

# Pathway Newsletter

August 2019

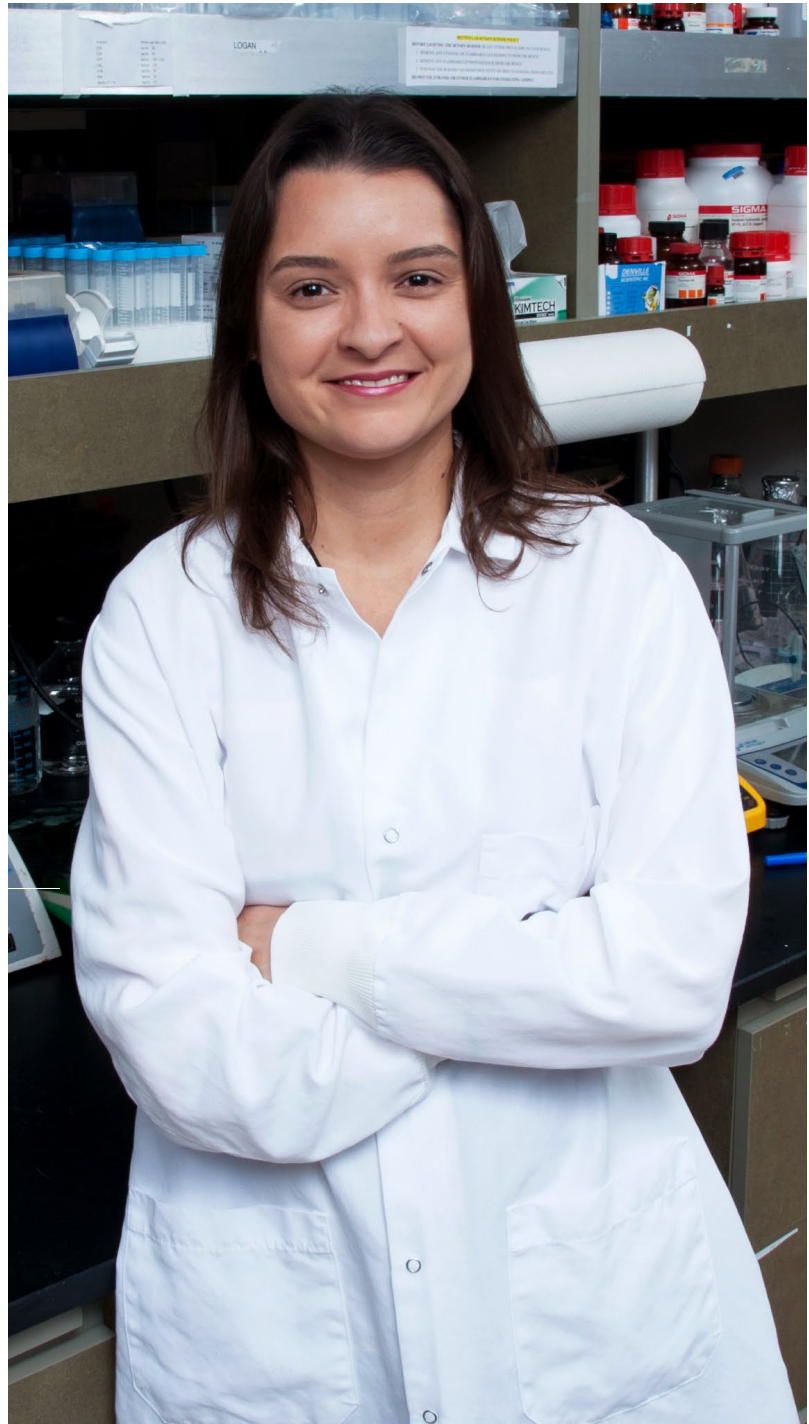
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## Pathway to Stop Diabetes®

Pathway to Stop Diabetes® is one of the most unique and innovative programs designed to support research and scientific careers. The trend in research today is to invest in a specific technology or pathology. But diabetes is a complex disease with multiple challenges. Pathway focuses on attracting the most creative and brilliant minds to diabetes research and then helps them pursue discoveries, creating a human Pathway to transformative science. Pathway scientists are the next generation of diabetes research leaders, inspiring fellow scientists, and, as you will read, each other (continue reading on page 5).



