

American Diabetes Association_®

Report

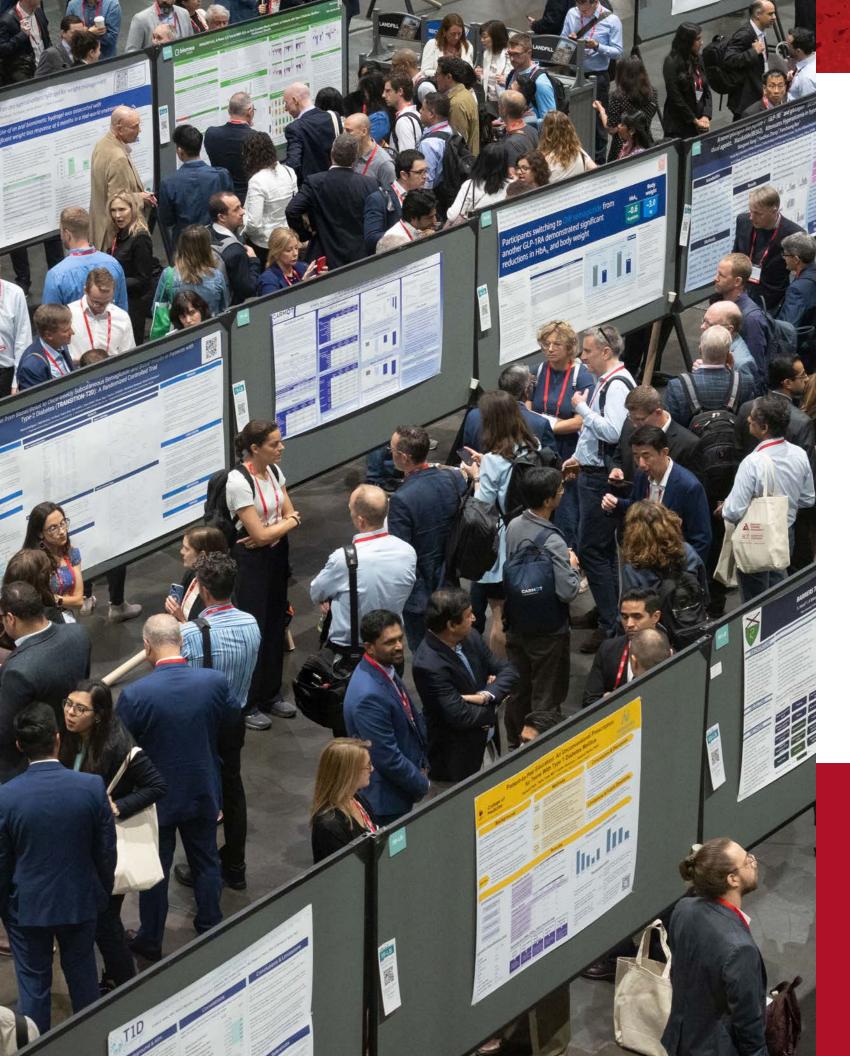


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About the American Diabetes Association

The mission of the American Diabetes Association® (ADA), founded in 1940, is to prevent and cure diabetes and to improve the lives of all people affected by diabetes. This chronic disease is one of the fastest growing in the world, with 136 million Americans living with diabetes or prediabetes and a new diagnosis occurring every 26 seconds.

In the face of this epidemic, our mission has never been clearer, and our vision of a life free of diabetes and all its burdens is more critical than ever before. Through advocacy, program development, and education, we aim to improve the quality of life for everyone affected by diabetes.

The moving force behind the work of the ADA is a network of more than 565,000 volunteers, their families and caregivers, a professional society of nearly 12,000 health care professionals, as well as nearly 350 staff members.



A Message from ADA Leadership

Research is the cornerstone of advancing the mission of the American Diabetes Association® (ADA) to prevent and cure diabetes and to improve the lives of all people affected by diabetes. By leading innovative studies and funding cutting-edge science, we aim to prevent, treat, and ultimately cure diabetes on a global scale, fostering hope and delivering transformative breakthroughs.

Since the ADA started its Research Program in 1952, we have invested more than \$963 million in innovative studies. While we have made significant progress towards our mission, there is much left to discover about diabetes. By supporting the key aspects of research, including funding for early career investigators, fostering the next generation of leaders, and support for investigator-initiated research, we hope to uncover discoveries that will advance care and treatment for people living with diabetes.

One of the foundations of the ADA's research strategy is our Pathway to Stop Diabetes® (Pathway) program. The program seeks to identify a new generation of innovative scientists, physicians, and researchers and provide them with the financial support and professional mentorship they need to advance their diabetes research. In 2024, we provided Pathway grants to four new researchers, which you can read more about in this report. Since the inception of the program, we have provided grants to 43 extraordinary individuals who are dedicated to diabetes prevention and helping people with diabetes thrive.

We're thrilled to highlight the accomplishments of our brilliant researchers in our 2024 Research Report. Thank you for your ongoing support in our shared fight to someday end diabetes.

Charles Henderson Chief Executive Officer

Charles O Manderson &





Research Overview

The ADA has a long reputation of engagement and support of landmark studies aimed at improving the treatment and prevention of diabetes.

While we have learned a lot, there is much left to discover about diabetes. The ADA remains committed to providing critical funding to support innovative scientific discovery that translates to better treatment, healthier lives, and eventual cures.

Today, our research strategy is more targeted than ever before. This approach is helping us make meaningful, actionable changes in specific areas that are highly relevant to those affected by diabetes. As research advancements provide fresh insights into the ever-changing diabetes landscape, we are prepared to respond with targeted research to address the needs within our communities and to improve the lives of those living with diabetes.

While we have a targeted approach to funding, we are also continuing to invest in our many career and training awards. Investing in early career researchers is crucial for addressing the rising prevalence of diabetes and reducing the number of individuals afflicted with the condition. By supporting these researchers at the outset of their careers, we empower them to delve into innovative studies, explore novel treatment approaches, and uncover preventive measures. The complex nature of diabetes demands fresh perspectives and innovative insights, which early career researchers are uniquely poised to provide. Their enthusiasm can pave the way for breakthroughs that not only enhance our understanding of diabetes, but also yield transformative strategies for its prevention and management. Investing in these emerging talents is an investment in a healthier future for generations to come.

Currently, the ADA Research Programs team manages a portfolio of -



193 **ACTIVE AWARDS**



NEW PROJECTS that were funded in 2024



A Fresh Narrative in Type 2 Diabetes Research

Similar to reading a book in a language we have only just begun to understand, the world of genetics continually unfurls new paths of knowledge for us to discover. For complex diseases with strong genetic components like type 2 diabetes, understanding the way genetic variations function and impact an individual's risk may help turn the page in diabetes management and improve the treatment and prevention of diabetes.

