

JANUARY 2023

THE LEADING MAGAZINE FOR ENDOCRINOLOGISTS

# Endocrine news

## A “Congenital” Scientist

2023 Transatlantic Alliance Award winner  
George P. Chrousos, MD, talks with  
*Endocrine News* about his remarkable  
life and career in science.

## Endocrine Society Members in the Spotlight

We have devoted this issue to Endocrine Society members who are making a difference in advancing endocrine research and improving human health around the world as well as those who have changed the lives of their fellow endocrinologists.

- **THE WINNERS CIRCLE:** Meet the 2023 Endocrine Society Laureate Award winners!
- **SYSTEMS UPGRADE:** Endocrine Society members have convened to create another revered practice guideline that promotes emerging tech to counter hypoglycemic risk.
- **THE HYPOTHYROIDISM PUZZLE:** Antonio Bianco, MD, PhD tells us why hypothyroidism is often a “solution followed by a mystery.”

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## 2023 LAUREATE AWARDS WINNERS

### FRED CONRAD KOCH LIFETIME ACHIEVEMENT AWARD

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AWARDS WILL BE PRESENTED AT ENDO  
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CHICAGO, IL, JUNE 15–18, 2023.

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## 28 | The “Congenital” Scientist

Honored by both the Endocrine Society and the European Society of Endocrinology with the 2023 Transatlantic Alliance Award, George Chrousos, MD, ScD, has made significant contributions to endocrine research on both sides of the Atlantic. *Endocrine News* speaks with Chrousos about what this award means to him, conducting pioneering research on two different continents, the importance of studying stress, and why he became an endocrinologist in the first place.

BY KELLY HORVATH



## 12 | Meet the Endocrine Society's 2023 Laureates

For more than 70 years, the Endocrine Society has recognized the achievements of endocrinologists worldwide. Take a look at this year's distinguished recipients who join the list of prestigious practitioners and researchers.

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### 33 | LABORATORY NOTES Q&A: ANTONIO BIANCO, MD, PHD

Two months after his new book, *Rethinking Hypothyroidism*, hit the shelves, Antonio Bianco, MD, PhD, talks to *Endocrine News* about, well, rethinking hypothyroidism. From his research of thyroid metabolism and deiodinases to why researchers and clinicians have often been so mystified by hypothyroidism for centuries, Bianco discusses why treating hypothyroidism is a “solution followed by a mystery.”

BY DEREK BAGLEY

### 36 | PRACTICE RESOURCES SYSTEMS UPGRADE A NEW ENDOCRINE SOCIETY GUIDELINE PROMOTES TECHNOLOGY TO COUNTER HYPOGLYCEMIC RISK

Technologies such as continuous glucose monitoring and insulin pumps have reduced the threat of hypoglycemia in people with diabetes. The latest Endocrine Society clinical practice guideline on hypoglycemia in diabetes urges greater adoption of these many advances in technology and medications.

BY ERIC SEABORG

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Endocrine Society advocates for public health in Uruguay, plus four ways you can advocate for endocrinology in 2023

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## Advance Your Career by Volunteering

**A**s we each consider how to make the most of 2023, I hope you will take a few moments to ponder your role in the Endocrine Society and ways to maximize your membership. Getting involved in our activities can be very rewarding, both personally and professionally.

In the past two decades, I have been fortunate to serve on several Society committees and journal editorial boards. Each volunteer opportunity placed me in the orbit of notable endocrine researchers, clinicians, and educators. Being an active Society member can not only give you the opportunity to contribute to the mission of the Endocrine Society but can also help you grow your network and make invaluable connections that may in

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**Being an active Society member can not only give you the opportunity to contribute to the mission of the Endocrine Society but can also help you grow your network and make invaluable connections that may in turn enable research collaborations, lead to speaking opportunities, facilitate professional growth, and — most importantly — lead to lifelong friendships!**

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turn enable research collaborations, lead to speaking opportunities, facilitate professional growth, and — most importantly — create lifelong friendships!


Even if your schedule is hectic, it is easy to find a way to give back that works for you. With our online advocacy tools, it only takes a minute or two to send a letter to policymakers about the importance of the National Institutes of Health (NIH) funding or affordable insulin. Our Special Interest Groups make it easy to contribute when your schedule allows. Take some time to review a journal article or to provide feedback on a specific project for which member input is crucial.

It takes many members of our community working together to plan engaging events, publish groundbreaking journals, and mentor the next generation of leaders in our field. Being part of the team is as easy as completing the volunteering form on our website. You can indicate the opportunities that interest you. We are always looking for people with a variety of skillsets from different backgrounds to lend their expertise!

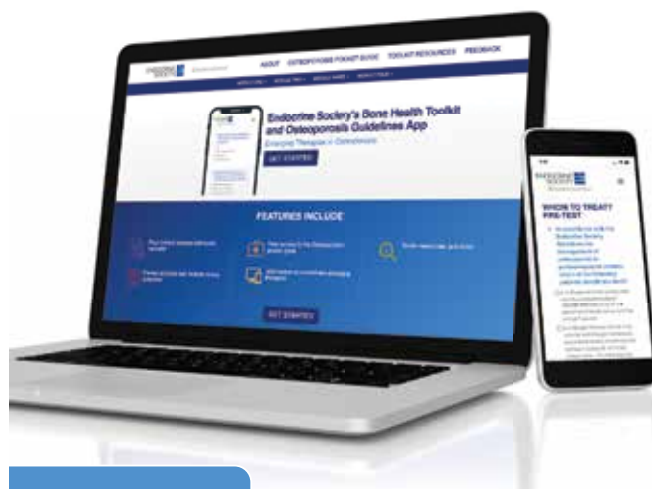
The beginning of a new year is the perfect time to take the first step. Whatever your interests, you can find a rewarding way to get involved. There are plenty of ways to serve, whether you want to review abstracts or mentor the next generation through the Future Leaders Advancing Research in Endocrinology (FLARE) or Excellence in Clinical Endocrinology Leadership (ExCEL) programs.

A great way to get started is to submit a late-breaking abstract to present at **ENDO 2023**. Presenting at our annual meeting can help you make new connections and expand your network. You can prepare an abstract now to submit this spring. In-person meetings offer the opportunity to ask questions and introduce yourself to new people who share your professional interests.

Once you have started out with such shorter-term opportunities, serving on one of our committees is an ideal next step. Committees offer the chance to build lasting relationships with your fellow volunteer leaders, who are often people you might not meet by chance. Over the course of a three-year term, you can influence important decisions about the direction of the Society. Through my committee service, I learned how to be an active contributor while also drawing out others' perspectives. I then was able to apply that experience to committee service at my home institution.

Your membership gives you the chance to gain experience and contacts you need to succeed in our field. By volunteering, each of us helps to advance science, healthcare, and education in a manner that promotes optimal health and well-being. 

– Ursula B. Kaiser, MD  
President, Endocrine Society



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JANUARY 2023

# Endocrine news

THE LEADING MAGAZINE FOR ENDOCRINOLOGISTS

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*Endocrine News* informs and engages the global endocrine community by delivering timely, accurate, and trusted content covering the practice, research, and profession of endocrinology.

## Heralding the Expertise of Endocrine Society Members

**A**s we kick off a new year, *Endocrine News* is paying special tribute to those individuals who have made the field of endocrinology so remarkable, the outstanding members of the Endocrine Society.

And what better way to start crowing about our outstanding members than with the 2023 Endocrine Society Laureate Award recipients. Starting on page 12 we have devoted 15 pages to these leaders in the practice and science of endocrinology who represent endocrinologists around the world for their seminal research, meritorious service, leadership and mentorship, innovation, entrepreneurship, international contributions, education, translation of science to practice, and lifetime achievement. As usual, it's a very impressive list!

Once again, we are including the Laureates' own thoughts with their bios in the form of brief Q&As so we can get their insights on not only how the Society has helped them throughout their career, but also any advice they might have for our early-career members. As we know, each new generation can learn so much from the ones that preceded it, and we thought this would be a fun way to engage with our Laureates in a more accessible manner than in years past because, let's face it, everyone's journey through the endocrinology profession is different, and everyone has something to learn just as everyone has something to teach.

This year's Roy O. Greep Award for Outstanding Research recipient, Joseph Bass, MD, PhD, the Charles F. Kettering Professor of Medicine at Northwestern University Feinberg School of Medicine in Chicago, Ill., says that the scientific community "beginning with mentors and extending to students and trainees, is the most meaningful part of the long trajectory, and buffers the bumps that inevitably occur along the way." When asked what his advice would be for those just beginning their careers in endocrinology, he continues, "There is not a single pathway; instead there are many varieties of problems that offer an equally diverse range of solutions as there are career possibilities."

On page 28, we feature another award-winning Endocrine Society member, George Chrousos, MD, ScD, who is the recipient of the 2023 Transatlantic Alliance Award, presented by both the Endocrine Society and the European Society of Endocrinology. In "The 'Congenital' Scientist," Chrousos talks to writer Kelly Horvath about what this award means to him, conducting pioneering research on two different continents, the importance of studying stress, and why he became an endocrinologist in the first place. "Research



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The mission of the Endocrine Society is to advance excellence in endocrinology and promote its essential and integrative role in scientific discovery, medical practice, and human health.

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advances in endocrinology are rapid, novel, consequential, and very exciting,” he explains when asked what he finds compelling in endocrine research at the moment. “Novel hormones and mechanisms are being discovered almost every week, and it will not be long before we solve clinical problems that today we consider unsolvable. Obesity, type 1 diabetes mellitus, endocrine tumors, cardiometabolic problems, etc., will become the disorders of the past.”

The expertise of Endocrine Society members is on full display with yet another release of a Clinical Practice Guideline, the most lauded treatment protocols in the field. On page 36, Eric Seaborg reports on the newest installment, “Management of Individuals with Diabetes at High Risk for Hypoglycemia: An Endocrine Society Clinical Practice Guideline,” in **“Systems Upgrade: A New Endocrine Society Guideline Promotes Technology to Counter Hypoglycemic Risk.”** As technologies such as continuous glucose monitoring and insulin pumps reduce the threat of hypoglycemia in people with diabetes, this latest guideline on hypoglycemia in diabetes urges a broader use of this technology as well as the new insulin formulations. David C. Lieb, MD, of the Eastern Virginia Medical School, Norfolk, Va., and a co-chair of the guideline writing committee comments that previously, everyone on insulin had a “kit” at home for glucagon injections, often from a family member, to treat low blood sugar. “But those kits required reconstitution of the glucagon with saline before they could be injected, and many of those who tried to give it misused it, leading to no glucagon being given or underdosing of the glucagon,” he explains. “There are new forms of glucagon that are much easier to inject. There is even a nasal form that can be inhaled.”

On page 33, senior editor Derek Bagley talks with Antonio Bianco, MD, PhD about his recent book, *Rethinking Hypothyroidism*, and why researchers and clinicians have sometimes been confounded by hypothyroidism in **“Solving the Hypothyroidism Puzzle.”** He explains that hypothyroidism treatment is a “solution followed by a mystery” and hopes his book will answer many questions from clinicians and researchers alike as well as from patients living with this condition.

