DECIPHERING SCIENCE: Q&A WITH V. KRISHNA CHATTERJEE, MD

DECEMBER 2024

THE LEADING MAGAZINE FOR ENDOCRINOLOGISTS

Endocrine news

The Endocrine SCIENTIST

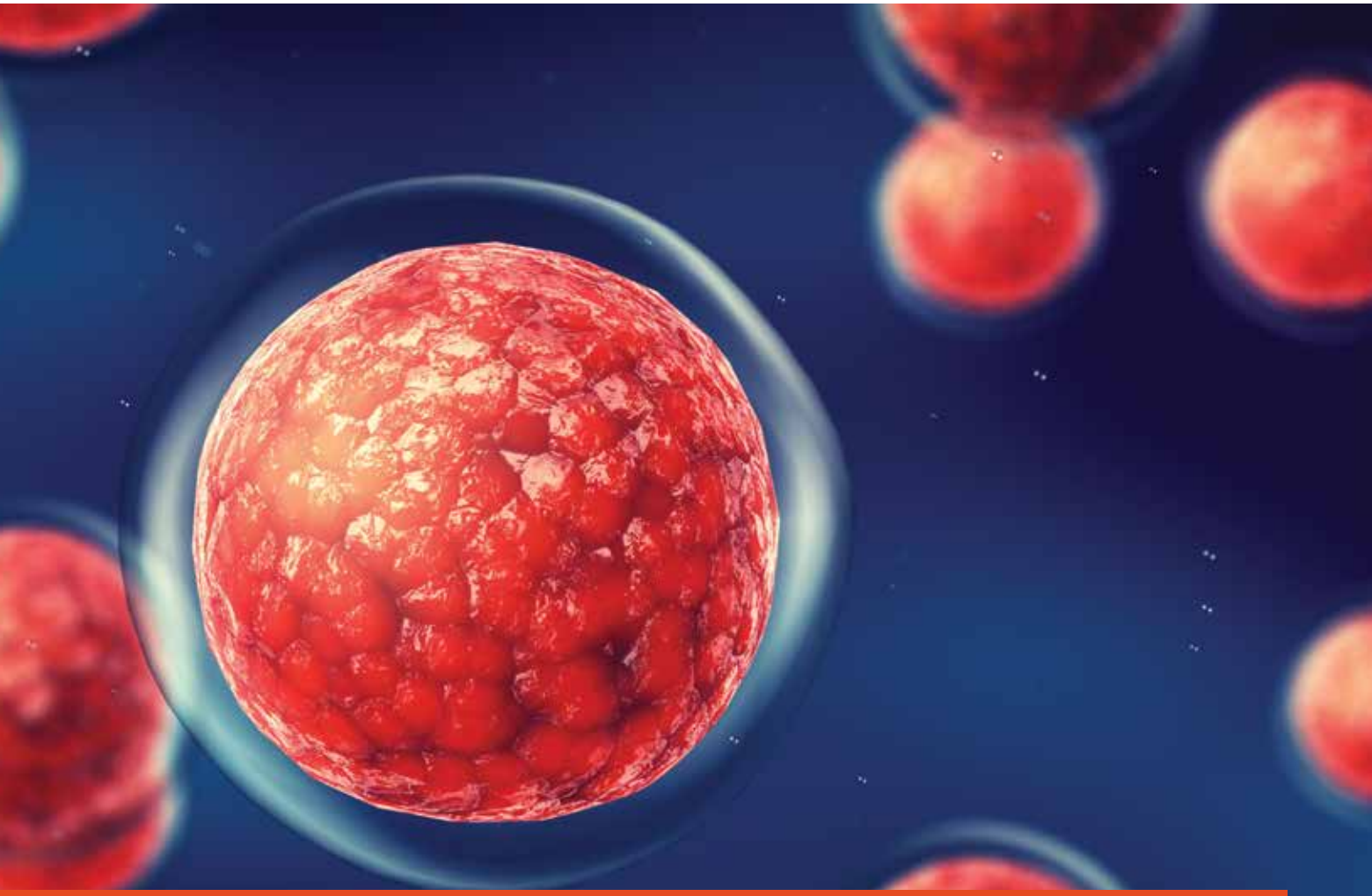
Endocrine News **looks at the biggest breakthroughs in endocrine research throughout the year and salutes the scientists behind these cutting-edge discoveries.**

