

2022 Research Report

American Diabetes Association®

Connected for Life®

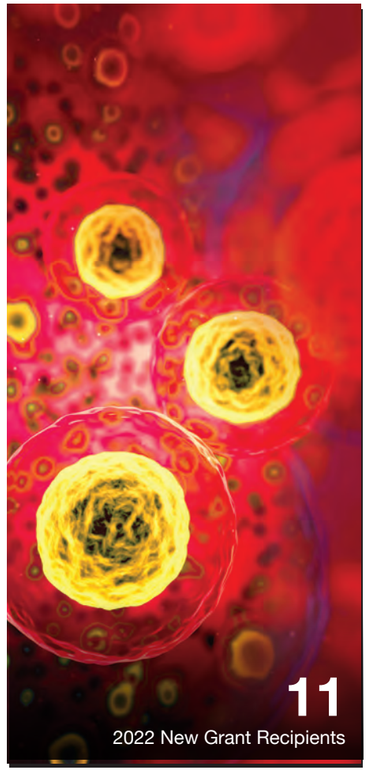
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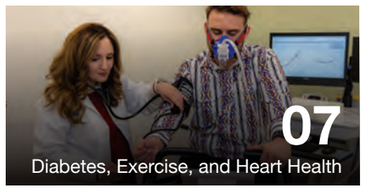




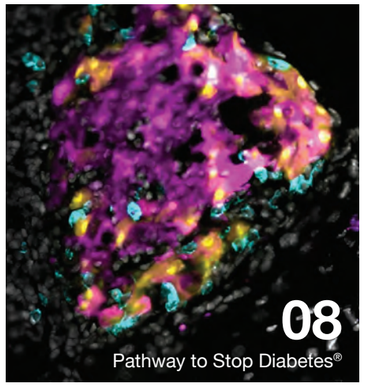
















Message from Dr. Bob Gabbay

Chief Science & Medical Officer



The American Diabetes Association® (ADA) exists to improve care and help people with all forms of diabetes thrive. Research at the ADA is the engine at that drives forward discoveries and clinical advances. In 2022, we have had many significant victories. This report highlights some of these achievements.

I am very proud of the ways that we are moving forward diabetes research. In 2020, we made a strategic decision to be more targeted in our research funding. This approach is allowing us to dive deep and accelerate innovations that are ready for expansion. Our Health Disparities research portfolio is a great example of this and is on full display in this report. What is exciting about our strategic focus is that we are helping the researchers cultivate concepts and establish collaborative networks to maximize their research and, ultimately, their innovations into the hands of individuals with diabetes. This goal strikes the heart of the very nature and intention of ADA research—cultivating scientists and moving discoveries into practice.

The Pathway to Stop Diabetes® program is another example of this collaborative spirit and dedication. Pathway supports extraordinary minds at the peak of their creativity and provides them with the autonomy, flexibility, and resources on the road towards breakthrough discoveries in diabetes. Our formula is to invest in brilliant individuals with the most promising research approaches and strategically pair these trailblazers with world-class mentors to refine and enhance their work. To date, the program has been incredibly successful, and in 2022 we added two more brilliant scientists to this remarkable group.

Moving forward, the ADA will continue to invest heavily in research—both basic science and translational research. We are looking for innovative projects that have high impact and push concepts forward. Each year, we will have two funding cycles for targeted research with numerous funding opportunities for all stages of diabetes research professionals. This report presents all the new award recipients, as well as illustrates our continued commitment to cultivating exceptional talent, including early-career scientists, in the diabetes field.

Our commitment to research also spans to our partnership with the Centers for Diabetes Translation Research, which are part of an integrated program funded by the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK). In addition, this report highlights the 2022 ADA Scientific Sessions, where researchers share exciting progress and study results with the global diabetes community. We hosted our first hybrid event in June 2022, where we welcomed more than 11,000 in-person attendees and thousands more virtual participants.

The last 12 months are showing a vibrant return to normalcy and signaling exciting developments ahead. We thank you for being part of our efforts and continuing our partnership to creating a world free of diabetes and all its burdens.

Robert Gabbay, MD, PhD
Chief Science & Medical Officer

> “Our goal is to improve the lives of all people with diabetes through science, medicine, and health care as a whole. All of us are working toward one common purpose while we continue to focus on a cure.







Health Disparities Research

Pervasive health inequities across the country contribute to higher risks of poor physical and mental health outcomes for people with diabetes from historically minoritized backgrounds and those with less financial resources. Inequities are driven by social stressors that include food and housing insecurity, unemployment and limited access to diabetes supplies and health care.

For example, almost one third of African American grandmothers care for their grandchildren on a full-time basis. Many of these grandmothers are overweight, at risk for diabetes and unintentionally model unhealthy eating behaviors to their grandchildren. In 2010, the Centers for Disease Control & Prevention launched Diabetes Prevention Program (DPP) to prevent or delay type 2 diabetes through lifestyle changes. The program has been successful but has a high attrition rate among African American participants.



"Understanding our members' comprehensive needs, beyond medicine, is key to helping them lead healthy lifestyles for themselves and their families.

– Eva Marie Vivian, PharmD
University of Wisconsin-Madison

"We have a great program that we know can delay the progression of diabetes, but how do we get buy-in?" asks A Eva Marie Vivian, PharmD, University of Wisconsin-Madison. "I decided to use a community-based participatory research approach where I partnered with community organizations to find an ideal way to offer the program to grandmothers at risk for diabetes."

