ENDO 2023 CHICAGO, ILLINOIS JUNE 15 – 18, 2023

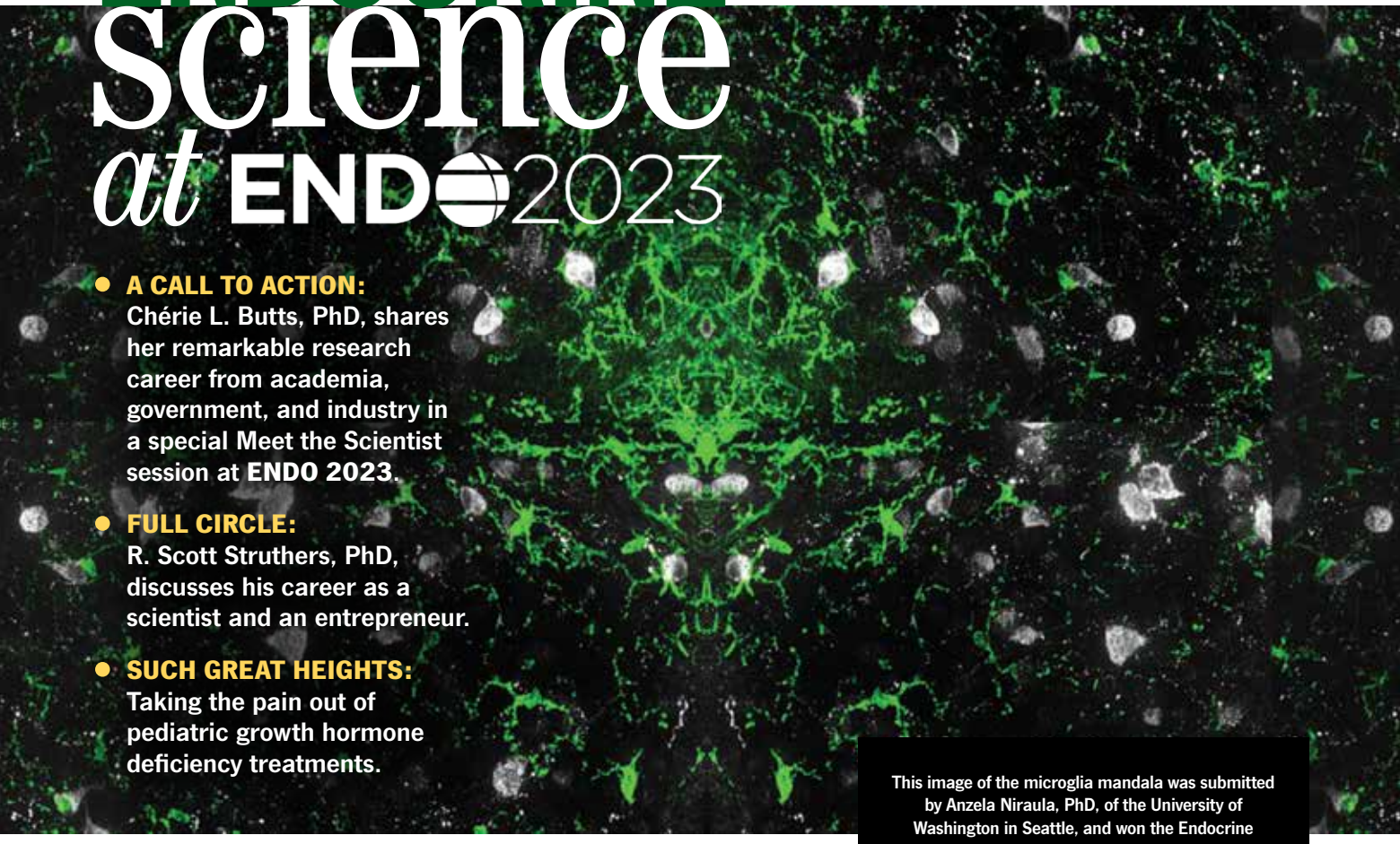
JUNE 2023

THE LEADING MAGAZINE FOR ENDOCRINOLOGISTS

Endocrine news

ENDOCRINE science at ENDO 2023

The Beauty and the Breakthroughs



- **A CALL TO ACTION:** Chérie L. Butts, PhD, shares her remarkable research career from academia, government, and industry in a special Meet the Scientist session at **ENDO 2023**.
- **FULL CIRCLE:** R. Scott Struthers, PhD, discusses his career as a scientist and an entrepreneur.
- **SUCH GREAT HEIGHTS:** Taking the pain out of pediatric growth hormone deficiency treatments.

This image of the microglia mandala was submitted by Anzela Niraula, PhD, of the University of Washington in Seattle, and won the Endocrine Society's 2023 Endocrine Images Art Competition, which celebrates the beauty of endocrine science.

POSTER PREPARATION POINTERS:
Early-career members share their research presentation tips.

FASCINATIN' [CIRCADIAN] RHYTHM
Q&A: Joseph Bass, MD, PhD, talks the science of sleep.

ENDOCRINE SOCIETY
Hormone Science to Health

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Pediatric growth hormone deficiency treatments could soon be painless

Fernando Cassorla, MD, is traveling from Chile to Chicago to present research at **ENDO 2023** that could potentially change the way pediatric hormone treatments are administered. If a pill could replace painful injections, patients and caregivers alike can finally wipe away their tears.

BY DEREK BAGLEY

ENDO2023 Previews

24 | Full Circle

Q&A with R. Scott Struthers, PhD, the Endocrine Society's 2023 John D. Baxter Prize for Entrepreneurship Recipienth

R. Scott Struthers, PhD, will see his career come full circle when he accepts the John D. Baxter Prize, which is named after one of his earliest mentors. He talks to *Endocrine News* about seeking therapies to cure endocrine diseases, the progress of some treatments currently in development, and how industry is strikingly similar to academia.

BY GLENDA FAUNTLEROY SHAW

30 | A Call to Action

Chérie L. Butts, PhD, Shares Her Career Path at ENDO 2023

Attendees at **ENDO 2023** will have the opportunity to hear a unique perspective on a scientist's career that flourished through academia, government, and industry. In her Meet the Scientist session, "A research career in government and industry, making sure drugs are safe and meaningful," Chérie L. Butts, PhD, will not only detail her own career, but she will emphasize how scientists can work across disciplines to create new therapies to improve human health.

BY KELLY HORVATH

IN THIS ISSUE

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ENDOCRINE SOCIETY
Hormone Science to Health

Setting the Tone for Endocrinology's Future Path

> **Your participation in grassroots campaigns and visits to policymakers has helped us raise awareness of the importance of biomedical research funding and the need to regulate endocrine-disrupting chemicals.**

The upheaval of the COVID-19 pandemic led many of us to rethink aspects of our lives. At the Endocrine Society, this period gave us the chance to rethink many of our traditional approaches. While we are proud of the Society's storied history, we balance that with continually thinking of new ways to serve you and to accelerate the growth of our field. It has been a privilege to lead our organization as we identify new ways to evolve and flourish.

Presiding over **ENDO 2023** in Chicago, Ill., will be a true highlight of the year for me. For more than a century, endocrine researchers and clinicians have shared ideas and networked at **ENDO**. Over the course of several years, we have collected input from attendees and members to see how our meeting can provide you with the most value.

As a result, our program this year emphasizes in-person networking, with events like the All-Attendee Social and the Special Interest Group and Early-Career Networking Reception. Our Basic Science Pathways and even our move to combine our **ENDO** store with the Society booth are all designed to provide environmental opportunities for you to start conversations with your peers.

To balance this approach, we recognize that our clinical members want to focus on education during our Endocrine Board Review and Clinical Endocrinology Update events. Those meetings will remain in a virtual format this year to meet members' needs.

As we consider our role in improving public health, few issues are more pressing than climate change. Our endocrine perspective can help shed light on how climate change is inextricably linked to diabetes and obesity. Heat and extreme weather can impact our food supply. If people could strike a better balance between meat-based and plant-based diets, we would be able to make a sizeable dent in greenhouse gas emissions and air pollution while improving public health.

Our **ENDO 2023** Presidential Plenary will delve into these issues. I'm proud to have been part of highlighting this important issue at **ENDO 2023** and in *The Journal of Clinical Endocrinology & Metabolism*'s editorial last year.

Speaking of our journals, this year we launched *JCEM Case Reports*. Our new online-only, open access journal publishes original clinical cases covering the entire spectrum of endocrinology worldwide. We created this journal in response to member demand. We recognize how important case reports are to your work, and we are excited to elevate them in *JCEM Case Reports*.

This year, we published two new Scientific Statements examining key issues in our field — hormones and aging, and the impact of health disparities on pediatric and LGBTQIA populations. Through these statements, we can lend our expertise to examine emerging scientific issues and identify areas where further research is needed.

We are continuing to find new ways to strengthen our leadership pipeline and recruit talented young professionals into the field of endocrinology. We are holding our first Endocrinology Mentor Day at **ENDO 2023** to drive medical students' and residents' interest in the field. We are engaging with the best and brightest and supporting underrepresented minority professionals entering in the field with our Excellence in Clinical Endocrinology Leadership (ExCEL) and Future Leaders Advancing Research in Endocrinology (FLARE) programs.

As I reflect on the past year, we have so much to take pride in, including our advocacy work. Seeing the United States pass legislation to cap insulin prices for seniors insured through Medicare was inspiring and rewarding. Your participation in grassroots campaigns and visits to policymakers has helped us raise awareness of the importance of biomedical research funding and the need to regulate endocrine-disrupting chemicals.

I am truly grateful to our dedicated member leaders who have contributed to our success. Our Executive Committee has provided invaluable support to me over the course of the past year. Many thanks to our presidential officers, immediate Past-President Carol Wysham, President-Elect Stephen Hammes, and Secretary-Treasurer Jeff Boord. I also want to express my gratitude to our board members for their vision, hard work, and dedication to the field's success.

Our CEO Kate Fryer is a valued partner in advancing the organization, and I am thankful for her steadfast support and leadership. She heads a talented and creative staff who have achieved amazing results in partnership with our dedicated members.

Thank you to all of you who, as members, lend your time and talents to ensure our continued success. I am honored to have served as your president. EN

– Ursula B. Kaiser, MD
President, Endocrine Society

FROM THE **EDITOR**

ENDO 2023
Returns to the Windy City!

Well, it's finally here: The Endocrine Society's first all in-person annual conference since we were in New Orleans for **ENDO 2019** has finally arrived as thousands of endocrine professionals from around the world descend on the Windy City for four days of cutting-edge science as well as the opportunity to network and reconnect with friends and colleagues.

This issue can serve as an unofficial show guide since it is primarily made up of highlights from various sessions featured at this year's annual conference. In one of **ENDO 2023**'s Meet the Scientist sessions, attendees will hear a unique perspective from Chérie L. Butts, PhD, medical director in the Therapeutics Development Unit at Biogen in Cambridge, Mass., where she leads clinical trial activities for neurodevelopmental disorders. In "**A Call to Action**" on page 30, she discusses her own career, which has flourished through academia, government, and industry, and emphasizes how scientists can work across disciplines to create new therapies for the greater good of improving human health conditions. Butts tells writer Kelly Horvath that this was not the career path she planned on, but it has allowed her to see the vast number of ways science is advanced and how she now wants to share that knowledge with everyone. "If we do not have individuals with a scientific background working in all parts of the healthcare ecosystem, we risk disinformation and misinformation permeating the general public and confusing them on basic principles, such as the importance of vaccines," she says, adding "We saw this with COVID-19." Don't miss Butts' seminar, "My Career Path as a Biomedical Researcher in Industry" on Thursday June 15, from 3:15 PM to 4:00 PM, in Room W-178A.

We hear from another endocrine scientist who has made his mark in industry, R. Scott Struthers, PhD, who received the Endocrine Society's 2023 John D. Baxter Prize for Entrepreneurship. When Struthers accepts the award at **ENDO 2023**, his career will have truly come full circle because Baxter was actually a friend and mentor of Struthers early in his career and knew him quite well. In "**Full Circle**" on page 24, Glenda Fauntleroy Shaw talks to Struthers about his friendship with Baxter and what receiving the award means to him at this point in his career, as well as his own life's work seeking out therapies to cure endocrine diseases as well as how a career in industry is surprisingly similar to academia. Be sure to see Struthers give his John D. Baxter Prize for Entrepreneurship Lecture: "Adventures Discovering

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Nonpeptide Oral Drugs Acting at Peptide Hormone Receptors" on Thursday, June 15 at 10 AM on the **ENDO** Main Stage at McCormick Place during **ENDO 2023**.

We are also featuring a prime example of the purpose of endocrine science when the therapies zoom past the idea stage, through the many laboratory experiments, and out into the world in the form of clinical trials. In "**Such Great Heights**" on page 20, senior editor Derek Bagley talks to Fernando Cassorla, MD, who is coming from Chile to Chicago to present research at **ENDO 2023** that could potentially change the way pediatric hormone treatments are administered. In what has the potential for another breakthrough in endocrine science, Cassorla remains extremely cautiously optimistic on this "promising area of research," stating that "these are lines of investigation that may pan out [or] they may not…" he says, adding "We'll see whether the preliminary data is confirmed by longer term data, but up to now, it looks quite promising." To get the details on this potential new therapy, be sure to hear Cassorla's oral presentation, "Dose Responsiveness of LUM-201 as Measured by Acute GH Response and IGF-1 and Annualized Height Velocity (AHV) Measured at 6 Months in the Interim Analysis of the OraGrowth212 Study in Idiopathic Pediatric Growth Hormone Deficiency (iPGHD)" on Saturday June 17, during the Oral Abstracts from 3:30 PM to 5:00 PM in the **ENDO** Expo Hall.