Stephanie Stanford, PhD  
2015 Initiator awardee

## **Pathway Scientist Research Update: Zachary A. Knight, PhD**



“ **This award has been very important to my career.** Scientifically it has allowed my lab to do key experiments that otherwise would have not been possible, because we would not have had funding for essential equipment and personnel. This in turn has resulted in new discoveries that have transformed our understanding of the neural mechanisms that govern appetite and body weight. Professionally, this award has allowed me to get to know and interact with leaders in the field of diabetes research, resulting in new collaborations and friendships. I am tremendously grateful for the opportunities that have resulted from this award.”

—Zachary A. Knight, PhD  
2016 Accelerator awardee  
University of California, San Francisco

Obesity is the single greatest risk factor for the development of type 2 diabetes. A major obstacle to the development of safe and effective anti-obesity therapies is a lack of information about the origin of obesity—i.e. the specific site in the brain where environmental or dietary signals override the energy homeostasis system and induce weight gain. In 2016, Dr. Knight received a Pathway Accelerator award to address this knowledge gap. Through the use of new technologies for visualizing and manipulating brains circuits, he sought to investigate the key neurons in the

mouse brain that control food intake. Now, Dr. Knight is making research advances towards this goal. In April of this year, he published a paper demonstrating a novel role for a molecule—Neuropeptide Y—in sustaining hunger during the time between when food is ‘discovered’ and when it is consumed. This research is important to build our understanding of how neural circuits regulate hunger. [You can read the complete article published in the journal eLife.](#)

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# **Scientist Spotlight: Maureen Monaghan, PhD, CDE**

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“**I have committed my career to improving the quality of life and health of youth with diabetes.** I have worked for the past decade with youth with type 1 and type 2 diabetes and have seen the challenges that youth face as they leave the pediatric medical system and transition into adulthood and adult diabetes care. The Pathway program represents an unparalleled opportunity for me to refine and evaluate a theory-driven behavioral intervention to support diabetes self-management during the transitional period of late adolescence and young adulthood.”

—Maureen Monaghan, PhD, CDE  
2018 Accelerator awardee  
Children’s Research Institute, Children’s  
National Medical Center, Washington D.C.



As both a Certified Diabetes Educator and Licensed Psychologist, Dr. Maureen Monaghan is uniquely capable of understanding the trials and tribulations that children and adolescents face when dealing with the burden of diabetes management. Through her experience as a psychologist working one on one with adolescents in the clinic, Dr. Monaghan recognized significant gaps in her ability to help these kids deal with the challenges of managing a chronic disease. This was particularly true for adolescents preparing to transition to more independent self-care, in which they can no longer rely on help from a parent or caregiver.

Dr. Monaghan had ideas on how to address the challenge of transitioning to self-care, but she knew she would have to conduct research to definitively test these ideas. She received funding from several sources to evaluate self-care skills in youth with type 1 diabetes and identify specific risks and protective factors associated with behavioral adherence to medical regimens. Adherence is a critical aspect to improving outcomes in diabetes. Through this research, Dr. Monaghan identified specific areas of patient health communication that could potentially be improved.

*Continued >>>*

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# Scientist Spotlight: Maureen Monaghan, PhD, CDE (cont.)

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That’s where the Pathway program came into the picture. Dr. Monaghan wanted to expand her research program by conducting a large clinical trial to test different methods to improve communication between health-providers and patients, but she needed funding. In 2018, she received her Pathway Accelerator award, enabling her to carry this clinical trial forward. With her award, Dr. Monaghan is leveraging innovative technologies to improve youth communication skills and behaviors related to planning for diabetes visits, disclosing diabetes-related concerns, and optimizing glucose data review in preparation for the transition of adolescent patients to more independent self-care and the adult health care system.