- **SOBERING SCIENCE:** Q&A with 2025 Endocrine Society Laureates David Mangelsdorf, PhD, and Steven Kliewer, PhD
- **EUREKA! 2024:** Endocrine Society journal editors tell us what they think were the biggest headlines in endocrine science this year!
- **DR. SMITH GOES TO WASHINGTON:** How Lorenzo Smith's passion for science made him an endocrinology advocate

ENDOCRINE SOCIETY
Hormone Science to Health

ENDO2025

JULY 12–15, 2025 SAN FRANCISCO, CA



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SUBMIT YOUR ABSTRACT BY THURSDAY, JANUARY 30, 2025

ENDOCRINE.ORG/ABSTRACTS

ENDOCRINE SOCIETY

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The Top Endocrine Science of 2024

For the tenth year running, *Endocrine News* talks to editors from Endocrine Society publications to unearth the most impressive breakthroughs in endocrine science and research for 2024. This year, we also talk to some of the "scientists behind the science" to get their insights on their cutting-edge research.

BY KELLY HORVATH

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Q&A with 2025 Endocrine Society Laureates David Mangelsdorf, PhD, and Steven Kliewer, PhD

Recipients of the Endocrine Society's 2025 Edwin B. Astwood Award for Outstanding Research in Basic Science, David Mangelsdorf, PhD, and Steven Kliewer, PhD, have spent a lot of time in the lab with drunken mice. Find out how these besotted rodents may hold the secrets behind the evolution of how fibroblast growth factor 21 might impact the liver-brain pathway and what led these researchers to endocrine science in the first place. **BY DEREK BAGLEY**

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ENDOCRINE SOCIETY
Hormone Science to Health

2024 Marked Year of Significant Accomplishments at the Society

> Over this year we launched two new meetings, merged with an endocrine program directors' association, entered partnerships to enhance our educational offerings, and created a new initiative to encourage more medical students to enter our field.

It has been a remarkable year for the Endocrine Society!

As the year draws to a close it's timely to reflect on what we achieved over the past 12 months. Over this year we launched two new meetings, merged with an endocrine program directors' association, entered partnerships to enhance our educational offerings, and created a new initiative to encourage more medical students to enter our field.

And those are just a few of the developments. I'd like to take this opportunity to recount some of our 2024 highlights.

In **January 2024**, the Society hosted a virtual science writers conference on "hormone balancing," a concept that has become a popular trend on TikTok and other social media platforms. As the trusted authority, the Society set the record straight before a gathering of top-tier journalists and other influencers.

Our expertise also was evident in a report on endocrine disrupting-chemicals (EDCs) that served as the basis for a **February 2024** session of the United Nations Environmental Assembly (UNEA-6). The report was co-produced by the Society and the International Pollutants Elimination Network (IPEN), a leading global organization working to protect human health from toxic substances.

Our joint EDCs report, which was prominent on the UNEA-6 agenda, warns that current regulatory approaches used globally fail to account for the latest science on hormones and EDCs.

On the U.S. policy front, through tireless and expert advocacy, the Society celebrated a major win in **March 2024** with the extension of the Special Diabetes Program, the first funding increase for the program in two decades. The Society has been a leading advocate for this program, which was created in 1997 to advance research in type 1 diabetes and to address the disproportionate burden of type 2 diabetes on American Indians and Alaskan natives.

Ensuring a Healthy Future for Endocrinology

A key goal of the Society is to ensure the continuing strength of our field. In **April 2024**, the Society announced a new initiative to address the declining numbers of U.S. medical students choosing to become endocrinologists.