Dr. Vivian's project, Healthy Outcomes through Peer Educators (HOPE), enlists grandmothers to serve as peers to other grandmothers, providing encouragement and positive reinforcement to help their peers learn sustainable health behaviors, and be healthy role models to the next generation of African Americans. "The grandmothers are the glue of these communities."

Dr. Vivian says the peer support efforts are as simple as sharing local resources.

For example, a grandmother was concerned about unhealthy food options in the vending machines in the community center. "She collected over 50 signatures of mothers and grandmothers in the community and met with the management to express the concerns and requested that the vending machines be removed," she says. "They were successful and now there is a refrigerator stocked with water and fresh fruits and vegetables."

The study was launched in 2021 and has already shown signs of success. To date, participation in the peer educator intervention group is above 90% while attendance in the control group is about 65-70 percent.

None of this would have happened without the ADA. "The funding has allowed me to expand my research to other underserved communities. Going forward, I would like to gather information from the grandchildren about their perceptions of their grandmother's health behavior changes and how it has impacted their lives."

Another innovative study in the Health Disparities Research portfolio is by B Tony Vesco, PhD, a clinical psychologist Ann & Robert H. Lurie Children's Hospital of Chicago, who specializes in diabetes psychology and at-risk youth who understands the negative impact of chronic health disparities from his work in youth trauma centers.

Dr. Vesco is collaborating with colleagues in the Novel Interventions in Children's Healthcare (NICH) program at Oregon Health & Sciences University (OHSU). NICH aims to reduce health disparities for youth with diabetes in socially vulnerable and complex households, such as ones facing food insecurity, homelessness, and trauma.

NICH connects families 24/7 to a behavioral interventionist to help solve issues that get in the way of a child's health or disease management. The interventionist provides intensive care coordination, case management, and individual and family skill-building.

"Kids with diabetes who are exposed to adverse social circumstances have higher A1C's, more diabetes related complications, and management difficulties. If we can figure out ways to relieve ongoing social stressors, we believe they will have better health outcomes," says Dr. Vesco.

Dr. Vesco is comparing the outcomes of children with diabetes from the NICH's intensive intervention model versus the outcomes of children receiving standard care services from Lurie and La Raida Children's Hospitals.

"We're trying to engage our participants by demonstrating interest in them as people first and then as people with diabetes," says Dr. Vesco. "The flexibility of meeting over Zoom puts families at ease and allows participants who may not otherwise to engage in research." With families being more at ease, Dr. Vesco's team has been able to create nice connections and learn about more about them as people in addition to data collection, which doesn't typically happen in research studies or in a busy hospital environment.



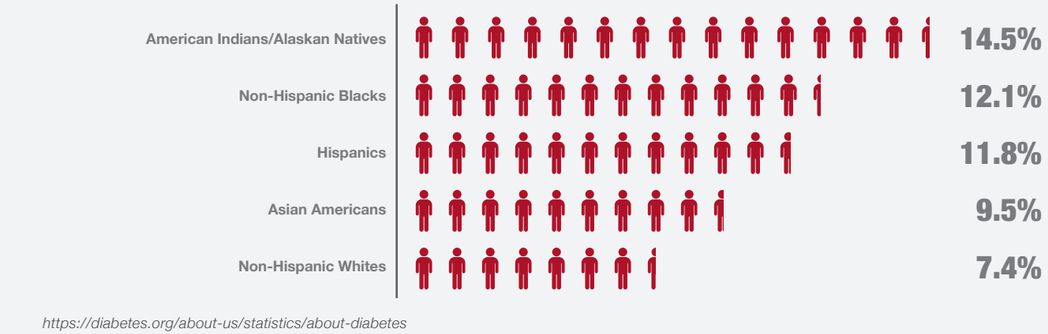
"The funding has helped us connect with a team of investigators who have extensive clinical and research experience in working with youth with diabetes and their families to engage on this project in a meaningful way.

– Tony Vesco, PhD
Ann & Robert H. Lurie Children's Hospital of Chicago
photo courtesy of Jan Terry, Lurie Childrens

Education Level

People who have not completed high school have the highest prevalence of diabetes.

13.4%	Less than high school
9.2%	High school
7.1%	More than high school



https://diabetes.org/about-us/statistics/about-diabetes











The ADA is funding several other studies focused on addressing health equity among adults with diabetes. These projects include looking to improve disease self-management skills and knowledge among the most vulnerable populations in our society. As an example, C Louise A. Reagan, PhD, University of Connecticut School of Nursing, is using a mobile app to help formerly incarcerated individuals with type 1 or type 2 diabetes reenter the community and stay healthy.

Another example is the work of D Ramin Asgary, MD, The George Washington University, aiming to improve disease self-management among homeless individuals with diabetes. Approximately 3.5 million Americans are homeless, and type 2 diabetes is common in this population. An estimated 44% of homeless individuals with diabetes have uncontrolled diabetes, where the blood sugar levels remain too high despite treatment putting the person at risk of short- and long-term complications. Dr. Asgary's project utilizes texting as a way to increase adherence to therapy and to remind individuals to take actions.