“Results of the current study will inform strategies to engage in high quality communication with health care providers and help to prepare youth for adulthood and adult diabetes care,” said Dr. Monaghan. “It is my hope that this work will contribute to standards of care surrounding the transition to adult diabetes care, a high priority area for the diabetes community.”

Dr. Monaghan recently gave several presentations at the 79th Scientific Sessions. [You can view a copy of her poster here!](#)

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## Pathway Quick Stats:



**32**

researchers selected from over 600 nominations over the past six years



**9**

Pathway Initiator awardees have secured their first faculty positions



**120+**

publications, ensuring other scientists around the world know about and expand upon the work funded by Pathway to Stop Diabetes



**10**

patents filed, protecting intellectual property to translate discoveries into diabetes tools and cures

## **Pathway Scientists INSPIRE**

**Dr. Matthew Webber was awarded a Pathway Accelerator Award in January 2019.** Currently an Assistant Professor at the University of Notre Dame, his journey to becoming a Pathway scientist was inspired by a few important people.

Trained as a biomedical engineer, Dr. Webber has a passion for engineering new materials and devices to combat diseases. As a postdoctoral fellow at Massachusetts Institute of Technology, he trained with Professors Robert Langer and Daniel Anderson. Together, they developed one of the first demonstrations of a 'glucose-responsive insulin', a novel therapy which couples the potency of the insulin to blood glucose levels. Traditional insulins can be dangerous because they can cause blood glucose levels to fall too low, leading to an acutely life-threatening situation. As a result, many people with diabetes understandably take less insulin than recommended, potentially leading to poorer outcomes and diabetes-related complications. This new glucose-responsive insulin is more active when blood-glucose levels rise, and then reduces its activity when blood-glucose levels drop, limiting the risks of low blood glucose.

After finishing his Postdoctoral Fellowship at MIT, Dr. Webber moved to the University of Notre Dame to start his own lab focused on using biomedical engineering to innovate and develop improved therapies. Shortly after arriving at Notre Dame, Dr. Webber attended a seminar in which he listened to Pathway scientist Dr. Sumita Pennathur present her research and her personal inspiration: her daughter

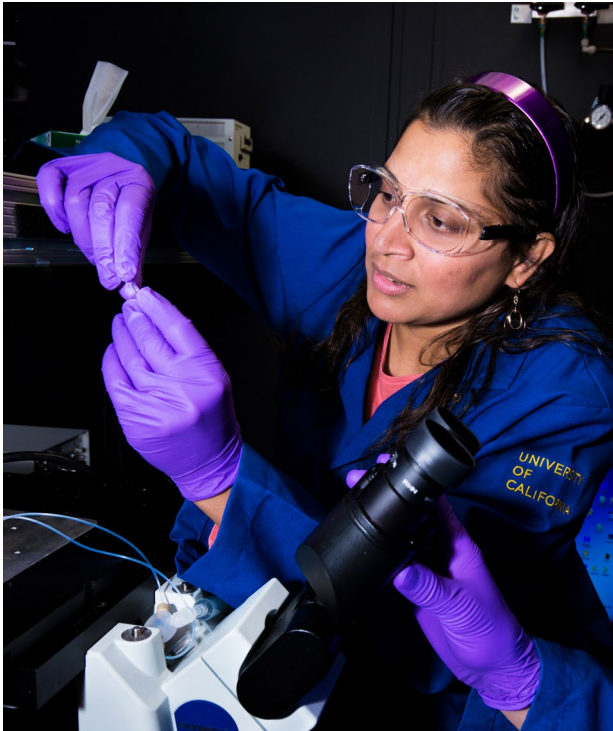


Matthew Webber, PhD  
2019 Accelerator awardee  
University of Notre Dame

with type 1 diabetes. Dr. Pennathur explained the constant anxiety and fears associated with having a child with type 1 diabetes, especially at night when blood glucose levels can drop to dangerous levels which are sometimes even lethal. Fear of these dangerous lows presents both a physical and psychological burden for child and parent alike.