For Debora Rodrigues Sobreira, PhD, witnessing friends and family struggle with diabetes sparked a life-long curiosity about the genetic factors behind the disease. "Since early on in my career, I have been interested in the noncoding regions in the genome," she says. Genome-Wide Association Studies (GWAS) are research studies that scan the entire genome to find genetic variations linked to specific diseases or traits. This approach has identified over 700 independent genetic associations linked to type 2 diabetes, but it's still unclear what signals trigger these genes to activate. Dr. Sobreira is piecing together genetic signals and the development of type 2 diabetes to uncover novel genes, cellular pathways, and signaling mechanisms associated with the disease. By challenging conventional paradigms in GWAS and metabolic trait research, she is developing a platform to understand the underlying mechanisms behind these genetic variations.

Dr. Sobreira won her Pathway grant last year, allowing her to build a diverse team and pursue research rooted in creative thinking and novel experimental design. "I've used many different approaches, and both a computational approach and a functional assets approach are important in my research." She and her colleagues execute this multifaceted approach through the use of cutting-edge technologies like data science, single-cell analysis, disease modeling, induced pluripotent stem cells, and genetic screening. By integrating advanced methodologies, she hopes to translate discoveries into meaningful biological knowledge that can lead to innovative strategies in prevention and treatment.

The Pathway award has provided collaboration and mentoring opportunities that have enriched Dr. Sobreira's professional life. She is hopeful that her work will inspire others not only within diabetes, but across all fields of complex disease research. "Impact in research is a brick in a wall. I see myself putting in a brick that others can then build on to complete the whole picture." She implements this sentiment within her own lab through recruiting students from diverse backgrounds, educating them on scientific research and all its facets, helping them cultivate the skills needed to become future leaders in the field. Ultimately, Dr. Sobreira aspires to lay the groundwork for others to continue the story of genetics in diabetes and significantly impact type 2 diabetes clinical management for better outcomes, improved quality of life, and more personalized care.



Debora Rodriques Sobreira, PhD

encouragement, I am able to consider more innovative research. A highrisk idea has the potential for a high

With [the ADA's]

reward.

— Debora Rodrigues Sobreira, PhD

These recently funded studies in our priority research areas aim to solve critical problems facing people with and at risk for diabetes.

Targeting Precision Medicine for Improved Outcomes

While clinical guidelines recommend a tailored approach for type 2 diabetes pharmacological treatments, limitations exist in their ability to provide precise positive results for all patients. Dr. Aaron Leong realized early in his career as an endocrinologist that he wanted to explore a molecular explanation for the disparities in results being reported by clinics. Specifically, by understanding the underlying heterogeneity of molecular responses in treatments, this would allow for the development of more targeted strategies and improve patient care.

Dr. Leong aims to determine whether people's genetic profiles influence their response to sodium-glucose cotransporter-2 inhibitors (SGLT2i) that are typically prescribed for type 2 diabetes by looking at variants within the SLC5A2 gene. He is currently recruiting individuals with varied genetic predispositions for developing type 2 diabetes to allow for a wide range of responses and data. Another goal of his research is to use biobanks to assess whether the benefits of SGLT2i on glucose management, cardiovascular outcomes, and renal outcomes differ by people's genetic risk for developing diabetes-related complications.

Dr. Leong hopes these answers can help advance personalized patient care. "In terms of potential, we are at the beginning of how genetic information can be woven into clinical guidelines. We can get closer to helping a person who doesn't fall into the average. The sooner we can deliver the right treatment for a patient, the more engaged that patient will be in their care." With his ADA grant, he aspires to lay a foundation for trials across health care systems to identify patients most likely to benefit from SGLT2i therapy.



Aaron Leong, MD, MSc Massachusetts General Hospital

Language as a Tool for Better Care

Words make a difference when managing diabetes. People with diabetes who experience, or even perceive stigmas around their disease are at an increased risk for distress, anxiety, and depression. Language can play a crucial role in either preventing or perpetuating these beliefs, affecting health-related outcomes for people living with diabetes.

The influence of the doctor-patient relationship on health outcomes has led Dr. Kevin Joiner to begin addressing the issues in language around type 2 diabetes through primary care professionals. His research aims to help primary care professionals minimize the use of diabetes-stigmatizing language in patient communication. He has developed a training module that models both strengths-based and stigmatizing language use in a video based on the ADA's language guidance. It aims to help practitioners evaluate their own interactions with patients.

Having recently finished recruitment and data collection, Dr. Joiner and his team have found promising preliminary results of the training module to change attitudes and increase perceived control in using non-stigmatizing language. Ultimately, Dr. Joiner hopes this data will support a future full-scaled randomized control trial of the training module in federally qualified health centers. "We talk about therapeutic inertia, and part of that is on health care providers to carefully consider the words they use. The way we talk to patients can be as important as the medication we are recommending."



Kevin Joiner, PhD, **APRN, ANP-BC** University of Michigan

Empowering Change in Eating Disorder Care

Having begun her career in a treatment setting for adults who were navigating eating disorders, Dr. Rachel Goode recognized a lack of tools for developing a healthy long-term plan for engaging with food. According to a recent study, Black adults living with diabetes face up to six times higher risk of experiencing binge eating behaviors compared to other ethnic groups, so Dr. Goode has set out to explore and address this disparity.

Upon receiving an ADA grant, Dr. Goode described the first phase of her research as pulling up a chair, grabbing a cup of coffee, and really listening to the experiences of Black adults with diabetes. She aimed to better understand the socioecological pathways of type 2 diabetes, including restriction, binge, and emotional eating. The second phase is developing a solution within diabetes self-management education (DSME) that is both individually tailored and accessible.

Using her previous experience with appetite awareness training, she has partnered with Nourishly and Black Women's Health Imperative to create an app that helps participants learn to eat within their hunger signals and achieve their nutritional goals with a plated approach. Not only will the app provide access to dietician feedback to those living with type 2 diabetes, it will include sessions with coaches for diabetes self-management education.

Currently, Dr. Goode and her team are finalizing the app and plan to begin recruitment for testing in early 2025. "Historically, DSME has been a one-size-fits-all approach, but we are as different as we can be. I think we are moving into a nutrition precision approach in medicine, tailoring to what works for a specific person for improved glycemic targets."



Rachel Goode, PhD MPH. MSW University of North Carolina at Chapel Hill

Trusted Spaces as Gateways to Diabetes Prevention

Women often go to the salon as part of a scheduled routine to feel good about themselves and maintain their appearance. While in the stylist's chair, they tend to divulge details about the events, successes, and struggles in their lives. These forthright, organic conversations with trusted community members may be one key to unlocking more participation in diabetes prevention programs.

Despite Black women bearing a disproportionate burden of type 2 diabetes, screening and referral rates remain low. Dr. Kelly Palmer hopes to show how salon stylists are well positioned to facilitate diabetes risk screening and encourage Black women to enroll in diabetes prevention programs. In the first phase of the project, Dr. Palmer and her team evaluated both hairstylists and women who frequent salons to assess the perception of and readiness for a salon-based diabetes prevention referral program.

After the team completes concept mapping of salon readiness and receives feedback from hair salons about the intervention plan, they hope to pilot the program in a few salons in 2025. Dr. Palmer says, "People often look at communities that are struggling or have suboptimal outcomes from a very deficit-focused lens. I like to look at those communities and ask what is working in them." Through her research, she hopes to understand how to leverage those assets in the community to engage in health behavior and promotion while mitigating disparate rates of diabetes and diabetes-related complications for Black women.