Another innovative project is led by E Rachel Goode, PhD, University of North Carolina, Chapel Hill, who is developing an effective intervention to curb binge eating and improve long-term management of type 2 diabetes among African Americans living in low-resource communities.

In addition to funding pivotal research, the ADA also contributes to scientific progress by convening key stakeholders, fostering collaboration, and enhancing training opportunities. Last November, the ADA brought together a group of health disparities researchers to share progress, challenges, and brainstorm solutions. F Monica Peek, MD, MPH, from The University of Chicago chaired this meeting, which included leadership from the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) such as G Pamela L. Thornton, PhD, Senior Advisor for Workforce Diversity and Health Equity and Program Director of Centers for Diabetes Translation Research.



Diabetes, Exercise, and Heart Health

People with diabetes have increased risk of death related to heart disease. Layla Abushamat, MD, MPH, at Baylor College of Medicine aims to reduce these risks.

"My project tests whether fat tissue is a modifiable risk factor for heart failure in type 2 diabetes. It will also look at whether exercise improves fat health and thereby improves heart health. This will play a role in improving heart failure outcomes in those with type 2 diabetes."

People with diabetes are known to have lower cardiorespiratory fitness than people without diabetes. And it's important because cardiorespiratory fitness is actually a very big predictor of mortality and morbidity when it comes to cardiovascular disease. People who have low cardiorespiratory fitness have higher cardiovascular disease events and we're trying to understand that question a little bit better."

Using data from a comprehensive study, Dr. Abushamat and her team are facilitating a supervised three-month exercise intervention looking at changes in fat across time, and whether they see changes or improvements in heart function.

This research is personal to Dr. Abushamat because diabetes runs rampant on both sides of her family. "I grew up in Southwest Louisiana, where these issues are prevalent," says Abushamat.

> "When I was 15, I learned about nutrition and was excited about the benefits of healthy eating and how lifestyle changes can effectively manage these diseases, and I asked my dad, who is a nephrologist, whether there was a specific doctor that dealt with obesity and diabetes. He told me about endocrinology and how they look at hormones in the whole body and from that point on, I wanted to become an endocrinologist. We have all these tools and medications that help prevent future complications, particularly with type two diabetes, and lifestyle changes are the foundation of these interventions.

A fellowship with Jane Reusch, MD, at University of Colorado School of Medicine studying exercise and cardiorespiratory fitness in diabetes led Dr. Abushamat to her current research studying fat hormones, heart disease and exercise in people with diabetes, and establishing relationships between variables to better understand their impact on disease progress.

The ADA grant has allowed her to continue working with Dr. Reusch. "Jane has been an incredible mentor," says Dr. Abushamat. She's won multiple mentoring awards, she's mentored so many PhDs, med students, grad students, and MDs through this whole path. Her passion is infectious. She's so supportive of women in the field of science and helped establish the Women's Interprofessional Network of the American Diabetes Association (WIN ADA), a members-only network for female clinicians, scientists, educators, and other health professionals in diabetes. She's a big proponent for women in their careers and especially as a physician scientist."

Pathway Awardees' Achievements

16+
Start-up companies founded by Pathway scientists

>320
Original publications in high impact scientific journals

36
Funded researchers awarded

>530
Invited presentations and lectures

46+
Patent applications filed

>750
Nominations received and reviewed since program inception

100%
Initiator awardees secured 1st independent faculty position within first 2 years of award









Pathway to Stop Diabetes®: Outsmarting the Immune System

> The ADA funding has made a whole world of a difference. It has allowed me to explore ideas that are high risk, but also very high reward. It has also made me visible to the community and important researchers in diabetes doing complementary work to drive progress.

Judith Agudo, PhD, assistant professor in the cancer immunology and virology department at the Dana-Farber Cancer Institute and department of immunology at Harvard Medical School, has published extensively on beta cell regeneration and diabetes research. As the recipient of the ADA's Pathway to Stop Diabetes grant in 2020, Dr. Agudo has reasons to smile.

"We are in a very exciting moment. Recent clinical trials have demonstrated that we are capable of generating beta cells in the lab, which means there's potentially an unlimited supply of beta cells," Agudo says with the excitement obvious on her face. "I do believe this is going to happen in the near future. All patients could potentially be cured."

Diabetes is sometimes described as a beta cell disease. For people with type 1 diabetes, their bodies attack beta cells, which produce the insulin needed to convert food into energy. For people with type 2 diabetes, their bodies are unable to produce enough insulin or the insulin does not function properly.

"We know that replacing the beta cells works, which is amazing, but they require immune suppression that puts the recipient at risk for things like COVID and cancer," says Dr. Agudo. "So, the next frontier is finding ways to protect the islets from being attacked. We need to be clever and discover how to outsmart the immune system."

> The long-term objective of our work is to make islet/beta cell transplant a feasible and safe reality, by ensuring that these precious cells, once in the patient, are not killed by immune cells.

The Pathway grant—the crown jewel in the ADA's research portfolio—has provided Dr. Agudo with the resources to develop strategies to ensure the survival of transplanted or regenerated beta cells, by effectively and safely cloak them from immune cells.

The Pathway grant became a launchpad for Dr. Agudo's research career, as her training began with a doctorate in beta cell regeneration followed by a post-doctoral fellowship in immunology at Mount Sinai Medical Center in New York.