*Continued >>>*

## **Pathway Scientists INSPIRE**



Sumita Pennathur, PhD  
2017 Visionary awardee  
University of California, Santa Barbara

After talking with Dr. Pennathur, Dr. Webber came up with an idea: what if he could create a therapy that senses glucose and automatically raises glucose levels when they drop too low? Dr. Webber began working on developing a ‘glucose-responsive glucagon’ molecule. In effect, this is the opposite of a glucose-responsive insulin: when blood glucose rises, it turns off, but when blood glucose levels fall, it turns on, automatically raising blood glucose levels to a safe range, even during sleep. After working to develop a molecule and collecting preliminary data, Dr. Webber submitted a Pathway proposal to bring to fruition a ‘glucose-responsive glucagon’ molecule. Now, he is actively working on this innovative solution to reduce the burden of diabetes for people with type 1 diabetes and their caregivers.

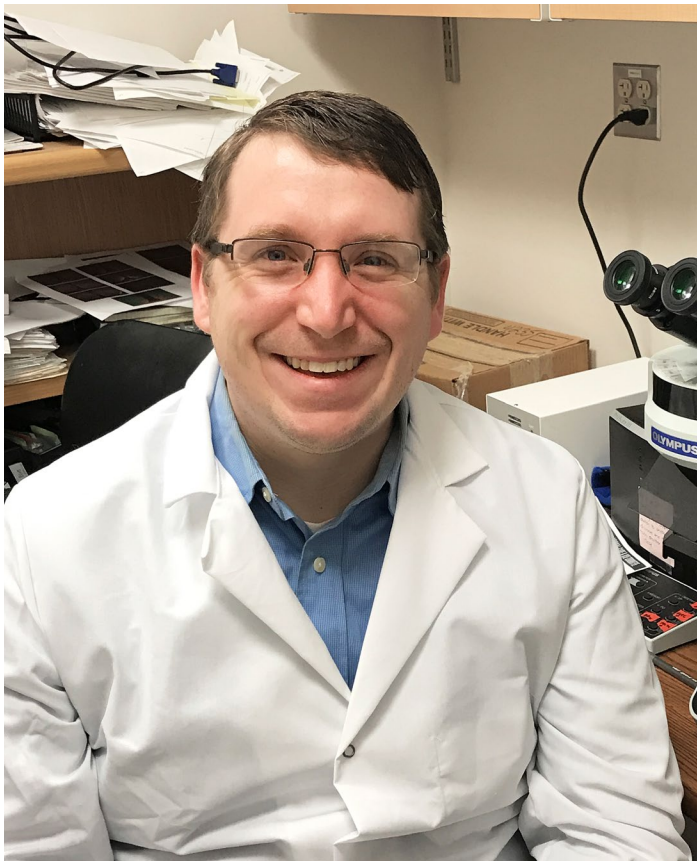
“The unique challenges presented by diabetes, specifically in the requirement that a therapy must address and adjust to normal fluctuations in blood glucose in real time, makes this disease the ultimate challenge in the context of engineering responsive therapies,” stated Dr. Webber. “This award will enable us to assemble a team and mount a sustained effort toward new technology addressing one of the most pressing unmet needs in the therapeutic arsenal for diabetes.”

Follow Dr. Webber’s lab on Twitter: [@WebberLab](https://twitter.com/WebberLab)

## **Jonathan Flak, PhD secures first faculty position**



Congratulations to Dr. Jonathan Flak—a 2017 Pathway to Stop Diabetes Initiator awardee researching hypoglycemia—for earning his first faculty position. Dr. Flak will be transitioning from his current institution, the University of Michigan, to Indiana University this fall to set up his lab dedicated to diabetes research.



