matye D, Wang H, **Luo W**, Gu L, **Clayton YD**, Du Y, **Li T**. Combining ASBT inhibitor and FGF15 treatments enhances therapeutic efficacy against cholangiopathy in female but not male Cyp2c70 knockout mice. *Journal of Lipid Research* 2023 Feb 1;100340. [PMID: 36737039](#).

Hokken-Koelega ACS, Van der Steen M, Boguszewski MCS, Cianfarani S, Dahlgren J, Horikawa R, Mreicq V, Rapaport R, Alherbish A, Braslavsky D, Charmandari E, **Chernausk SD**, Cutfield WS, Dauber A, Deeb A, Goedegebuure WJ, Hofman PL, Isganatis E, Jorge AA, Kanaka-Gantenbein C, Kashimada K, Khadilkar V, Luo XP, Mathai S, Nakano Y, Yau M. International Consensus Guideline on Small for Gestational Age: Etiology and Management From Infancy to Early Adulthood. *Endocr Rev*. 2023 May 8;44(3):539-565. [PMID: 36635911](#).

Jackson TN, Cox BP, Grinberg GG, Yenumula PR, Lim RB, Chow GS, **Khorgami Z**. National usage of bariatric surgery for class I obesity: an analysis of the Metabolic and Bariatric Surgery Accreditation and Quality Improvement Program. *Surgery Obes Relat Dis*. 2023 May 22;S1550-7289(23)00527-0. [PMID: 37438232](#).

Li T, Chiang JYL. Bile acids as metabolic regulators: an update. *Current Opinions in Gastroenterology* 2023 Mar 10. [PMID: 36976875](#).

Nash MJ, Dobrinskikh E, Janssen RC, Lovell MA, Schady DA, Levek C, Jones KL, D'Alessandro A, Kievit P, Aagaard KM, McCurdy CE, Gannon M, **Friedman JE***, Wesolowski SR*. Maternal Western diet is associated with distinct preclinical pediatric NAFLD phenotypes in juvenile nonhuman primate offspring. *Hepatol Commun*. 2023 Jan 18;7(2):e0014, 2023. [PMID: 36691970](#). *Co-Senior authors.

Nash MJ, Dobrinskikh E, Soderborg TK, **Janssen RC**, Takahashi DL, Dean TA, Varlamov O, Hennebold JD, Gannon M, Aagaard KM, McCurdy CE, Kievit P, Bergman BC, Jones KL, Pietras EM, Wesolowski SR, **Friedman JE**. Maternal diet alters long-term innate immune cell memory in fetal and juvenile hematopoietic stem and progenitor cells in nonhuman primate offspring. *Cell Rep*. 2023 Apr 13;42(4):112393. [PMID: 37058409](#).

New Presentations:

Bjornstad P, Vigers T, DeBoer I, El ghormli L, Heerspink H, Laffel L, Ryder J, Shah A, Lynch J, Gubitosi-Klug R, Drews K, Tommerdahl K, **Tryggestad T**, Isganaitis E, Bacha F, Pyle L, Sharma K. *“Plasma Metabolites Predict Loss of Glycemic Control in Youth with Type 2 Diabetes (T2D).”* Poster presented at: ADA; June 26, 2023; San Diego, CA.

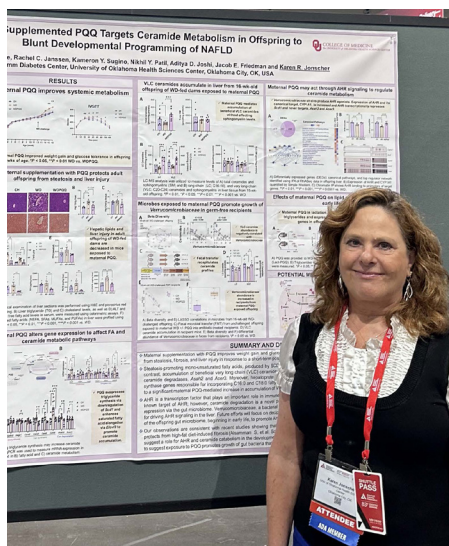
Dattilo T, Fisher R, Traino K, **Allen R, Beck J, Sparling DP**, Anderson M, Cutler J, **Jeter KM**. *“A longitudinal examination of real-time CGM use and diabetes-related distress among high-risk adolescents and young adults with Type 1 diabetes.”* Award winning poster presented at: Society of Pediatric Psychology Annual Conference, Society of Pediatric Psychology; March 2023; Chicago, IL.

Friedman, JE. *“Maternal western diet epigenetically rewires trained immunity through hematopoietic stem cells in fetal and juvenile non-human primates.”* Presented at: Keystone Conference on Maternal-Fetal Crosstalk, from association to mechanism; January 23, 2023; Santa Fe, NM.