Our new Medical School Engagement Program (MSEP) offers a way for academic leaders to encourage medical students' interest in endocrinology. To date, MSEP has provided five medical schools with support for endocrinology-focused initiatives and leadership programs, with the aim of developing the pipeline into our specialty from the earliest roots.

For clinicians already working in the field, the Society continues to set the gold standard for guidance and guidelines in endocrine care.

In **May 2024**, the Society and the European Society of Endocrinology published a joint Clinical Practice Guideline designed to help clinicians manage patients who have, or are at risk of developing, glucocorticoid-induced adrenal insufficiency. This is the first guideline developed and published jointly by our two organizations, and is relevant to tens of millions of patients worldwide.

On our own, the Society in **June 2024** issued an updated guideline on vitamin D. The impact of this Clinical Practice Guideline can be seen from the fact that it has been viewed more than 170,000 times in six months in *The Journal of Clinical Endocrinology & Metabolism*'s online edition.

These Clinical Practice Guidelines, and a wealth of other topics, were front-and-center at our **ENDO 2024** meeting, held June 1 – 4, 2024, in Boston, Ma. The meeting was one of our largest ever, attracting more than 7,500 endocrine professionals from all over the world.

Creating Partnerships

Following **ENDO**, we took a short breath to celebrate its success and then got right back to work.

In **July 2024**, the Society announced its merger with the Association of Program Directors in Endocrinology, Diabetes, and Metabolism. APDEM represents academic leaders of more than 135 training programs that prepare fellows for clinical and research careers in endocrinology and metabolism.

Our organizations already have partnered for more than 25 years, and the merger will allow the combined entity to increase efficiencies and fulfill a shared commitment to supporting the endocrine workforce.

Meetings, Meetings, Meetings

Fall was a busy time at the Society. In **October 2024**, we announced a partnership with conference organizer Keystone Symposia.

Keystone conferences are renowned for being intimate and interactive, and inspiring attendees to pursue new lines of inquiry that can advance discoveries. Our partnership starts with a series of three conferences to advance endocrine research on diabetes, oncology, and cardiovascular disease. These meetings are set to launch in late 2026 or early 2027.

No waiting was required for our 1st International Conference on Steroid Hormones and Receptors (SHR 2024), held in **October 2024** in Albuquerque, N.M. The sold-out meeting builds on a 25-year legacy of highly successful conferences organized by the Steroid Hormones and Receptors in Health and Disease Conference, hosted by FASEB Science Research Conferences (SRC), and The Rapid Responses to Steroid Hormones (RRSH) International Meetings, hosted by the International RRSH Committee.

We look forward to continuing this important meeting going forward.

Also new this fall was the inaugural Artificial Intelligence (AI) in Healthcare Virtual Summit, held in **November 2024**. This unique and timely event explored AI's potential to revolutionize patient care and shape the future of medicine.

These are just some of the new and innovative events that took place during the past year. We also added a new Special Interest Group focused on obesity, bringing the total number of SIGs up to nine. And not to be overlooked are the Society's rich offerings of ongoing programs, scholarly journals, and cutting-edge resources that benefit members and our field alike.

So, after a busy and eventful 2024 I hope everyone has a wonderful New Year, and I look forward to staying in touch in 2025! EN

John Newell-Price, MD, PhD, FRCP
President, Endocrine Society

The Endocrine Scientists Behind the Science

As we wrap up an interesting 2024, we are once again devoting the December issue to endocrine science and the scientists who spend their lives pursuing science to improve human health around the world.

And what December *Endocrine News* would be complete without our annual edition of **"Eureka! The Top Endocrine Science of 2024"** (page 12)? As she has been doing for the past decade, Kelly Horvath has taken on the task of compiling this year's top scientific breakthroughs based on the opinions of the Endocrine Society's many journal editors. However, this year we took a bit of a different approach and rather than simply stating the editors' opinions of the studies, Kelly spoke to some of the "scientists behind the science" throughout the piece. This allows us to see a little bit of the thought processes at the bench and provides great insight into their discovery process.