"When I started my own lab with the Pathway grant, I was able to combine my knowledge in immunology with my background in beta cell biology. What we are trying to do is examine the one beta cell that survived and find out how and why it worked," says Dr. Agudo, "A potential risk of engineering islets is the possibility of changing them so much that they are no longer functional."

Part of Dr. Agudo's research with immunotherapy has involved looking at cancer cells. "Cancer cells are very cunning and they actually find ways to escape from immune recognition. We can learn a lot from how tumor cells escape from immune recognition and apply this to precious, vulnerable islets."

One of the greatest advantages of being a Pathway scientist is access to the Mentor Advisory Group, a group of eminent scientists from diabetes research fields. Dr. Agudo's mentor is Andrew Stewart, MD, Director of Diabetes, Obesity & Metabolism Institute, at the Icahn School of Medicine at Mount Sinai in New York City.

"I had read so many of Andy's papers as a PhD student and had always admired his work," she says. "I was so honored as a Pathway recipient to have the opportunity to work with him given his expertise in beta cell engineering and a track record of successful people that have come out of his lab. He has been super generous with his time and connected me with many people in the field... many more discussions and collaborations, which make my work even more exciting." Dr. Agudo says.

Dr. Agudo is a visionary who does not hesitate to chase potential, life-altering solutions and will not stop until she finds the solution to protecting beta cells from attack. "Imagine if we had a factory of islets, an off-the-shelf therapy that we could give to everyone with diabetes." The Pathway grant is bringing Agudo closer to this vision.

New Pathway Award Recipients



Anna Kahkoska, MD, PhD

University of North Carolina at Chapel Hill

Project Summary: Psychosocial and behavioral interventions (interventions with psychological, educational, behavioral change, and peer support components) can support individuals living with type 1 diabetes (T1D) to attain their best health and wellness outcomes. Yet, even when new interventions are successful in clinical trials, it is notoriously challenging to implement and sustain them in the busy clinical settings where patients receive their routine T1D care.

This proposal aims to learn how to translate evidence-based psychosocial and behavioral interventions into routine care where they will support people living with T1D. The research strategy proposes combining scientific methodology from the fields of implementation science, quality improvement, and precision medicine in a translational pipeline. The early pipeline swiftly implements new evidence-based guidance within routine care, while the latter part rigorously tests how well they work and for whom. The use case to test the pipeline will focus on diabetes distress in adults with T1D. This pipeline can be reused to transform type 1 diabetes care, at scale, by translating other evidence-based psychosocial and behavioral interventions in clinical settings.



Lisa R Beutler, MD, PhD

Northwestern University Medical School

Project Summary: Sugary beverages are a major contributor to the diabetes and obesity epidemics, but the mechanisms underlying this connection remain poorly understood. Specifically, it is unknown how chronic overconsumption of sugar compared with the chronic overconsumption of fat changes neural responses to food intake and satiation signals that may lead to the development of obesity or diabetes.

Understanding how diet changes neural dynamics is critical for developing novel approaches to prevent and treat these diseases. Neuromodulatory therapies that harness the ability of the nervous system to control appetite and blood glucose hold tremendous promise in this arena, and not knowing which neural populations to target and how to modulate them remain a major barrier to their implementation. This project seeks to change that and aims to enhance understanding of how nutrition impacts brain function, determine how this goes awry during the development of obesity and diabetes, and identify neural targets for preventing and treating these diseases.

Centers for Diabetes Translation Research



> ADA's partnership and financial support of the CDTRs' pilot and feasibility projects significantly leverages the federal investment in research and helps to grow the science of diabetes and health equity research, as well as nurture the careers of future leaders in the field . . . . Making strategic investments in these areas are critically important for building evidence-based solutions to diabetes care and prevention for everyone.
>
> – Pamela L. Thornton, PhD
> *Director of the CDTR Program, NIDDK*

The ADA proudly partners with the Centers for Diabetes Translation Research (CDTRs), a program funded by the National Institute of Diabetes and Digestive and Kidney Diseases at the National Institutes of Health.

CDTRs aim to improve the translation of research findings related to diabetes prevention, treatment, and health equity by supporting research across the translational spectrum. They present opportunities to leverage government funding while investing in and mentoring early-stage investigators.

CDTRs are organized as diverse multidisciplinary and multisectoral partnerships that include academia, community health centers, human service agencies, and other organizations. The ADA supported the following Pilot and Feasibility projects in 2022 to advance research in health disparities and health equity through highly specialized technical expertise as well as support research resources to established and early-stage investigators.

For more information about the CDTR program, visit https://www.diabetes-translation.org/.



Award Cycles

SPRING CYCLE

RFA Launch: **April**

Submission Deadline: **June**

Scientific Review: **July - October**

Projected Start Date: **Sept 1 or Nov 1**

FALL CYCLE

RFA Launch: **September**

Submission Deadline: **November**

Scientific Review: **Nov - May**

Projected Start Date: **April 1 - July 1**

*Cycles contingent on availability of funds.

PATHWAY CYCLE

RFA Launch: **March**

Submission Deadline: **August**

Scientific Review: **August - November**

Projected Start Date: **December**

Review Process

Grant Review Panel
Each grant is reviewed by three external panel members. Reviewers are experts in the diabetes field and are carefully selected based on their areas of expertise.