For anyone nervous about their first big poster presentation at **ENDO 2023**, we are devoting the debut of a new column, "Early-Career Corner," to helpful hints to make your nerve-wracking presentation go a little bit smoother. On page 34, Cheryl Alkon spoke to two first-time presenters for "**Poster Preparation Pointers**" who offer their own tips and advice for relieving some of the stress from presenting your research in a public forum for the first time. Early-career members Diana M. Dimayuga, MD, and PhD candidate Jewel Banik share what they learned when they presented their research last year at **ENDO 2022** in Atlanta.

I'm looking forward to seeing all of you in Chicago as we swarm McCormick Place once again. If you see me, be sure to say hello [I look like the photo above but maybe a tad more grey at the temples!]. EN

— **Mark A. Newman**, Executive Editor, *Endocrine News*

A Decade of Derek

If you see *Endocrine News* Senior Editor Derek Bagley in Chicago, be sure to congratulate him on his 10-year anniversary at the Endocrine Society. A consummate professional in every sense of the word, Derek has distinguished himself as one of the industry's top writers and reporters who covers endocrinology science and practice, and we are all lucky to have him on our team! Here's to another 10 years (I hope)!

At the March for Science in Washington, D.C., April 22, 2017, Derek got a quote from then-Endocrine Society President Lynette Nieman, MD.

BY DEREK BAGLEY
Senior Editor

Tirzepatide Safe and Tolerable in Treatment of Type 2 Diabetes, Researchers Find

Tirzepatide — the dual glucose-dependent insulinotropic peptide (GIP) and glucagon-like peptide-1 receptor agonist (GLP-1 RA) injection used to treat type 2 diabetes — is safe and has a tolerable adverse event (AE) profile in its role in the management of type 2 diabetes, and possibly obesity, according to a study recently published in the *Journal of the Endocrine Society*.

Tirzepatide was approved by the U.S. Food and Drug Administration (FDA) for the treatment of type 2 diabetes in May 2022. First author on the study Rahul Mishra, MBBS, a research fellow in the Department of Hematology and Oncology at the Cleveland Clinic, and corresponding author Rishi Raj, MD, of the Department of Endocrinology, Diabetes, and Metabolism at the Pikeville Medical Center in Pikeville, Ky., tell *Endocrine News* that because of that recent approval, it was crucial to evaluate the frequency of AEs reported across various clinical trials. "The purpose of this meta-analysis was to determine the combined rates of AEs associated with the administration of tirzepatide at the most frequently studied doses of 5, 10, or 15 mg," they say.

For this study, the researchers conducted a systematic review and meta-analysis that involved searching five major databases, namely PubMed, Embase, CINAHL, Scopus, and Web of Science. The analysis included a total of ten trials with 6,836 participants, and through meta-regression analysis, the researchers were able to provide more precise data on the incidence rate of individual AEs related to tirzepatide.

"Our findings revealed that gastrointestinal (GI) AEs were the most commonly reported AEs associated with tirzepatide use," Mishra and Raj say. "Specifically, these GI AEs included nausea, vomiting, dyspepsia, decreased appetite, diarrhea, and constipation. Interestingly, our results indicate that tirzepatide has a similar AE profile to GLP-1 RA. Furthermore, we did not find any surprising or alarming results, which indicates that tirzepatide is a safe drug with a tolerable AE profile."

> "It is important for healthcare providers to carefully evaluate each patient's medical history and individual risk factors when determining the appropriate dose of tirzepatide, and closely monitor for any adverse events."

And while the JES paper does note that drug discontinuation due to AEs was highest with the 15 mg dose of tirzepatide (10%), Mishra and Raj are careful to point out that they did not find a statistically significant difference in the incidence of AEs leading to treatment discontinuation (p = 0.248) with different dosages of tirzepatide and therefore cannot confirm whether reducing the dose would prevent treatment discontinuation. "Additionally, other factors such as patient characteristics and treatment goals should be considered when determining the appropriate dose of tirzepatide," they say. "Therefore, it is important for healthcare providers to carefully evaluate each patient's medical history and individual risk factors when determining the appropriate dose of tirzepatide, and closely monitor for any adverse events."

Indeed, these findings do speak to the value of individualized medicine, especially as tirzepatide moves beyond the scope of the treatment of type 2 diabetes. The drug has also been shown to be effective in glycemic control and reducing weight and has lately garnered significant interest as a potential weight loss medication. "As a result," Mishra and Raj say, "a surge in demand for tirzepatide by non-diabetic individuals is anticipated. A comprehensive understanding of the adverse event profile of tirzepatide in this patient population will be critical to ensuring its safe and effective use."

Researchers Observe Beta-Arrestin's Mechanism in GPCRs

Beta-arrestins attach themselves to outer cell membranes, waiting for hormones or neurotransmitters to land on receptors — an unexpected and surprising finding recently published in *Cell*.

Researchers led by Davide Calebiro, MD, professor of molecular endocrinology in the Institute of Metabolism and Systems Research at the University of Birmingham and co-director of the Centre of Membrane Proteins and Receptors (COMPARE) of the Universities of Birmingham and Nottingham point out that beta-arrestin is involved in controlling the activity of G protein-coupled receptors (GPCRs). GPCRs are major targets for drug development, and between 30% and 40% of all current therapeutics are against these receptors. Once the receptors are activated, beta-arrestins dampen the signal in a process called desensitization but can also mediate signals of their own.

For this study, Calebiro and his team used innovative single-molecule microscopy and computational methods they developed to observe for the first time how individual beta-arrestin molecules work in cells with unprecedented detail. Surprisingly, the interactions between beta-arrestins and active receptors are much more dynamic than previously thought, allowing for a far better control of receptor-mediated signals.

Calebiro likens beta-arrestins to air traffic controllers, sensing when receptors are activated by a hormone or a neurotransmitter to modulate the flow of signals within cells. By doing so, they play a key role in signal desensitization, a fundamental biological process that allows our organism to adapt to prolonged stimulation.

"Altogether, our findings redefine the current model of receptor-β-arrestin interactions by revealing a critical role of β-arrestin binding to the lipid bilayer for efficient β-arrestin interaction with receptors and for accumulation on the plasma membrane," the authors conclude.

"These results are highly unexpected and could pave the way to novel therapeutic approaches for diseases such as heart failure and diabetes or the development of more effective and better tolerated analgesics," Calebiro says.

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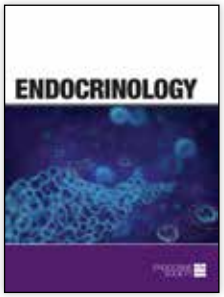


Mouse Study Hints at Specific Brain Receptor Behind PCOS Symptoms

Deletion of androgen receptors (ARs) in leptin receptor (LepRb) neurons improves estrous cycles, providing a possible therapeutic target for the symptoms of polysystic ovarian syndrome (PCOS), according to a mouse study recently published in *Endocrinology.*

Researchers led by Carol F. Elias, PhD, of the University of Michigan Medical School's Department of Molecular and Integrative Physiology, point out that mice with neuronal deletion of ARs are protected from development of anovulation, polycystic ovaries, and metabolic abnormalities on exposure to androgen excess. "However, the population of AR neurons that are adversely affected is still unknown," the authors write.

Elias and her team, as well as others, have previously shown that AR is highly expressed in LepRb neurons, particularly in the arcuate (ARH) and the ventral premammillary nuclei (PMv). For this study, researchers hypothesized that leptin could be a link between metabolism and reproduction, since a subpopulation of people with PCOS are more likely to have diabetes and obesity. "Owing to the role of leptin in reproductive and metabolic regulation, we hypothesized that LepRb neurons have a role in the reproductive dysfunction caused by hyperandrogenism in female mice," the authors write. "In this study, we examined if LepRb-specific deletion of AR protects against the development of reproductive dysfunction in a prenatal model of female androgen excess."

The researchers exposed mice that had androgen receptors deleted from leptin receptor neurons to excess androgens prenatally. These mice had improvement in some PCOS symptoms including regulation of their estrous cycles.

"In summary, our findings demonstrate that androgen action via AR in LepRb cells has an important role in the hyperandrogenism-induced anestrus of mice," the authors conclude. "They also strongly suggest a dissociation between the brain sites acting on the control of pubertal maturation and female cyclicity in mice."

First author Alexandra Cara, PhD, a former graduate student in the U-M Medical School's Department of Molecular and Integrative Physiology and current postdoctoral research fellow at the University of California, Los Angeles, says she hopes follow-up studies will explore androgen exposure around puberty, as this type of model tends to mimic the weight gain found in some people with PCOS.

"I hope these mouse studies can find better therapeutic targets for people with PCOS," Cara says. "The first intervention offered is lifestyle modification, like diet and exercise, but as anyone with the condition would tell you, that doesn't help everything." EN

"I hope these mouse studies can find better therapeutic targets for people with PCOS. The first intervention offered is lifestyle modification, like diet and exercise, but as anyone with the condition would tell you, that doesn't help everything."

Endocrine Society's New Scientific Statement Identifies Research Gaps in Pediatric, LGBTQIA Care

Reducing health disparities requires anti-oppressive policies and diversity in clinical studies.

In a new Scientific Statement released in May, the Endocrine Society identifies areas for future endocrine research to reduce health disparities in pediatric and sexual and gender minoritized populations.

This Scientific Statement expands the Society's 2012 statement by focusing on endocrine disease disparities in the pediatric and sexual and gender minoritized populations. These include pediatric and adult lesbian, gay, bisexual, transgender, queer, intersex, and asexual (LGBTQIA) people. The writing group focused on prevalent conditions such as growth disorders, puberty disorders, bone conditions, diabetes, and obesity.

"I am thrilled to see the Endocrine Society's commitment to equitable health care with this broadened Scientific Statement," says first author Alicia M. Diaz-Thomas, MD, MPH, pediatric endocrinologist at the University of Tennessee Health Science Center in Memphis, Tenn.

"This statement provides a foundation on which to build and grow our training, research, clinical, and advocacy endeavors in the area of endocrine health disparities," she adds. Diaz-Thomas serves as chair of the Society's Committee on Diversity & Inclusion.

Important findings from the statement include:

- Non-Hispanic white male youth are more likely to seek treatment for short stature than females and non-white children.
- Racially and ethnically diverse populations and male youth are underrepresented in puberty and bone mass studies.
- Racial and ethnic minoritized youth suffer a higher burden of disease from obesity and diabetes and have less access to diabetes technology and bariatric surgery.
- LGBTQIA youth and adults face discrimination and barriers to endocrine care due to bias in the healthcare system and policies limiting access to gender-affirming and gender expansive care.

Solutions from the statement are:

- Including more racial and ethnically diverse and LGBTQIA patients in clinical trials and clinical research studies related to growth, puberty, and bone health.
- Adopting policies that remove barriers to care for children with obesity and/or diabetes, and for LGBTQIA children and adults.
- Ensuring public health interventions include accurate population-level demographic and social needs data.
- Addressing the lack of diversity in the endocrine workforce

"As an adult endocrinologist, I am grateful to have been able to collaborate with leaders in pediatric endocrinology in the development of this statement. Adult endocrinologists often see the consequences of disorders that originated during childhood," says co-first author Sherita Hill Golden, MD, MHS, of Johns

Hopkins University School of Medicine in Baltimore, Md. "The findings and recommendations from the two scientific statements will enable us to ensure that our interventions to address endocrine health disparities are implemented across the life course."

The Society's *Eradicating Racism: An Endocrine Society Policy Perspective* is another helpful resource on health disparities that includes recommendations on diversifying the endocrine workforce.

The authors of the new statement are: Dana M. Dabelea of the University of Colorado Anschutz Medical Campus in Aurora, Colo.; Adda Grimberg of the Perelman School of Medicine at the University of Pennsylvania in Philadelphia, Pa.; Sheela N. Magge of Johns Hopkins University School of Medicine; Joshua D. Safer of Icahn School of Medicine at Mount Sinai in New York, N.Y.; Daniel E. Shumer of the

University of Michigan School of Medicine in Ann Arbor, Mich.; and Fatima Cody Stanford of Massachusetts General Hospital in Boston, Mass.