In **"Sobering Science"** on page 24, Senior Editor Derek Bagley talks to the recipients of the Endocrine Society's 2025 Edwin B. Astwood Award for Outstanding Research in Basic Science, David Mangelsdorf, PhD, and Steven Kliewer, PhD. The two researchers shared this year's award for their groundbreaking work in endocrine signaling through nuclear receptor research. They discuss their research, what led their collective interest in endocrine signaling — specifically nuclear hormone receptors and endocrine fibroblast growth factors — as well as how they first got intrigued by endocrine science. For his part, Kliewer says he first became enamored with endocrinology during his postdoc. "It became obvious that each of the orphan receptors represented an opportunity to discover a fundamental new signaling pathway," he explains. "I decided then and there to become a hormone hunter!"

For this month's Early-Career Corner (**"Dr. Smith Goes to Washington,"** page 28), Glenda Fauntleroy Shaw talks to Lorenzo Smith, a fifth-year PhD candidate at the Huntsman Cancer Institute at the University of Utah in Salt Lake City, who not only has a passion for endocrine science — specifically understanding the intricacies of an under-studied cancer like adrenocortical carcinoma — but he also is passionate about ensuring that endocrine science is respected in the halls of Congress. Smith recently

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Prepress & Printing: **The Sheridan Group**
www.sheridan.com

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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.

Endocrine News® is published 12 times a year by the Endocrine Society, 2055 L Street, NW, Suite 600, Washington, DC 20036
Phone 202-971-3636 • Fax 202-736-9708
www.endocrine.org.

Print ISSN 2157-2089 Online ISSN 2157-2097

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joined Endocrine Society staff this fall to participate in his very first Hill Day where he met with the various staffers of Utah lawmakers to advocate for increases in funding for scientific research. He says he feels advocacy is so important

> **If you're a scientist or researcher, I hope you find this issue especially inspiring. If you're a clinician, I hope you get a little more insight into the world your colleagues devote their lives and careers to, since together you all make a difference.**

because scientists put so much time and work into discovering new treatments "but if those treatments cannot be accessed by the majority of people who could benefit the most, then really, what's the point of the work we do?"

In this month's Laboratory Notes column, Glenda talks to the Endocrine Society's 2025 recipient of the Gerald D. Aurbach Award for Outstanding Translational Research, V. Krishna Chatterjee, MD, about **"Deciphering Science"** on page 32. When he received his Laureate nomination, Chatterjee was praised for his important discoveries in the clinical understanding of resistance to thyroid hormone, delineating cardiac hyperthyroidism, dyslipidaemia, and hepatic steatosis and increased cardiovascular morbidity and mortality in RTHβ. He discusses his research as well as why he feels it's so important for basic scientists to work with clinicians to advance human health.

If you're a scientist or researcher, I hope you find this issue especially inspiring. If you're a clinician, I hope you get a little more insight into the world your colleagues devote their lives and careers to, since together you all make a difference. Feel free to share any comments with me about this issue at: **mnewman@endocrine.org.** EN

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

BY DEREK BAGLEY
Senior Editor

Vitamin D Supplements May Lower Blood Pressure in Older People with Obesity

"Our study found vitamin D supplementation may decrease blood pressure in specific subgroups such as older people, people with obesity and possibly those with low vitamin D levels. High vitamin D doses compared to the IOM's recommended daily dose did not provide additional health benefits."

Vitamin D supplements may lower blood pressure in older people with obesity, and taking more than the Institutes of Medicine's (IOM) recommended daily dose does not provide additional health benefits, according to new research published in the *Journal of the Endocrine Society*. The IOM recommends 600 International Units (IUs) per day.