Kelly Palmer, PhD, MHS University of Arizona

Improving the Lives of Women with Diabetes Across the Lifespan

These researchers aim to better understand clinically significant sex differences to better inform diabetes prevention, diagnosis, and treatment strategies for women across the lifespan.



Jacqueline Maya, MD Massachusetts General Hospital



Tracey McLaughlin, MD Stanford University



Guoying Wang, MD, PhD Johns Hopkins University



Mingyu Zhang, PhD Beth Israel Deaconess Medical Center

Supporting the Psychological and Emotional Needs of People with Diabetes

These researchers aim to deepen understanding of how to enhance all aspects of integrating mental health care into clinical settings for people with diabetes, with a particular focus on under-resourced families.



Lily C. Chao, MD Childrens Hospital Los Angeles



Amanda M. Ziegler, PhD University at Buffalo

Tackling the Epidemic of Youth-Onset Type 2 Diabetes

These researchers aim to address key knowledge gaps in youth-onset type 2 diabetes to enhance understanding, advance prevention, improve treatment, and ultimately achieve remission for the rising number affected by this serious public health concern.



Ryan Brady, MD Cincinnati Children's Hospital Medical Center



Emma Edmondson, MD University of Pennsylvania



Shylaja Srinivasan, MD University of California, San Francisco

Centers for Diabetes Translation Research

The ADA proudly partners with the Centers for Diabetes Translation Research (CDTR), a program funded by the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) at the National Institutes of Health (NIH). The CDTR's aim is to improve the translation of research findings related to diabetes prevention, treatment, and health outcomes by supporting research across the translational spectrum. The ADA has supported the following researchers to advance discoveries in health disparities through highly specialized technical expertise, as well as support research resources to established and earlystage investigators. For more information about the CDTR program, please visit diabetes-translation.org.



Cherie Conley, PhD, MSN, MIS, MHS University of Michigan



Johanna Daily, MD, MS Albert Einstein College of



Jennie Davis, PhD, RDN University of California, Davis



Wenjun Fan, MD, PhD, MS University of California, Irvine



Erin Ferranti, PhD, MPH. RN. FAHA **Emory University**



Reagan L. Miller, PhD, MS Colorado State University



Ha Ngan Vu, PhD, MA Northwestern University

Impact of Diabetes Camps

In 2024, the ADA launched the Priority Research Agreement (PRA), a targeted funding mechanism that allows the Research Program team to directly invite investigators to address critical gaps in diabetes research. This mechanism aligns with the ADA's strategic priorities while focusing on research questions outside the scope of existing requests for applications (RFAs). This year, the PRA mechanism was used to support research aimed at better understanding the impact of diabetes camps on youth with type 1 diabetes and their caregivers.



Kelsey Howard, PhD Ann & Robert H. Lurie Children's Hospital of Chicago

Diabetes statistics cited in this report are provided by each researcher, not the ADA.



Funding the Next Generation of Leaders in Diabetes Research

Investing in postdoctoral fellowship awards is crucial for addressing the rising prevalence of diabetes and reducing the number of individuals afflicted by the condition. By supporting these researchers at the outset of their careers, we empower them to delve into innovative studies, explore novel treatment approaches, and uncover preventive measures. The complex nature of diabetes demands fresh perspectives and insights, which early career researchers are uniquely poised to provide. Their enthusiasm can pave the way for breakthroughs that not only enhance our understanding of diabetes, but also yield transformative strategies for its prevention and management. Investing in these emerging talents is an investment in a healthier future for generations to come.

In 2024, the ADA welcomed a record number of postdoctoral fellowship applications spanning a wider spectrum of diabetes research aiming to invigorate and diversify the pool of talent dedicated to advancing our understanding of diabetes. To review this pool of postdoctoral fellowship award applications, we solicited a group of 77 new and seasoned reviewers, many of them past ADA grantees themselves. All applicants who advanced to the review stage were provided with expert feedback on their submissions, regardless of whether they were chosen for an award, to encourage them to continue their pursuits.

We're thrilled with the results, which have added 29 postdoctoral fellows to the ADA's research portfolio. It's all part of the ADA's commitment to nurturing a pipeline of leaders in diabetes research and supporting them at every stage along the way.

2024 Postdoctoral Fellowship Awardees

Sungho Bea, PhD

Partners Healthcare System

Jasmine Burrell, PhD

Morehouse School of Medicine

Zhe Cao, PhD

Harvard University

Srikanta Chowdhury, PhD

Columbia University

Karima Drareni, PhD

University of Pennsylvania

Xue Fena. PhD

University of California, La Jolla

Haipeng Fu, PhD

University of California, La Jolla

Ji Seul Han. PhD

Harvard Medical School

Qoua Her, PharmD

University of North Carolina at Chapel Hill

Lara Hernandez, PhD

University of Texas Southwestern Medical Center at Dallas

Injae Hwang, PhD

University of Pennsylvania

Fahmida Jahan, PhD

Joslin Diabetes Center

Ioannis Lempesis, MD, PhD

Brigham and Women's Hospital

Jin Li, PhD

University of Michigan

Ignacio Norambuena-Soto, PhD

Beckman Research Institute of City of Hope

Ana Pinto, PhD

University of Colorado School of Medicine

Kellen Rodrigues, MD, PhD

Beth Israel Deaconess **Medical Center**

Adam Salon, PhD

Augusta University

Heidi Schmidt, PhD

David Geffen School of Medicine at University of California, Los Angeles Harshraj Shinde, PhD

University of Kansas Medical Center

Omprakash Singh, PhD

University of Texas Southwestern Medical Center at Dallas

Seunghwan Son, PhD

University of California, La Jolla

Jie Sun, PhD

The Scripps Research Institute

Wenxin Tong, PhD

Duke University

Amritha Trikkur Madom

Seetharaman, PhD University of Tennessee

Shirong Wang, PhD

Joslin Diabetes Center

Yijun Yang, MD, PhD

University of Pennsylvania

Giorgia Zanetti, PhD

Columbia University Qiantao Zheng, PhD

University of Michigan

ARIZONA

Daniel Nuyujukian, PhD

Kelly Palmer, PhD University of Arizona

CALIFORNIA

Lauren Au, PhD, RD University of California, Davis

Lily Chao, MD Childrens Hospital Los Angeles

Jennie Davis, PhD

University of California, Davis Ilia Droujinine, PhD

The Scripps Research Institute

Jennifer Falbe, PhD University of California, Davis

Xue Feng, PhD University of California, La Jolla

Haipeng Fu. PhD University of California, La Jolla

Lisa Gilliam, MD, PhD

Kaiser Permanente Northern California

Anjali Gopalan, MD Kaiser Permanente Northern California

Sarah Havnes PhD University of California, Davis

Mark Huising, PhD University of California, Davis

Sunhee Jung PhD University of California, Irvine

Daniel Seung Kim, MD, PhD Stanford University

James Landay, PhD Stanford University

Ikjun Lee, PhD

University of California, Berkeley

Tracey McLaughlin, MD

Maxence Nachury, PhD University of California, San Francisco

Ignacio Norambuena-Soto, PhD Beckman Research Institute of City of Hope

Julia Panzer, PhD Beckman Research Institute

of City of Hope

Heidi Schmidt ,PhD David Geffen School of Medicine at University of California, Los Angeles