The Statement, "*Endocrine Health and Health Care Disparities in the Pediatric and Sexual and Gender Minority Populations: An Endocrine Society Scientific Statement,*" was published online in the Society's *Journal of Clinical Endocrinology & Metabolism.*

MEMBERS in the NEWS

Rexford Ahima, MD, PhD, Elected to the AAAS

Rexford Ahima, MD, PhD

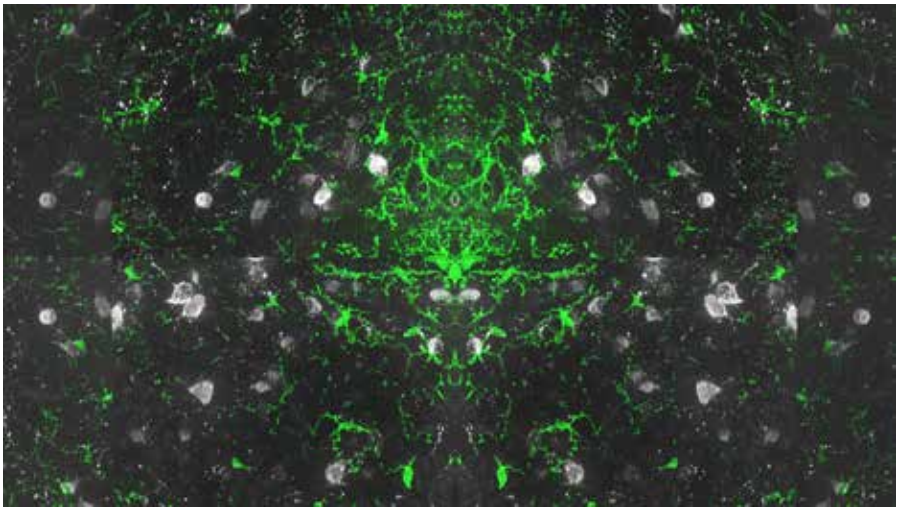
Endocrine Society member Rexford S. Ahima, MD, PhD, has been elected to the American Academy of Arts & Sciences (AAAS).

Ahima, director of the Division of Endocrinology, Diabetes, and Metabolism, and a professor of medicine at Johns Hopkins University School of Medicine, Baltimore, Md., is one of nearly 270 members elected in 2023 drawn from academia, the arts, industry, policy, research, and science, and include more than 40 International Honorary Members from 23 countries.

An at-large member of the Endocrine Society Board of Directors, Ahima has been a very active member, including stints on the Laureate Awards Committee, the Obesity Expert Panel, Diabetes Advisory Group, as well as on the editorial boards of *Molecular Endocrinology* and *Endocrine Reviews.*

Ahima received intercalated BSc research training in endocrinology in the Middlesex Hospital Medical School, University of London; his MD from the University of Ghana; and his PhD from Tulane University in New Orleans, La. After completing his internship and residency training in internal medicine at the Albert Einstein College of Medicine, Jack D. Weiler Hospital and Jacobi Medical Center in New York, Ahima did his clinical and research fellowship training in endocrinology, diabetes, and metabolism at the Beth Israel Deaconess Medical Center and Harvard Medical School in Boston.

Ahima is an elected member of the National Academy of Medicine (NAM), the American Society for Clinical Investigation (ASCI), the Association of American Physicians (AAP), and Interurban Clinical Club, and fellow of the American College of Physicians (ACP), the Obesity Society (TOS), and the American Association for the Advancement of Science.



Niraula Wins 2023 Endocrine Images Art Competition

Anzela Niraula, PhD, of the University of Washington in Seattle, won the Endocrine Society's 2023 Endocrine Images Art Competition for her image of the microglia mandala.

This contest celebrates the beauty of endocrine science, and entries were judged based on aesthetic value and significance to endocrine research.

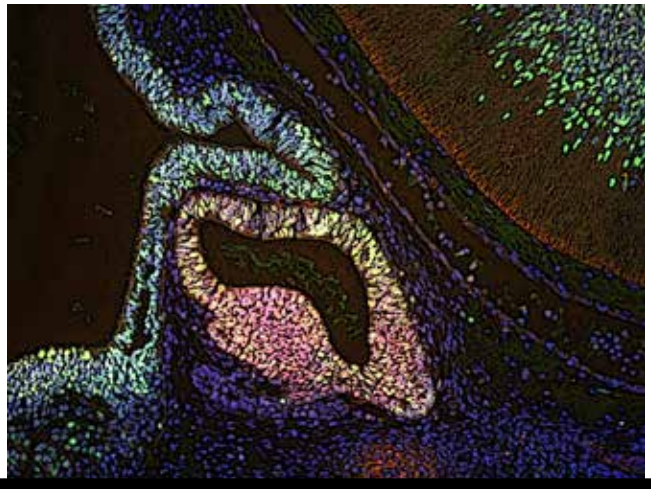
Niraula's image of the microglia won the grand prize this year out of more than two dozen entries. The image shows microglia and POMC neurons in close proximity within the arcuate nucleus of the hypothalamus. Microglial regulation of POMC neurons holds significant implications for the pathogenesis of obesity and diabetes. Niraula has accepted a position as an assistant professor at Colgate University in Hamilton, N.Y., beginning this fall.

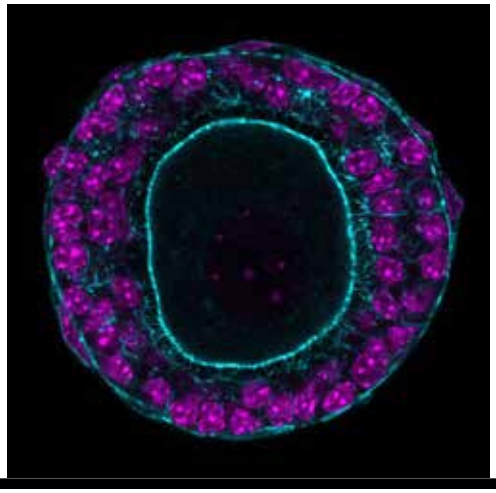
The team of Sally Camper, PhD; Michelle L. Brinkmeier, MS; and professor emerita Deborah Gumucio of the University of Michigan in Ann Arbor, Mich., and Aubrey Converse, PhD, of Northwestern University in Chicago, Ill., tied for second place.

Camper's team won for their image of a pituitary slice from a mouse embryo, and Converse was recognized for her confocal image of a secondary ovarian follicle in a mouse.

Niraula's prize is complimentary registration to **ENDO 2023** or **ENDO 2024**. All three winners will have their art displayed at **ENDO 2023**, where it will be seen by scientists and researchers from all over the world. Their work will also be featured in *Endocrine News*, on our website and on social media.

Visit the Endocrine Images Art Competition website at **https://www.endocrine.org/awards/endocrine-images-award-2023** where you can see this year's top endocrine images and gather more details for submitting next year. EN





Sally Camper, PhD, and her team's image of a pituitary slice from a mouse embryo (left).

Aubrey Converse, PhD, submitted a confocal image of a secondary ovarian follicle in a mouse (right).

2023 Endocrine Society Early Investigator Award Winners Announced

The Endocrine Society has selected five recipients for its 2023 Early Investigator Awards. The Early Investigators Awards were established to assist in the development of early-career investigators and to recognize their accomplishments in endocrine-related research. The Endocrine Society's 2023 Early Investigator Award winners are:

Kotaro Sasaki, MD, PhD

University of Pennsylvania, Philadelphia, Pa.

Sasaki is an assistant professor in the Department of Biomedical Sciences at the University of Pennsylvania School of Veterinary Medicine and of Laboratory Medicine at the University of Pennsylvania Perelman School of Medicine. Sasaki's research is focused on the development of human germline and urogenital organs. His lab's research discoveries help lay the foundation for understanding the molecular basis of human infertility, reproduction, and endocrinology.

Louise Gregory, PhD

University College London Great Ormond Street Institute of Child Health (ICH), London, U.K.

Gregory is a postdoctoral research scientist at ICH in genetics and genomic medicine, where she is continuing her research into congenital hypopituitarism and related disorders. She is currently investigating novel genes and pathways associated with congenital hypopituitarism, identified through next generation sequencing of her team's patient cohort.

Laura Hernandez-Ramirez, MD, PhD

National Autonomous University of Mexico, Mexico City, Mexico

As an associate researcher at her university, Hernandez-Ramirez focuses on translational research in neuroendocrinology and human genetics. Her lab seeks to develop platforms for affordable genetic testing to identify the type, frequency, and associated outcomes of multiple genetic drivers, and to uncover potential therapeutic targets.

Michael Kalwat, PhD

Indiana Biosciences Research Institute Indianapolis, Ind.

Kalwat is an assistant investigator in the Lilly Diabetes Center of Excellence within the Indiana Biosciences Research Institute's Diabetes Center and a member of the Indiana University School of Medicine's Center for Diabetes and Metabolic Diseases. Kalwat investigates the molecular mechanisms of regulated secretion and the use of genetic and pharmacological tools for this purpose. His lab bridges small molecule and genetic high-throughput screening with target and pathway identification in dedicated secretory cell types.

Peter van Dijk, MD, PhD

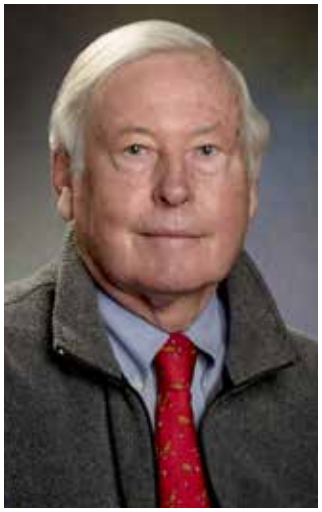
The University Medical Center Groningen (UMCG), Groningen, The Netherlands

van Dijk is a clinical academic endocrinologist who specializes in diabetes and general endocrinology. He is passionate about creating customized treatment plans that are focused on his patients' specific well-being and quality of life. In addition to providing the best care to his patients, he conducts research focused on diabetes mellitus and innovations in technology that advance the treatment of type 1 diabetes.

Additional information about these awards and when the new application cycles open can be found at: **https://www.endocrine.org/awards/early-investigators-awards**.

In Memoriam "A Physician's Physician" – Remembering Robert G. Dluhy, 1937 – 2022

Robert (Bob) George Dluhy, MD, a devoted physician, humanitarian, and academic scientist passed away peacefully on May 25, 2022, in Boston, Mass. He was 85.



Born in Passaic, N.J., son of the late Leona Fila and John George Dluhy, he earned his BA degree in biology from Princeton University, graduating Phi Beta Kappa and Magna Cum Laude. He received his medical and research training at Harvard Medical School, graduating in 1962, followed by his internal medicine residency at the Peter Bent Brigham Hospital, currently known as Brigham and Women's Hospital, and his clinical and research fellowship in endocrinology under George W. Thorn, MD (1962 – 1970). His training was interrupted for two years while he served as a physician in the U.S. Army in Germany.

Following his fellowship, Bob joined the faculty in the Endocrine Division at the Peter Bent Brigham Hospital and Harvard Medical School, where he spent his entire 52-year academic career. He rose through the ranks to become a professor of medicine in 1998 and served as the associate chief and clinical director of the Endocrine Division for nearly 30 years. Bob Dluhy was a physician's physician, a naturalist, a creative scientist, and a civil rights leader. Throughout his life, he was governed by a relentless desire to advance health and well-being.

While Bob was among the last general endocrinologists at Brigham and Women's Hospital, his research career was quite specifically focused on genetics and the adrenal gland. Over two-thirds of his 146 peer-reviewed publications were related to these areas. His interest in genetics began shortly after he became a faculty member, co-authoring an article in 1975 that described a new genetically determined hemoglobin — hemoglobin Cranston. As was true for many of Bob's scientific achievements, this report was the product of his brilliant skills as a clinician, recognizing a unique clinical feature, and developing collaborations and resources to identify the cause.

This approach to research is best illustrated by his contributions to understanding of glucocorticoid-remedial aldosteronism (GRA). In the early 1990s, several patients in a family that had this unique, rare form of hypertension and hyperaldosteronism were referred to Bob. At the time, he was the director of the Endocrine Division's fellowship program. One of his mentees was Richard Lifton, MD, PhD, a skilled molecular biologist. Together, they discovered the genetic basis of this rare disease. Their publication in *Science* in 1992 in many respects launched the field of the genetic underpinnings of hormonal mechanisms of hypertension to which Bob made substantial contributions over the next 20 years.

The countless fellows and students whom Bob mentored invariably considered him their friend, colleague, and role model. His memorable traits are reflected in those whom he taught and are appreciated not only by his mentees but by the patients they treat and the colleagues with whom they work. Additionally, he used his roles as associate editor at *The Journal of Clinical Endocrinology and Metabolism* (1985 – 2000), associate editor at *The New England Journal of Medicine* (2001 – 2014), and section editor at *Current Opinion in Endocrinology* (2001 – 2020) to help educate these trainees in the art and science of medical writing and its importance in the advancement of clinical excellence.

For his many contributions, Bob received numerous public honors, inclusding the Distinguished Physician Award of the Endocrine Society in 2014; and the Special Faculty Prize for Sustained Excellence in Teaching by the Program in Medical Education at Harvard Medical School in 2016. As Bob often said, the reward that meant the most was seeing the growth and development of those he had the privilege to mentor and care for over the years.

By Gordon H. Williams, MD, Ronald A. Arky, MD, Brigham and Women's Hospital and Harvard Medical School; Julie R. Ingelfinger, Massachusetts General Hospital and Harvard Medical School; and Deborah H. Dluhy and Leonore A. Dluhy, Boston, Mass.