We hope this issue helps get your 2023 off to a great start and that you enjoy sharing in our bragging rights about the expertise of Endocrine Society members. And remember, if you have a story idea you think would be a good fit for *Endocrine News*, be sure to send me an email at: [mnewman@endocrine.org](mailto:mnewman@endocrine.org). Happy New Year! 🎉

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



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**BY DEREK BAGLEY**  
Senior Editor



**“Lifestyle intervention is an integral part of PCOS treatment; therefore, a chronotype-based approach could potentially increase the number of women achieving their treatment goals.”**

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## TRENDS & INSIGHTS

# Higher Prevalence of Evening Chronotype in Women with PCOS Associated with Worse Metabolic Profile

**A** higher prevalence of the evening chronotype in women with polycystic ovary syndrome (PCOS) is associated with a worse hormonal and metabolic profile, according to a paper recently published in the *Journal of Pineal Research*.

Researchers led by Giovanna Muscogiuri, MD, PhD, an associate professor in the Unit of Endocrinology at Federico II University Medical School of Naples, Italy, point out that PCOS can present numerous challenges in both diagnosis and management, and treatment should be tailored to the individual. The authors go on to write that even with current therapies for PCOS, most women fail to reach their therapeutic target, suggesting there may be some misdiagnosed characteristics of this syndrome that are not considered in the assessment and thus in the therapeutical approach of women with PCOS.

The authors also note that chronotype has been looked at as a risk factor for obesity-related cardiometabolic complications, and studies have shown people with the evening chronotype (EC) are prone to develop complications such as obesity, diabetes, and cardiovascular diseases. “Since PCOS often brings with it metabolic alterations and these are also under the influence of chronotype, the aim of the study was to assess the prevalence of chronotype categories in women with PCOS (compared to healthy controls) and their influence on the hormonal and metabolic aspects of PCOS,” the authors write.

For this observational case-control study, the researchers analyzed data from 112 women with

PCOS and 112 healthy women matched for age and body mass index (BMI). The women answered the Morning-Eveningness Questionnaire to assess their chronotype, administered face to face by an expert nutritionist, and not self-reported. The researchers found that women with PCOS had



a higher prevalence of the evening chronotype category compared to controls. “After adjustment for BMI, chronotype score was significantly negatively correlated with C-reactive protein levels, testosterone levels, and Ferriman-Gallwey score,” the authors write.

“In conclusion, the results of our study showed for the first time a higher prevalence of EC in women with PCOS than in women without the disease,” the authors conclude. “EC was associated with worse hormonal and metabolic outcomes in women with PCOS, giving an importance to its evaluation in the management of the condition. Lifestyle intervention is an integral part of PCOS treatment; therefore, a chronotype-based approach could potentially increase the number of women achieving their treatment goals.



## Pro Golfer Azahara Muñoz Shares Her Experience with Hashimoto Disease

**W**hen professional golfer Azahara Muñoz started developing symptoms of Hashimoto thyroiditis — tiredness, cold extremities — she chalked them up to practicing too hard or traveling too much. It's a stressful job. "You almost always have an excuse for it," she says.

But then around 2016, Muñoz noticed that she began suffering from anxiety. Her hair started to fall out. "I had these bald spots on my head," she says. "I thought I was just really stressed out."

Muñoz first went to a dermatologist, hoping the physician could prescribe something to help her hair grow back. "[The dermatologist] knew right away," Muñoz says. "She said, 'You need to do some blood work because I think this is your thyroid.' Once I went to the dermatologist, everything was pretty quick."

Muñoz says that the results from the first blood tests were "horrendous," with thyroid-stimulating hormone and T4 levels off the charts. Now diagnosed with Hashimoto disease, Muñoz was put on levothyroxine, which she says lowered her hormone levels but didn't improve her symptoms. She ached all over, couldn't work out in the morning. "If I pushed myself a bit too much, I would definitely feel it, like the next day I would have to take it really easy," she says. "I was still really cold. My skin was really dry. So, my symptoms didn't improve that much to be honest, even though I was on

medication." (Read the Laboratory Notes Q&A, "Solving the Hypothyroidism Puzzle," later in this issue, on how this is a common occurrence and should be addressed.)

For a competitor like Muñoz, who won Ladies Professional Golf Association (LPGA) Tour Rookie of the Year in 2010, this was a blow, not only to her life, but her livelihood. She tried to force herself to practice, but she says all she could do was come home and crash on the couch. She practiced less and less and played in fewer tournaments. "I was just so exhausted," she says. "I couldn't play very well."

A 2018 interview made public Muñoz's struggles with Hashimoto disease. Muñoz says she never really wanted to talk about her health, but almost immediately her Twitter and Instagram filled with



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**Muñoz says that the results from the first blood tests were 'horrendous,' with thyroid-stimulating hormone and T4 levels off the charts. Now diagnosed with Hashimoto disease, Muñoz was put on levothyroxine, which she says lowered her hormone levels but didn't improve her symptoms.**

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messages from people thanking her for talking about it, especially from those who also realized they might be dealing with a thyroid condition.


Around this time, Muñoz's agent told her that IBSA Pharmaceutical had reached out about a levothyroxine sodium oral solution they were bringing to market, and they wanted Muñoz to be their spokesperson. She had not heard about it at the time, but became interested in it, especially when she became pregnant with her son, Lucas.

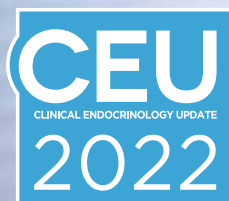
Kenila Ventura, MD, who has been treating Muñoz, tells *Endocrine News* that she first approached her about the drug IBSA is marketing as Tirosint-SOL when Munoz was in her final two weeks of pregnancy. Ventura explains that levothyroxine requirements change during pregnancy anyway. "We waited until delivery, and then we transitioned to Tirosint, and she has done very well with it," Ventura says. "I think she's

very competitive and she doesn't complain a lot. I think that overall, she feels her best. It's just what you're trying to aim for with a patient."

"Yeah, and it's been so much better ever since," Munoz says. "My achiness has gone away."

Muñoz says that she was reluctant at first to be a spokesperson. "I am pretty private, so for me it's a bit hard," she says. "But just because I know how much it can help, I am going to force myself and do it."

Muñoz says she wants people to know that if they don't feel good, they shouldn't assume they're just stressed. And while she says she's biased toward Tirosint-SOL because it's worked so well for her, both Muñoz and Ventura say people should take what works best for them. "There are alternatives, and if you don't feel great on something, definitely try others," Ventura says. 



## CLINICAL ENDOCRINOLOGY UPDATE (CEU) 2022 SESSION RECORDINGS

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An important aspect of the [Endocrine] Society has been its wide embrace of those identifying primarily as basic scientists and clinicians. **There are very few international organizations that effectively balance the dual mission of clinical and investigative career pathways, and I am grateful that the Society has remained welcoming to these fundamental yet conjoined endeavors.”**

— 2023 Roy O. Greep Award for Outstanding Research Laureate Award recipient, **Joseph Bass, MD, PhD**, discussing how the Endocrine Society has supported his own career journey. You can read more about Bass and the rest of the 2023 Laureate Award winners on page 12.

90%

Results of pancreas transplantation continue to improve as up to 90% of recipients with diabetes enjoy freedom from both insulin therapy and the need for close glucose monitoring following the procedure.

— SOURCE: THE JOURNAL OF CLINICAL ENDOCRINOLOGY & METABOLISM

8.9%

The three-year breast cancer recurrence rate for women who interrupted endocrine therapy to pursue pregnancy was 8.9%, with most women in the study going on to deliver healthy babies.

— SOURCE: DANA-FARBER CANCER INSTITUTE

3-4x

Black Americans with diabetes are three to four times more likely to have a limb amputated than a white person with the same condition. — SOURCE: USA TODAY



### World's Top 10 Best Specialized Hospitals – Endocrinology

1. **Mayo Clinic** – Rochester – Division of Endocrinology, Diabetes, Metabolism, & Nutrition, Rochester, Minn.
2. **Massachusetts General Hospital** – Endocrinology Division, Boston, Mass.
3. **Asan Medical Center Department of Endocrinology and Metabolism**, Seoul, South Korea
4. **Cleveland Clinic Endocrinology & Metabolism Institute**, Cleveland, Ohio
5. **The Johns Hopkins Hospital Johns Hopkins Comprehensive Diabetes Center**, Baltimore, Md.
6. **New York-Presbyterian Hospital Columbia and Cornell Naomi Berrie Diabetes Center**, New York, N.Y.
7. **Mayo Clinic** – Phoenix Endocrinology Department, Phoenix, Ariz.
8. **AP-HP** – Hôpital Universitaire Pitié Salpêtrière Service de Diabétologie, Paris, France
9. **Seoul National University Hospital Department of Endocrinology and Metabolism**, Seoul, South Korea
10. **The Catholic University Of Korea** – Seoul St. Mary's Hospital, Department of Endocrinology & Metabolism, Seoul, South Korea

Full list located here: <https://www.newsweek.com/rankings/worlds-best-specialized-hospitals-2023/endocrinology>.

— SOURCE: NEWSWEEK



90%

Approximately 90% of people with diabetes are treated by primary care physicians rather than endocrinologists.

— SOURCE: CISON

# ENDO 2023

June 15 – 18, 2023 • Chicago, Illinois/Virtual Event

**REGISTRATION OPENS:** January 11, 2023

**ABSTRACT DEADLINE:** December 19, 2022

We hope to see you at **ENDO 2023**, taking place June 15 – 18, 2023, in Chicago, Ill. With over 7,000 attendees, nearly 2,000 abstracts, and over 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](http://www.endocrine.org/endo2023)



## 3rd International Conference on Diabetes, Endocrinology and Obesity

Virtual Event

March 20 – 21, 2023

This conference focusing on the latest and most exciting innovations in all areas of diabetes research offers a unique opportunity for investigators across the globe to meet, network, and learn about new scientific innovations. This year's annual congress highlights the theme, "New Technologies and Practical Approaches: Diabetes and Endocrine Disorders," which

reflects the innovative progress in diabetes disease research. The two-day conference includes special keynote sessions conducted by eminent and renowned speakers who excel in the field of diabetes.

<https://www.diabetesmeet.com/>

## 43rd American Association of Endocrine Surgeons Annual Meeting

Birmingham, Alabama

April 29 – May 3, 2023

The 2023 AAES Annual Meeting will be an in-person event in Birmingham, Ala.

All presentations (podium and poster) will be given in person. New for #AAES2023 is an entire Scientific Session dedicated to health equity. Examples include but are not limited to healthcare workforce disparities; differences in patient access based on social and cultural determinants of health; population-level factors, such as socioeconomic determinants and disparities in healthcare coverage; and more.

<https://www.endocrinesurgery.org/2023-annual-meeting>



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>



## Obesity Research Conference Los Angeles, California/Virtual May 1 – 3, 2023

The main objective of this conference is to bring researchers together to share their ideas and provide a critical review of the present state of the field. It is designed in such a way that it provides an opportunity to meet up with people from both industry and academia and establish a scientific network between them. The 7th annual meeting (ORC-2023) will feature the same high-quality lectures as in past years, discussing the current trends in treatment options for obesity, chronic diseases associated with obesity, the epidemic of childhood obesity, the prevention methods, and the care and management of obese patients. This three-day online event will provide a dedicated platform to share cutting-edge scientific findings, medical practices, and caregiver initiatives related to obesity and various chronic diseases associated with it. It is dedicated to creating a stage for exchanging the latest research results and advanced research methods.