Waghata Semere .MD University of California, San Francisco

Debora Rodrigues Sobreira, PhD David Geffen School of Medicine at University of California, Los Angeles

Seunghwan Son, PhD University of California, La Jolla

Shvlaia Srinivasan. MD University of California, San Francisco

Alaina Vidmar MD Childrens Hospital Los Angeles

Jie Sun, PhD

Lauren Wisk, PhD University of California, Los Angeles

The Scripps Research Institute

Jessie Wong, PhD Stanford University

Yue Wu PhD Stanford University

Pengfei Zhang, PhD Beckman Research Institute

of City of Hope COLORADO

Medical Campus

Richard Benninger, PhD University of Colorado, Anschutz

Angela Brega, PhD University of Colorado, Denve

Howard Davidson, PhD

University of Colorado, Denver Wenjun Fan, MD, PhD

University of Colorado, Denver

Nikki Farnsworth, PhD Colorado School of Mines

Lauren Gulley, PhD, MA University of Colorado, Anschutz

Medical Campus Chao Li. PhD

University of Colorado, Denver Susanna Lopez, PhD

University of Colorado, Denver

Reagan Miller, PhD University of Colorado, Denver

Sungho Park, PhD

University of Colorado, Anschutz Medical Campus

Rocio Pereira, MD Denver Health and Hospital Authority

Wei Perng, PhD Colorado School of Public Health

Ana Pinto, PhD

University of Colorado, Anschutz Medical Campus

Laura Pvle, PhD University of Colorado, Anschutz Medical Campus

Janet Snell-Bergeon, PhD University of Colorado, Anschutz

Sarah Stotz, PhD Colorado State University

Medical Campus

Elizabeth Thomas, MD University of Colorado, Denver

CONNECTICUT

Megan Baker, MD Yale University

William Chang, MD, PhD Yale University School of Medicine

Magdalena Perez-Cardelo, PhD

Yale University School of Medicine Louise Reagan, PhD

Stephanie Samuels, MD Yale University School of Medicine Melissa Santos, PhD

University of Connecticut

Connecticut Children's Foundation

DISTRICT OF COLUMBIA

Ramin Asgary, MD George Washington University

Jody Grundman, MD Children's Research Institute

Wanda Nicholson, MD George Washington University

FI ORIDA

Ivan Jozic, PhD University of Miami

Leeana Peters, PhD University of Florida

Anu Sharma, MD University of Florida School of

Yue Wang PhD Florida State University

GEORGIA

Rosa Arriaga, PhD Georgia Institute of Technology

Jasmine Burrell, PhD

Erin Ferranti PhD

Emory University Jacob Kariuki, PhD

Emory University Britt Marshall, MD

Emory University

Adam Salon, PhD Augusta University

JULINOIS

Lisa Beutler, MD, PhD

Northwestern University Medical

Alona Furmanchuk, PhD Northwestern University Medical School

Kimberly Garza, PhD

Ann and Robert H. Lurie Children's Hospital of Chicago

Andrea Graham PhD Northwestern University

Hannah Guak, PhD Northwestern University

Kelsey Howard, PhD Ann and Robert H. Lurie Children's Hospital of Chicago

Rotem Kaley-Altman PhD

University of Chicago Rochelle Naylor, M.D.

University of Chicago

Hospital of Chicago

CDCES

Terri Sabol, PhD

Northwestern University Anthony Vesco, PhD

Ha Ngan (Milkie) Vu. PhD Northwestern University Jill Weissberg-Benchell, PhD,

Ann and Robert H. Lurie Children's

Ann and Robert H. Lurie Children's Hospital of Chicago

INDIANA

Mary de Groot, PhD

Jonathan Flak, PhD

Indiana University School of Medicine

Hyun CheolRoh, PhD Indiana University

Iltan Aklan, PhD University of Iowa, Carver College of Medicine

Bhagirath Chaurasia, PhD University of Iowa

KANSAS

Harshraj Shinde, PhD University of Kansas Medical Center

Felicia Steger, PhD

University of Kansas Medical Center

KENTLICKY

Brittany Smalls, PhD, MHSA, MSHPsych University of Kentucky

LOUISIANA

Yilin Yoshida, PhD Tulane University

MARYLAND

Maria Golson, PhD Johns Hopkins University

Rozalina McCov. MD. MS University of Maryland

School of Medicine Matthew Poy, PhD Johns Hopkins University

Nelmari Ruiz Otero, PhD

Guoying Wang, MD, PhD Johns Hopkins University

MASSACHUSETTS

School of Medicine

Judith Agudo, PhD Dana-Farber Cancer Institute

Sungho Bea. PhD Brigham and Women's Hospital

Zhe Cao, PhD

Harvard College

Sara Cromer, MD Massachusetts General Hospita

Ward Fickweiler, MD

Joslin Diabetes Center

Ji Seul Han, PhD Harvard Medical School

Soren Harnois-Leblanc, PhD Harvard Pilgrim Health Care Phyo Htoo MD, PhD Brigham and Women's Hospital

Alicia Huerta-Chagoya, PhD Fahmida Jahan PhD

Masa Josipovic, MD, PhD Ioannis Lempesis MD PhD Brigham and Women's Hospital

Joslin Diabetes Cente

Diabetes statistics cited in this report are provided by each researcher, not the ADA.

Aaron Leong MD MSc Massachusetts General Hospital

Josiemer Mattei, PhD Harvard College

Jacqueline Maya, MD Massachusetts Ge

Josep Mercader, PhD Broad Institute

Jeu Park, PhD Joslin Diabetes Cente

Kellen Rodrigues, MD, PhD Beth Israel Deaconess Medical Center

Magdalena Sevilla-Gonzalez, PhD Massachusetts General Hospita

Cassandra Spracklen, PhD Mount Sinai Hospital

University of Massachusetts, Amherst Lukasz Szczerbinski, MD, PhD

Massachusetts General Hospita Deirdre Tobias, DSc Brigham and Women's Hospita

Lu Wang, PhD Tufts University

Mingyu Zhang, PhD Beth Israel Deaconess Medical Center

Shirong Wang, PhD Joslin Diabetes Center

Yong-Xu Wang, PhD University of Massachusetts Medical

MICHIGAN

Cherie Conley, PhD

University of Michiga Jaclynn Hawkins, PhD University of Michiga

Michele Heisler, MD University of Michigan

Chelsea Henler PhD University of Michigan

Kevin Joiner, PhD University of Michigan

Jin Li, PhD University of Michigan

Susanne Mohr, PhD Michigan State University

Leah Robinson, PhD University of Michigan

Rachel Wasserman Daniels, PhD Western Michigan University School of Medicine Qiantao Zheng, PhD

University of Michigan **MINNESOTA** Daniela Herrera Moro Chao, PhD University of Minnesota