ENDO 2023

June 15 – 18, 2023 • Chicago, Illinois

We hope to see you at **ENDO 2023**, taking place June 15 – 18, 2023, in Chicago, Ill. With more than 7,000 attendees, nearly 2,000 abstracts, and more than 200 other sessions, **ENDO** is the top global meeting on endocrinology research and clinical care. **ENDO** provides the opportunity to collaborate with an unparalleled list of endocrinologists, healthcare practitioners, and leading scientists from around the world. Through sharing our experience, advice on patient care, and new advances in research, we move the needle forward in hormone health and science. Our outstanding slate of world-renowned speakers will showcase the most cutting-edge advances in research and medicine, with presentations spanning the spectrum of science, clinical care, and social implications.
www.endocrine.org/endo2023

ADA 83rd Scientific Sessions

San Diego, California/Hybrid
June 23 – 26, 2023

The Scientific Sessions offers researchers and healthcare professionals the unique opportunity to share ideas and learn about the significant advances and breakthroughs in diabetes. Participants will receive exclusive access to more than 190 sessions and 2,000 original research presentations, take part in provocative and engaging exchanges with leading diabetes experts, expand their professional networks, and so much more.
https://professional.diabetes.org/scientific-sessions

23rd Annual Santa Fe Bone Symposium

Santa Fe, New Mexico
August 4 – 5, 2023

The Santa Fe Bone Symposium is an annual forum devoted to advances in the science and economics of osteoporosis, metabolic bone disease, and assessment of skeletal health. Presented by the Osteoporosis Foundation of New Mexico (OFNM), this meeting is for healthcare providers, scientists, and researchers with a special interest in bone disease, and for bone densitometry technologists who seek a high level of knowledge in their field. Close interaction and collaboration between faculty and participants is an integral part of the Santa Fe Bone Symposium.
https://www.ofnm.org/santa-fe-bone-symposium/

ADCES23

Houston, Texas
August 4 – 7, 2023

The Association of Diabetes Care &

WEBINAR

ENDOCRINE SOCIETY

Hormone Science to Health

Endocrine Society Webinars

The Endocrine Society holds webinars throughout the year on many topics, from clinical practice and basic research to career development, advocacy, and more. Check below for information on upcoming webinars and links to previous events. Visit our Center for Learning for a full list of Society educational offerings.

Past webinars have included The Complexities of Cushing's Syndrome: Diagnosing and Managing Patients; Utilizing Nurse Practitioners and Physician Assistants to Optimize Patient Care: How to Build Effective Teams; Genetics in Pituitary Disease; Facts and Controversies of Testosterone Replacement Therapy in Male Hypogonadism; and so much more! Most of the webinars are free for Endocrine Society members, but some do require a small registration fee.
https://education.endocrine.org/Public/Catalog/Main.aspx

Education Specialists (ADCES) Annual Conference is the premier diabetes care and educational event of the year. More than 3,000 diabetes care and education specialists and other healthcare professionals are expected to participate at ADCES23 in Houston, Texas. Connect, collaborate, and educate yourself and others on the latest in diabetes care and education.
https://www.diabeteseducator.org/home

2023 American Thyroid Association Annual Meeting

Washington, D.C.
September 27 – October 1, 2023

The ATA Annual Meeting is the world's preeminent event for those interested in thyroid diseases and disorders and provides an opportunity for peer-to-peer learning and collaboration through lectures, interactive discussions, meet the professor sessions, and abstracts. This year, the ATA will celebrate its centennial anniversary with a culmination of the celebration and the largest gathering of thyroidologists in the world. Whether you're an endocrinologist, a surgeon, an advanced practice provider, a fellow in training, or a medical student, the topics covered during the meeting will provide in-depth information about thyroid diseases and disorders. With a diverse program planned, attendees can customize their experience by attending sessions that are most important to their professional development.
https://www.thyroid.org/2023-annual-meeting/

ObesityWeek® 2023

Dallas, Texas
October 14 – 17, 2023

The preeminent international conference for obesity researchers and clinicians, ObesityWeek® is home to the latest developments in evidence-based obesity science: cutting-edge basic and clinical research, state-of-the-art obesity treatment and prevention, and the latest efforts in advocacy and public policy. Overcoming obesity requires multidisciplinary approaches. This is the conference that encompasses the full spectrum of obesity science from basic science research, to translational research and clinical application, to public policy; diet, exercise, lifestyle, and psychology to medical and surgical interventions; from pediatric to geriatric to underserved populations.
https://obesityweek.org/

INTERNATIONAL **ITINERARY**

5th World Congress on Diabetes and Endocrinology

Paris, France
July 12 – 13, 2023

The Fifth World Congress on Diabetes and Endocrinology will be organized around the theme of "novel therapeutic approaches for prevention of diabetes and exploring the diabetic complications." Diabetes Congress 2023 will be an amalgamation of academia and industry as it involves every aspect of empirical and conceptual thinking in exploring new dimensions in this field and is open to all types of research methodologies both from academia and industry.
https://diabetes.inovineconferences.com/

The 61st Annual ESPE Meeting 2023

The Hague, The Netherlands
September 21 – 23, 2023

The theme for the European Society for Paediatric Endocrinology's (ESPE) 61st Meeting is "Global Challenges in Pediatric Endocrinology," which will address several important challenges from around the world: carbon dioxide-driven climate change; global but also local inequality with large differences in access to basic needs and medical care; and a recent pandemic. Climate change calls for more sustainable medical care in the field of pediatric endocrinology and also raises ethical questions. Another big challenge is the ever-rising prevalence of obesity, with low- and middle-income countries quickly catching up with high-income countries. Although considerable advances are made with respect to medical treatment, these are not automatically available for large groups of affected individuals. Both experienced colleagues and younger trainees will have the opportunity to present their work in oral sessions with ample opportunities for further presentations and discussion in the poster sessions, which will include both physical and electronic posters. The meeting will be held in World Forum, an iconic international event venue located between the beach and the city center in the "City of Peace and Justice."
https://www.eurospe.org/events-espe/espe-2023-annual-meeting/

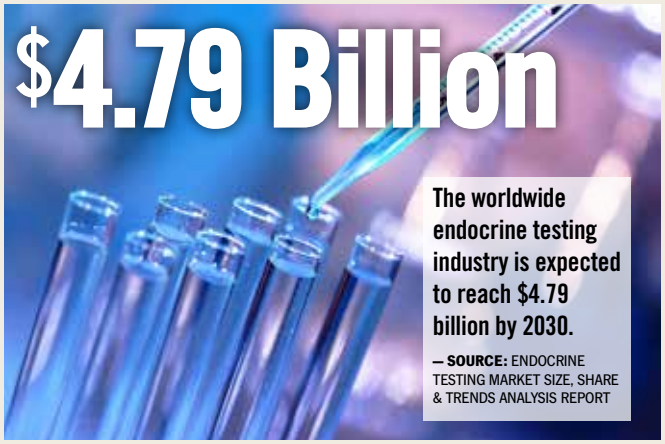
EndoBridge 2023

Antalya, Turkey
October 19 – 22, 2023

Co-hosted by the Endocrine Society and the European Society of Endocrinology in collaboration with the Society of Endocrinology and Metabolism of Turkey, EndoBridge will be held in English with simultaneous translation into Russian, Arabic, and Turkish. Accredited by the European Accreditation Council for Continuing Medical Education (EACCME), this three-day scientific program includes state-of-the-art lectures delivered by world-renowned faculty and interactive sessions covering all aspects of endocrinology. EndoBridge® provides a great opportunity for physicians and scientists from around the world to interact with each other, share their experience and perspectives, and participate in discussions with global leaders of endocrinology.
www.endobridge.org

> All of us in the life sciences spend our career trying to understand biology or how chemistry impacts biology with the notion that this will help treat patients or help advance the standard of care for patients. **But in many cases, it's that entrepreneurship that actually translates that science into real medicines that people can take and hopefully feel better taking."**

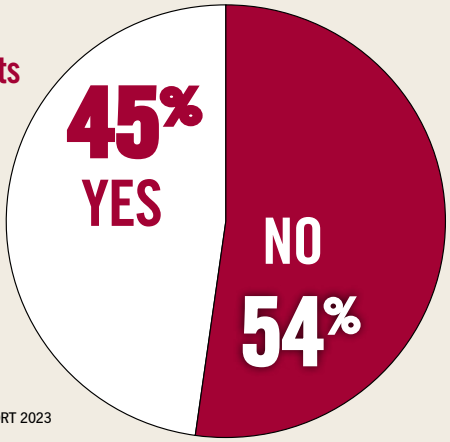
– 2023 John D. Baxter Prize for Entrepreneurship recipient, **R. Scott Struthers, PhD**, founder and CEO of Crinetics Pharmaceuticals, discussing his career in **"Full Circle"** on page 24.



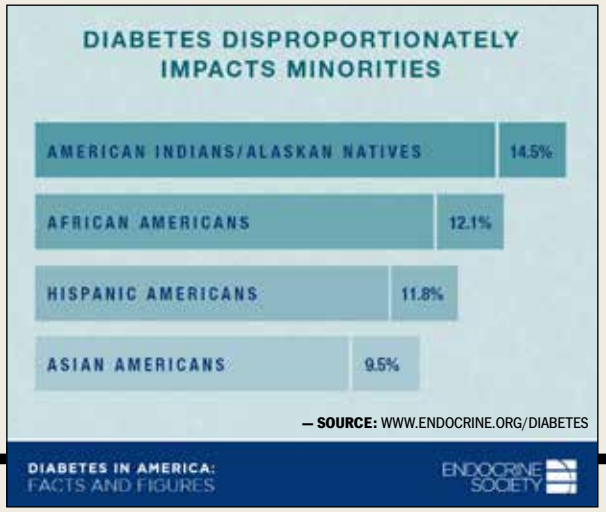
373,000

The number of prescriptions for Ozempic, the most-in demand of all diabetes drugs, filled in the U.S. during the last week of February 2023. That's an increase of 111% compared with the same week in 2022. – SOURCE: CNN

Would Endocrinologists Take Less Pay for a Better Work-Life Balance?



– SOURCE: MEDSCAPE ENDOCRINOLOGIST LIFESTYLE, HAPPINESS, AND BURNOUT REPORT 2023



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2023

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ENDOCRINE SOCIETY

Such Great Heights

Pediatric growth hormone deficiency treatments could soon be painless.

BY DEREK BAGLEY

Fernando Cassorla, MD, is traveling from Chile to Chicago to present research at **ENDO 2023** that could potentially change the way pediatric hormone treatments are administered. If a pill could replace painful injections, patients and caregivers alike can finally wipe away their tears.

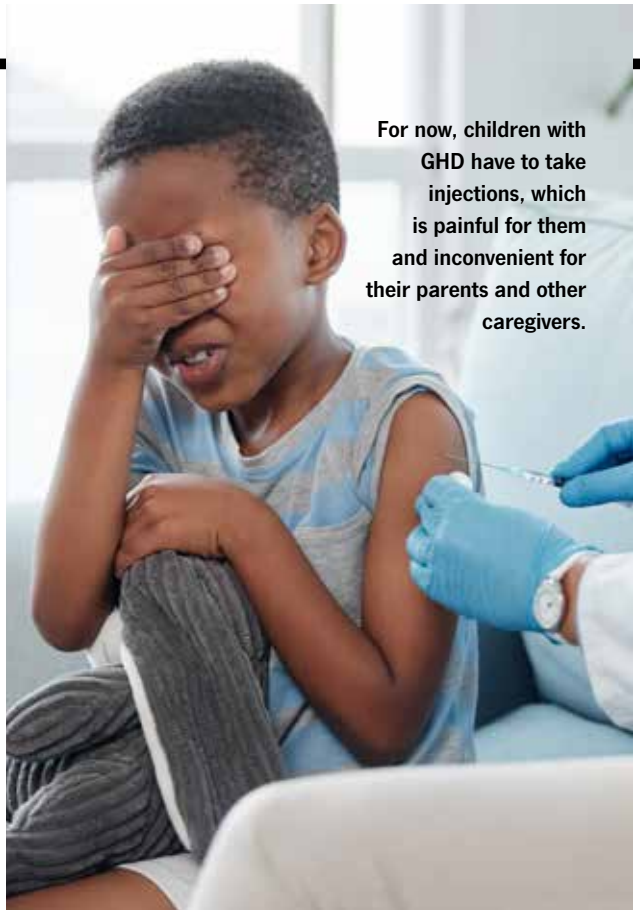
A convenient, well-tolerated treatment for pediatric growth hormone deficiency has until just recently remained elusive for children with this condition and their parents and caregivers who have had to administer daily, painful injections. Several pharmaceutical companies have introduced long-acting growth hormone therapies (LAGH), after the Growth Hormone Research Society recognized the need for these treatments in 2015, citing non-compliance rates as high as 82%.

This past March, Fernando Cassorla, MD, chief of Pediatric Endocrinology at the University of Chile in Santiago, traveled to Buenos Aires, Argentina, to present positive data on an investigational oral treatment for idiopathic pediatric growth hormone deficiency (iPGHD) at the 2023 International Meeting of Pediatric Endocrinology (IMPE). The drug, LUM-201 (ibutamoren) is a growth hormone secretagogue (GHS) that's currently in three Phase 2 trials.

Cassorla reported findings from the OraGrowtH212 trial (funded by Lumos Pharma, Inc.), a single-site open-label trial evaluating the pharmacokinetic (PK) and pharmacodynamic (PD) effects of oral LUM-201 in 22 treatment-naïve PGHD subjects at two dose levels, 1.6 and 3.2 mg/kg/day, on which he is the lead author. The subjects in this trial were first tested with a predictive enrichment marker (PEM), used to identify patients previously diagnosed with iPGHD who are likely to respond to LUM-201.

For this presentation, attendees in Buenos Aires heard the results of analysis of 15 subjects. The updated analysis included data on five additional subjects (three in the 1.6 mg/kg treatment arm, two in the 3.2 mg/kg treatment arm) since interim results of the OraGrowtH212 Trial were announced in November 2022. Results showed that across the dose range of 1.6 to 3.2 mg/kg/day for six months, LUM-201 is well-tolerated and produces dose-dependent and substantial increases in growth hormone under the baseline-corrected plasma concentration versus time curve from 0 to 12 hours (AUC0-12h). Results also showed that increased growth hormone pulse amplitude was associated with improved height velocity compared to baseline, and that effects on annualized height velocity were durable through 12 months.