Review/Score
Reviewers are provided all applicable application information and carefully review and score each assigned to them. Preliminary round status depends on scores.

Finalists
Final round applications will be reviewed by the full review panel selected for each RFA.



Award
Once final scores are determined, ADA selects the highest ranked applications for funding. At this point, all applicants will be sent Final Status Notifications, including reviewer comments. The number and percentage of applications accepted for funding each round depends on the number of applicants and funds available.

Notification
All applicants will be notified of their application decision.

Pathway Mentor Advisory Group

Pathway scientists are selected by a Mentor Advisory Group—an assemblage 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/Advisors will provide ongoing scientific and career advice to Pathway scientists throughout the duration of the awards, creating a challenging and collaborative environment in which transformative science can thrive.



"The ADA gave me one of my first research grants. That support set the stage for my work for the next 10-15 years, helping me move from basic science to translational research. It also showed me the importance of having mentors. This is why mentorship remains a priority in my career."

– Jane Reusch, MD

University of Colorado Anschulz Medical Center
2022 Research Policy Committee Chair &
ADA Mentor

American Diabetes Association.
Connected for Life.

2022 New Grant Recipients

American Diabetes Association.
Connected for Life

Research Overview

We at the ADA have a strong commitment to research and have been at the forefront of landmark studies leading to making diabetes a disease that we can treat and often prevent. We remain committed to providing critical funding to support innovative scientific discovery that translates to better treatment, healthier lives, and eventual cures.

Since starting research funding in 1952, we have invested approximately $950 million in innovative studies. While we have learned much, there is much left to discover about diabetes.

Today, our research investments are targeted to solve problems critical to people with diabetes. These include reducing unjust health disparities, achieving better outcomes through nutrition and lifestyle, making precision medicine and targeting treatments feasible in a disease that impacts the whole body. We are also excited to relaunch the impactful Pathway to Stop Diabetes® research program, which invests in the next generation of bold innovators in diabetes.

We remain dedicated to supporting all of the key aspects of research that have been part of our commitment for decades: funding for early career investigators, fostering the next generation of leaders and; support for investigator-initiated research, generating discoveries that will bring us effective new treatments and paths to a cure.

In 2022, we awarded new research grants on the topics below. These topics not only align with ADA's mission but will have a significant impact on improving the health outcomes of people with diabetes or prediabetes. Each topic offers three funding levels–postdoctoral fellows, junior faculty, and faculty at any level.







2022 Precision Medicine Research

Precision medicine is the ability to identify the right treatment, for each patient, at the right time. ADA is investing in research that will generate new insights into factors underlying diabetes, illuminating the differences in how diabetes presents, its variable prevalence, and best practices in clinical care across different populations.



"ADA funded my first research proposal to investigate the mechanism leading to diabetic ketoacidosis in obese African Americans. This grant served as the springboard to a successful academic career helping me build a strong research team. Twenty years later, this research has contributed to the training of more than ten endocrinology fellows and junior faculty members, and it continues to be an active focus area for our group.

– Guillermo Umpierrez, MD, CDCES
Emory University
2022 President of Medicine & Science, ADA



Kimberly Alonge, PhD
University of Washington



Michael Bancks, PhD
Wake Forest University Health Sciences



Karen Cerosaletti, PhD
Benaroya Research Institute at Virginia Mason



Campus

Richard Benninger, PhD
University of Colorado Anschutz Medical



William G. Chang, MD, PhD
Yale University School of Medicine



Howard W. Davidson, PhD
University of Colorado Denver



Lukasz Szczerbinski, MD, PhD
Massachusetts General Hospital



MD Imam Uddin, PhD
Vanderbilt University Medical Center



Tiansheng Wang, PharmD
University of North Carolina at Chapel Hill



Anas El Fathi, PhD
University of Virginia



Uta Erdbruegger, MD
University of Virginia



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



Ivan Jozic, PhD
University of Miami



Jenny Kanter, PhD
University of Washington



Aaron Leong, MD, MSc
Massachusetts General Hospital



William Holland, PhD
University of Utah



Phyo Htoo, MD, PhD
Brigham and Women's Hospital



Mark Huising, PhD
University of California, Davis



Orhan Öz, MD, PhD
UT Southwestern Medical Center at Dallas



Julia K Panzer, PhD
University of Miami School of Medicine



Udit Parekh, PhD
Stanford University School of Medicine



Josep M Mercader, PhD
Broad Institute, Inc



Susanne Mohr, PhD
Michigan State University



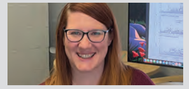
Rochelle Naylor, MD
The University of Chicago



Magdalena Sevilla-Gonzalez, PhD
Massachusetts General Hospital



Anu Sharma, MD
University of Florida School of Medicine



Cassandra Spracklen, PhD
University of Massachusetts Amherst



Wei Perng, PhD
Colorado School of Public Health



Marcus Pezzolesi, PhD
University of Utah



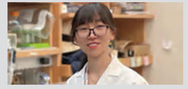
Matthew Poy, PhD
Johns Hopkins University School of Medicine



Yong-Xu Wang, PhD
University of Massachusetts Medical School



Yue Wang, PhD
Florida State University



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

2022 Health Disparities Research

These projects include behavioral, social, biomedical, and structural approaches,to prevent health disparities or improve outcomes among underserved communities