<https://obesity.unitedscientificgroup.org/>

## 18th International Pituitary Congress Chicago, Illinois

June 12 – 14, 2023

The 18th International Pituitary Congress will present an exciting group of speakers expert in normal and disordered pituitary function. Our faculty includes distinguished clinicians and investigators, fellows in training, and basic scientists. As usual, we will present cutting-edge in-depth topics that will permit our attendees to become familiar with the latest trends in pituitary endocrinology. The plenary format of the meeting is intended to facilitate maximum interaction and free exchange of ideas among participants and speakers.

<https://www.pituitarysociety.org/events>

## INTERNATIONAL ITINERARY

### ATTD 2023

Berlin, Germany

February 22 – 25, 2023

The 16th International Conference on Advanced Technologies & Treatments for Diabetes (ATTD 2023) to be held on February 22 – 25, 2023, in Berlin, Germany, is the leading international forum where clinicians, diabetes care providers, researchers, industries, start-ups, investors, reimbursement authorities, regulators, and people with diabetes; assemble with the goal to improve the care of people with diabetes at the fastest possible pace. Presentations and discussions will be given by many distinguished professionals in the field and will include topics such as artificial intelligence-based decision support systems; glucose sensors; closed-loop systems; artificial pancreas; devices for diabetic prevention; new medications for the treatment of diabetes, insulins, delivery systems, and insulin pumps; and many more.

<https://attd.kenes.com/>

### 50th European Calcified Tissue Society Congress

Liverpool, UK

April 14 – 18, 2023

The European Calcified Tissue Society (ECTS) and Bone Research Society (BRS) join forces to provide a unique platform for sharing the most relevant and cutting-edge science and innovation in calcium, bone and mineral metabolism in Europe. We aim to provide excellent learning and networking opportunities to basic, translational and clinical scientists, specialists, trainees, and allied health professionals.

<https://www.ects2023.org/>

### WCO-IOF-ESCEO 2023

Barcelona, Spain

May 4 – 7, 2023

After more than two years of virtual editions, the World Congress on Osteoporosis, Osteoarthritis, and Musculoskeletal Diseases will take place from May 4 – May 7, 2023 in Barcelona, Spain. The members of the Committee of Scientific Advisors of the International Osteoporosis Foundation (IOF) and the European Society for Clinical and Economic Aspects of Osteoporosis and Osteoarthritis (ESCEO) are developing a scientific program that will bring together the world's best in the field of musculoskeletal health and disease. It is hoped that this Congress will move the field one step forward on all fronts, from new understanding of bone metabolism and pathology to new strategies and options in prevention, diagnosis, and treatment.

<https://www.wco-iof-esceo.org/>

### 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](http://www.endobridge.org)



The Endocrine Society

2023

Laureate Award

WINNERS



For more than 70 years, the Endocrine Society has recognized the achievements of endocrinologists worldwide. The Laureate Awards recognize endocrinologists for seminal research, meritorious service, leadership and mentorship, innovation, international contributions, education, translation of science to practice, and lifetime achievement.

Established in 1944, the Society's Laureate Awards recognize the highest achievements in the endocrinology field, including groundbreaking research and innovations in clinical care.

The distinguished recipients on the following pages join a prestigious list of past award recipients, all of whom have advanced scientific breakthroughs, medical practice, and human health around the world. Award categories honor the achievements of endocrinologists at all stages of their careers, recognizing those at the pinnacle of the field as well as young endocrinologists who are making a mark.

The dedication, commitment, and achievements of current and past award recipients have earned each a place in Endocrine Society history as well as the history of the practice and science of endocrinology.

Also, this year we find out how the Endocrine Society has helped their careers as well as the advice they have for their early-career peers.

The Endocrine Society will present the awards to the winners at **ENDO 2023**, the Society's 106th Annual Meeting, taking place in Chicago, June 15 – 18, 2023.





# Fred Conrad Koch Lifetime Achievement Award

## Mitchell A. Lazar, MD, PhD

**Mitchell A. Lazar, MD, PhD** is the Willard and Rhoda Ware Professor in Diabetes and Metabolic Diseases at the Perelman School of Medicine at the University of Pennsylvania in Philadelphia and the founding director of the university's Institute for Diabetes, Obesity, and Metabolism. He is an endocrinologist and physician-scientist whose findings relate to the basic mechanisms of nuclear receptor action and their role in obesity and diabetes, most notably the discovery of the hormone resistin.

His work has uniquely and reproducibly linked the fields of transcriptional regulation, epigenomics, circadian rhythms, and metabolism from the vantage point of endocrine physiology. Lazar has been selected as an editorial board member of *Endocrine Reviews*, *Endocrinology* and the *Journal of the Endocrine Society*, and has received many awards, including two Method to Extend Research in Time (MERIT) Awards from the National Institutes of Health, the Karolinska Institute's 2019 Rolf Luft Award, and the Endocrine Society's Richard E. Weitzman Memorial and Gerald D. Aurbach Awards. He has served on the Board of Scientific Councilors of the National Institutes of Diabetes, Digestive, and Kidney Diseases and on the Endocrine Society's Board of Directors.

### How has the Endocrine Society supported your professional development/career journey?

The Endocrine Society has supported my career development in so many ways. As a trainee and young faculty member, the Society provided an outstanding peer group and opportunities to meet new colleagues and role models, many of whom have become lifelong friends. The annual meeting has been the place to present new work to an interested international audience united in their love of endocrinology. As a physician-scientist, **I've appreciated that the Endocrine Society also provides unique opportunities for interactions of basic and clinically oriented endocrinologists.** Journals published by the Endocrine Society have been a great outlet for disseminating new work that has been carefully peer reviewed. As a more senior faculty member, I have enjoyed getting to know and mentoring the next generation of endocrinologists, and I appreciate even more the broader interests of the Endocrine Society to advocate for increasing funding and awareness of endocrinology as a medical discipline and a critical scientific field.

### As a Laureate Award recipient, do you have any advice for those just beginning their careers?

Both in training and early in your independent career, make sure that your institution and surroundings are conducive to your goals for success. Aim high and try to avoid distractions from these goals. Remain rigorous and beware of shortcuts to success. Find outstanding mentors, who can advise you and provide constructive criticism as well as praise and give you permission to say no to excess administration or other distractions from your main work. **Make sure that you have one or more role models for the type of career success and intellectual fulfillment that you are seeking; these may not be the same as your primary mentors.** Always be collegial but believe in yourself and your work. Be a good citizen at the local and national levels and try to align your efforts in this arena with your career and scientific goals.

### ABOUT THE AWARD

The Fred Conrad Koch Lifetime Achievement Award — the Society's highest honor — recognizes the lifetime achievements and exceptional contributions of an individual to the field of endocrinology. Fred Conrad Koch, PhD, the Society's 19th president, is best remembered for his elucidation of testicular function. In 1957, the late Elizabeth Koch bequeathed a substantial legacy to the Endocrine Society in memory of her late husband, Dr. Fred Conrad Koch.



# Richard E. Weitzman Outstanding Early Career Investigator Award

## Rana K. Gupta, PhD



### How has the Endocrine Society supported your professional development/career journey?

The Endocrine Society has been an important part of my academic journey since the days of my PhD training. Attending the annual meetings as a trainee gave me exposure to cutting-edge clinical and basic science research in my field and in closely related fields. I always found the interactions with senior investigators and the presentations of their work to be inspiring; this gave me role models to look up to. As a faculty member, my involvement as a member of the Annual Meeting Steering Committee was equally rewarding. **The process of planning exciting symposia for the annual meetings gave me an opportunity to think critically about what the important areas of research in our field are today and what is likely to be important in the future.** Today, participation in the Endocrine Society has allowed me to come full circle; I can now offer trainees the support and opportunities that were given to me at their stage of their careers.

### As a Laureate Award recipient, do you have any advice for those just beginning their careers?

Everyone starting their independent career is in a different situation; however, the advice that served me well was the advice given to me by my mentors: **Stay focused. Identify one or two important problems in the field that motivate you and dive deep into those problems.** Let the science and the lab grow organically from there.

#### ABOUT THE AWARD

Established in 1982 through a generous gift by an anonymous donor, this award honors the memory of the late Richard E. Weitzman, who had a brief but outstanding career studying neurohypophyseal hormones and cardiovascular-endocrine physiology. This award recognizes an exceptionally promising young clinical or basic investigator based on the contributions and achievements of the nominee's own independent scholarship performed after completion of formal training and on the recipient's entire body of work, rather than a single work.

**Rana K. Gupta, PhD** is a professor of medicine at Duke University School of Medicine in Durham, N.C. He spent a decade building a research program at the University of Texas Southwestern that has earned international recognition for its novel contributions to the field of adipose tissue development and function.

Gupta is one of the preeminent investigators in the field of adipose biology, especially as it relates to the pathogenesis of cardiometabolic diseases and the regulation of metabolic homeostasis. He is a thought leader in the field of adipose tissue progenitors and has contributed several authoritative review articles on this topic. He is also an active participant on the National Institutes of Health study sections focused on the work in the field of diabetes, obesity, and metabolism.





# Gerald D. Aurbach Award for Outstanding Translational Research

## Myles Brown, MD

This annual award recognizes outstanding contributions to research that accelerates the transition of scientific discoveries into clinical applications. This year, the award has two worthy recipients: **Myles Brown, MD** and **Márta Korbonits, MD, PhD, DSc, FRCP**.

Brown is the Emil Frei III Professor of Medicine at Dana-Farber Cancer Institute and Harvard Medical School in Boston, Mass. He is an expert in oncology and a talented physician-scientist whose contributions have fundamentally reformulated the mechanistic understanding of the hormone dependence of breast and prostate cancers, which has enabled the development of new therapies for these diseases.

Honored with several awards, including the Endocrine Society's 2010 Edwin B. Astwood Award, Brown also was elected to the National Academy of Sciences in 2016, the American Academy of Arts and Sciences in 2017, and the National Academy of Medicine in 2020. He has been a member of the Endocrine Society since 2002 and served on the Editorial Board for the Endocrine Society's journal, *Molecular Endocrinology*, which was incorporated into the journal *Endocrinology* in 2017.

### How has the Endocrine Society supported your professional development/career journey?

The Endocrine Society has had a major impact on my career. **The annual meeting has been a wonderful place to connect with colleagues, many of whom have become lifelong friends.**

### As a Laureate Award recipient, do you have any advice for those just beginning their careers?

**My advice to those beginning careers in research is to pick an important problem that they feel passionate about and to stick with it.** Be self-critical, but to trust your own data and not be dissuaded by reviewers of papers and grants.

### ABOUT THE AWARD

The Gerald D. Aurbach Award for Outstanding Translational Research is presented in recognition of outstanding research that accelerates the translation of scientific discoveries into clinical applications. Translational research supported with this award will typically involve expertise, collaboration, and engagement across disciplines. The award is supported by the Gerald D. Aurbach Memorial Fund.



# Gerald D. Aurbach Award for Outstanding Translational Research

## Márta Korbonits, MD, PhD, DSc, FRCP



**How has the Endocrine Society supported your professional development/career journey?**

My yearly visits to the Endocrine Society meetings **meant that I learned new ideas, formed new hypotheses, developed collaborations, and presented data in front of an informed and challenging audience.**

**As a Laureate Award recipient, do you have any advice for those just beginning their careers?**

**Trust your ideas!**

**Márta Korbonits, MD, PhD, DSc, FRCP** is the professor of endocrinology and metabolism at Queen Mary University of London. She is one of the top clinician scientists on the clinical, translational, and experimental aspects of pituitary tumorigenesis and familial isolated pituitary adenomas and has pioneered work on the metabolic effects of various hormones.