Researchers led by Ghada El-Hajj Fuleihan, MD, MPH, FRCP, of the American University of Beirut Medical Center in Beirut, Lebanon, point out that vitamin D deficiency is common worldwide and has been associated with heart disease, immunological diseases, infections, and cancer.

Studies have linked vitamin D deficiency to a higher risk of hypertension, but evidence for the beneficial effect of vitamin D supplementation on blood pressure outcomes is inconclusive. "Although several randomized controlled trials (RCTs) showed null results, they were conducted in younger individuals, free of comorbidities, while most patients with low 25OHD levels are older and have comorbidities including [hypertension (HTN)] and high BMI," the authors write. "In this study, we capitalize on a completed vitamin D RCT and conduct post hoc analyses to investigate the effect of high-dose cholecalciferol (vitamin D3) compared to the National Academy of Medicine–recommended dose on BP, and explore modulators of a putative response, in older overweight individuals."

The researchers studied 221 older people with obesity taking vitamin D supplements at either 600 IU/day or 3,750 IU/day over the course of a year and found supplementation decreased their blood pressure. The researchers compared the two groups and found higher doses of vitamin D did not provide additional health benefits. They

determined people with obesity and those with low vitamin D levels benefited the most.

"Our study findings and synthesis of the literature emphasize the importance of demographic factors (age) and underlying health conditions (prevalent HTN, obesity, and 25OHD levels at study entry) when interpreting the potential effects of vitamin D on BP outcomes," the authors write. "Modulators of BP response to vitamin D reported in RCTs and metanalyses include age, HTN, baseline 25OHD levels, and high BMI as predictors of BP response to vitamin D."

"Vitamin D and calcium decrease SBP and DBP in overweight older individuals, but more is not necessarily better," the authors go on to conclude. "This effect is seen in individuals with BMI greater than 30, in hypertensive patients, and seems to be largely independent of dose."

"Our study found vitamin D supplementation may decrease blood pressure in specific subgroups such as older people, people with obesity, and possibly those with low vitamin D levels," Fuleihan says. "High vitamin D doses compared to the IOM's recommended daily dose did not provide additional health benefits."

Study Finds Intense Exercise May Suppress Appetite in Healthy Adults

A vigorous workout does more to suppress hunger levels in healthy adults than does moderate exercise, and females may be especially susceptible to this response, according to a small study published in the *Journal of the Endocrine Society*. The study examines the effects of exercise intensity on ghrelin levels and appetite between men and women.

The paper, by Kara C. Anderson, PhD, a postdoctoral fellow in the UVA Department of Medicine, Division of Endocrinology and Metabolism, in Charlottesville, Va. et al., points out that ghrelin circulates in acylated (AG) and deacylated (DAG) forms, which are known to affect appetite. Data on the impact of exercise intensity on AG and DAG levels, and their effects on appetite, are sparse and primarily limited to males, the study notes.

"This particular effect of ghrelin is of interest in exercise studies, as acute exercise of appropriate intensity can suppress appetite in healthy populations and in populations with obesity," the authors write. "However, literature on the link between exercise, appetite, and ghrelin levels is poorly defined. This may be due to the complex interplay of several variables including exercise dose, isoform measured, the impact of sex, and different feeding states that could confound data interpretation. Additionally, previous studies have typically included only healthy, young adult men, thus limiting real-world applicability."

To address this shortfall, the study examined eight males and six females. Participants fasted overnight and then completed exercises of varying intensity levels, determined by measurements of blood lactate, followed by self-reported measurements of appetite.

"We found that high-intensity exercise suppressed ghrelin levels more than moderate intensity exercise," Anderson says. "In addition, we found that individuals felt 'less hungry' after high-intensity exercise compared to moderate intensity exercise."

Females had higher levels of total ghrelin at baseline compared with males, but only females demonstrated "significantly reduced AG" following the intense exercise, according to the findings. "We found that moderate intensity either did not change ghrelin levels or led to a net increase," the authors write. These findings suggest that exercise above the lactate threshold "may be necessary to elicit a suppression in ghrelin."