Cassorla says that the findings made it clear that the amplitude of the GH pulses was higher, rather than the number of pulses,



For now, children with GHD have to take injections, which is painful for them and inconvenient for their parents and other caregivers.

and that the children were growing better than they were before starting the trial. "We were very encouraged by this, because it's indicated that if you select the correct population, then it's very likely, in contrast to what we observed several years ago with the original study, that patient selection here is key," he says. "And if you do that, then it's very likely that these patients will grow quicker."

This month, Cassorla will make the trip to Chicago for **ENDO 2023** to present an update on the OraGrotH212 trial — most notably results from evaluating IGF-1 levels in these patients. Here we'll look at the background of this oral treatment, the promising findings from these ongoing trials, and what this drug could mean for children with growth hormone deficiency.

Cautious Optimism

Cassorla says that before 1985, there was no recombinant available, just the National Pituitary Agency in Baltimore. The National Hormone and Pituitary Program (NHPP), funded by the U.S. Department of Health and Human Services (HHS) would gather pituitaries from corpses, purify them, and allocate a little bit of human growth hormone (hGH) to institutions for study and treatment. Clinicians could give patients growth hormone three times a week, but as there was not enough product, they couldn't treat patients through their full growing period.

> The question is, for these patients with partial to moderate growth hormone deficiency, how do we treat them, how do we define them? This is a group of patients that we think will benefit from this drug. This is a key message, and I think it's a promising area of research. **We'll see whether the preliminary data is confirmed by longer-term data, but up to now, it looks quite promising."**
>
> — FERNANDO CASSORLA, MD, CHIEF OF PEDIATRIC ENDOCRINOLOGY, UNIVERSITY OF CHILE, SANTIAGO, CHILE

Then, in 1985, when the HHS discovered that three men treated with pituitary hGH died of Creutzfeld-Jakob disease and suspected the deaths were related to pituitary hGH, they halted the program, and so the era of recombinant growth hormone was born. "At that stage, we ended up having a lot of growth hormone commercially available, were able to treat patients until final height, seven days a week," Cassorla says. "There was a huge shift in the way children with growth hormone deficiency were treated from 1984 to 1985."

Another such shift may be on the horizon. A few years ago, Cassorla was part of a team investigating an oral treatment for pediatric growth hormone deficiency, in a study funded by Merck. The researchers had the idea that growth hormone secretagogue stimulates the ghrelin receptor in the brain, and this receptor stimulates both appetite and the secretion of growth hormone by the pituitary. Cassorla says after several years of study, it became clear that this peptide is produced in the stomach, and it stimulates at the level of the pituitary and at the level of the hypothalamus as secretion of growth hormone. However, Merck eventually abandoned pursuing the drug because of mixed results from patients who had unresponsive pituitaries.

"If you were to stimulate a pituitary that doesn't produce almost anything at all, it was not surprising that when you gave this drug, the patients would not produce growth hormone and would not grow very much," Cassorla says.

So, the researchers decided they would need to be more careful in patient selection, and only include candidates with responsive pituitaries, reasoning that those participants would produce more growth hormone and potentially grow more when this drug is given orally. "When the time came to look at this drug again under the umbrella of a different company, Lumos, patient selection would be key," Cassorla says. "And that's what happened in the second study. OraGrowtH212 has already enrolled and has completed enrollment for 22 patients. All of these are prepubertal children with partial or moderate growth hormone deficiency. That's the key point here, to get the message across."

"Now I may be too optimistic, but I envision another big shift in the way these patients are treated, if we can confirm that this orally administered drug can actually be helpful with patients with moderate growth deficiency, who are the vast majority of patients that we see in our clinics," he continues. "And I might add that living in Chile and living in South America, access to growth hormone because of cost and everything else is not that simple."

ENDO 2023

Update on Pediatric Growth Disorders – Oral Abstract – OR21

June 17, 2023 3:30 PM – 5:00 PM

Location: W-178B

"Dose Responsiveness of LUM-201 as Measured by Acute GH Response and IGF-1 and Annualized Height Velocity (AHV) Measured at 6 Months in the Interim Analysis of the OraGrowtH212 Study in Idiopathic Pediatric Growth Hormone Deficiency (iPGHD)" – **Fernando Cassorla, MD**

Potential for Sustained Success

Again, the results from these trials are promising, but there's still work to be done. Lumos Pharma hopes to complete these studies and announce top line results in the fourth quarter of 2023. Cassorla, who has no financial ties or commercial connection to Lumos, says his focus is on providing children and their families with simpler treatments and hopefully less expensive treatments, if possible. "That's my part of the goal, my part of the job here," he says. "And if we can have a relationship with the industry that is very clear, very transparent, and very honest, we're all in favor of doing it, because ultimately, it will benefit our patients."

For now, Cassorla has secured enough of LUM-201 for all 22 patients until they reach their final height. He says that while Lumos will proceed with regulatory steps to get the drug through the U.S. Food and Drug Administration (FDA), his job is to finish the study with the six-month pulsatility period that needs to be done in the other seven patients.

Of course, there are some concerns, as with any investigational drug. Some patients saw an increase in appetite, so the researchers worried that the children may grow taller but would have excess weight. The increase in appetite proved to be transient, and there were no significant changes in BMI. The researchers also braced for pituitary desensitization, but they did not observe that at all, and Cassorla says that the pituitary pulsatility actually increased. "That suggests that this is sustained, that they continue growing up to a year," he says.

Lines of Investigation

Cassorla says that he's the first one to tell you how cautious he is about all this, since it's a small sample of patients and most of them have not yet reached the 12-month mark, and the patients will continue therapy beyond that mark. He says that patients treated with classic growth hormone usually decrease their growth velocity during the second year compared to the first year. "Ultimately, we will find out whether the growth velocity changes during the second year," he says.

> "Now I may be too optimistic, but I envision another big shift in the way these patients are treated, **if we can confirm that this orally administered drug can actually be helpful with patients with moderate growth deficiency, who are the vast majority of patients that we see in our clinics."**
>
> — FERNANDO CASSORLA, MD, CHIEF OF PEDIATRIC ENDOCRINOLOGY, UNIVERSITY OF CHILE, SANTIAGO, CHILE

Cassorla tells *Endocrine News* that what attracts him to this particular drug is that it intends to reproduce physiology, something that growth hormone treatments don't do. He explains that a bolus injection of growth hormone circulates at high levels, but those levels decrease before the next injection. And while growth hormone injections are effective, they come at the expense of using a drug that circulates for quite some time at relatively high levels and it then goes down. "This drug has the potential advantage of attempting to reproduce physiology by stimulating the endogenous pituitary to produce growth hormone," Cassorla says.

And again, Cassorla is careful to say that these are just preliminary results that have only been presented at meetings (like IMPE in March and **ENDO 2023**). "These are lines of investigation that may pan out, they may not pan out," he says. "The question is, for these patients with partial to moderate growth hormone deficiency, how do we treat them, how do we define them? This is a group of patients that we think will benefit from this drug. This is a key message, and I think it's a promising area of research. We'll see whether the preliminary data is confirmed by longer-term data, but up to now, it looks quite promising." EN

– BAGLEY IS THE SENIOR EDITOR OF *ENDOCRINE NEWS*. HE WROTE ABOUT THE THREE-SESSION **ENDO 2023** SYMPOSIUM ON OUR EVER-CHANGING FOOD ENVIRONMENT, "IMPACT OF THE CHANGES IN FOOD ENVIRONMENT IN THE DEVELOPMENT OF OBESITY," IN THE MAY ISSUE.

CIRCLE *full* CIRCLE

R. Scott Struthers, PhD

Q&A with R. Scott Struthers, PhD, the Endocrine Society's 2023 John D. Baxter Prize for Entrepreneurship Recipient

R. Scott Struthers, PhD, will see his career come full circle when he accepts the John D. Baxter Prize, which is named after one of his earliest mentors. He talks to *Endocrine News* about seeking therapies to cure endocrine diseases, the progress of some treatments currently in development, and how industry is strikingly similar to academia.

BY GLENDA FAUNTLEROY SHAW

Sometimes life comes in full circles. It was the early '90s when R. Scott Struthers, PhD, first met John D. Baxter, MD, and offered help in bringing a business idea to fruition. Fast forward almost 30 years later, and Struthers has been honored with the Endocrine Society's 2023 John D. Baxter Prize for Entrepreneurship.

Struthers is a founder and CEO of San Diego-based Crinetics Pharmaceuticals, Inc., and is recognized for his incredible impact on the health of patients living with endocrine disorders. Crinetics has developed crucial therapies for patients, such as medicines to treat endometriosis, uterine fibroids, acromegaly, carcinoid syndrome, Cushing's disease, and congenital adrenal hyperplasia. Struthers has personally founded multiple companies as well as groups whose mission is to help more endocrine scientist-entrepreneurs like himself.

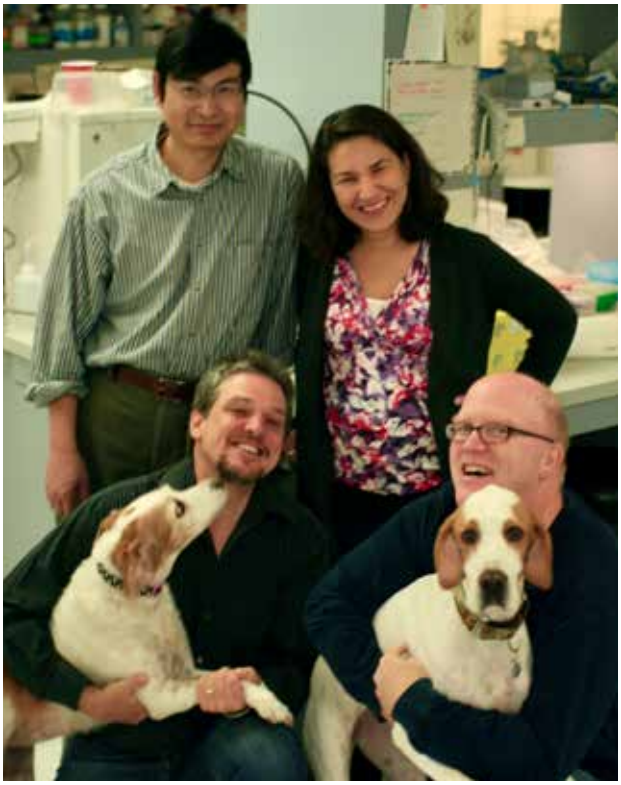
The award was named after Baxter, a past-president of the Endocrine Society, who was known for cloning the first human growth hormone gene. Baxter's entrepreneurial endeavors offered him a key status in advancing the field of endocrinology.

Struthers spoke to *Endocrine News* about how his life's work has been centered on solving very similar scientific questions, and how he is driven to give a hand up to entrepreneurs with other promising ideas.

Observing Acromegaly Day in 2019 with Jill Sisco, president of Acromegaly Community (right). From left to right, Steve Betz (cofounder), Stephanie Kallay (Director, patient advocacy and outreach), and R. Scott Struthers.

First, congratulations on your award. What does this recognition mean for the specialty and what significance might it have on entrepreneurs like yourself?

It's a couple of things. On a very personal level, I helped John [Baxter] start a company back in the early '90s. He was an amazing mentor and friend, and sorely missed. People know him for cloning growth hormone, of course, but he also was one of the pioneers of understanding thyroid hormone receptors and had a very distinguished academic career. He also started many different companies.



I think it's fabulous that his family decided to honor entrepreneurship in endocrinology with this award to help recognize the role that it plays in both advancing the field and bringing the advancements in the field to patients directly. I think it's key that things like this are recognized. All of us in the life sciences spend our career trying to understand biology or how chemistry impacts biology with the notion that this will help treat patients or help advance the standard of care for patients. But in many cases, it's that entrepreneurship that actually translates that science into real medicines that people can take and hopefully feel better taking.

You've founded or co-founded several different companies. Is there a common mission or thread that weaves through how you seek to meet a need and then find a solution?

Well, it sounds like a lot of different things, but, really, I've just been following one or two core scientific questions since I was an 18-year-old freshman undergraduate. I got very lucky and got a job in a chemistry lab making synthetic analogs of peptide

From 2011, Crinetics founders: Clockwise from upper left: Frank Zhu, Ana Kusnetzow, Steve Betz (with Penny), R. Scott Struthers (with Princess). Crinetics has been a dog friendly workplace since day one.

> I've had advice from various Nobel Laureates, from billionaires, from people who started multiple companies, all of whom have taken time out of their day to give me advice, for no real benefit to them at all. **And I try and pass that down, and I try to encourage everybody I work with to do the same thing."**
>
> — R. SCOTT STRUTHERS, PHD, CEO, CRINETICS PHARMACEUTICALS, INC., SAN DIEGO, CALIF.

Struthers and Crinetics Chief Financial Officer, Marc Wilson, ringing the opening bell at Nasdaq in 2018.

hormones to try and understand how the chemistry translated into effects on their biology, and I've been doing that my whole career now. It just manifests itself in different ways.