Rosa Arriaga, PhD
Georgia Institute of Technology



Aprill Dawson, PhD
Medical College of Wisconsin



Mary de Groot, PhD
Indiana University



Taressa Fraze, PhD
University of California, San Francisco



Alona Furmanchuk, PhD
Northwestern University Medical School



Jaclynn Hawkins, PhD
University of Michigan

Michelle Litchman, PhD
University of Utah

Kelly Palmer, PhD
University of Arizona

Melissa Santos, PhD
Connecticut Children's Foundation

Janet Snell-Bergeon, PhD
CU Anschutz Medical Campus

Yuqing Zhang, PhD
University of Cincinnati

2022 Nutrition & Lifestyle Research

These projects seek to develop person-centered, yet scalable, dietary and lifestyle interventions with the greatest potential for adoption and maintenance of diabetes-preventing or diabetes-mitigating lifestyles by individuals at greatest risk.

Katherine Baucom, PhD
University of Utah

Nadine Budd Nugent, PhD
Gretchen Swanson Center for Nutrition

Carolina Casellini, MD
Eastern Virginia Medical School

Samantha Ehrlich, PhD
University of Tennessee

Jennifer Falbe, PhD
University of California, Davis

Megan Gray, MD
University of Texas, Austin

Michele Heisler, MD
University of Michigan

Laureen Smith, PhD
The Ohio State University

Lu Hu, PhD
New York University School of Medicine

James Landay, PhD
Stanford University

Belinda Lennerz, MD
Boston Children's Hospital

Frank Materia, PhD *The Children's Mercy Hospital*

Josiemer Mattei, PhD
Harvard University

Wanda Nicholson, MD
University of North Carolina at Chapel Hill

Natalie Ritchie, PhD
Denver Health and Hospital Authority

Stephanie Samuels, MD
Yale University School of Medicine

Katherine Sauder, PhD
University of Colorado

Grace Shearrer, PhD
University of Wyoming

Brittany Smalls, PhD
University of Kentucky

Felicia Steger, PhD
University of Kansas Medical Center

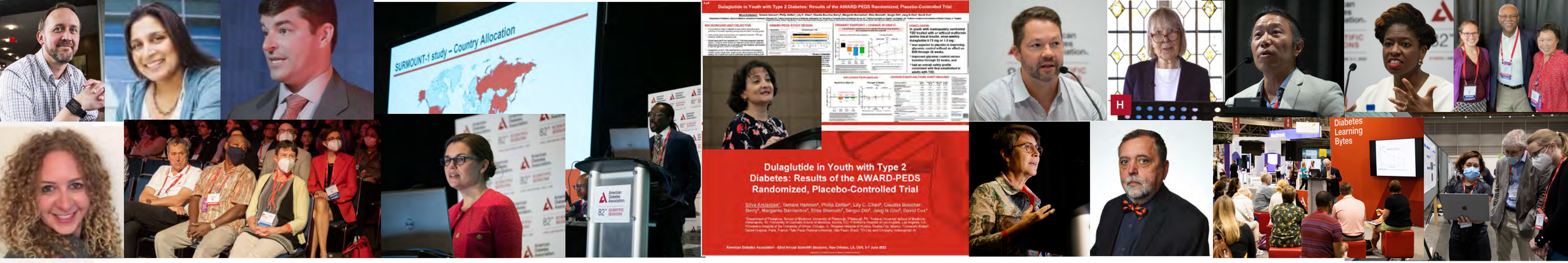
Sarah Stotz, PhD
Colorado School of Public Health

Deirdre Kay Tobias, DSc
Brigham and Women's Hospital

Alaina Vidmar, MD
Children's Hospital Los Angeles

Windsor Westbrook Sherrill, PhD
Clemson University

Holly Willis, PhD
HealthPartners Institute



2022 Scientific Sessions

After a two-year hiatus, ADA hosted the 82nd Scientific Sessions in New Orleans, LA in June 2022. The ADA Scientific Sessions is the world's premier meeting for diabetes professionals with a broader reach than ever with in-person and hybrid options for attendees. The latest scientific findings in diabetes research, prevention, and care were shared through nearly 900 live presentations, 1,200+ published posters, and 80+ exhibitors, in addition to providing in-person networking opportunities for professionals from 116 countries.

The 82nd Scientific Sessions launched with the Pathway Symposium, which highlighted two studies funded by the ADA Pathway to Stop Diabetes® research program: Michael L. Stitzel, PhD, The Jackson Laboratory, and Sumita Pennathur, PhD, UC Santa Barbara. Dr. Stitzel's team completed the largest single-cell genomic analysis to date, representing the largest, both in number of cells studied and number of people without diabetes, people with prediabetes, and people with type 2 diabetes. Dr. Pennathur presented on her research towards a painless, minimally invasive, low cost, calibration-free, insulin pump-compatible continuous glucose monitor (CGM), which aims to address the painful, invasive, and cumbersome nature of current products on the market, as well as improved sensitivity needed for real-time insulin dosing.

Several studies at the Scientific Sessions addressed the impact of COVID-19 on the diabetes community. A new study by Jessica L. Harding, PhD, Emory University, found that individuals with diabetes are up to four times more likely to develop Long COVID-19—a daunting reminder of how important scientific research is in changing the health outcomes of people with diabetes.