Her strength is the ability to set up basic science experiments based on key clinical questions and then translate these back to clinical studies. In addition, she looks after patients with endocrine diseases at St. Bartholomew's Hospital, undertakes wide-ranging teaching activities, and supervises MSc and PhD students. She currently serves on the Endocrine Society's Annual Meeting Steering Committee and as president-elect of the Society for Endocrinology. She also received the Endocrine Society's 2015 Delbert A. Fisher Research Scholar Award.

### **ABOUT THE AWARD**

The Gerald D. Aurbach Award for Outstanding Translational Research is presented in recognition of outstanding research that accelerates the translation of scientific discoveries into clinical applications. Translational research supported with this award will typically involve expertise, collaboration, and engagement across disciplines. The award is supported by the Gerald D. Aurbach Memorial Fund.





# Sidney H. Ingbar Distinguished Service Award

**Beverly M.K. Biller, MD**

A professor of medicine at Harvard Medical School and a physician at Massachusetts General Hospital in Boston, Mass., **Beverly M.K. Biller, MD** has been a dedicated and tireless leader of the Endocrine Society for more than a quarter century, deeply impacting the Society and the field of endocrinology. This is reflected in her work on numerous Society committees, working groups, and task forces, including serving as a Council/Board of Directors member, Clinical Science chair and overall chair of the Annual Meeting Steering Committee, Scientific and Educational Programs Core Committee chair, and an associate editor of *The Journal of Clinical Endocrinology & Metabolism*.

She was instrumental in developing the Society's Committee on Diversity and Inclusion, which develops programs and strategies to create a more diverse Society and increases awareness of health disparities in endocrinology. In her role as a member of the Nominating Committee, she advocated for underrepresented clinicians, researchers, and educators to be selected for board of director and presidential positions.

## How has the Endocrine Society supported your professional development/career journey?

My involvement in Endocrine Society committees and Annual Meetings **has led to wonderful collaborations and friendships with scientists and clinicians around the world.**

## As a Laureate Award recipient, do you have any advice for those just beginning their careers?

Volunteer for Endocrine Society activities and projects — **you will meet people in your area of interest from around the globe, advance the mission of the Society, and have fun along the way!**

## ABOUT THE AWARD

The Sidney H. Ingbar Award for Distinguished Service is presented in recognition of distinguished service to the Endocrine Society and the field of endocrinology. The award is supported by the Sidney H. Ingbar Memorial Fund.



# Roy O. Greep Award for Outstanding Research

## Joseph Bass, MD, PhD



### How has the Endocrine Society supported your professional development/career journey?

My original involvement began during my clinical training, specifically in consolidating and extending my exposure to case studies in medical physiology. As an early-stage investigator, I had the opportunity to participate as a member of the Annual Meeting Steering Committee — forging new friendships in the spirit of shared interest in biomedical research and clinical care. An important aspect of the Society has been its wide embrace of those identifying primarily as basic scientists and clinicians. There are very few international organizations that effectively balance the dual mission of clinical and investigative career pathways, and I am grateful that the Society has remained welcoming to these fundamental yet conjoined endeavors.

### As a Laureate Award recipient, do you have any advice for those just beginning their careers?

The greatest award is the reward of working each day exploring the unknown. The intrinsic stimulation of discovery and the varieties of experience that characterize our endeavor remain the most fundamental goal. The community of science, beginning with mentors and extending to students and trainees, is the most meaningful part of the long trajectory and buffers the bumps that inevitably occur along the way. To be more granular, that chance is key and favors the prepared mind are accurate axioms. Tailoring training toward specific interests — for me this was to apply molecular and biochemical approaches in medical physiology — and recognizing when an unexpected angle on a problem had emerged were core elements in the earliest steps of my career. Converting the unexpected into inquiry and iteratively following new observations beyond one's comfort zone remain important. I have also been fortunate to have had generous mentors and a community of friends with shared interests — not only in science and medicine but in other parts of life that strengthen our conversations — for me this often meant music. Recovery and resilience in the face of perceived obstacles likely plays a role in sustaining a career for many of us. Maintaining a core appreciation of the excitement of solving puzzles, and liberating imagination and originality in the process, will ultimately unite vocation and avocation. There is not a single pathway; instead, there are many varieties of problems that offer an equally diverse range of solutions as there are career possibilities. In part, the luck of landing on an unexplored territory and recognizing how to acquire expertise to expand into uncharted space ultimately moves us collectively forward in our own individual careers and as members of a broader community.

#### ABOUT THE AWARD

The Roy O. Greep Award for Outstanding Research is presented for meritorious contributions to research in endocrinology. The award is supported by the Roy O. Greep Memorial Fund.

**Joseph Bass, MD, PhD** is the Charles F. Kettering Professor of Medicine at Northwestern University Feinberg School of Medicine in Chicago, Ill. As a world leader in circadian biology and endocrinology, his creativity and insights as an endocrinologist were instrumental in his discovery that a mutation in a core circadian clock gene led to abnormal glucose metabolism, hyperphagia, and alterations in the control of feeding time in mice. This pioneering work provided the molecular underpinning for current thinking about how shift work leads to obesity and diabetes and set the stage for studies on how meal timing affects health.

Bass next innovatively asked the converse question of whether metabolism reciprocally influences the clock and established that the macronutrient content of diet directly modulates circadian behavior and rhythmic physiology. Most recently, he has elucidated the biochemical basis for NAD<sup>+</sup>-SIRT1 regulation of core clock function, opening insight into senescence of sleep/wake and metabolic rhythms during aging.





# International Excellence in Endocrinology Award

## Tasnim Ahsan, MRCP, FRCP, FCPS

### **Tasnim Ahsan, MRCP, FRCP, FCPS**

is the professor emerita at the Jinnah Postgraduate Medical Centre and the founding dean of the Medicell Institute of Diabetes Endocrinology & Metabolism in Karachi, Pakistan. She is an internationally renowned clinician and educator who has contributed to the establishment and growth of the field of endocrinology in Pakistan.

Ahsan started the first endocrinology practice in a public sector hospital in Pakistan at the Jinnah Postgraduate Medical Centre in 1993 and has trained over 100 postgraduate trainee doctors in internal medicine and endocrinology. She is dedicated to expanding access to care and treats a large transgender community at the Medicell Institute. She also is a founding member of the Pakistan Endocrine Society.

### **How has the Endocrine Society supported your professional development/career journey?**

The Guidelines of Endocrine Society have been very valuable in clinical practice and teaching. **The Endocrine Society publications *Journal of Clinical Endocrinology and Metabolism* and the *Endocrine Self-Assessment Program* (JCEM and ESAP) have been an invaluable source of knowledge and inspiration over the years.**

### **As a Laureate Award recipient, do you have any advice for those just beginning their careers?**

Endocrinology involves patiently picking up on subtle historical information, signs, and symptoms. Similarly, interpretation of tests to establish the diagnosis is also a matter of painstaking critical analysis of available data. **There is always a constant need to keep yourself updated about emerging evidence in a fast-moving area of research.**

### **ABOUT THE AWARD**

This International Excellence in Endocrinology Award is presented to an endocrinologist who has made exceptional contributions to the field in geographic areas with underdeveloped resources for hormone health research, education, clinical practice, or administration.



# Outstanding Mentor Award

## William Rainey, PhD



### How has the Endocrine Society supported your professional development/career journey?

As a graduate student, my mentors were all endocrine researchers who belonged to the Endocrine Society, and their lab members attended ENDO. Based on their advice, I published my first manuscript in *Endocrinology*, the society's flagship journal at the time. I became a member of Endocrine Society with my first faculty job, and ENDO soon became my lab's home to present its best research. It was at ENDO that I met colleagues, planned collaborations, and recruited national and international fellows to join my own lab. **Like I did 40 years ago, my current students and fellows continue to attend the meeting with the same excitement (and sometimes anxiety) of presenting their newest findings to their peers.**

### As a Laureate Award recipient, do you have any advice for those just beginning their careers?

I still vividly remember working in my first lab as an undergraduate student. My mentor had just gotten a laboratory and was overflowing with enthusiasm and a love for his chosen profession. Working with him for two years allowed me to see what I now call the "research spark." **My advice for those just starting their careers is to hold onto the research spark. Look for it in the joy you get from working in the lab, the acceptance of your manuscripts, and that special moment when you find out your grant proposal was funded.** Finally, as a mentor, remember to look for the research spark in the eyes of your trainees.

### ABOUT THE AWARD

Established in 2013, the Outstanding Mentor Award recognizes individuals who have made a career commitment to mentoring, have had a significant positive impact on their mentees' education and career, and have advanced research or patient care in the field of endocrinology through their mentorship.

**William Rainey, PhD** is the Jerome W. Conn Professor of Molecular & Integrative Physiology and Internal Medicine at the University of Michigan in Ann Arbor, Mich. He is a renowned adrenal investigator and mentor who invests wholeheartedly in younger generations of endocrinologists.

Rainey has elevated the career trajectory of numerous trainees with his dedication to teaching and his transformational influence on their scientific thinking and writing. He is proactive in crafting customized career-development plans for each of his mentees, and he selflessly supports them through their transition to independence by providing guidance, creating key networking opportunities, and offering unrestricted access to his laboratory resources and personnel. He has contributed to the Endocrine Society as a board member of the *Journal of the Endocrine Society* and *Endocrinology* and a member of the Annual Meeting Steering Committee.





# Outstanding Scholarly Physician Award

**Bryan Haugen, MD**

**Bryan Haugen, MD** is a professor of medicine and pathology at the University of Colorado School of Medicine in Aurora, Colo., and a recognized leader in the evaluation and management of thyroid cancer. He played a key role in studies that showed the effectiveness of recombinant human thyroid-stimulating hormone as a tool for monitoring patients with thyroid cancer. He also was instrumental in developing a novel Gene Expression Classifier diagnostic panel that significantly enhances the accuracy of diagnosing thyroid cancer.

He has written and lectured extensively to clinicians worldwide on the use of molecular diagnostic testing in the evaluation of thyroid nodules. He oversaw the development of the 2015 American Thyroid Association Guidelines for the Management of Thyroid Nodules and Differentiated Thyroid Cancer. These guidelines are now used by virtually every clinical endocrinologist in the U.S. in the day-to-day management of thyroid cancer.

## How has the Endocrine Society supported your professional development/career journey?

For me, the Endocrine Society has been a tremendous organization for clinical and scientific networking. **My professional development has been supported through connections with colleagues and friends, new collaborations, and the Endocrine Society's tremendous support for our trainees.**

## As a Laureate Award recipient, do you have any advice for those just beginning their careers?

**I would recommend following your curiosity and passion. The other things will fall into place.** I really like the quote from Frederick Beuchner, "You find your vocation at the spot where your deepest gladness meets the world's deepest need."