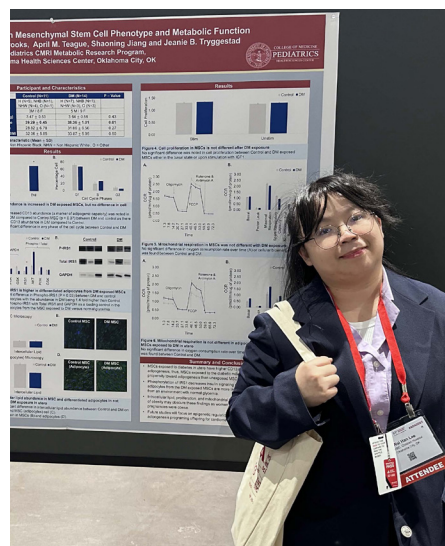
Friedman, JE. *“Mechanisms Underlying Protection from NAFLD in Offspring of Obese Mothers Treated with Microbiome-derived Tryptophan Metabolites: Role of Gut Microbiome.”* Presented at: Society for Reproductive Investigation; March 25, 2023; Brisbane, Australia.

Friedman, JE. *“Influence of maternal obesity and GDM on infant outcomes.”* Invited Panelist, at: NIH Workshop on Multigenerational Nutrition Influences on Health and Disease; July 23, 2023; Bethesda, MD.

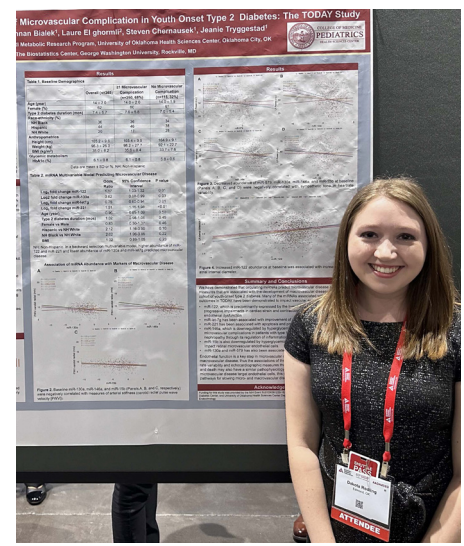
Le Y. *“VEGF Is a Contributing Factor for the Reduction of Retinal Function in Diabetic Retinopathy and Hypoxic Retinal Disorders.”* Abstract presented at: ADA; June 25, 2023; San Diego, CA.



Jonscher K. *“Maternally Supplemented PQQ Targets Ceramide Metabolism in Offspring to Blunt Developmental Programming of NAFLD.”* Poster presented at: ADA; June 23-26, 2023; San Diego, CA.



Lee WH, Redling D, Brooks O, Teague A, Jiang S, Tryggestad J. *“Impact of Diabetes Exposure In Utero on Mesenchymal Stem Cell Phenotype and Metabolic Function.”* Poster presented at: ADA; June 25, 2023; San Diego, CA.



Redling D, Bialek S, Chernauek S, El ghormli L, Tryggestad J. *“Circulating MicroRNAs as Predictors of Microvascular Complications in Youth Onset Type 2 Diabetes - The TODAY Study.”* Poster presented at: ADA; June 24, 2023; San Diego, CA.

Rajala R. *“Identifying how Endothelial Protease-Activated Receptors Control Insulin Signaling: Implications for Diabetes.”* Poster and talk presented at: Gordon Research Conference for Insulin and IGF Signaling, and Gordon Research Seminar for Insulin and IGF Signaling, respectively; March 12-17, 2023; Ventura, CA.

New Presentations (continued):

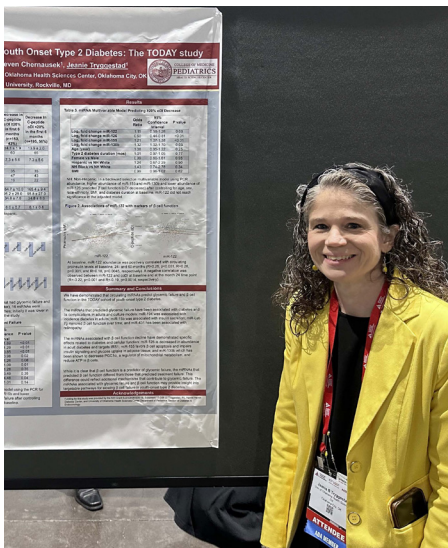
Rajala R. “Identifying how Endothelial Protease-Activated Receptors Control Insulin Signaling: Implications for Diabetes.” Abstract presented at: North American Vascular Biology Organization (NAVBO) meeting; October 15-19, 2023; Newport, RI.