A major theme at the 82nd Scientific Sessions was incretin-based therapies to treat diabetes and obesity, as well as provide kidney protection. Two major trial results were presented with the simultaneous publication of papers in the New England Journal of Medicine. Findings from the SURMOUNT-1 trial reported that tirzepatide, a recently approved FDA drug, may be a potential therapeutic option for individuals living with obesity. Trial participants lost 16%-22.5% of their starting weight and lowered their A1C to the non-diabetic range.

Results from the AWARD-PEDS trial showed that dulglutatide was superior to placebo in improving glycemic control in trial participants ages 10-18. These findings, also published in the New England Journal of Medicine, represented a potential breakthrough in the pediatric diabetes space, as cases of type 2 diabetes among youth have more than doubled since the pandemic.

Other studies highlighted the importance of bridge the gap between clinical advances and clinical practice. The work of Alexander Blood, MD, at Brigham and Women's Hospital reported that only one in six eligible people with diabetes were received the recommended therapy to reduce cardiovascular and renal risks. The ADA's Overcoming Therapeutic Inertia was created precisely to address these barriers and help promote the adoption and integration of practice guidelines to ensure timely prescription and intensification of therapy as needed.

Other highly anticipated presentations were on diabetes technologies. Boris Kovatchev, PhD, University of Virginia, reported on the real-world data of 20,000+ Control-IQ users with type 1 or type 2 diabetes. These individuals demonstrated an overall improvement with average Time in Range of 71% after three months on the system. Martin de Bock, MD, Otago University, readout topline results from the six-month CREATE trial, which was the first-ever randomized controlled trial comparing open-source AID with sensor-augmented pump in 97 participants with type 1 diabetes. Study results showed that participants on OpenAPS systems had a mean adjusted treatment effect of +3.4 hours/day Time in Range compared to the SAP arm (71% vs. 55%), which was encouraging data to provide another treatment options for people with diabetes.

Despite the technology advances, researchers presented that alarmingly severe hypoglycemia persists in people with type 1 diabetes. Jeremy Pettus, MD, UCSD School of Medicine, reported that despite improvement in glucose management with CGMs, 40% of overall study participants on CGM did not reach their A1C goal.

The Scientific Sessions also provided a forum to recognize and celebrate individuals whose accomplishments have significantly changed the lives of people with diabetes. The 2022 Banting Medal for Scientific Achievement Award, the highest scientific award of the ADA, was conferred on (H) Frances Ashcroft, PhD, University of Oxford. Dr. Ashcroft with Professor Andrew Hattersley discovered that KATP channel serves as the molecular link between changes in blood-glucose concentration and insulin secretion, and that mutations in KATP channel genes cause neonatal diabetes. This finding has allowed physicians to switch from insulin injections to drug therapy, changing the lives of these individuals.

Joining Dr. Ashcroft(H) in this celebration were the following 2022 Award Winners:

Outstanding Scientific Achievement Award
Anna L. Gloyn, DPhil

Albert Renold Award
Jane E. B. Reusch, MD

Outstanding Achievement in Clinical Diabetes Research Award
Hertzel C. Gerstein, MD, MSc, FRCPC

Outstanding Educator in Diabetes Award
Amy Hess-Fischl, MS, RDN, LDN, BC-ADM, CDCES

Outstanding Physician-Clinician in Diabetes Award
Janet B. McGill, MD, MA, FACP

Kelly West Award for Outstanding Achievement in Epidemiology
Jill M. Norris, MPH, PhD

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An exciting itinerary is in store with new innovations, such as dynamic panel discussions and debates, interactive ask-the-experts sessions, and audience polling.

Registration is open at https://corereg.cmrus.com/ada2023

Milestones in Diabetes Research

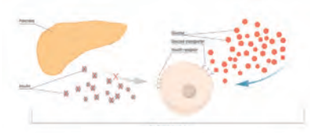
1940s

April 2, 1940
Diabetes care has changed significantly since ADA was founded in 1940, with new medicines, devices, and technologies emerging practically every year. Over the same time period, people with diabetes have proved they're capable of amazing things, refused to be defined by their diabetes, and continually pushed for better tools, care, and medicines.



1941
ADA host the first Annual Scientific Session.

American Diabetes Association. | 1ST SCIENTIFIC SESSIONS



1950s



1952
ADA funds its first research grants.

1959
Distinction between type 1 and type 2 diabetes established.

1960s



1963
The first wearable insulin pump, which delivers both insulin and glucagon, is developed. At this point, the pump's still a prototype—it's the size of a large backpack.



1966
The first successful pancreas transplant is performed.



1964
The Ames Company introduces Dextrostix, the first test strips that use a drop of blood to measure glucose levels, providing real-time information about blood glucose levels.

1970s

1973
A1c test developed.



1981
The first at-home blood glucose monitor becomes available.



1980s



1982
The first successful pancreas transplant is performed.

1990s

1993
Diabetes Control & Complications Trial results spurs interest in developing devices to manage glucose control.

DCCT Diabetes Control and Complications Trial

American Diabetes Association. Safe at School

1999
First Safe at School law passes to create a safer environment for kids with diabetes.



1989
ADA publishes first Standards of Medical Care in Diabetes.

2000s

1999/2000
Edmonton Protocol study, led by James Shapiro, MD, PhD, and others, suggests islet replacement therapy can free people with T1D from daily insulin injections fueling cell-based therapy development.