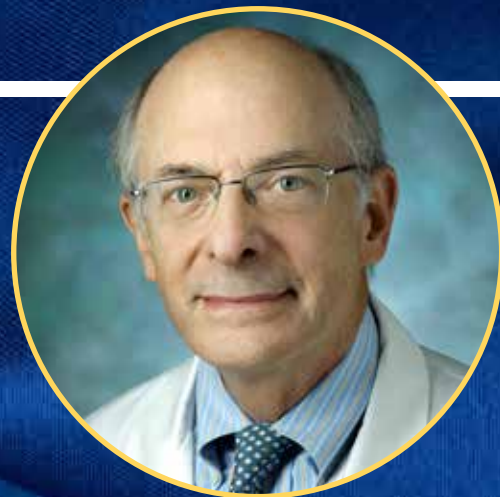
## ABOUT THE AWARD

The Outstanding Scholarly Physician Award is presented in recognition of outstanding contributions to the practice of clinical endocrinology in an academic setting. The award is sponsored by the Endocrine Society.



# Outstanding Educator Award

## David Stephen Cooper, MD



### How has the Endocrine Society supported your professional development/career journey?

The first professional meeting I ever attended was ENDO 1977, and the Society has been one of my main intellectual homes for over 45 years. Through its meetings, journals, and committees, I have learned what it means to be an educator. Opportunities to educate others arose through my service as deputy editor of *The Journal of Clinical Endocrinology & Metabolism* (2004 – 2008) and in my role as chair of the Endocrine Society's Board Review Course (2014 – 2017) and its Fellowship In-Training Examination Committee (2014 – 2019).

### As a Laureate Award recipient, do you have any advice for those just beginning their careers?

Follow your heart when it comes to choosing a career path, and find a mentor who believes in you.

David Stephen Cooper, MD is a professor of medicine and radiology at the Johns Hopkins University School of Medicine in Bethesda, Md. He has been a faculty member at Johns Hopkins for more than 30 years and is an international leader in the thyroid and endocrine community for his work treating Graves' disease and subclinical thyroid disease, and various aspects of the diagnosis and management of thyroid cancer.

He is most passionate about teaching the next generation of endocrinologists and leads by example, showing tremendous compassion and care for his patients. He has high expectations for his trainees and is a strong advocate for their education. He was recognized with the Endocrine Society's 2016 Outstanding Scholarly Physician Award and has served as the chair of the Society's Endocrine Board Review and as a member of its In-Training Exam Steering Group.

### ABOUT THE AWARD

The Outstanding Educator Award is presented in recognition of exceptional achievement as an educator in the discipline of endocrinology and metabolism.





# Outstanding Clinical Investigator Award

**Peter J. Snyder, MD**

**Peter J. Snyder, MD** is a professor of medicine at the Perelman School of Medicine at the University of Pennsylvania. He has made outstanding contributions to the field of male reproductive endocrinology.

His discoveries have helped establish the standard treatment for infertility in men with hypogonadotropic hypogonadism, and he also was the first to recognize and characterize gonadotroph pituitary adenomas. As principal investigator of the landmark Testosterone Trials, he led the largest, most comprehensive trials of the efficacy of testosterone.

He currently serves on the Endocrine Society's Testosterone Therapy in Men with Hypogonadism Guideline Writing Committee and the Testosterone Therapy in Adult Men with Androgen Deficiency Syndromes Task Force.

**How has the Endocrine Society supported your professional development/career journey?**

**The Endocrine Society has provided the opportunity to interact with colleagues who have a passion for scientific inquiry into hormonal function and have high intellectual and professional standards.**

## **ABOUT THE AWARD**

The Outstanding Clinical Investigator Award is presented to an internationally recognized clinical investigator for meritorious contributions to clinical research related to the pathogenesis, pathophysiology, and therapy of endocrine diseases.



# Vigersky Outstanding Clinical Practitioner Award

## Mihail Zilbermint, MD, MBA



### How has the Endocrine Society supported your professional development/career journey?

The Endocrine Society enabled me to share my expertise in establishing Endocrine Hospitalist programs with other colleagues around the world. I was also invited to join the Quality Improvement Subcommittee where I was able to invest in the creation of Quality Improvement learning modules. Finally, **the Endocrine Society facilitated the Diabetes Hill Day where I was able to meet with representatives of the U.S. Congress and advocate to reduce the cost of insulin.**

### As a Laureate Award recipient, do you have any advice for those just beginning their careers?

**When you walk into a hospital room to meet a patient, please sit down and listen.**

### ABOUT THE AWARD

The Vigersky Outstanding Clinical Practitioner Award is presented in recognition of extraordinary contributions by a practicing endocrinologist to the endocrine and/or medical community. The recipient spends the majority of his or her time in the practice of clinical endocrinology.

**Mihail Zilbermint, MD, MBA** is an associate professor of clinical medicine at the Johns Hopkins University School of Medicine and the chief and director of endocrinology, diabetes, and metabolism at the Johns Hopkins Community Physicians Suburban Hospital in Bethesda, Md.

He is an outstanding clinician, well recognized for his excellent clinical care and strong program-building skills, and who is passionate about quality inpatient diabetes care and research. He established the Endocrine Hospitalist and Inpatient Diabetes Management Service at Suburban Hospital, a specialized clinical consultation program designed to promote better glycemic control in hospitalized patients. This initiative has saved his hospital hundreds of thousands of dollars by reducing the length of stay of patients with diabetes.

Zilbermint was also one of the first to deploy inpatient diabetes telemedicine during the COVID-19 pandemic. He has held many service positions at the Endocrine Society, including being a member of the Quality Improvement Subcommittee, the EndoCares® 2021 District of Columbia, Maryland, Virginia Steering Team, and the *Endocrine News* editorial advisory board.





# Edwin B. Astwood Award for Outstanding Research in Basic Science

## Holly A. Ingraham, PhD

**Holly A. Ingraham, PhD** is the Herzstein Endowed Professor in Molecular Physiology at the University of California, San Francisco.

As a world leader in hormone signaling, Ingraham has illuminated basic molecular processes controlling endocrine development and physiology, with recent emphasis on understanding the cellular and molecular basis of diseases that exhibit a sex-bias in women. A few of her most notable contributions to the basic science field include being the driving force in identifying one of the first tissue-specific regulators, Pit-1, a founding member of the POU-homeodomain transcription factor family.

She has studied the influence of estrogen-sensitive brain cells on bone density and is interested in the development of the ventromedial nucleus of the hypothalamus, the neuroendocrine center of the brain. Beyond the brain, Ingraham has studied sex-specific differences in gut-brain signaling pathways, to understand why women are more susceptible to intestinal visceral pain syndromes.

Ingraham also demonstrated that the nuclear receptor steroidogenic factor 1 (SF-1) is a major determinant of gonadal sex-differences. Her most recent study demonstrating a two-step hormonal system of estrogen activation of melanocortin 4 receptor (MC4R) signaling in the ventromedial hypothalamus provides the first mechanistic understanding of the preovulatory activity spike observed in most mammals that enhances sexual receptivity and reproductive fitness. This novel hormone-dependent node illuminates the power of estrogen in motivating behavior and maintaining an active lifestyle in females.

### How has the Endocrine Society supported your professional development/career journey?

I have been attending the Endocrine Society's annual conferences, or ENDO, since 1990 and they have offered a wide array of topics in peptide and hormone signaling.

### As a Laureate Award recipient, do you have any advice for those just beginning their careers?

Stay focused on your scientific interests and maintain your passion for answering curiosity-based questions.

### ABOUT THE AWARD

The Edwin B. Astwood Award for Outstanding Research in Basic Science has recently been restored to the Laureate Awards. Originally awarded from 1967 and renamed to honor the scientific contributions of the late Dr. Edwin B. Astwood, this Laureate award recognizes individuals who have made significant contributions to the field of endocrinology via their outstanding basic science research.



# COMPREHENSIVE CARE FOR PERSONS WITH DIABETES: A CERTIFICATE PROGRAM



LEARN INNOVATIVE APPROACHES TO DIABETES CARE  
AND IMPROVE PATIENT OUTCOMES WITH **COMPREHENSIVE CARE  
FOR PERSONS WITH DIABETES: A CERTIFICATE PROGRAM.**



Centered around  
12 interactive, online  
modules available on-  
demand that cover the  
full span of diabetes care



Provides a certificate  
of course completion  
after passing  
comprehensive  
final exam



Built by experts from  
diverse backgrounds  
spanning endocrinology,  
nursing, and family  
medicine



Accredited for AMA  
*PRA Category 1* credits,  
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A photograph of George Chrousos, MD, ScD, sitting in a brown leather armchair in his office. He is wearing a white shirt, a red patterned tie, and dark trousers. Behind him is a large painting of a mountain range. To his left is a blackboard and a framed picture. To his right is a desk with a laptop and a white mug. The floor is wooden.

# Q&A:

## The “Congenital” SCIENTIST

Honored by both the Endocrine Society and the European Society of Endocrinology with the 2023 Transatlantic Alliance Award, George Chrousos, MD, ScD, has made significant contributions to endocrine research on both sides of the Atlantic. *Endocrine News* speaks with Chrousos about what this award means to him, conducting pioneering research on two different continents, the importance of studying stress, and why he became an endocrinologist in the first place.

BY KELLY HORVATH

**I**n October, the Endocrine Society and the European Society of Endocrinology (ESE) jointly awarded the 2023 Transatlantic Alliance Award to Prof. George P. Chrousos, MD, ScD.

The Transatlantic Alliance Award, which began in 2021, recognizes a leader who has made significant advancements in endocrine research in Europe and the U.S. Chrousos, who is professor emeritus of pediatrics and endocrinology at the National and Kapodistrian University of Athens (NKUA) School of Medicine in Athens, Greece, as well as UNESCO Chair on Adolescent Health Care and director of the University Research Institute on Maternal and Child Health and Precision Medicine, both at NKUA, exemplifies transatlantic endocrine leadership.

Earlier in his career, Chrousos was chief of the Pediatric and Reproductive Endocrinology Branch at the National Institutes of Health (NIH)'s Eunice Kennedy Shriver National Institute of Child Health and Human Development and John Kluge Distinguished Chair in Technology and Society at the U.S. Library of Congress in Washington, D.C. His transnational training of more than 60 renowned physician-scientists coupled with his extensive research contributions — he has written more than 1,000 original papers — make him a worthy recipient of this prestigious award. In 2014, he received the Endocrine Society's Fred Conrad Koch Lifetime Achievement Laureate Award.

Chrousos has made outstanding and ongoing contributions to the endocrine community's fundamental and clinical understanding of stress biology and medicine; the diseases of the hypothalamic-pituitary-adrenal (HPA) axis; and many stress-related disorders, including anxiety, depression, eating disorders, obesity, metabolic syndrome, sleep disorders, and inflammatory autoimmune and allergic diseases. He has even conceptualized and described new diseases: chronic stress and inflammation syndrome (CSIS) and primary generalized glucocorticoid resistance, also known as Chrousos syndrome.

Chrousos's achievements reflect a dual combination of outstanding basic and clinical creativity underscoring his standing as an international researcher and clinical leader of endocrinology and metabolism. *Endocrine News* is honored to have interviewed this luminary in the field.

***Endocrine News:* You are only the third recipient of the Transatlantic Alliance Award — that must be quite an honor. What does it mean to you?**

**George P. Chrousos:** It certainly means a lot to me. It is a recognition of the biomedical research, teaching, and training work that I have done in both continents, North America, and Europe. I had the opportunity to mentor many physician-scientists and basic scientists, who now have top positions in academia, industry, and clinical practice in these continents and beyond.