Researchers also acknowledged that more work is needed to determine the extent to which the effects of exercise differ by sex. "Collectively, the results of the present study strengthen data on the role of high-intensity exercise in the reduction ghrelin and hunger. All isoforms of ghrelin may be associated with perception of hunger; however, more work is needed to determine if the relationship differs by sex," Anderson and her co-authors write in their conclusion. "Our findings also suggest lactate may be involved in exercise-induced ghrelin suppression. Future work should focus on how obesity may modulate this pathway, and whether a chronic training program at differing exercise intensities mirror these results. This will allow for the development of precision exercise prescriptions designed to aid in reducing and/or preventing obesity and its related complications."

"Exercise should be thought of as a 'drug,' where the 'dose' should be customized based on an individual's personal goals," Anderson says. "Our research suggests that high-intensity exercise may be important for appetite suppression, which can be particularly useful as part of a weight loss program." EN

> **"Our research suggests that high-intensity exercise may be important for appetite suppression, which can be particularly useful as part of a weight loss program."**

EndoBridge Celebrates 12 Years

Now in its 12th year, EndoBridge brought together global leaders of endocrinology and welcomed over 550 delegates from 43 countries in Antalya, Turkey, from October 17 to 20, 2024.

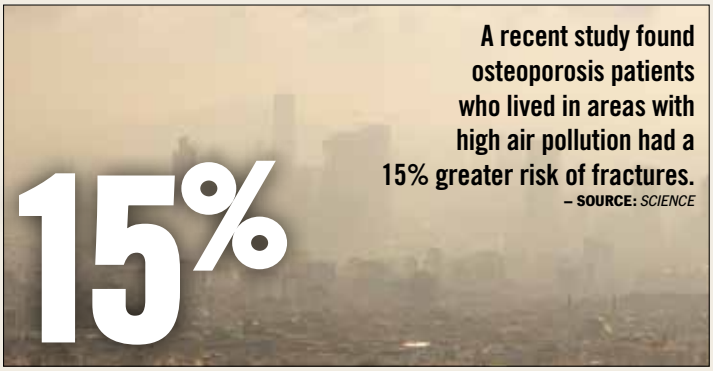
As in previous years, the meeting was held in English with simultaneous translation into Russian, Arabic, and Turkish. Accredited by the European Council, the three-day scientific program included state-of-the-art lectures and vivid interactive case discussion sessions covering all aspects of endocrinology and metabolism. The abstracts of clinical cases presented by the delegates in oral and poster sessions will be published as a supplement of the Endocrine Society journal, *JCEM Case Reports*.

"Starting from this year, European Association for the Study of Diabetes has joined us at the Bridge. We truly appreciate growing intercontinental collaboration for bridging the world of hormones," says Bulent O. Yildiz, MD, a faculty member at Hacettepe University School of Medicine in Ankara and the founder and president of EndoBridge. "I am delighted to see that EndoBridge has established itself as a highlight of the year, fostering a unique and impactful platform for enhancing cross-cultural dialogue, understanding, and collaboration beyond borders."

The 13th Annual EndoBridge will take place in Antalya, Turkey, October 23 – 26, 2025. Further information is available at: **www.endobridge.org**. EN

(left) Members of the faculty who traveled to EndoBridge 2024 in Antalya, Turkey, to lead a number of sessions for the hundreds of attendees from around the world. (below) Pictured are the more than 500 attendees to EndoBridge 2024 in Antalya, Turkey, along with the faculty, who came from 43 countries around the world.

"Reading ['Transformation of a Benign Adrenocortical Adenoma to a Metastatic Adrenocortical Carcinoma Is Rare But It Happens,' by Angelousi A., et al., in the August 2024 *JCEM Case Reports*] gave me the chills. The authors present a 64-year-old man with a 3-cm lipid rich (unenhanced CT attenuation <10 Hounsfield units) and nonfunctioning adrenal adenoma that, 13 years later, developed into a high-grade cortisol- and androgen-secreting adrenocortical carcinoma. **Endocrinology is a humbling subspecialty, and we are challenged by cases that defy conventional wisdom."** – *JCEM Case Reports* Editor-in-Chief **William F. Young, Jr., MD, MSc.,** professor of medicine in the Mayo Clinic College of Medicine and Science in Rochester, Minn., when asked about the year's most important scientific discoveries in **"Eureka!"** on page 12.