Rajala R. “Endothelial PARs Modulate Hepatic Vascular Permeability During APAP Overdose.” Abstract and nano-talk presented at: North American Vascular Biology Organization (NAVBO) meeting; October 15-19, 2023; Newport, RI.

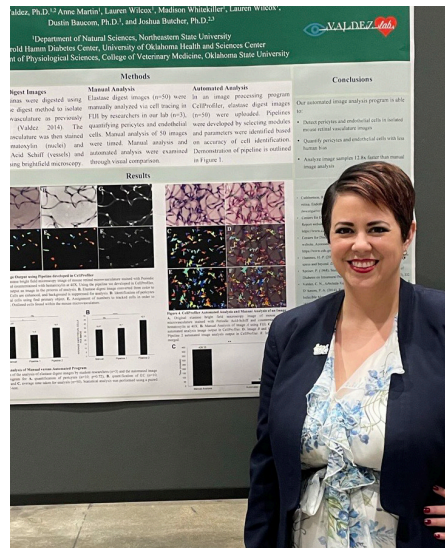
Sugino K. “A Higher Complex-Carbohydrate Diet Lowers Metabolically Unfavorable Markers Associated with Gestational Diabetes Mellitus.” Poster presented at: ADA; June 23-26, 2023; San Diego, CA.

Traino K, Fisher R, Dattilo T, **Allen R**, Beck J, **Sparling DP**, Anderson, M., Cutler, J., **Jeter KM**. “Cost-effectiveness of real-time continuous glucose monitoring in high-risk adolescents and young adults with type 1 diabetes.” Poster presented at: Society of Pediatric Psychology Annual Conference, Society of Pediatric Psychology; March 2023; Chicago, IL.

Tung GK, Rout M, **Sanghera DK**. “Improved Diabetes Risk Prediction using Ancestry-specific Polygenic Score: Results from the Asian Indian Diabetic Heart Study/Sikh Diabetes Study.” Poster presented at: ADA; June 23-26, 2023; San Diego, CA.

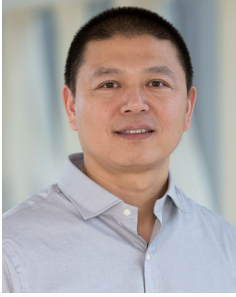


Tryggestad J, Bialek S, Redling D, Chernausk S, El ghormli L. “Circulating MicroRNAs as Predictors of β Cell Function in Youth Onset Type 2 Diabetes - The TODAY Study.” Poster presented at: ADA; June 24, 2023; San Diego, CA.



Valdez C, Martin A, Wilcox L, Whitekiller M, Baucom D, Butcher J. “Identifying Pericyte Cell Loss in Mouse Models using Automated Image Analysis.” Poster presented at: National Association for Research in Vision and Ophthalmology (ARVO); April 23, 2023; New Orleans, LA.

Harold Hamm Diabetes Center Updates



Congratulations to Dr. Tiangang Li for his promotion to Professor!

Tiangang Li, Ph.D.
Professor of Physiology
Harold Hamm Chair for Adult Diabetes Research
Member, Harold Hamm Diabetes Center



New Diabetes Educator Joins the Harold Hamm Diabetes Center

Christy Olson, M.S., RDN, L.D., CDCES
Diabetes Educator
Adult Endocrinology Clinic



Harold Hamm Diabetes Center welcomes a new Senior Program Administrator

Elizabeth Charles, MBA
Senior Program Administrator

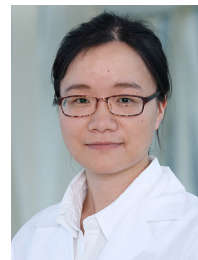
New Lab Staff



Rashi Sehgal
Associate Research
Scholar
Friedman/Jonscher Lab



Benjamin Nelson, Ph.D.
Postdoctoral Research
Fellow
Friedman/Jonscher Lab



Lijie Gu, Ph.D.
Laboratory Research
Manager
Li Lab

New Harold Hamm Diabetes Center Members

Sarah Bland, Ph.D.
Kurt Zimmerman, Ph.D.
Sangpil Yoon, Ph.D.
Priya Balasubramanian, DVM, Ph.D.
Abdul Oseini, M.D., MSc
Nikhil Patil, Ph.D.
Gurleen Kaur Tung, Ph.D.
Gertrude Kyere-Davies

Dakota Redling
Wai Han Lee
Sue Bodine, Ph.D.
Beatriz Hanaoka, M.D., MSc
Prabha Nagareddy, MPharm, Ph.D., FAHA
Kathryn Burge, Ph.D.
Julia Busik, Ph.D.
Sarah Borengasser, Ph.D.