**“ I am a “congenital” scientist and teacher. I enjoy biomedical research (i.e., the production of new knowledge), and I get a lot of satisfaction out of teaching younger colleagues the scientific method. I also appreciate the success of my trainees and see them as a projection of myself into the future.”**

— GEORGE P. CHROUSOS, MD, ScD, PROFESSOR EMERITUS, PEDIATRICS AND ENDOCRINOLOGY; UNESCO CHAIR ON ADOLESCENT HEALTH CARE; DIRECTOR, UNIVERSITY RESEARCH INSTITUTE ON MATERNAL AND CHILD HEALTH AND PRECISION MEDICINE; NATIONAL AND KAPODISTRIAN UNIVERSITY OF ATHENS (NKUA) SCHOOL OF MEDICINE, ATHENS, GREECE



**EN: To have led two teams of physician-scientists both in the U.S. and in Europe is a remarkable accomplishment. What drives you?**

**GC:** I am a “congenital” scientist and teacher. I enjoy biomedical research (i.e., the production of new knowledge), and I get a lot of satisfaction out of teaching younger colleagues the scientific method. I also appreciate the success of my trainees and see them as a projection of myself into the future.

**EN: You are presenting “The Endocrine Basis and Implications of Stress and Its Management” at ENDO 2023 – can you explain briefly what this research has uncovered?**

**GC:** When I started my scientific career in the late 70s, the term “stress” was almost prohibited to use in the scientific literature (for various reasons). However, studying glucocorticoids, their molecular and cellular actions, the regulation of their secretion, and their effects in experimental animals and humans, made it apparent to me that stress represents a major concept, as it plays key roles in both physiology and pathophysiology. After I reviewed the seminal work of two great endocrinologists, Walter Cannon and Hans Selye, on stress, I proceeded to clearly define stress as “the state of threatened homeostasis,” and to distinguish it both from “disturbing stimuli,” or “stressors,” and from “the adaptive response or stress response” of the organism.

Then, it became clear that the adaptive response is subserved by a heuristic “stress system,” whose proper function during stress is beneficial in the maintenance of homeostasis. This system’s response during stress, however, is beneficial only within certain activity and temporal limits and becomes detrimental when it goes outside these limits. (This concept fully complies with the Aristotelian principle that “the good lies between two evils, too little or too much”!) Indeed, a tremendous amount of pathology results from the “adaptive response” to stress, when this response becomes “maladaptive” (i.e., pathogenic). In fact, the detriment to the organism when these limits are not respected is mediated by the actual mediators of the stress system, with the main ones being the glucocorticoids (i.e., cortisol in humans) and the catecholamines.

**EN: How did stress become a major area of interest for you?**

**GC:** As I was working with the rare but scientifically very interesting Cushing syndrome, it became apparent to me

that the entire clinical picture of this condition, including its psychologic, phenotypic, cardiometabolic, and immune manifestations, were quite reminiscent of the clinical picture of many middle-aged people of both sexes, for some of whom, for obvious reasons, we reserve the term “pseudo-cushing.” At that time, corticotropin-releasing hormone (CRH) was isolated by W. Vale, and the 41-amino acid peptide became available for studies.

Several experiments performed by us and other groups demonstrated that intra-cerebro-ventricular administration of this stress mediator completely reproduced the phenomenology of the stress response, including not only HPA axis stimulation, but also activation of the locus caeruleus–norepinephrine/autonomic nervous system. When I realized the central role of the stress system in physiology and pathophysiology, stress really became my guide and main research focus. Now I have concluded that all the so-called “chronic noncommunicable disorders,” including anxiety, depression, obesity, cardiometabolic syndrome, diabetes mellitus type 2, allergic and autoimmune diseases, psychosomatic disorders, etc., are, to a great extent, the result of chronic psycho-socio-economic stress. The latter is ubiquitous in modern societies.

When I became a senior investigator at the NIH, a young psychiatrist from the National Institute of Mental Health (NIMH), Philip W. Gold, came to work with me. He became my long-term collaborator and friend and introduced me into psychiatry and the main disorders studied at his institute at the time, mainly anxiety, major depression, and the eating disorders anorexia and bulimia nervosa, all of which we now know are strongly related to stress. His team and mine then started a major long-term collaboration that resulted in a strong “infusion” of endocrinology and, to some extent, immunology, into psychiatry, a collaboration that resulted in the elucidation of pathogenetic mechanisms in a series of psychiatric disorders, including the so-called melancholic and atypical depression.

A little after Gold, another psychiatrist with expertise in sleep disorders, Alexander Vgontzas, from the University of Pennsylvania at Hershey, joined me for collaborative research on sleep. He also became a long-term collaborator and friend. A series of studies were undertaken that represented a strong “infusion” of endocrinology and immunology into sleep physiology and pathophysiology, with the elucidation of many pathogenetic mechanisms in sleep apnea, disorders of daytime sleepiness and fatigue, idiopathic insomnia, etc.

“Research advances in endocrinology are rapid, novel, consequential, and very exciting. Novel hormones and mechanisms are being discovered almost every week, and it will not be long before we solve clinical problems that today we consider unsolvable. **Obesity, type 1 diabetes mellitus, endocrine tumors, cardiometabolic problems, etc., will become disorders of the past.**”

— GEORGE P. CHROUSOS, MD, SCD, PROFESSOR EMERITUS, PEDIATRICS AND ENDOCRINOLOGY; UNESCO CHAIR ON ADOLESCENT HEALTH CARE; DIRECTOR, UNIVERSITY RESEARCH INSTITUTE ON MATERNAL AND CHILD HEALTH AND PRECISION MEDICINE; NATIONAL AND KAPODISTRIAN UNIVERSITY OF ATHENS (NKUA) SCHOOL OF MEDICINE, ATHENS, GREECE

At about the same time, two rheumatologists/immunologists, Ronald Wilder and Esther Sternberg from the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK), collaborated with me in immunologic projects, including the study of the Lewis rat model of “global” inflammation, and such diseases as rheumatoid arthritis, fibromyalgia, chronic fatigue syndrome, and so on, again with interesting endocrine results, with hypocortisolism being a common key factor in the expression of these autoimmune and allergic disorders (e.g., including fibromyalgia, chronic fatigue syndrome, rheumatoid arthritis, asthma, etc.). Interestingly, hypocortisolism also characterizes the recently described long-COVID syndrome.

#### EN: What other topics are foci of your research?

**GC:** I started my research career with the study of the HPA axis, both its molecular and cellular biology and physiology, and the diseases related to it, such as glucocorticoid resistance and hypersensitivity, Cushing syndrome and Addison disease, congenital adrenal hyperplasia, polycystic ovary syndrome, premature adrenarche, and premature and delayed puberty. In

the context of my clinical work, I continue to have an interest in and study these diseases and states to this day.

#### EN: Do any specific papers among your 1,000+ stand out to you as favorites or especially important?

**GC:** Of course, some papers stand out. Especially those that represent the synthesis of my work regarding glucocorticoids, tissue sensitivity, and disease (*Annals of Internal Medicine*), stress and health and disease (*JAMA*, *Nature Endo Rev*, *Mol Psychiatry*), stress and immune function (*N Eng J Med*, *Annals of Internal Med*), stress and reproductive function (*Annals of Internal Medicine*), etc.

#### EN: What are you currently working on?

**GC:** Based on my work on the interaction of the Clock-BMAL1 heterodimer of our biological circadian clock with the glucocorticoid receptor, which suggested that evening cortisol elevations — as they occur in chronic stress, major depression, Cushing syndrome, night shift work, or traveling across time zones — are more detrimental to brain and cardiometabolic functions than morning elevations, my colleagues and I performed a very large epidemiologic study, which continues to this day, in which the so-called “medically unexplainable symptoms” (MUS) correlated well with body composition parameters, such as visceral fat and sarcopenia, morning plasma hsCRP and interleukin-6 levels, and loss of salivary cortisol circadian rhythm, with increased evening cortisol elevations. These data suggested that starting from the pediatric age range, chronic stress and stress-related “para-inflammation” gradually alter body composition and cause a cluster of absolutely explainable psychologic and physical manifestations, including MUS. These manifestations should be collectively called “chronic stress and inflammation syndrome,” or “CSIS,” which is ubiquitous and affects more than two thirds of middle-age people. My current work extends the study of this syndrome, by examining how brain networks, especially those residing in the frontal cortex, participate in its genesis and on ways to prevent its development and to reverse its course.

My colleagues and I also study children conceived by assisted reproductive technology (ART), both by classic *in vitro* fertilization (IVF) and intracytoplasmic sperm injection (ICSI). We have shown that they have an increased risk of developing “(dys)metabolic syndrome” by blood biochemistry and by metabolomic and proteomic evaluations. We also study women with gestational diabetes and determine prognostic




biomarkers of the pregnancy outcome. I am also involved in several large multicenter, multinational studies on pregnancy, gestational weight gain, and pregnancy outcome. In addition, I participate in studies on the healthy nutrition and growth of European children and adolescents.

In the context of glucocorticoid resistance, we isolated a long noncoding RNA called Gas5 that interacts with the glucocorticoid receptor and prevents it from interacting with glucocorticoid response elements in the cell nucleus. This RNA is expressed in starving cells and protects them from the catabolic actions of glucocorticoids. Interestingly, the same RNA, along with many others, is expressed in exosomes of human milk. Currently, we examine the ability of these exosomal RNAs to enter the infant systemic circulation via breastfeeding. This likely represents horizontal epigenetic transmission.

### **EN: What led you to become an endocrinologist?**

**GC:** I am a generalist at heart, and endocrinology, with its cybernetic roles involved in every bodily function, is ideal for me. Also, it is a very “scientific” field with both a clinical and a laboratory component, while its key involvement in homeostasis and stress gives it ancient philosophical roots and a glorious history.

### **EN: What is especially exciting in the field of endocrinology today? In medical research in general?**

**GC:** Research advances in endocrinology are rapid, novel, consequential, and very exciting. Novel hormones and mechanisms are being discovered almost every week, and it will not be long before we solve clinical problems that today we consider unsolvable. Obesity, type 1 diabetes mellitus, endocrine tumors, cardiometabolic problems, etc., will become disorders of the past. In general biomedical research, on the other hand, mental health, and cancer mechanisms are being gradually deciphered and understood, and I believe curative treatments are not far in the future, I can see them coming... 