Holly Willis, PhD

HealthPartners Institute MISSOURI Sarah Farabi, PhD

NEBRASKA Carmen Byker Shanks, PhD, RDN Center for Nutrition & Health Impact

Washington University in St. Louis

NEW YORK

Charlotte Chen, DO Albert Einstein College of Medicine

Srikanta Chowdhury, PhD Columbia University

Johanna Daily, MD Albert Einstein College of Medicine

Ankit Gilani, PhD Joan & Sanford I. Weill Medical College of Cornell University

Lu Hu. PhD New York University School of Medicine

Juan Antonio Requena-Ibáñez, MD Icahn School of Medicine at

Yi Wang, PhD Albert Einstein College of Medicine

Dongxiang Xue, PhD Joan & Sanford I. Weill Medical College

of Cornell University Giorgia Zanetti, PhD

Amanda Ziegler, PhD University at Buffalo

NORTH CAROLINA

Michael Bancks, PhD Wake Forest University Health Sciences

Ebony Carter, MD, MPH University of North Carolina at Chapel Hill Rachel Goode, PhD

at Chapel Hill Qoua Her, PharmD University of North Carolina

University of North Carolina

at Chapel Hill Anna Kahkoska, MD, PhD University of North Carolina

at Chapel Hill Katherine Sauder, PhD Wake Forest University School

of Medicine Abbie Smith-Ryan, PhD University of North Carolina

at Chapel Hill Wenxin Tong, PhD Duke University

Tiansheng Wang, PharmD

University of North Carolina

at Chapel Hill

Ryan Brady, MD Cincinnati Children's Hospital Medical Center

Case Western Reserve University Laureen Smith, PhD Ohio State University

Catherine McManus, PhD

Cassie Mitchell, PhD University of Oklahoma

OKLAHOMA

Diabetes statistics cited in this report are provided by each researcher, not the ADA.

Yuqing Zhang, PhD

University of Cincinnati

PENNSYLVANIA

Isin Cakir, PhD University of Pittsburgh

Karima Drareni, PhD University of Pennsylvania Emma Edmondson, MD

Children's Hospital of Philadelphia

University of Pennsylvania

Rachel Miller, PhD

University of Pittsburgh

Dan Shan, MD, PhD

Siddharth Sunilkumar, PhD

Pennsylvania State University

Temple University

School of Medicine

Sarah Tishkoff, PhD

Yiiun Yang MD PhD

SOUTH CAROLINA

Clemson University

Julie Bejoy, PhD

TENNESSEE

University of Pennsylvania

University of Pennsylvania

Windsor Sherrill, PhD

Samantha Ehrlich, PhD

Shelagh Mulvaney, PhD

Amritha Trikkur Madom

University of Tennessee

Vanderbilt University

Seetharaman, PhD

University of Tennessee

MD Imam Uddin, PhD

Layla Abushamat, MD

Baylor College of Medicin

University of Texas Southy

Baylor College of Medicine

University of Texas at Austin

University of Texas Southwestern

Kathryn Kanzler, PsyD, ABPP

University of Texas Southwestern

University of Texas Southwestern

University of Texas Health Science

Lara Hernandez, PhD

Medical Center at Dallas

Baylor College of Medicin

Baylor College of Medicine

Yongxiang Li, PhD

Orhan Oz, MD, PhD

Medical Center at Dallas

Medical Center at Dallas

Fenfen Wang, PhD

Center at Houston

Omprakash Singh, PhD

Medical Center at Dallas

Feng Gao, PhD

Megan Gray, MD

Vanderbilt University Medical Center

Vanderbilt University Medical Center

Bethany Cartwright MD PhD

University of Utah Injae Hwang, PhD University of Pennsylvania Marcus Pezzolesi, PhD

University of Utah David Merrick, MD, PhD **VIRGINIA**

> John Campbell, PhD University of Virginia

UTAH

Katherine Baucom, PhD

Michelle Litchman, PhD, FNP-

BC. FAANP, FADCES, FAAN

William Holland, PhD

University of Utah

University of Utah

Xinxin Chen. PhD University of Virginia

Anas El Fathi, PhD University of Virginia

Uta Erdbruegger, MD

University of Virgini Henri Parson, PhD

Eastern Virginia Medical School WASHINGTON

Kimberly Alonge, PhD University of Washington

Karen Cerosaletti. PhD

Benarova Research Institute

at Virginia Mason Nicole Ehrhardt, MD University of Washington

Jenny Kanter, PhD University of Washington Kalie Tommerdahl, MD

Seattle Children's Hospital WISCONSIN

Aprill Dawson, PhD Medical College of Wisconsin

Christopher Emfinger, PhD University of Wisconsin, Madison

Eva Vivian, PharmD, PhD University of Wisconsin, Madison

WYOMING

University of Wyoming

Grace Shearrer, PhD

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Pathway to Stop Diabetes® 2024 Awardees

The ADA's Pathway program was founded with a singular vision: To introduce a new generation of brilliant scientists to diabetes research. The ADA supports Pathway scientists for five to seven years, giving them the freedom to explore new ideas without the constraints of traditional project-based funding. Pathway awardees are selected by the ADA's Mentor Advisory Group - an esteemed group of eminent scientists from diabetes research and other fields who personify the core elements needed for exceptional science: rigorous thought processes, keen intellect, and the capacity for innovation, creativity, and productivity. In addition to the selection process, the mentors provide ongoing scientific and career advice to Pathway researchers throughout the duration of the awards, creating a challenging and collaborative environment in which transformative science can thrive.

Over the past decade, this initiative has successfully propelled 43 scientists into independent faculty positions, resulting in numerous inventions, patents, startups, and published manuscripts, showcasing its transformative impact on diabetes care.

Decoding and Validating Interorgan Communication Proteins as New Therapeutic Targets in Diabetes

Secreted proteins play a vital role in how organs communicate and work together. When not working properly, these messengers may contribute to the development of diabetes and obesity. Dr. Ilia Droujinine plans to examine the largely unexplored role that proteins produced by the intestine play in interorgan communication. While intestine-secreted proteins have been historically difficult to identify, the Droujinine lab has established an inducible biotin-ligase (BirA*G3) system to identify proteins that traffic and signal to distal organs.

Dr. Droujinine aims to demonstrate how imbalances in intestine-secreted proteins associated with type 2 diabetes affect fat formation, breakdown, and storage throughout the body - influencing metabolism, blood sugar levels, and inflammation. Better understanding of interorgan communication proteins can help develop the next generation of therapeutics to combat type 2 diabetes and its complications.



Ilia Droujinine, PhD The Scripps Research Institute

Preventing Type 2 Diabetes in Black Adult Women At Risk for Binge Eating Disorder

To build upon her research related to eating disorders in Black adults, Dr. Rachel Goode, was awarded a Pathway grant to focus some of her research specifically on Black women. With Black women having significantly higher rates of reported emotional eating in adolescence and the highest rates of obesity in the nation, Dr. Goode is exploring a new approach to lower type 2 diabetes risk for this population.