“**The Pathway program has made my dream of becoming an independent academic scientist a reality.** Within the next few months, I will start my own lab that will focus on treatments that will target the brain in order to treat diabetes. Specifically, the Pathway program has provided ways to connect with many of the leaders in the field. When starting out in research, it is very difficult to distinguish yourself and this award definitely helps with that difficult aspect. I will continue to take advantage of every networking opportunity through the Pathway program. Receiving this grant has already opened doors that will move my career forward and will continue to do so over the next few years.”

—Jonathan Flak, PhD  
2017 Initiator awardee  
Indiana University

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# **Pathway is creating a new generation of diabetes research leaders**

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**Due to resource constraints, younger scientists are often locked out of funding opportunities by scientists who are already established in the field.** The NIH trend toward funding established researchers is a relatively recent development. In 1980, the average age of a first R01 recipient was 35. Today, it's 44. Early-career researchers—at the peak of their creativity—are finding research dollars scarce. The lack of funding and resultant lack of new talent are conspiring to threaten progress in diabetes research. We must reverse both trends.

Pathway is dedicated to developing the next generation of diabetes research leaders. With an average age of 37 for Initiator and Accelerator awardees, Pathway scientists are poised to be just that.

All nine Pathway Initiator scientists—awarded as postdoctoral fellows—have gone on to receive faculty appointments, a testament to the Pathway program and the brilliant diabetes researchers it funds.



**Michael D. Dennis, PhD**  
2014 Initiator awardee

Pennsylvania State  
University, Hershey

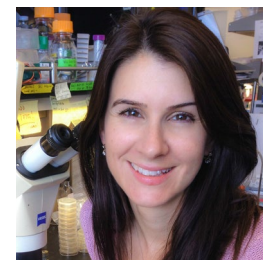
**Pennsylvania State  
University, Hershey\***



**Stephen C.J. Parker, PhD**  
2014 Initiator awardee

National Human Genome  
Research Institute

**University of Michigan**



**Celine E. Riera, PhD**  
2015 Initiator awardee

University of California,  
Berkeley

**Cedars-Sinai Medical Center**

\*Accepted an internal promotion at postdoctoral training institution



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**Pathway is creating a new generation of  
diabetes research leaders (cont.)**

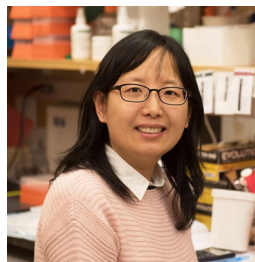
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**Stephanie Stanford, PhD**  
2015 Initiator awardee

La Jolla Institute of Allergy  
and Immunology

**University of California,  
San Diego**



**Sui Wang, PhD**  
2016 Initiator awardee

Harvard University

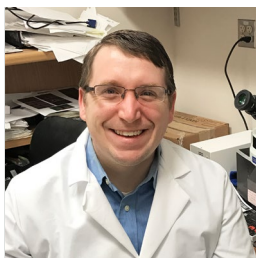
**Stanford University**



**Phillip James White, PhD**  
2016 Initiator awardee

Duke University

**Duke University\***



**Jonathan N. Flak, PhD**  
2017 Initiator awardee

University of Michigan

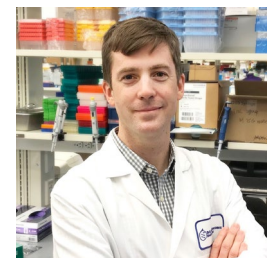
**Indiana University**



**Aleksandar D. Kostic, PhD**  
2017 Initiator awardee

Joslin Diabetes Center

**Joslin Diabetes Center\***



**John Nelson Campbell, PhD**  
2018 Initiator awardee

Beth Israel Deaconess  
Medical Center

**University of Virginia**

\*Accepted an internal promotion at postdoctoral training institution

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# **Pathway to Stop Diabetes featured at ADA's 79th Scientific Sessions**