### **For Further Reading**

**With more than 1,000 papers to his credit, Chrousos mentioned the following studies as those he considers crucial and most representative of his work:**

“Syndromes of Glucocorticoid Resistance”  
<https://doi.org/10.7326/0003-4819-119-11-199312010-00009>

“The concepts of stress and stress system disorders. Overview of physical and behavioral homeostasis”  
<https://pubmed.ncbi.nlm.nih.gov/1538563/>

“Stress and disorders of the stress system”  
[doi:10.1038/nrendo.2009.106](https://doi.org/10.1038/nrendo.2009.106)

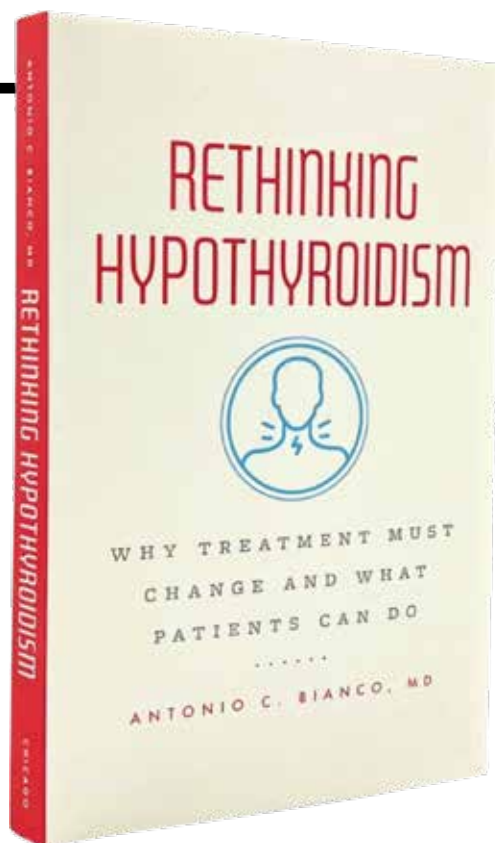
“Organization of the stress system and its dysregulation in melancholic and atypical depression: high vs low CRH/NE states”  
[doi: 10.1038/sj.mp.4001032](https://doi.org/10.1038/sj.mp.4001032)

“Proteomics of Children Born After Intracytoplasmic Sperm Injection Reveal Indices of an Adverse Cardiometabolic Profile”  
[doi: 10.1210/js.2016-1052](https://doi.org/10.1210/js.2016-1052)

“Noncoding RNA gas5 is a growth arrest- and starvation-associated repressor of the glucocorticoid receptor”  
[doi: 10.1126/scisignal.2000568](https://doi.org/10.1126/scisignal.2000568)

– HORVATH IS A FREELANCE WRITER BASED IN BALTIMORE, MD. SHE COMPILED AND WROTE THE ANNUAL EUREKA! FEATURE IN THE DECEMBER ISSUE.

# Q&A: Solving the *Hypothyroidism* Puzzle



Antonio Bianco, MD, PhD

Two months after his new book, *Rethinking Hypothyroidism*, hit the shelves, Antonio Bianco, MD, PhD, talks to *Endocrine News* about, well, rethinking hypothyroidism. From his research of thyroid metabolism and deiodinases to why researchers and clinicians have often been so mystified by hypothyroidism for centuries, Bianco discusses why treating hypothyroidism is a “solution followed by a mystery.”

**T**his past November, Antonio Bianco, MD, PhD, a physician-scientist at the University of Chicago published his book, *Rethinking Hypothyroidism*, which offers an accessible overview of the treatment of hypothyroidism and makes the case that the current approach is failing many patients. For Bianco, two of his patients shed light on the fact that patients with hypothyroidism can remain symptomatic despite treatment.

His book goes to exhaustive lengths to help readers understand why some recommendations in the clinical guidelines are flawed; it details the history of the clinical characterization and treatment of hypothyroidism, starting with Napoleon Bonaparte and leading all the way up to the present; and provides scientific evidence supporting the claims and complaints of millions of patients over the past 50 years.

*Endocrine News* sat down with Bianco to discuss his career, balancing his dedication to science with his dedication to his family, and why the medical community should always be willing to question even long-held beliefs in order to help patients.

BY DEREK BAGLEY



**Endocrine News:** Tell us a little about yourself. What attracted you to medicine? From there, what led you to endocrinology and the thyroid?

**Antonio Bianco:** I always wanted to be a scientist. I was curious about how things work and my older brother being a physician influenced me into biology and chemistry (while in medical school I pursued a second degree in biology, studying at night). During the first years of medical school, I joined the Department of Physiology as a teaching assistant and soon was helping graduate students with their theses. My mentor worked in the thyroid field, hence my focus on the thyroid gland. We were studying the influence of caloric intake and dietary composition on the thyroid gland. Later I joined J. Enrique Silva's lab at the Brigham and Women's Hospital in Boston. He was the advisor of my PhD thesis on the thermogenic effects of thyroid hormones.

**EN:** What got you involved with the Endocrine Society? Are there any special moments that you can reflect on?

**AB:** I first attended ENDO in 1988 and have attended most meetings since then. Enrique was my sponsor. ENDO is the place where you meet everybody and see what is going on in the endocrine world. I have attended many other endocrine meetings around the world, but nothing compares with ENDO. I have served on a number of committees and recently had the pleasure of serving on the program committee. My special ENDO moment was in 2011 (93rd meeting) when I gave a plenary lecture about tissue-specific regulation of thyroid hormone action.

**EN:** What have been some of the most rewarding moments of your career? Most challenging?

**AB:** Every time a scientist makes a discovery, graduates a student or a fellow, or receives an award is a rewarding moment. For me, having served as president of the American Thyroid Association in 2016 – 2017 has been my greatest honor, probably the most rewarding moment. The biggest challenge has always been balancing dedication to an academic career and to my family. I have triplets — they are 21 years old now — but I had to be there for them while running a lab, mentoring fellows, and renewing grants.

**EN:** Your work in deiodinases and thyroid metabolism sounds like quite a eureka moment. (Or several eureka moments building off one another.) Is that fair to say? Can you speak more to this work?

**AB:** We are all used to the idea that hormone levels fluctuate in the blood, and, as a result, their actions in organs and tissues can be easily detected. For example, during fasting, your insulin levels in the blood are low, thus not much glucose transport is happening in tissues that depend on insulin. After a meal, insulin levels increase two- to threefold, and glucose enters many tissues. Well, the thyroid hormone levels in the blood are stable; they fluctuate only minimally. Thus, it was difficult to understand how a hormone that is stable in the blood can initiate actions in organs and tissues.

My initial interest in this area formed while I was a graduate student at a time when the enzymes that metabolize thyroid hormones, i.e., the deiodinases, were being characterized. The work done during my PhD, and later by my fellows, showed that by metabolizing thyroid hormone (transforming T4 to T3) deiodinases can increase T3 levels in organs and tissues (and initiate thyroid hormone action), without affecting the levels of thyroid hormones in the blood. So, if one only looks at the hormone levels in the blood, they will miss all the action that is happening inside the organs and tissues.

**EN:** Now to your book, *Rethinking Hypothyroidism*. Can you give us an overview of the text and what to expect from the book?

**AB:** The book is about treatment of hypothyroidism. It is for patients and for physicians. I felt that to make a meaningful contribution to the field, I had to engage both at the same time. Thus, writing for both groups was quite a challenge.

Hypothyroidism is a disease that affects about 20 million people living in the U.S. So, it is a big deal. The book starts by describing the crisis we have today, that between 10% and 20% of the patients remain symptomatic despite being treated adequately as prescribed in the clinical guidelines. Physicians have been slow in recognizing these residual symptoms as a failure of the treatment with levothyroxine (LT4). We knew about these symptoms but learned since the 1970s that they were not thyroid-related. Patients feel dismissed. Many are angry. In the book, I explain how this came about and the

“ We are all used to the idea that hormone levels fluctuate in the blood, and, as a result, their actions in organs and tissues can be easily detected. ... Well, the thyroid hormone levels in the blood are stable; they fluctuate only minimally. **Thus, it was difficult to understand how a hormone that is stable in the blood can initiate actions in organs and tissues.**”

— ANTONIO BIANCO, MD, PHD, PROFESSOR OF MEDICINE; MEMBER, COMMITTEE ON MOLECULAR METABOLISM AND NUTRITION, UNIVERSITY OF CHICAGO, CHICAGO, ILLINOIS

role played by the pharmaceutical companies, influencing physicians into believing that treatment with LT4 is flawless, superior to other forms of replacement therapy, which created a dogma and lack of curiosity or effort for investigating residual symptoms. This was reflected in the clinical guidelines prepared throughout the years.

Next, I talk about how the metabolism of thyroid hormones is critical for the effectiveness of the treatment for hypothyroidism. Without the deiodinases, which transform T4 to T3, LT4 could not be used in the treatment of hypothyroidism. I also talk about history, including things I saw first-hand and things I learned from several interviews in preparation for this book. Then I move to the treatment of hypothyroidism, starting in the early 1800s when goiter and congenital hypothyroidism were common, and the subsequent description of hypothyroidism and development of the first treatment forms.

Then I tell the story of the discovery that a unique feature in the way the type 2 deiodinase (D2) is metabolized (ubiquitinated and degraded in the proteasomes) helps explain why treatment with LT4 fails some of the patients with hypothyroidism. I also tell about my participation in clinical trials, which shed light on how we can help these patients that remain symptomatic on LT4. Lastly, I provide treatment alternatives and a perspective of where the treatment of hypothyroidism could be moving to in the near future.

**EN: What are some of the new and future technologies for the treatment of hypothyroidism you're most excited about?**

**AB:** In the book I talk about new T3-like drugs that can make its absorption smoother, avoiding peaks in the circulation;

new T3-like drugs that act selectively in certain thyroid hormone receptors, allowing physicians to enhance thyroid hormone action in organs that remain relatively hypothyroid (liver for example); and stem-cell technology to develop thyroid organoids, which have been transplanted into mice and successfully treated hypothyroidism. This could be a reality for patients sooner than we think.

**EN: Finally, what do you hope readers take away from your book?**

**AB:** I like to say the story of hypothyroidism treatment presents a solution, followed by a mystery. Why did so many of those treated for hypothyroidism ultimately fare so poorly? How was a century-long medical triumph transformed into a tarnished victory, fraught with conflict and exhaustion? Why did doctors dismiss the millions of patients insisting their treatments were failing, and why did patients find themselves suddenly doubting decades of reliable, tested science? How did the case of hypothyroidism backtrack from “closed” to “open”? Most important, what can these patients who continue to suffer do? This book tells that story. <sup>EN</sup>

[Editor's Note: This interview has been condensed for space considerations. The full-length interview is available online at: <https://endocrinenews.endocrine.org/solving-the-hypothyroidism-puzzle-qa-antonio-bianco-md-phd/>].



# A New Endocrine Society Guideline Promotes Technology to Counter Hypoglycemic Risk

BY ERIC SEABORG

*systems*  
**upgrade**

Technologies such as continuous glucose monitoring and insulin pumps have reduced the threat of hypoglycemia in people with diabetes. The latest Endocrine Society clinical practice guideline on hypoglycemia in diabetes urges greater adoption of these many advances in technology and medications.

**T**he many advances in treating diabetes in recent years range from the technology of continuous glucose monitors (CGMs) and new kinds of insulin pumps to medications such as new insulin analogs. Clinicians and patients should use them. That's the main message of the newly released "Management of Individuals with Diabetes at High Risk for Hypoglycemia: An Endocrine Society Clinical Practice Guideline."

The guideline committee reviewed the evidence to confirm the effectiveness of these and other innovations in diabetes treatment, according to committee co-chairs Anthony L. McCall, MD, PhD, professor of medicine and endocrinology (Emeritus), University of Virginia, Charlottesville, and David C. Lieb, MD, the Aaron I. Vinik Professor of Medicine in Endocrinology and Diabetes; associate chair for education, Department of Internal Medicine; and program director, Endocrinology, Diabetes and Metabolism Fellowship, Eastern Virginia Medical School, Norfolk, Va.