Dr. Goode is focused on adapting and translating an Appetite Awareness Diabetes Prevention Program (ATT + DPP) for Black adult women at risk for binge eating disorder and type 2 diabetes. After formative research to understand type 2 diabetes prevention needs among emergent adults, she hopes to develop a individualized approach that can be used to conduct a pilot feasibility study. By reducing binge eating, improving emotion regulation, and preventing weight gain in Black adult women, Dr. Goode hopes to establish a new pathway in diabetes prevention.



Rachel Goode, PhD University of North Carolina at Chapel Hil

Optogenetic Stimulation of Thermogenic Adipose as a Novel **Cell Therapy for Obesity and Metabolic Disease**

Obesity and related conditions like diabetes are major health challenges. Current medications that promote satiety, like GLP-1 receptor agonists, are effective for initial weight loss but often cause side effects that reduce their effectiveness. Additionally, they don't address the challenge of keeping the weight off long term. Since there are no approved drugs to help the body burn more energy, sustained weight loss remains difficult.

Dr. David Merrick aims to ultimately develop an innovative treatment to help people maintain weight loss by increasing the body's ability to burn energy. His approach leverages the heat-generating properties of brown adipose tissue, also known as brown fat. Building on his team's discovery of diverse populations of adipose progenitors, he hopes to generate large quantities of clinical-grade, patient-derived brown fat cells outside of the body that are optimally amenable to autologous re-implantation. To promote thermogenic activity, the team is engineering these cells with a receptor that couples the absorption of light to the stimulation of brown fat thermogenesis. Dr. Merrick's pre-clinical research studies will evaluate if lightactivated transplanted brown fat cells can burn energy and alleviate the metabolic consequences of obesity in animal models.



David Merrick, MD, PhD University of Pennsylvania

Integration of a Trained Language Model To Improve Glycemic Control Through Increased Physical Activity: A Fully Digital My **Heart Counts Smartphone App Randomized Trial**

The introduction of smartphones and watches has allowed people to track their daily movement. For people with or at risk for type 2 diabetes, setting physical activity goals can mean improved success with glycemic targets. Dr. Daniel Seung Kim is advancing his work with the My Heart Counts app, which initially found that personalized e-coaching interventions increased step count by extending the app to link with electronic medical records to import laboratory data. With pre-trained artificial intelligence (AI), the app now delivers personalized e-coaching interventions based on the Stages of Change model.

Dr. Kim will assess the app's effectiveness in a randomized crossover trial that compares the daily Al-generated coaching interventions to reminders to reach 10,000 steps. He also aims to evaluate the efficacy of Al-generated prompts and chatbot capabilities to influence daily step counts, A1C levels, and weight management goals. Combining innovative digital health and AI, Dr. Kim hopes to improve short- and longterm physical activity maintenance in people with type 2 diabetes.



Daniel Seung Kim, MD. PhD Stanford University

2014

Michael Dennis, PhD

Pennsylvania State University Hyperglycemia-Induced Translational Control of Gene Expression in the Retina

Kathleen Page, MD

University of Southern California Neural Mechanisms in Maternal-Fetal Programming for Obesity and Diabetes

Stephen Parker, PhD

University of Michigan Deconstructing Type 2 Diabetes Using Genome-Wide High-Density Multi-Tissue 'Omics' Profiling

Wolfgang Peti, PhD

University of Arizona Pathways to a Cure: Novel. Innovative Insights into Insulin Signaling and Regulation using NMR Spectroscopy

Joshua Thaler, MD, PhD

University Washington Modulating Glial-Neuronal Interactions to Treat Obesity and Diabetes

2015

Mayland Chang, PhD

University of Notre Dame A Strategy to Accelerate Diabetic Wound Repair

Thomas Delong, PhD

University of Colorado Denver The Role of Hybrid Insulin Peptides in the Development of Type 1 Diabetes

Zhen Ghu. PhD

University of California, Los Angeles Bio-Inspired Synthetic Pathway for Closed-Loop Delivery of Insulin and Glucagon

Marie-France Hivert, MD

Harvard Pilgrim Health Care Understanding Pathways of Fetal Metabolic Programming to Stop the Transgenerational Risk of Diabetes

Celine Riera, PhD

Cedars-Sinai Medical Center Identification of Sensory Neural Circuits Controlling Metabolic Disorders

Stephanie Stanford, PhD

University of California, San Diego PTPN22: Model Gene to Unravel the Interaction Between Genetics and Environment in T1D

2016

Daniel Ceradini, MD

New York University School of Medicine Therapeutically targeting Keap1/Nrf2 dysfunction in diabetes

Zachary Knight, PhD

University of California, San Francisco Reinvestigation of the arcuate feeding circuit

Andrew Scharenberg, MD

Seattle Children's Hospital Regulatory T-cell stabilization via gene editing as novel therapy for Type I diabetes

Praveen Sethupathy, PhD

Cornell University Systems approach to defining genetic regulation of intestinal physiology and gut microbiota in diet-induced obesity

Sui Wang, PhD

Stanford University School of Medicine Dissection of Gene Regulatory Networks underlying Diabetic Retinopathy

Phillip White, PhD

Duke University A new homeostatic mechanism for metabolic control

2017

Paul Cohen, MD, PhD

Rockefeller University Dissecting the role of beige fat in metabolic homeostasis

Jonathan Flak, PhD

Indiana University School of Medicine Targeting the VMN to Understand Hypoglycemia Pathogenesis

Aleksandar Kostic, PhD

Joslin Diabetes Center Generation of an in vivo system for dissection of the human type 1 diabetesassociated microbiome

Sumita Pennathur, PhD

University of California, Santa Barbara Untethering diabetes through innovative engineering

David Spiegel, MD, PhD

Yale University School of Medicine Targeting glucosepane crosslinks in diabetes

Sarah Stanley, MD, PhD

Icahn School of Medicine at Mount Sinai Central nervous system regulation of glucose metabolism

2018

John Campbell, PhD

University of Virginia Molecular and functional taxonomy of vagal motor neurons

Samie Jaffrey, MD, PhD

Joan & Sanford I.Weill Medical College of Cornell University Rewiring cellular metabolic networks in diabetes

Alexander Nectow, MD, PhD

Columbia University Investigation of Brainstem Neurons Regulating Energy Balance

Michael Stitzel, PhD

The Jackson Laboratory Deciphering Longitudinal Cell Type-Specific Defects in Diabetes Pathogenesis

Randi Streisand, PhD

Children's Research Institute Improving health communication during the transition from pediatric to adult diabetes care

Jonathan Sweedler, PhD

University of Illinois at Urbana-Champaign Unraveling diabetes progression a cell at a time

2019

Ebony Carter, MD

University of North Carolina at Chapel Hill Targeted lifestyle change group prenatal care for obese women at high risk for gestational diabetes: a randomized controlled trial

Sarah Tishkoff, PhD

University of Pennsylvania Genetic risk factors for adult-onset diabetes in populations of African Ancestry

Matthew Webber, PhD

University of Notre Dame Hypoglycemic rescue with glucoseresponsive glucagon delivery devices

2020

Judith Agudo, PhD

Dana-Farber Cancer Institute Harnessing immune privilege mechanisms from stem cells to protect beta-cells from immune attack

Maxence Nachury, PhD

Diabetes statistics cited in this report are provided by each researcher, not the ADA.