15%

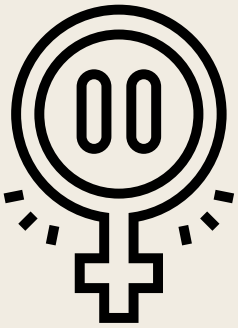
A recent study found osteoporosis patients who lived in areas with high air pollution had a 15% greater risk of fractures.
– **SOURCE:** *SCIENCE*

No. 3

Listed third, endocrine/metabolic disorders remain one of the top five diagnostic categories treated through telehealth in the United States.
— **SOURCE:** FAIR HEALTH

70%

The percentage by which levels of steroid hormones in men — namely, testosterone, cortisol, and estradiol — decrease from morning to night. – **SOURCE:** *LIVE SCIENCE*



44.6 Years

The average age women begin menopause in Taiwan, the country with the youngest population experiencing this transition. Worldwide, menopause begins at 51 years of age on average.
— **SOURCE:** *UNIVERSAL DRUGSTORE*

19 Months

Adults exposed to early-life sugar rationing for at least 19 months (including in utero) had a 38% reduced risk of developing diabetes and a 21% reduced risk of developing hypertension later in life. – **SOURCE:** OBESITYWEEK®

$12.19 Billion

The amount of revenue generated by the global endocrine testing market in 2023.
— **SOURCE:** GRAND VIEW RESEARCH'S *HORIZON DATABOOK*

12%

The percentage of women affected by polycystic ovary syndrome (PCOS) globally is up from previous estimates. This rise calls for enhanced awareness and management strategies due to PCOS's impact on metabolic health and fertility.
– **SOURCE:** WORLD HEALTH ORGANIZATION

ENDO 2025

We hope to see you at **ENDO 2025**, taking place July 12 – 15, 2025, in San Francisco, Calif. With more than 7,000 attendees, nearly 2,000 abstracts, and more than 200 other sessions, **ENDO** is the top global meeting on endocrinology research and clinical care. **ENDO** provides the opportunity to collaborate with an unparalleled list of endocrinologists, healthcare practitioners, and leading scientists from around the world. Through sharing our experience, advice on patient care, and new advances in research, we move the needle forward in hormone health and science.

Our outstanding slate of world-renowned speakers will showcase the most cutting-edge advances in research and medicine, with presentations spanning the spectrum of science, clinical care, and social implications.
https://www.endocrine.org/meetings-and-events/endo-2024

Abstract Submission period:
December 5, 2024 – January 30, 2025

2025 CDEI 60th Annual CME Conference

Vail, Colorado
January 24 – 28, 2025

The Clinical Diabetes and Endocrinology Institute 60th Annual CME Conference will be a dynamic, interactive experience with highly relevant clinical endocrinology sessions including the fast-changing landscape of type 2 and type 1 diabetes, diabetes technology, prevention of type 1 diabetes, obesity, hypercortisolism, disorders of thyroid function, thyroid cancer, diabetes complications including kidney disease, lipid disorders, and cardiovascular risk, bone health including osteoporosis and hypoparathyroidism, acromegaly, genetic testing for endocrine neoplasms, and vasopressin disorders. The faculty are nationally and internationally renowned experts who will present sessions filled with the latest research, clinical insights, and practical tips for the clinician and also highlight clinical guidelines.
https://www.eventsquid.com/event.cfm?id=24172