2002
US Diabetes Prevention study results reinforce earlier data showing how a healthy lifestyle can reduce risk of diabetes.

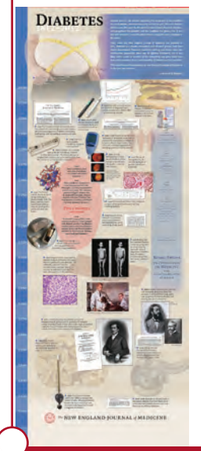




2015 - now
Diabetes technologies ease disease management and improve glycemic control.

2010s

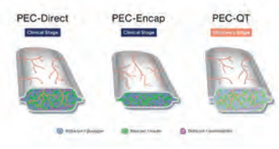
2014
NEJM study reports significant reduction in diabetes complications due to clinical advances.



2020s

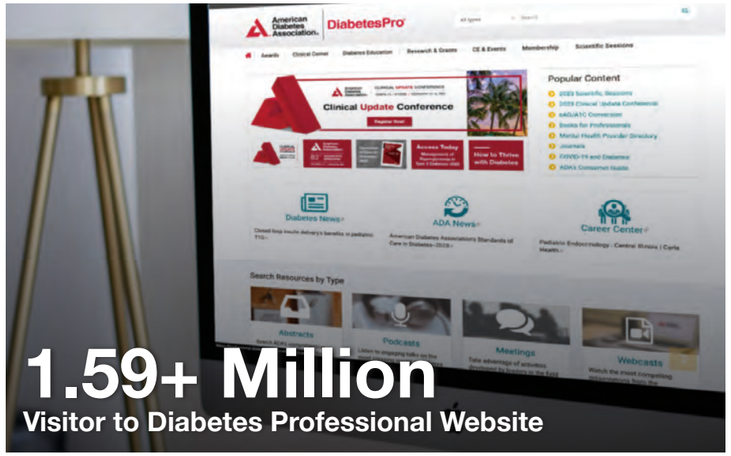
2022
FDA approves first drug shown to delay type 1 diabetes.





2018 - now
Multiple biotech/pharma companies enter clinical trials with islet replacement therapies to "cure" diabetes.

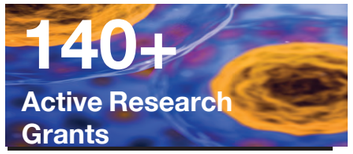
ADA by the Numbers

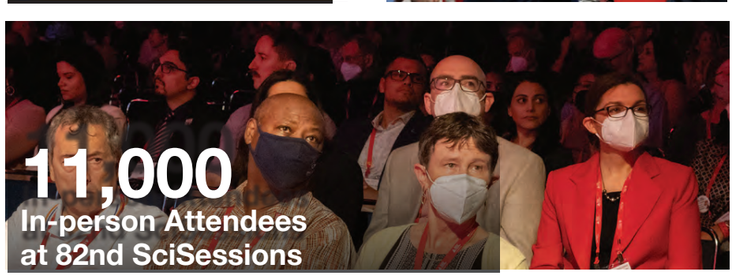




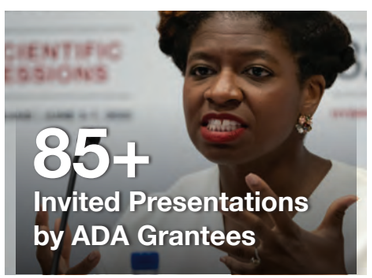




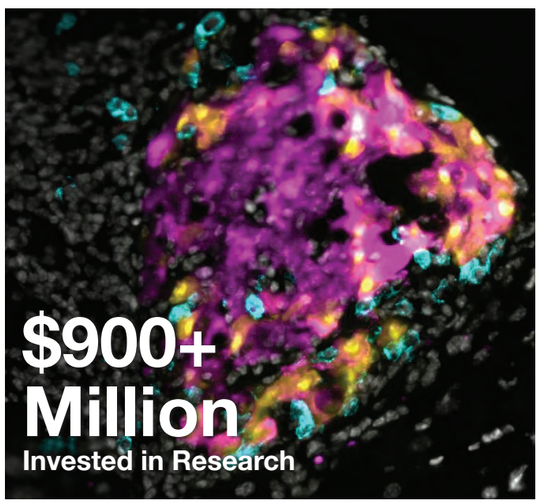












2022 ADA Research Policy Committee

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Vanderbilt University

Mary De Groot, PhD
Indiana University

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Alessandro Doria, MD, PhD, MPH
Joslin Diabetes Center

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Emory University and Indiana University

David Maahs, MD
Stanford University and The Lucile Packard Children's Hospital

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Judith G. Regensteiner, PhD
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University of Virginia

Kevin Jon Williams, MD
Temple Health



"ADA funded the first clinical research study I designed to unveil the role of cardiovascular autonomic dysfunction and oxidative stress pathways as mechanisms driving higher the cardiovascular risk in diabetes. The ADA funding was crucial in acquirig sound evidence that enabled my future success in acquiring independent funding from the National Institutes of Health and other organizations.

Rodica Pop-Busui, MD, PhD
University of Michigan
2023 President of Medicine & Science, ADA


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