University of California, San Francisco Regulation of body weight homeostasis and beta cell function by primary cilia

2022

Lisa Beutler, MD, PhD

Northwestern University Medical School Dissecting sugar-induced modulation of gut-brain circuits

Anna Kahkoska, MD, PhD

University of North Carolina at Chapel Hill Fusing rapid-cycle testing and adaptive interventions: A scientific pipeline to translate and individualize evidence-based psychosocial and behavioral interventions in routine type 1 diabetes care

2023

Chelsea Hepler, PhD

University of Michigan Integration of circadian and inflammatory pathways in metabolic homeostasis

Debora Rodrigues Sobreira, PhD

David Geffen School of Medicine at University of California, Los Angeles Linking variants to function: understanding the genetics of type 2 diabetes through multi-omic data

Lu Wang, PhD

Tufts University Leveraging the online grocery shopping environment to improve diet and advance health equity

2024

Ilia Droujinine, PhD

The Scripps Research Institute Decoding and validating interorgan communication proteins as new therapeutic targets in diabetes

Rachel Goode, PhD, MPH, MSW

University of North Carolina at Chapel Hill Preventing Type 2 Diabetes in Black Emergent Adult Women At-Risk for Binge-Eating Disorder

Daniel Seung Kim, MD, PhD, MPH

Stanford University Integration of a trained language model to improve glycemic control through increased physical activity: a fully digital My Heart Counts smartphone app randomized trial

David Merrick, MD, PhD

University of Pennsylvania Optogenetic stimulation of thermogenic adipose as a novel cell therapy for obesity and metabolic disease

MENTOR ADVISORY GROUP MEMBERS

Christopher B. Newgard, PhD **Duke University**

Louis Philipson, MD, PhD University of Chicago

Barbara J. Anderson-Thomas, PhD Baylor College of Medicine

Mark S. Anderson, MD, PhD University of California, San Francisco

Charles F. Burant, MD, PhD University of Michigan

David A. D'Alessio, MD **Duke University**

Daniel J. Drucker, MD Lunenfeld-Tanenbaum Research Institute

Robert Eckel, MD, FAHA, FACC, FNLA University of Colorado, Denver

Joel Elmquist, DVM, PhD

University of Texas Southwestern Medical Center

Anthony Ferrante Jr., MD, PhD Columbia University

David M. Harlan, MD University of Massachusetts

Medical School Kevan Herold, MD Yale University

Elbert Huang, MD

University of Chicago

Barbara Kahn, MD

Beth Israel Deaconess Medical Center

Rohit Kulkarni, MD, PhD

Joslin Diabetes Center

Lori Laffel, MD, MPH Joslin Diabetes Center

David Nathan, MD

Massachusetts General Hospital

Stephen C.J. Parker, PhD

University of Michigan

Sumita Pennathur, PhD

University of California, Santa Barbara

Jane Reusch, MD

University of Colorado, Denver

Christopher J. Rhodes, PhD AstraZeneca

Alan R. Saltiel, PhD University of California, San Diego

Jean E. Schaffer, MD Harvard Medical School

Michael Schwartz. MD

University of Washington

Andrew Stewart, MD Icahn School of Medicine at Mount Sinai

Karen Talmadge, PhD Nabu Strategic Advisors

I want to thank the ADA and the Pathway program for being a game-changer for my work. The ADA Pathway award not only supported the BrainChild Study, uncovering key findings in maternal-child health and diabetes risk, but also inspired my trainees to explore new, exciting areas in diabetes and brain development. It's incredibly rewarding to see how the child participants in the study have been inspired by this work, illustrating the program's goal of cultivating the next generation of research leaders. My Pathway project is making a transgenerational impact—through both the discoveries and the future scientists it inspires."

— Kathleen Page, MD, MS

Associate Professor of Medicine and Pediatrics, Co-Chief, Division of Endocrinology & Diabetes Director, Diabetes and Obesity Research Institute Keck School of Medicine of University of Southern California

2024 Scientific Sessions



In June 2024, the ADA hosted the 84th Scientific Sessions in Orlando, Florida. The ADA's Scientific Sessions is the world's largest diabetes meeting, convening leading physicians, scientists, researchers, and health care professionals from around the globe. The hybrid meeting featured the latest scientific findings in diabetes research, prevention, and care which included:





in addition to providing networking opportunities for

11,190 ATTENDEES FROM 116 COUNTRIES

Register for the 85th Scientific Sessions at professional.diabetes.org/Scientific-Sessions.



2024 Outstanding Scientific Achievement Award

While health care professionals don't have a crystal ball to foretell future disease in a patient, research advances are progressively improving the ability to assess disease risk and make more effective treatment decisions. A deeper understanding of the impact of genomic variations has the potential to greatly enhance this ability, enabling health care professionals to better identify predispositions to complex diseases like diabetes and to choose treatments more effectively. Researchers like Steven Parker, PhD, are leading the way in unlocking this life-changing knowledge.

Dr. Parker's research explores how disease susceptibility is encoded in the non-coding portion of the genome. At the 2024 Scientific Sessions, Dr. Parker was awarded the ADA's prestigious Outstanding Scientific Achievement Award for his work in genetic predisposition in type 2 diabetes and related traits. With a long history in bioinformatics, Dr. Parker's research progress was greatly accelerated after receiving the ADA's Pathway award. "I believe the Pathway award in 2014 set me on this trajectory. They invested in me and I'm just so thankful." Along with that support, Dr. Parker credits this award for providing him access to top researchers in the field who mentored him as another reasonfor his accomplishments.

"This award recognizes Steven's ground-breaking research in epigenomics and serves as a testament to the remarkable potential of the Pathway program, which supports and mentors early career researchers who show amazing talent and promise of productivity," said one of the organizers. "Dr. Parker's work epitomizes the commitment of the Pathway program to nurture talent and innovation in the field."

Over the past year, Dr. Parker helped open the Epigenomic Metabolic Medicine Center at the University of Michigan, with the goal of generating single-cell multi-omics datasets from key metabolic tissues. Achieving this goal could lead to a comprehensive picture of the connection between genetic and environmental factors and diabetes onset and progression. Knowing these new genetic mechanisms can lead to better strategies to detect, treat, and prevent type 2 diabetes.

In the work of predicting future health, Dr. Parker emphasizes one point—success in epigenomics is the result of a team-focused approach. "I think of this award as a result of the cumulative effect of the exceptional people on the team, both people who work in my lab as well as collaborators."

Bringing Researchers Together



Innovative Approaches to Psychosocial Care and Access in Youth and Adult Diabetes **Management Workshop**

Addressing the psychosocial aspects of diabetes care is essential to improving outcomes for individuals of all ages. Factors such as mental health, stress, and access to social support can significantly influence diabetes management. Innovative strategies are needed to ensure care is both inclusive and responsive to the diverse needs of youth and adults living with diabetes.