When I was at a prior company called Neurocrine Biosciences, we discovered a small molecule oral agent that could act as a peptide hormone receptor, and that became a drug (elagolix) that could be used for women with endometriosis or fibroids. That drug was approved back in 2018.

There are more than 130 peptide hormone receptors that modulate almost all aspects of human physiology. At Crinetics, we are working on small molecule oral drugs for a bunch of these hormone receptors to treat various endocrine diseases, either basically having too much or too little of other hormones.

These same peptide receptors are also over-expressed in various cancers, and we realized we could use our basic technology of making small molecules that bind these receptors to carry radioisotopes to the cancer cells to either image them with PET scans or treat them with therapeutic radioisotopes. That question led to the creation of Radionetics Oncology. It's all the same little vein of science; it just has lots of different implications for human health.

The Crinetics pipeline has multiple therapies in Phase 2 and 3 clinical trials, most specifically for the treatment of acromegaly and carcinoid syndrome. Can you share how

these therapies are progressing through your pipeline and what it means for people who have those conditions?

Somatostatin is a peptide hormone that controls a variety of things in the body, including inhibiting the release of growth hormone. Acromegaly is a disease of too much growth hormone, and it causes a variety of problems in patients. There is a decades-old treatment that works reasonably well, but it's an intramuscular injection that you must take every month and it tends to wear off toward the end of the month. It generally creates a significant burden of care for patients.

So, we've made a once-a-day pill, paltusotine, that we think may provide an attractive alternative for people living with acromegaly. They will no longer need to get these painful injections or visit their doctor or healthcare provider every month to get them. The other group of patients we hope will benefit from paltusotine are those with neuroendocrine tumors suffering from carcinoid syndrome. Neuroendocrine tumors are less well known than many of the other cancers, but it's the type of tumor that killed Steve Jobs, and more recently, Aretha Franklin.

John D. Baxter Prize for Entrepreneurship

The John D. Baxter Prize for Entrepreneurship was established to recognize the extraordinary achievement of bringing an idea, product, service, or process to market. This work ultimately elevates the field of endocrinology and positively impacts the health of patients.

The Baxter Prize was established in memory of Endocrine Society Past-President **John D. Baxter, MD,** who was a world-renowned scientist known for being the first to clone the human growth hormone gene. During his career, he made many fundamental medical discoveries and translated them into clinical therapies that had far-reaching implications in the fields of biotechnology and genetic engineering, benefiting the health and welfare of patients worldwide.

After Baxter passed away in 2011, his family endowed the prize in his memory. For more information, including eligibility criteria and nomination instructions, go to: **www.endocrine.org/awards/baxter-prize.** Or email: **baxterprize@endocrine.org**

ENDO 2023

John D. Baxter Prize for Entrepreneurship Lecture

June 15, 2023 10 AM – 11 AM
ENDO Main Stage

Adventures Discovering Nonpeptide Oral Drugs Acting as Peptide Hormone Receptors —
R. Scott Struthers, PhD, Crinetics Pharmaceuticals, Inc., San Diego, Calif.

Let's switch to your entrepreneurship. You started the San Diego Entrepreneur Exchange in 2009 and served on the Endocrine Society's Entrepreneur Special Interest Group. How do these groups work to help the next generation of researchers?

Well, as scientists we're taught how to ask good questions and the aspects of the underlying science as well as we know it. But nobody really teaches you how to start a company, run a company, or find money. So, the San Diego Entrepreneurs Exchange was founded by a group of us, all of whom were bootstrapping companies back during the great recession.

And you've got to remember that this was a time when many scientists were out of work, and no one was financing new companies. It was actually a great time to start Crinetics because all our other friends were shutting down companies and they'd give us their leftover lab supplies and equipment. Together with other companies in the San Diego Entrepreneurs Exchange, we filled our garages with free equipment and supplies while we're waiting to open our lab.

So, that organization came together as a group started by six to 10 of us just trying to survive. But it's continued through the years, and now that many of the companies that were part of the founding cohort have been successful, we're trying to give a hand up to that next group of entrepreneurs who have some ideas.

“As an entrepreneur starting a new company, you’ve got to set up your payroll, get your insurance, find space, and hire people. **Everything is on you, and there’s a lot of simple operational help that you can get by talking to people.”**

— R. SCOTT STRUTHERS, PHD, CEO, CRINETICS PHARMACEUTICALS, INC., SAN DIEGO, CALIF.

Times are better, there’s a little more money out there, but it’s still hard to figure out how to take your idea and start a crazy new company. Do you quit your job and give up a steady income?

You said things have gotten better for the funding being available, but what remains a big challenge for a young entrepreneur studying up to start a company, and how do you advise young entrepreneurs to navigate these challenges?

I guess it’s actually not that different for entrepreneurs in the industry setting and entrepreneurs who are new professors at universities. Both groups are concerned about setting up their labs, finding money, finding people to help them, but at least on the academic side there’s an institution there that will take care of your payroll, your health benefits, and give you a lab.

As an entrepreneur starting a new company, you’ve got to set up your payroll, get your insurance, find space, and hire people. Everything is on you, and there’s a lot of simple operational help that you can get by talking to people. I’ve benefited tremendously over the years from more experienced entrepreneurs providing me advice, and I still call out to people today who are more advanced in their careers and ask them for help.

I think the biggest thing that most entrepreneurs face is just getting the information they need and then getting the money they need. Money remains a common thread of all science. Whether it’s in a start-up setting or an academic setting, funding your ideas is one of the biggest challenges we all face.

What you mentioned about having someone more experienced pass along the wisdom. This is the big plus of the Society’s ENDO Conference. You’ll be there in Chicago accepting your award, and it’s a great place for young scientists to find those kinds of mentor relationships.

It’s a wonderful meeting. I’ve been going since the mid-1980s. Young scientists shouldn’t be afraid to ask questions. Most people, especially in endocrinology, are a very friendly bunch. You’ll get people answering you who you think would never call you back. I mean, I’ve had advice from various Nobel Laureates, from billionaires, from people who started multiple companies, all of whom have taken time out of their day to give me advice, for no real benefit to them at all. And I try and pass that down, and I try to encourage everybody I work with to do the same thing.

Struthers will receive the Baxter Prize at **ENDO 2023** *in Chicago, Ill. The $50,000 prize is awarded biennially to recognize scientists or healthcare practitioners who have demonstrated entrepreneurship by leveraging endocrine research to improve patient care.* EN

– FAUNTLEROY SHAW IS A FREELANCE WRITER BASED IN CARMEL, IND. SHE’S A REGULAR CONTRIBUTOR TO *ENDOCRINE NEWS*.

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A CALL TO Action

Chérie L. Butts, PhD

Chérie L. Butts, PhD, Shares Her Career Path at **ENDO 2023**

Attendees at **ENDO 2023** will have the opportunity to hear a unique perspective on a scientist's career that flourished through academia, government, and industry. In her Meet the Scientist session Chérie L. Butts, PhD, will not only detail her own career, but she will emphasize how scientists can work across disciplines to create new therapies to improve human health.

BY KELLY HORVATH

ENDO 2023

Meet the Scientist

Chérie Butts, PhD

My Career Path as a Biomedical Researcher in Industry

June 15, 2023 3:15 PM – 4:00 PM

In her session entitled, "A Research Career in Government and Industry; Making Sure Drugs Are Safe and Meaningful," Butts will present insights from her work in academia, government, and industry on how to make drug development more equitable. She will also share how to make funding more equitable with all stages of drug development; also visit the ARPA-H website at: **https://arpa-h.gov/engage/baa/**.

At **ENDO 2023**, on June 15, 2023, from 3:15 PM to 4:00 PM, Chérie L. Butts, PhD, will present "A research career in government and industry, making sure drugs are safe and meaningful," a session on her career from academia and transitions from bench scientist to clinical trialist.

Her path began at the Johns Hopkins University in Baltimore, Md., then to the University of Texas MD Anderson Cancer Center in Houston. Rather than heading up her own lab in an academic research center, she took her research acumen into the government sphere at the National Institutes of Health (NIH) and the U.S. Food and Drug Administration (FDA). During this phase, she learned regulatory drug application review, which she now leverages at Biogen (a biotechnology company in Cambridge, Mass.), where she is a clinical trialist in the Therapeutics Development Unit.

Focusing on Key Questions

Rather than present a timeline, Butts will discuss how those spheres are interconnected and inspired her to activism. This presentation will be more than a talk: It will be a call to action. Although she gets regular inquiries on how to work in industry and make drugs that matter — laudable goals to be sure — what is more important than recruiting to industry to her is that people in their respective spheres are doing the right work within those spheres, always with the ultimate endgame in sight: advancing our understanding of the science to develop new medicines.

To this end, Butts has two primary goals for this session. "Number one," she says, "I want to help people appreciate the key questions in government, which focuses on public health, and the key questions in industry, which focuses on product development. Compare that to most academic research, which is about advancing scientific knowledge in general and publications."

Her second goal is educating about funding models like that of the Advanced Research Projects Agency for Health (ARPA-H), an entity within the NIH that launched in 2022; Small Business Innovation Research (SBIR); and Small Business Technology Transfer (STTR) research. "Those programs support investigators through contracts," she explains. "Many in academia only know how to write grants.

While attending the SXSW Conference in March 2022, Butts was inspired by U.S. Surgeon General Vivek Murthy, MD, and his speech about overcoming the crisis of loneliness as well as the importance of staying connected.

I'd really like people to understand that the expectations are different with contracts. One concern I raised about ARPA-H is the timing of projects and focus on products as we do in industry, rather than publishing results — there are so few who understand how to work on an industry project, which risks exacerbating gaps in funding toward those who are more familiar — and in cities where this happens naturally, such as Boston and San Francisco."

Indeed, ARPA-H had a budget of $2.5 billion last year, which sounds like enough to go around if researchers understand how to avail themselves of this largesse. One way Butts is

trying to raise awareness about the disparity issue is through workshops, such as the one she is leading with the National Academies in October (Preparing the Future Workforce in Drug Research & Development – A Workshop). "I'd really like to help people understand that they can conduct their research to support drug/device/diagnostic development in academia, which is critical for industry. Changing how they design experiments will open up entirely new sources of funding. One of ARPA-H's main goals is to include a health equity component in every project," she says. "Who is better to contribute to this than those working in communities (for example, rural, urban, LGTBQ+, underrepresented) across the United States and beyond — a hallmark of academic research?"

Butts did a yearlong health equity assignment in 2021 and recognized the importance of acting locally to ensure efforts are relevant and sustainable. This underscores a need for researchers in all regions to contribute.

Regarding how experiments should be designed to attain better equity, it comes down to the "who and the when," as not every drug is going to work in every patient. Patient profiles (the "who") and disease stage (the "when") influence whether a therapy works or not. "I learned during my time at the FDA that many trials failed because they had the wrong participants, not because the drug wasn't good and not because the study wasn't designed properly."

Even when a drug worked very well on one patient cohort, if it did not work well on most, the trial is deemed a failure. As a clinical trialist, Butts focuses on ensuring the most appropriate patient profiles and stage of disease are taken into account when recruiting participants to evaluate new therapies.

Butts caught up with newly inaugurated Endocrine Society president Ursula B. Kaiser, MD, at ENDO 2022 in Atlanta, Ga.

> "I'd really like to help people understand that they can conduct their research to support drug/device/diagnostic development in academia, which is critical for industry. **Changing how they design experiments will open up entirely new sources of funding."**
>
> — CHÉRIE L. BUTTS, PHD, MEDICAL DIRECTOR, THERAPEUTICS UNIT, BIOGEN, CAMBRIDGE, MASS.

Redefining Success

Informing all her work is the underlying premise that how we define success in science may need reframing. Having been in all three spheres, she says she sees the interconnectedness among academia, government, and industry.

"I didn't plan to take this career path but now see the vast number of ways science is advanced and want to share that knowledge with everyone. If we do not have individuals with a scientific background working in all parts of the healthcare ecosystem, we risk disinformation and misinformation permeating the general public and confusing them on basic principles, such as the importance of vaccines. We saw this with COVID-19." Science can and does extend beyond the research bench and clinic into policymaking, and we need more participation in all areas.

As inspirational and important as Butts' work and message clearly are, Part 1 of this call to action is simple: Attend her presentation. As for Part 2, "I don't want you to just walk away and say, 'oh, that was interesting,'" she says. "I want you to walk away feeling like you've got to do something with it." EN

– HORVATH IS A FREELANCE WRITER BASED IN BALTIMORE, MD. IN THE MAY ISSUE, SHE WROTE ABOUT THE **ENDO 2023** SESSION "IS THERE A ROLE FOR VITAMIN D SUPPLEMENTATION FOR WOMEN AT RISK FOR OSTEOPOROTIC FRACTURE?"