More than 10 years have passed since the Endocrine Society published its previous hypoglycemia guideline, and that one covered hypoglycemia in both people with diabetes and those without diabetes. The new version focuses solely on people with diabetes and follows the Society's newer guideline format, which has a renewed emphasis on the rigorous examination of evidence. The committee identified 10 key clinical questions, conducted systematic literature reviews on each of them, and developed recommendations graded according to the certainty of the evidence. The first questions looked at the glucose monitor and insulin pump technologies that have quickly spread.



**“Insulin is one of the main medications that people take for treating diabetes. It is one of the main causes of hypoglycemia and emergency room visits for low blood glucose levels, so to have new tools that are more accurate and are less likely to cause hypoglycemia is very important.”**

— DAVID C. LIEB, MD, THE AARON I. VINIK PROFESSOR OF MEDICINE IN ENDOCRINOLOGY AND DIABETES; ASSOCIATE CHAIR FOR EDUCATION, DEPARTMENT OF INTERNAL MEDICINE; AND PROGRAM DIRECTOR, ENDOCRINOLOGY, DIABETES AND METABOLISM FELLOWSHIP, EASTERN VIRGINIA MEDICAL SCHOOL, NORFOLK, VA.



## Monitors and Pumps

“CGM is a powerful weapon against hypoglycemia that allows you to know your glucose levels roughly every minute to every five minutes,” McCall says. “It shows your trajectory, and that is a huge advance. If it is going down, you get alerted that you can do something to make it steady, or if it is going way up, you can give more insulin or do other things like exercise.”

The guideline recommends the use of CGM over self-monitoring with fingersticks in people with type 1 diabetes who receive multiple daily injections of insulin.

“A new kind of insulin pump system, which we call a hybrid or algorithm-driven system, is really at the cutting edge, and is commercially available to people with diabetes,” McCall says.

CGM and insulin pumps make such a powerful combination that the guideline suggests their use rather than fingerstick monitoring with multiple daily injections in people with type 1 diabetes.

Those recommendations may seem obvious to those involved in diabetes treatment, but a more controversial area that the committee explored is the use of these technologies in hospital inpatients. The Food and Drug Administration has not formally approved inpatient use of CGM but has allowed it during the COVID-19 pandemic as an infection control measure — and the guideline committee now says that the evidence accumulated from this experience has demonstrated the technology’s effectiveness.

Significantly, the guideline not only suggests that patients who are using CGM and insulin pumps prior to admission continue

using them during a hospital stay, but that CGM should be initiated in the inpatient setting for select inpatients at high risk for hypoglycemia.

## Mining Health Records

In another recommendation related to hospital inpatients, the guideline also endorses higher-tech approaches to managing inpatient glycemic levels by enlisting electronic health records. The guideline recommends that hospitals collect in real time and analyze glycemic data from electronic health records to identify those at risk for hypoglycemic and hyperglycemic episodes and develop mechanisms for managing these events.

This recommendation to leverage electronic health data for glycemic surveillance and management represents a significant change because standard care currently does not include the use of such programs.

## New Forms of Insulin

Another area of advance is the introduction of new forms of insulin that much more closely mimic the way natural insulin acts in the body. “Insulin is one of the main medications that people take for treating diabetes,” Lieb says. “It is one of the main causes of hypoglycemia and emergency room visits for low glucose levels, so to have new tools that are more accurate and are less likely to cause hypoglycemia is very important.”

In this regard, the guideline suggests that “long-acting insulin analogs be used rather than human neutral protamine Hagedorn (NPH) insulin for adult and pediatric outpatients on basal insulin therapy who are at high risk for hypoglycemia” and that “rapid-acting insulin analogs be used rather than regular



“We hope it will get people more access to the new technology and the new ways of dealing with diabetes related issues, and we hope that it will help everybody. People with diabetes, their caregivers, and diabetes specialists will all benefit from our guideline with a better understanding of best practices and interventions.”

— ANTHONY L. MCCALL, MD, PHD, PROFESSOR OF MEDICINE AND ENDOCRINOLOGY (EMERITUS), UNIVERSITY OF VIRGINIA, CHARLOTTESVILLE, VA.

(short-acting) human insulins for adult and pediatric patients on basal-bolus insulin therapy who are at high risk for hypoglycemia.”

## New Glucagon Formulations

“We also have new therapies for treating hypoglycemia in the form of new glucagon formulations,” Lieb says. “It used to be that everyone on insulin had a kit at home to get an injection of glucagon from a family member to treat a severe low blood glucose levels when maybe somebody had passed out. But those kits required reconstitution of the glucagon with saline before they could be injected, and many of those who tried to give it misused it, leading to no glucagon being given or underdosing of the glucagon. There are new forms of glucagon that are much easier to inject. There is even a nasal form that can be inhaled.”

The guideline therefore recommends the use of these newer glucagon formulations that do not have to be reconstituted.


## Importance of Being Educated

Most people who have diabetes are not treated by diabetes specialists. “So we wanted to know whether structured education was important for helping to reduce hypoglycemia in people at risk compared with more unstructured advice,” Lieb says. “Not surprisingly, diabetes education is incredibly important in both the outpatient setting and the inpatient setting.”

Therefore, the guideline recommends that “structured education on how to avoid repeated hypoglycemia is critical, and this education should be performed by experienced diabetes clinicians.” It adds that health insurance should cover the cost of this education.

The guideline has been published online and will appear in the March 2023 print issue of *The Journal of Clinical Endocrinology & Metabolism*.

The committee included a diverse membership and was co-sponsored by the American Association of Clinical Endocrinology, American Diabetes Association, DiabetesSisters, Pediatric Endocrine Society, and the Society for Hospital Medicine. “We had people not only from other disciplines, but people who were representing their disciplines,” McCall says. “We wanted to make this definitive,” in a way that all these disciplines could coalesce around endorsing.

“We hope that these exercises in trying to identify what works and what doesn’t, what is really important to do, gets to everybody who deals with diabetes, and that includes people who have diabetes,” McCall says. “We hope it will get people more access to the new technology and the new ways of dealing with diabetes related issues, and we hope that it will help everybody. People with diabetes, their caregivers, and diabetes specialists will all benefit from our guideline with a better understanding of best practices and interventions.” 



## AT A GLANCE

- ▶ **Technologies like continuous glucose monitoring and algorithm-driven insulin pumps have lessened the threat of hypoglycemia in people with diabetes, so their use should be widely adopted.**
- ▶ **These technologies have shown their effectiveness in hospital inpatients as well as in more general use.**
- ▶ **New insulin analogs that more closely mimic natural insulin actions in the body are a better choice than older forms of insulin.**
- ▶ **Structured diabetes education has proven value in reducing hypoglycemia in at-risk patients.**



## Endocrine Society Advocates for Public Health During United Nations Plastics Treaty Meeting



Leo Trasande, MD, MPH, making the Endocrine Society's case for an international crackdown on plastics in the marine environment at the Intergovernmental Negotiating Committee conference in Uruguay last fall.

**F**rom November 28 through December 2, Endocrine Society members Leonardo Trasande, MD, MPH and Marina Fernandez, PhD were in Punta Del Este, Uruguay to attend the first meeting of the Intergovernmental Negotiating Committee (INC) to develop an international legally binding instrument on plastic pollution, including in the marine environment.

Convened as follow-up to a United Nations Environment Assembly (UNEA) resolution in March 2022, this was the first opportunity for member states and non-governmental organizations to meet and discuss priorities that will lay the framework for a global treaty that reduces plastic pollution. Recognizing that the treaty also is an opportunity to improve public health by reducing exposures to harmful endocrine-disrupting chemicals (EDCs) in plastic, the Endocrine Society sought and received accreditation to participate in the treaty process. As full participants at the meeting, we had the opportunity to deliver statements during plenary sessions and engage member state delegations at regional meetings and side-events throughout the week.

The Endocrine Society contributed to the meeting by underscoring that the treaty should focus not only on the environmental effects of plastic pollution, but the human health effects as well. We encouraged representatives to consider, as negotiations proceed, developing milestones that target reductions in plastic production and implementing longitudinal scientific assessments of the body burden of

chemicals in plastics, with particular attention to workers and communities with disproportionate exposures. We also highlighted the enormous volume of peer-reviewed scientific studies illustrating the connections between plastic additives including bisphenols, phthalates, and UV-stabilizers to noncommunicable diseases such as diabetes, obesity, infertility, and cancer. In addition, we volunteered to provide scientific and technical expertise to all member states given our members' unique knowledge of the health effects of chemicals in plastics.

Our statements were well received by the member states, and, during summary statements, the chair of the meeting recognized the importance of delivering public health goals through the treaty and the need to involve scientists throughout the process.

The UNEA resolution expects the INC to complete its work by the end of 2024, and the Endocrine Society will continue to stay involved in the negotiations. In December, we shared our priorities for future negotiations, emphasizing the points in our previous statements and the need for transparency and disclosure of the types and volumes of chemical additives used in plastic products.

Stay tuned for more information following the next INC meeting, which is scheduled to take place in May 2023.

## Four Ways to Advocate for Endocrinology and Endocrine Research in 2023

**T**he Endocrine Society has a robust advocacy program and influences a wide range of policies affecting endocrine-related research and practice. We advocate extensively on the federal level in the U.S., and for certain issues in the European Union.

Advocacy is most effective when policymakers hear from their constituents about the issues that matter to them; therefore, we rely on our members to join us in advocating for our policy priorities. Whether you have had advocacy experience or have never talked with a policymaker before, your voice will help our advocacy. Here are four ways for you to get involved in advocacy in 2023:

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**We encourage all our clinicians, clinical researchers, and basic scientists to use their voices to advocate for our policy priorities.**

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**1 PARTICIPATE IN AN ONLINE CAMPAIGN** • Join our U.S. and EU advocacy campaigns to send a letter to your elected officials. Sending a message takes a minute but will have a significant impact — receiving 10 messages about an issue can result in a policymaker prioritizing it. Visit [www.endocrine.org/takeaction](http://www.endocrine.org/takeaction) for the latest campaigns.

**2 MEET WITH YOUR ELECTED OFFICIALS** • We bring our members to meet virtually or in person with their elected officials in Washington, D.C., and

in Brussels about timely legislative issues. These meetings are an opportunity to educate policymakers about endocrinology, call for action, form a working relationship with an office, and increase the visibility of the Endocrine Society. We will notify members when there is an opportunity to meet with your elected representatives.

**3 JOIN OUR SOCIAL MEDIA CAMPAIGNS** • Visit [@TheEndoSociety](https://twitter.com/TheEndoSociety) on Twitter for posts that you can retweet. Policymakers are active on Twitter and see when you tag them in a post. We create social media toolkits with sample posts that you can share to reach your members of Congress.

**4 SIGN-UP FOR ADVOCACY NEWS AND UPDATES** • To stay up to date on our advocacy activities and learn how you can get involved, read our weekly advocacy update ([endocrine.org/advocacy-in-action](http://endocrine.org/advocacy-in-action)). To have weekly updates sent directly to you, email [advocacy@endocrine.org](mailto:advocacy@endocrine.org).

Policymakers need to hear from you about the issues that matter. Throughout 2023, there will be several opportunities to participate in a campaign, meet with your elected officials, join social media campaigns, and sign up for advocacy news. We encourage all our clinicians, clinical researchers, and basic scientists to use their voices to advocate for our policy priorities. 



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