In November 2024, the ADA hosted grant recipients conducting research in mental health and difference in health outcomes for the Innovative Approaches to Psychosocial Care and Access in Diabetes Prevention and Management workshop. Program officers from the NIDDK also participated, sharing insights on research priorities and opportunities for funding. This two-day event covered both psychosocial and health challenges in youth and adults with type 1 and type 2 diabetes.

The presentations covered a rich variety of topics, such as rapid implementation and optimization of individualized psychosocial and behavioral interventions in clinical settings and an innovative precision medicine approach to detect and treat device-related diabetes distress. Attendees also discussed their research on youth with type 1 diabetes, including reducing diabetes-specific emotional distress in teenagers, promoting adolescent self-management and investment in diabetes care.

Presenters posed solutions for addressing the psychosocial needs of youth with type 2 diabetes. They highlighted the potential benefits of integrating a team approach for appointments and mental health interventions tailored to youth within the specialty care setting. Additionally, the relationship between brain function and structure in youth with type 2 diabetes was discussed.

Speakers also explored topics that addressed psychosocial issues of vulnerable populations within diabetes care. This included minimizing diabetes-stigmatizing language, addressing multi-level barriers associated with diabetes technology use in under-resourced youth, and developing values-based behavior change programs delivered by bilingual health coaches to enhance diabetes care.

Diabetes statistics cited in this report are provided by each researcher, not the ADA



While attendees benefited from hearing the critical research, Marlon Pragnell, PhD, the ADA's vice president of research and science, emphasized the importance of bringing ADA grant awardees together for collaboration and networking. Grant recipients connected during a networking dinner on the first day and a lunch on the second day. Additionally, they were able to discuss challenges and brainstorm opportunities related to their research during the panel discussions. "We also strongly encourage our researchers to attend and present their research at the ADA's annual Scientific Sessions. We look forward to connecting with them at our upcoming 85th Scientific Sessions in Chicago." Pragnell noted.

Bringing together grantees and research program staff from the ADA and NIDDK, in small workshops like these, as well as at Scientific Sessions, provides valuable opportunities for networking and collaboration. Dr. Pragnell emphasized that these interactions support academic success and help participants explore potential avenues for future research funding.

Our goal is to facilitate the research progress and career growth of all our awardees. And part of that is engaging researchers, encouraging connectivity, and supporting an environment that maximizes their progress.

-Marlon Pragnell, PhD

Thank You to Our Volunteers

Research Policy Committee

The Research Policy Committee (RPC) is responsible for providing guidance to the ADA on the strategic direction of its Research Programs. This includes the development of new funding opportunities, evaluation of current grant mechanisms and research initiatives, and recommendations for program enhancements to increase impact.

As one of the oldest committees in the ADA, with co-discoverer of insulin Dr. Charles H. Best serving as the first chair in 1952, the RPC has a long history of advancing breakthrough science and growing the next generation of diabetes researchers. In recent years, the committee has played a pivotal role in broadening the ADA's focus to include the full continuum of experience for a person living with diabetes to encompass things such as mental health. Dr. Mary de Groot, the current chair, stated, "I really welcome this time of expansion, balancing the portfolio with research that supports molecular and genomic science as well as science that promotes public policy, care implementation, and community change to help prevent diabetes and support people with diabetes."

Recently, the committee has spotlighted psychosocial factors as an area of interest. "As the first behavioral scientist to chair the RPC, I'm honored in this capacity. It's an exciting time to be part of this committee," said Dr. de Groot. She elaborated, "Behavioral, emotional, and social aspects of diabetes are intricately intertwined with the physiology of diabetes. We tend to think of different categories of diabetes research and medical care in silos, but, in fact, it all comes together in the person and family with diabetes." While women's health, youth-onset in type 2 diabetes, and mental health have been previous areas of focus, aging in diabetes and primary care were recently selected as the ADA's new research priority areas.

Every two years, the ADA selects new targeted topic areas and launches RFAs to research and expand the field of knowledge to improve the lives of those living with diabetes. At the beginning of 2024, the ADA engaged its People with Diabetes Council, composed of individuals living with diabetes, to help identify research gaps based on their personal experiences. The council's insights were then shared with the RPC, which developed a list of critical research gaps that align with the ADA's mission.

There was an overwhelming enthusiasm that upcoming research should focus on improving the lives of older adults living with diabetes and diabetes prevention and care in primary care settings. Finally, these identified topics were shared with the Science and Health Care Council and ADA leadership for their review and endorsement. Once approved, the Research Programs team worked with the RPC to outline the scope and goals of the new funding opportunities. In September 2024, the Primary Care and Aging in Diabetes RFAs were launched with funding announcements anticipated by May 2025.



It has been an enormously gratifying and inspiring experience to be a member of the Research Policy Committee of the ADA. It is so encouraging to see the resources and energy of this association continuing to provide opportunities for new and veteran researchers to address many of the growing needs and new challenges in understanding diabetes and improving outcomes through new treatment approaches. There is no more certain way of providing the pathways for prevention, remission, improved treatment, and yes, eventual cure of diabetes than continuing to build and support a strong, creative, and multi-generational research program.

Diabetes statistics cited in this report are provided by each researcher, not the ADA

—James R. Gavin III, MD, PhD

2024 Research Policy Committee

Mary de Groot, PhD Indiana University School of Medicine

Jonathan E. Campbell, PhD Duke Molecular Physiology Institute

Deborah J. Cohen, PhD Oregon Health and Science University

Melanie Cree, PhD

University of Colorado **Anschutz Medical Campus**

Shavon Artis Dickerson, DrPH. MPH

National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK)

Alessandro Doria, MD, PhD, MPH Joslin Diabetes Center

James R. Gavin III, MD, PHD Healing Our Village, Inc

Neda Laiteerapong, MD University of Chicago

K.M. Venkat Narayan, MD, MSC, MBA, FRCP **Emory University**

Maria Redondo, MD, PhD,

Baylor College of Medicine

Amy Shah, MD, MS, FNLA Cincinnati Children's Hospital

2024 Presidents

Mandeep Bajaj, MBBS, President of Medicine & Science

Patti Urbanski, MEd, RD, LD, CDCES, FADCES, President of Health Care & Education

2024 People with Diabetes Council

Adeola Akindana	Tom Kigin	Jessica Oser
Hermona Girmay	Shelby Kinnaird	Hector Soto
Alysa Goethe	Chris Labuda	Stephanie Weaver
Abigail Hoppe	Sara Lerner	Shay Webb

Thank You to our Reviewers

We would like to express our deepest gratitude for the effort and expertise of the researchers that generously volunteered their time to serve on various review panels in 2024.

Each application is reviewed by at least three external scientific experts in the diabetes field and are carefully selected by the Research Program team based on their area of expertise.

Their commitment to excellence and willingness to provide constructive feedback was instrumental in shaping the outcome of the 250+ applications submitted this year. All applicants, including those that were not selected for funding, have benefited from the constructive feedback shared in their reviews.

It is important to note that their insights not only helped us identify projects that push the boundaries of diabetes research, but also contributed to the career development and growth of these applicants.



View the full list of reviewers