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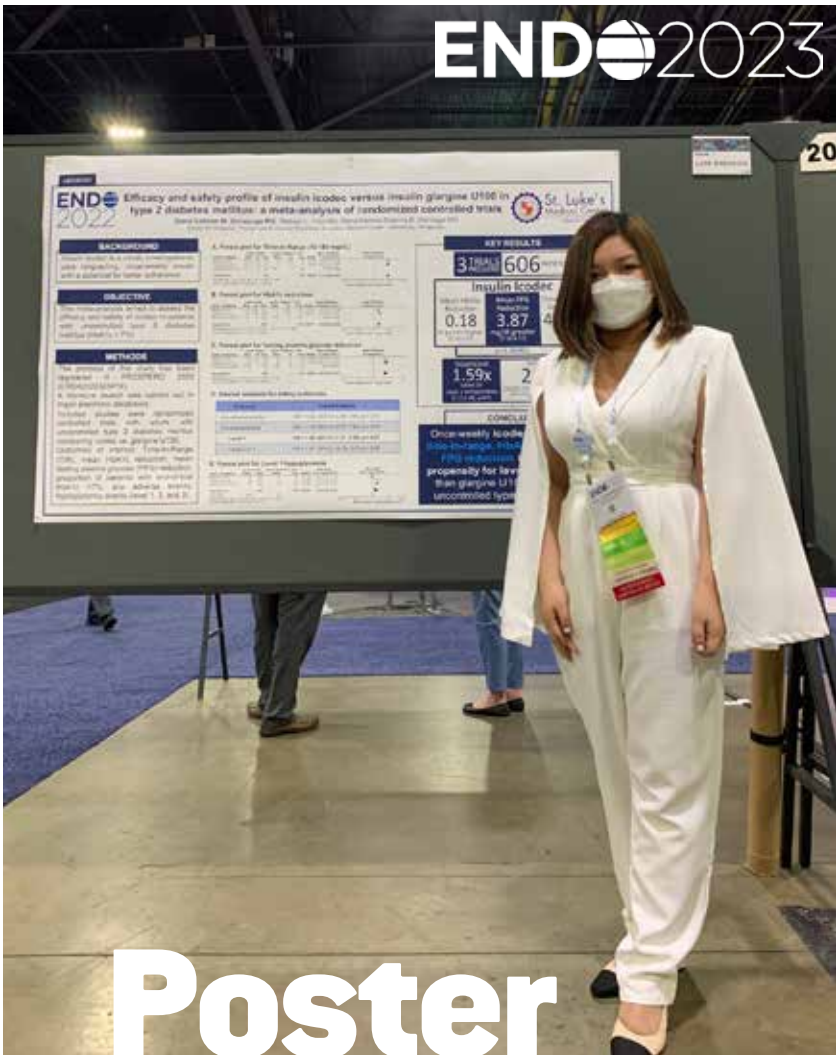


Diana Dimayuga, MD, prepared to present her poster at **ENDO 2022** after a last-minute edit on site in Atlanta.

Poster Preparation *Pointers*

For first-time attendees, presenting research at an international conference such as **ENDO 2023** can be a little intimidating. Early-career members Diana M. Dimayuga, MD, and PhD candidate Jewel Banik share what they learned when they presented their research last year at **ENDO 2022** in Atlanta.

Soon after Diana M. Dimayuga, MD, submitted her late-breaking meta-analysis abstract about using icodec insulin to treat type 2 diabetes, she won an invitation to present her work at **ENDO 2022** conference in Atlanta, Ga., last June. That year, the annual conference returned in person for the first time since the COVID-19 pandemic began — and included a virtual component for a hybrid conference experience.

While excited for the opportunity, Dimayuga was also concerned about travelling from the Philippines, where she is an endocrinology fellow at St. Luke's Medical Center in Global City, to the United States. "At first, I had qualms of not being able to present in person, given the long distance and financial challenges," she says. But after earning a travel award from the Endocrine Society and support from her institution, Dimayuga attended the live conference.

To get ready, she searched online for poster presentation tips and assembled the poster with PowerPoint. She then printed her

BY CHERYL ALKON

> I was excited to present my research in person at an international conference for the very first time, but I was a bit nervous because **I had to present it in front of some of the best and leading scientists in the field."**
>
> — JEWEL BANIK, GRADUATE RESEARCH ASSISTANT AND PHD CANDIDATE, DEPARTMENT OF NEUROBIOLOGY AND DEVELOPMENTAL SCIENCES, UNIVERSITY OF ARKANSAS FOR MEDICAL SCIENCES, LITTLE ROCK, ARK.

ENDO 2023

Traditional Poster Presentation

Thursday, June 15

Poster Floor Open: 9:30 AM – 4:30 PM
Unopposed poster floor hour: 12:30 PM – 1:30 PM
Opposed poster floor hour: 3 PM – 4 PM
(app alert sent at 2:45 PM)

Friday, June 16

Poster floor open: 9 AM – 4 PM
Unopposed poster floor hour: noon – 1 PM
Opposed poster floor hour: 2:30 PM – 3:30 PM
(app alert sent at 2:15 PM)

Saturday, June 17

Poster floor open: 9 AM – 4 PM
Unopposed poster floor hour: noon – 1 PM
Opposed poster floor hour: 2:30 PM – 3:30 PM
(app alert sent at 2:15 PM)

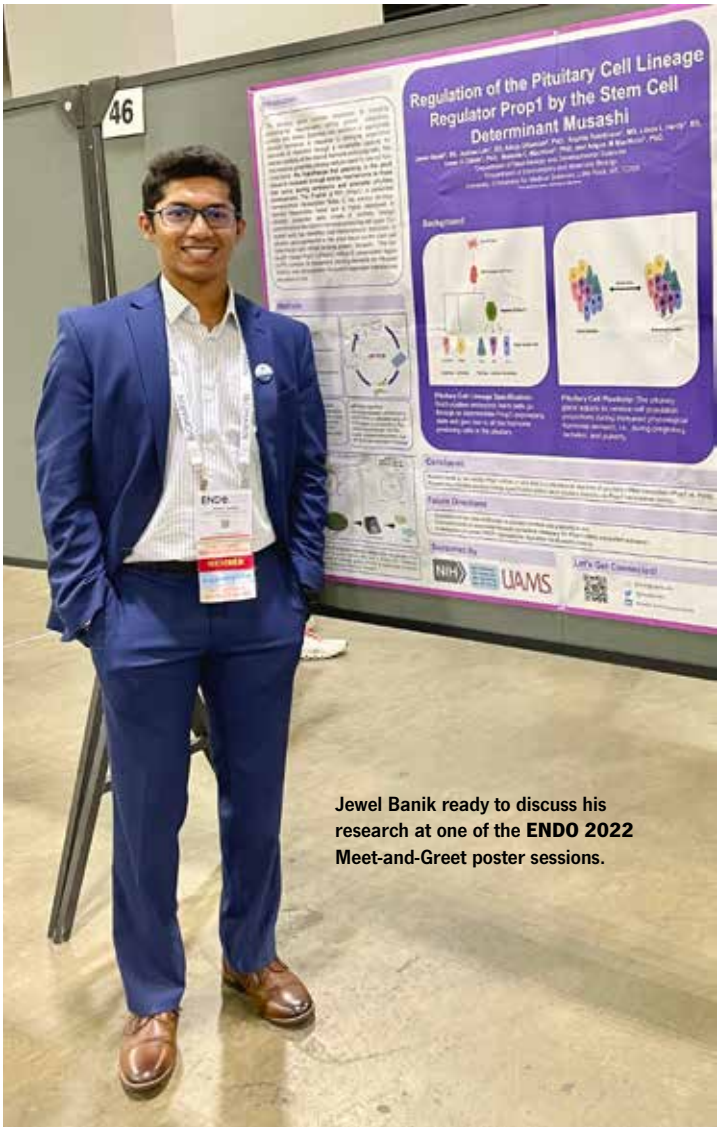
Presenting authors will be able to display a traditional poster on an expansive poster floor with one assigned day to display the printed poster's research.

During dedicated times on that day, presenters will have the opportunity to discuss their research with other meeting participants.

This is an ideal opportunity for veterans and first-time attendees alike to meet their peers from around the world.

work in the Philippines, and carried it in a cardboard tube while traveling. But "despite preparing well beforehand, I found a nasty little typo in my printed poster when I arrived at **ENDO**," she says. "I was grateful there was a print shop at the convention center — fixing it was quite the rush. By some twist of fate, the poster they printed was much larger than the one I paid for."

Ultimately, she presented her research at a poster meet-and-greet session and explained how the once-weekly dose of icodec insulin could "revolutionize diabetes management by improving patient adherence," she says. "The attendees were receptive and interested in the details of our study. I got comments that my poster and presentation were effective and easy to understand. It was a great boost to my confidence and overall, the experience was very fulfilling."



Jewel Banik ready to discuss his research at one of the ENDO 2022 Meet-and-Greet poster sessions.

While putting your research "out there" for public consumption can often be a nerve-wracking experience, but those who have done it all say that it is worth it. The opportunities to learn more about the endocrinology field, to meet others at all stages of their careers, and to gain professional skills and confidence are all benefits.

Mingling and Meeting Peers

Interacting with others is one of the conference's biggest benefits, Dimayuga says. "Beyond the honor of recognition for my work, it was a chance to network and find opportunities for training and collaboration."

Others agree. Jewel Banik, a graduate research assistant and a PhD candidate in the Department of Neurobiology and Developmental Sciences at the University of Arkansas for Medical Sciences, presented an abstract about how plasticity in adult tissue is mediated through similar mechanisms that occur during embryonic and postnatal pituitary development.

He received an Outstanding Abstract Award at **ENDO 2022** and discussed his work in a five-minute Rapid-Fire presentation two days before appearing in a two-hour Poster Hall meet-and-greet session.

"I was excited to present my research in person at an international conference for the very first time, but I was a bit nervous because I had to present it in front of some of the best and leading scientists in the field," he says. His Rapid-Fire presentation went well. Two days later, at the Poster session, he welcomed a range of attendees from first timers like himself to emeritus professors, all of whom gave him feedback and asked questions. Some questions have helped inform future research projects and approaches, he says.

Modeling Resilience

Attending a professional conference like **ENDO 2023** to present research can also help foster flexibility. Being able to pivot quickly, as Dimayuga did when she reprinted her poster on a deadline, helped her later appreciate the insights she gained from endocrine experts who learned about her work, knowing they saw it typo-free. "As a fellow-in-training, it was a great opportunity for me to hear feedback from the leaders in the field," she says.

Seeking audience feedback will "always enrich our work," Banik says. "At the same time, some scientists will ask tough questions which we are not prepared for or anticipate. It is okay not to know the answer to every question. That's why we do science."

Advice for First-Time Presenters

"It's tough to present every part of your research in a single talk or a poster, so it's sufficient to cover only a part of your research story," Banik says.

"I divided my whole research into multiple projects and considered each as a block for the entire picture of my research," Banik explains. "Each project had its independent hypothesis that contributes to my central hypothesis.

Diana Dimayuga, MD, (right) meets with Endocrine Society past-president Carol Wysham, MD, at the All SIG Reception at ENDO 2022.

Jewel Banik discussing his team's research at a Rapid Fire Poster Session at ENDO 2022.

> Younger endocrinologists on the fence should definitely take the plunge and submit their work. There will be challenges — even unexpected ones — **but there will always be people willing to help you out. It will all be worth it in the end."**
>
> — DIANA DIMAYUGA, MD, ENDOCRINOLOGY FELLOW, ST. LUKE'S MEDICAL CENTER, GLOBAL CITY, PHILIPPINES

So, in presenting research at a conference, I [choose] an independent project that has a strong hypothesis with sufficient background knowledge, followed by experimental plans to test that hypothesis. Then I report my results, conclusion, and future directions. Keeping my poster and presentation in this order helped me actively engage with my audience," he says.

Still not sure if you should submit your research for consideration? Just do it, Dimayuga says. "Younger endocrinologists on the fence should definitely take the plunge and submit their work," she says. "There will be challenges — even unexpected ones — but there will always be people willing to help you out. It will all be worth it in the end."

Other ways to interact include attending Special Interest Group (SIG) meetings that help connect young researchers to leading scientists and experts, Banik says. "These gatherings are the best for making a one-to-one professional connection."

Finally, explore the host city, especially in the evenings as the days are so busy. "Group dinners and wandering around the city with colleagues and friends are the best experiences to make the conference memorable," he says.

Being able to interact with endocrinologists at all levels, and the potential for opportunity as you present your research, makes attending conferences like **ENDO 2023** very much worth your time. "**ENDO** draws scientists from every corner of the world and provides a platform to connect," Banik says. "Jump into any conversation around you and participate." In doing so, you may just find your next collaborator, colleague, or mentor. EN

– ALKON IS A MASSACHUSETTS-BASED FREELANCE WRITER WHO IS THE AUTHOR OF THE BOOK, *BALANCING PREGNANCY WITH PRE-EXISTING DIABETES: HEALTHY MOM, HEALTHY BABY*. SHE'S COVERED A VARIETY OF TOPICS IN *ENDOCRINE NEWS* FROM BEST PRACTICES FOR ATTENDING A VIRTUAL CONFERENCE TO METHODS TO OVERCOME IMPOSTER SYNDROME.

Fascinatin' [Circadian] Rhythm

Q&A with Joseph Bass, MD, PhD

As one of the world's leading experts in circadian biology and endocrinology, Joseph Bass, MD, PhD, was an obvious choice for the Endocrine Society's 2023 Roy O. Greep Outstanding Research Laureate Award. He talks to *Endocrine News* about the award, his mentors along the way, and how he became so enamored with the science behind sleep.

BY GLENDA FAUNTLEROY SHAW

For many wanting to lose weight, a common recommendation involves restricting those late-night raids of the refrigerator. Joseph Bass, MD, PhD, is a researcher working to unlock the specific reasons why these restrictions work.

In January, Bass was featured in *Endocrine News* as one of the Endocrine Society's 13 leaders in the endocrinology field as winners of its prestigious 2023 Laureate Awards. He was presented with the Roy O. Greep Award for Outstanding Research that recognizes meritorious contributions to research in endocrinology.