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This year's Pathway symposium—which was attended by the Pathway Mentor Advisory Group, ADA leadership, and philanthropic and corporate supporters of Pathway—featured presentations from both new and graduating Pathway scientists. The three new award recipients were:



**Ebony B. Carter, MD**  
**Washington University in St. Louis**

Received a Pathway Accelerator Award for her clinical research project titled, “Targeted lifestyle change group prenatal care for obese women at high risk for gestational diabetes: a randomized controlled trial.”



**Sarah A. Tishkoff, PhD**  
**University of Pennsylvania**

Received a Pathway Visionary Award for her basic research project titled, “Genetic risk factors for diabetes in populations of African Ancestry.”



**Matthew J. Webber, PhD**  
**University of Notre Dame**

Received a Pathway Accelerator Award for his bioengineering project titled, “Hypoglycemic rescue with glucose-responsive glucagon delivery devices.”

The three Pathway graduates were:



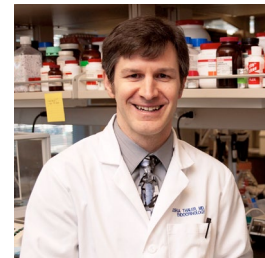
**Kathleen A. Page, MD**  
**University of Southern California**

Presented results from her Pathway Accelerator Award titled, “Neural mechanisms in maternal-fetal programming for obesity and diabetes.”



**Wolfgang Peti, PhD**  
**University of Arizona**

Presented results from his Pathway Visionary Award titled, “Novel, innovative insights into insulin signaling and regulation using NMR spectroscopy.”



**Joshua Thaler, MD, PhD**  
**University of Washington**

Presented results from his Pathway Accelerator Award titled, “Modulating glial-neuronal interactions to treat obesity and diabetes.”

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**Pathway to Stop Diabetes featured at  
ADA's 79th Scientific Sessions (cont.)**



Dr. Ebony Carter presents her project at the 2019 Pathway Symposium



Dr. Sarah Tishkoff answers a question from an audience member at the 2019 Pathway Symposium



Dr. Michael Stitzel presents his poster to attendees of the 2019 Pathway poster reception



Attendees to the 2019 Pathway symposium listen to a presentation from a Pathway scientist

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**Join us for the 80<sup>th</sup> Scientific Sessions in Chicago!**



# next stop **CHICAGO**

**June 12 – 16, 2020**  
**[scientificsessions.diabetes.org](http://scientificsessions.diabetes.org)**

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## **Thank you to the Werk family**

The American Diabetes Association Research Foundation is extremely grateful to the family of the late Dr. Emile Eugene Werk Jr. and Dorothy Rodgers Werk for their significant support of the Pathway to Stop Diabetes research initiative. Dr. Werk was an endocrinologist and professor of medicine who specialized in treating patients with diabetes. His distinguished career was devoted to clinical research, patient care and the training and education of new physicians. Mrs. Werk dedicated many years working as a hospital and mental health volunteer.



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### Welcome to Pathway's newest corporate sponsor, Becton Dickinson

BD is a global medical technology company that is *advancing the world of health* by improving medical discovery, diagnostics and the delivery of care. We welcome them as a sponsor in our mission to bring 100 brilliant scientists to diabetes research.



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## Support

# Pathway to Stop Diabetes

To learn more about Pathway and potential sponsorship:

### Corporations should contact:

**Tricia Cedotal**

tcedotal@diabetes.org

1-800-676-4065, ext. 2066

### Individuals and Family Foundations should contact:

**Elaine Curran**

ecurran@diabetes.org

1-800-676-4065, ext. 3413

To support online, visit [diabetes.org/supportpathway](https://diabetes.org/supportpathway).