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Bass is the Charles F. Kettering Professor of Medicine and chief of Endocrinology, Metabolism and Molecular Medicine in the Department of Medicine at Northwestern University Feinberg School of Medicine, Chicago, Ill. He earned both his MD and PhD at the Medical College of Pennsylvania and completed fellowships in endocrinology as well as molecular biology. Since joining the faculty at Northwestern at the start of 2000, Bass has become one of the world's leaders in circadian biology and endocrinology. In his most recently published research in last October's issue of *Science*, Bass and fellow researchers uncovered the mechanism behind why eating late at night is linked to weight gain and diabetes.

Endocrine News spoke with Bass to learn more about his life's work as well as how he likes to unwind outside the lab. Spoiler alert: You may catch him and his trumpet on the Chicago's nighttime jazz scene.

***Endocrine News:* Can you share your thoughts of when you first heard the news about being named for the Outstanding Research award?**

Bass: I guess a mixture of surprise and gratitude. Surprise in that it was unexpected and that there are many qualified people, and gratitude in the sense that the award provides recognition to a field more than a person, in my view. It's a way of indicating that the field has advanced what we understand about endocrine systems and endocrine disease.

***EN:* Your work in discovering how disruptions to circadian rhythms and body clocks affect our metabolism is well known. Can you talk about the implications of your findings?**

Bass: Our work really was early in recognizing that the molecular machinery controlling internal clocks, biologic timing, also plays an essential role in brain and peripheral tissue systems that regulate body weight and metabolism, and many other endocrine processes.

I would add that an unexpected implication of our work has been to understand the cause of metabolic disorders that occur under conditions in which the internal clock cycles are misaligned with the external light/dark environment, meaning the normal time when the sun rises and when it is natural for us to wake up. When the coincidence between the environmental light cycle and internal endocrine cycles is disrupted, or when cycles in different tissues are disrupted, then a variety of endocrine disorders ensue. By virtue of molecular advances in understanding rhythms within different cell types, we have come to understand how clocks program tissues to function in different ways at different times of the day and night. We can now view the coordination amongst systemic clocks as a key to health, not only regarding the brain and its response to light, but also more broadly throughout the body.

This work began serendipitously when we started to systematically study the very first animals in which the core genes for the clock had been disrupted. While

Joseph Bass, MD, PhD

"My original interest was in understanding, in a very broad sense, the molecular basis of molecular physiology from the tradition of studying and cloning insulin, etc. From my vantage point, when I was in medical school, endocrinology seemed to be one of the areas in which there was an integration of molecular concepts early on."

— JOSEPH BASS, MD, PHD, THE CHARLES F. KETTERING PROFESSOR OF MEDICINE AND CHIEF OF ENDOCRINOLOGY, METABOLISM, AND MOLECULAR MEDICINE IN THE DEPARTMENT OF MEDICINE AT NORTHWESTERN UNIVERSITY FEINBERG SCHOOL OF MEDICINE, CHICAGO, ILL.

the core molecular clock was discovered because of its role in controlling 24 hours of behavior in flies, availability of circadian mutants in mice enabled showed that clocks are vital, central regulators of our metabolic and neuroendocrine systems.

EN: How did you find yourself delving into this type of research?

Bass: Well, my original interest was in understanding, in a very broad sense, the molecular basis of molecular physiology from the tradition of studying and cloning insulin, etc. From my vantage point, when I was in medical school, endocrinology seemed to be one of the areas in which there was an integration of molecular concepts early on.

During that period when I was training, I was aware of the application of genetics, which I found fascinating, to understanding physiology, and with the discovery of energy regulators with the cloning of leptin, and then also with forward mutagenesis leading to the discovery of the clock genes, these were very intriguing developments to me.

And by coincidence, my first job was at Northwestern, and I was having conversations with Joe Takahashi, who had discovered by positional cloning the first genes for the clock in mammals, and it really was this coincidence and the background I had in understanding how molecular approaches can advance our understanding of endocrine systems. And the confluence of that background and this new problem, that these circadian mutant animals that were studied because of their sleep/wake behavior, might also exhibit metabolic disorders. These were early days, because it was around the late '90s when the first circadian experimental models became available to study physiology.

EN: Who have been your biggest mentors or collaborators who've helped toward your goals?

Bass: I mentioned Joe Takahashi earlier and also Fred Turek and Ravi Allada, colleagues at Northwestern who welcomed me to circadian research. More recently, Nav Chandel, Milan Mrksich, Talia Lerner, Lisa Beutler, and Grant Barish have each been close collaborators. Grant and I have a team. He came here from Ron Evan's group with strong training in nuclear receptor transcription and genomics. Northwestern has fostered a supportive environment and enabled our work to grow as our questions have expanded. I have thrived at Northwestern due in large part to the many stimulating colleagues and trainees.

EN: When you're not working in the lab, what's your favorite place to go to find your work/life balance?

Bass: My major thing outside of research is really music, and it has been ever since I was a kid. I went to music school before I went to college, and I played throughout medical school. There was a long hiatus during training, but more recently, I've been playing again and that's extremely rewarding to me. It's something I grew up with, and it is an endeavor, I wouldn't call a hobby … it's more than that.

EN: It definitely sounds like more than a hobby!

Bass: Yeah, I play the trumpet, and I play in a few groups here. I just started picking up jazz at DePaul, and there's a place called the Music Institute of Chicago near me. I'm playing there to learn and extend my repertoire in jazz. EN

– FAUNTLEROY SHAW IS A FREELANCE WRITER BASED IN CARMEL, IND. SHE IS A REGULAR CONTRIBUTOR TO *ENDOCRINE NEWS*.

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CLINICAL ENDOCRINOLOGY UPDATE

SEPTEMBER 21–23, 2023 ONLINE EVENT

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ENDOCRINE SOCIETY

Society Advances Public Health Priorities in UN Plastics Treaty

The Endocrine Society is leading efforts to include provisions related to endocrine-disrupting chemicals (EDCs) in a global treaty on plastics pollution developed under the United Nations Environment Programme (UNEP).

> **The Endocrine Society will continue to engage with the INC to ensure that endocrine science guides important policy decisions that impact regulation of EDCs in plastic.**

From May 28 through June 2, Endocrine Society members Leonardo Trasande, MD, MPP, and Marina Fernandez, PhD, attended the second session of the Intergovernmental Negotiating Committee (INC) on Plastic Pollution in Paris, France, where they shared evidence of human and ecological harms from exposure to EDCs in plastic and advocated for public health-focused solutions.

Our participation in the INC process prior to this meeting has already helped ensure that public health and chemical exposures are incorporated into the treaty. After the first INC meeting in Uruguay, which Trasande and Fernandez also participated in, UNEP provided a list of possible core obligations for the treaty. Included among the obligations were "protecting human health from the adverse effects of plastic pollution" and "banning, phasing out, and/or reducing the use of problematic and avoidable plastic products … and use of chemicals and polymers of concern."

We welcomed the introduction of these proposed obligations, and shared ideas with delegates from the Member States about how science can inform the identification and prioritization of EDCs and relevant human health hazards.

As an accredited organization within UNEP, we had the opportunity to participate directly in plenary sessions and deliver statements in collaboration with the scientific and technical community. We also worked with European and international endocrine organizations to develop a multi-society statement that was submitted to the INC secretariat and included as part of the meeting report. The statement articulates a united view that the treaty should be viewed as an opportunity to protect human and ecological health from the harmful effects of EDCs in plastic and encourages the INC to develop a treaty that will:

- Reduce hazardous chemical use in plastic products and waste through strict safety standards and criteria with consideration for EDCs, which have effects at extremely low, biologically relevant levels;
- Incorporate public health objectives, for example, through biomonitoring studies that can evaluate the body burden of plastic pollution, with special consideration for disproportionately impacted countries and communities; and
- Establish an independent advisory body to provide relevant scientific information that includes academic scientists free of conflicts of interest who are actively publishing and engaged in endocrine research, to provide advice on measures to minimize exposure to EDCs.

The Endocrine Society will continue to engage with the INC to ensure that endocrine science guides important policy decisions that impact regulation of EDCs in plastic. We also offered to facilitate connections between Member State representatives and our members around the world, so that policymakers can hear directly from endocrine scientists and clinicians about the impact of plastic on endocrine health.

European Hormone Day
Because Hormones Matter
15 May 2023

Endocrine Society Celebrates European Hormone Day

On May 15, the Endocrine Society joined the European Society of Endocrinology and other partners with an interest in endocrine health for the second European Hormone Day. This event aims to raise awareness about the overall importance of hormones to all aspects of human health, and to encourage policymakers to pay attention to endocrinology as they develop public health goals and research funding strategies.

As part of this effort, we reaffirmed our support for the Milano Declaration, which recognizes the key role of hormones in the health of European citizens, shared our educational resources on endocrine-disrupting chemicals, and highlighted our recent policy actions and accomplishments in the European Union.

We are encouraged by the engagement with our messages on social media and other platforms, and hope to build on this momentum toward better policies that support endocrine health in the European Union and around the world.

Society to Lead Effort to Protect Access to Gender-Affirming Care at AMA Annual Meeting

> As attacks on access to gender-affirming care escalate, the entire medical community must vocalize its support for and recognize the necessity of caring for TGD individuals.

In June, the Endocrine Society will lead an historic effort to protect access to gender-affirming care at the annual meeting of the American Medical Association (AMA) House of Delegates.

The AMA House of Delegates meets annually to establish policy positions on topics of importance to healthcare providers and patients. At the upcoming meeting, the Society will introduce a resolution to strengthen the AMA's policy on medical care for transgender and gender diverse (TGD) individuals. The American Association for Clinical Endocrinology (AACE) and the American Society for Reproductive Medicine (ASRM) will also support the resolution being offered by the Society. The resolution calls on the AMA to:

- Advocate for protections for the physicians who provide and the patients who receive gender-affirming care;
- Oppose federal and state legislation that would criminalize or ban this care; and
- Work with other organizations to educate the Federation of State Medical Boards about the medical necessity of gender-affirming care.

The AMA House of Delegates, which is the legislative and policymaking body of the American Medical Association, meets twice a year to consider changes to AMA policy. The Endocrine Society has two voting members in the House of Delegates this year: Mandy Bell, MD, and Daniel Spratt, MD.

The Endocrine Society proposed this resolution in response to the growing number of states that have introduced or passed bills that ban gender-affirming care and criminalize physicians who provide it. These policies contradict the evidence-based clinical practice guidelines that inform the treatment of TGD individuals. Research shows that denying gender-affirming care to TGD individuals can increase psychological problems and raise the risk of suicide. The Endocrine Society advocates on behalf of our members who care for TGD individuals to ensure that they can continue to provide evidence-based and medically necessary care. However, as attacks on access to gender-affirming care escalate, the entire medical community must vocalize its support for and recognize the necessity of caring for TGD individuals.

Learn About How You Can Become an Effective Advocate

The Endocrine Society has a robust advocacy program. Our policy priorities include research funding, access to care, physician payment, regulation of endocrine-disrupting chemicals, diabetes prevention and treatment, and obesity.

We have several ways Endocrine Society members can participate in our advocacy activities. The easiest way is to join one of our online advocacy campaigns. Please visit **endocrine.org/takeaction** to see our campaigns. We provide background information and an email that you can personalize if you wish. Our software will also direct the message to the correct mailbox on Capitol Hill. This will only take a minute of your time but will have a significant impact.

In addition, we are offering two sessions during **ENDO 2023** in Chicago on how you can advocate:

"How to Advocate for your Research"
will take place June 15 at 10:00 AM CT

"How to Advocate for your Patients & Practice"
will take place June 16 at 10:30 AM CT

We hope you will join us!

COVID-19 PHE Ends but Key Telehealth Waivers Remain in Place Thanks to Society's Advocacy Efforts

On May 11, the COVID-19 public health emergency (PHE) ended after more than three years. Many pandemic policies, including free vaccines and tests, will come to an end. However, certain key telehealth flexibilities have been extended because of Endocrine Society advocacy. During the PHE, we successfully advocated to waive geographic location telehealth requirements in Medicare, and patients could be seen from any location.

The Endocrine Society successfully advocated to extend the waiver of the originating site and geographic location requirements through December 31, 2024. We advocated for the Centers for Medicare and Medicaid Services (CMS) to allow reimbursement for Evaluation and Management (E/M) phone visits. We also successfully advocated for the provisions of telehealth services through audio-only telecommunications through December 31, 2024.

Medicare Payment Parity — CMS has reimbursed telehealth visits at the same rate as if the service was furnished in person. We advocated for CMS to extend this flexibility and opportunity for payment parity for telehealth in non-facility setting through the end of 2023. Finally, CMS announced that it will extend the Medicare Diabetes Prevention Program (MDPP) flexibilities that were put in place during the PHE. The extension of these flexibilities ensures that diabetes prevention programs can continue to be offered virtually for Medicare beneficiaries. We have advocated to Congress and the administration to strengthen the MDPP by making it easier to access DPPs virtually.

We will continue to advocate to make these waivers permanent. We also are working to broaden state licensure reciprocity policies to allow Medicare Part B beneficiaries to be seen by any Medicare provider located in any U.S. state if the provider has a full and unrestricted medical license in at least one state. Currently, physicians are required to hold a complete and unrestricted medical license in the state where the patient is located when receiving care unless the state has its own rules for cross-border telehealth, such as interstate compacts. EN

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