NASIT 2025

Washington, D.C.
January 31 – February 1, 2025

The North American Society for Interventional Thyroidology (NASIT) is the largest, multidisciplinary group in the United States dedicated to the field of interventional thyroidology. The society was created to promote safe integration of ablative thyroid technologies into clinical practice and a collaborative environment that supports education and research efforts in interventional thyroidology. NASIT holds an annual meeting that includes 1.5 days of expert panel sessions, scientific presentations, and the most up-to-date information on innovative technologies in the field.
https://nasit.org/event-5795114

BPS 2025

Los Angeles, California
February 15 – 19, 2025

As science becomes increasingly interdisciplinary, the Biophysical Society Annual Meeting continues its long-held reputation for bringing together leading scientists from all over the world who work at the interface of the life, physical, and computational sciences. The dynamic five-day meeting provides attendees with opportunities to share their latest unpublished findings and learn the newest emerging techniques and applications. Despite its nearly 5,000 attendees, the meeting is noted for maintaining its "small meeting" feel beginning with the Saturday Subgroup symposia, which allow attendees to meet within their scientific communities.

It is also known for its vitality, demonstrated by the over 600 highly interactive daily poster presentations, the more than 500 speakers selected from submitted abstracts, the many career development programs for those working in academia, industry, and agencies throughout the world, and its advocacy and education programs.
https://www.biophysics.org/2025meeting#/

Lab Manager Leadership Summit

Denver, Colorado
April 29 – May 1, 2025

The program's expert speakers will provide you with the tools you need to reach higher levels of engagement and efficiency among your lab teams. Topics will include dealing with burnout; incorporating automation into your lab; lab operations; effective communication; and much more. An interactive Q&A will follow each session. Attendees will also be able to participate in hands-on workshops and roundtable discussions where they will receive focused advice and learn from real-life examples of leadership success. This event will also feature a special track focused on lab safety, as well as a track geared toward those who work in the clinical lab.
https://www.labmanager.com/lab-manager-leadership-summit-30946

AAES 2025 Annual Meeting

Milwaukee, Wisconsin
May 17 – 19, 2025

American Association of Endocrine Surgeons 2025 Annual Meeting attendees can look forward to dynamic speakers, presentations of innovative research, opportunities to connect with colleagues, and informative panel discussions. The AAES Annual Meeting is dedicated to the advancement of the science and art of endocrine surgery through exchange of knowledge and fostering collaboration. The upcoming 2025 event promises to deliver innovative programming that will enrich attendees' clinical practices, provide networking opportunities, and facilitate scholarly pursuits. We cordially invite you to join us in Milwaukee for this exciting event. It will be an excellent opportunity to dive into new topics, share expertise, and connect with peers who share similar interests.
https://www.endocrinesurgery.org/2025-annual-meeting

INTERNATIONAL **ITINERARY**

SIMBA Adrenal 2025

Birmingham, United Kingdom
February 6 – 7, 2025

The conference will feature scenario-based assessments based on the SIMBA model (Simulation via Instant Messaging Birmingham Advance), providing a realistic and interactive learning experience. There will also be lectures focusing on glucocorticoid-induced adrenal insufficiency, pheochromocytoma/paraganglioma, primary aldosteronism, and adrenal cancer. Attendees will also benefit from opportunities to network in a peer-focused environment, fostering professional growth and collaboration.
https://www.ese-hormones.org/education-and-training/events-key-dates/simba-adrenal-2025/

Obesity and Adipose Tissue

Banff, AB, Canada
February 23 – 26, 2025

Obesity is a major risk factor for type 2 diabetes, nonalcoholic fatty liver disease, cardiovascular disease, and many types of cancer. Collectively, these associated diseases are the leading causes of morbidity and mortality worldwide. A deeper understanding of the biology of adipose tissue and pathophysiology of obesity will be critical to address this major threat to human health. This conference will be held jointly with the Keystone Symposium on MASH Pathogenesis and Therapeutic Approaches to encourage cross-disciplinary insights and collaborations toward understanding underlying mechanisms of how obesity leads to liver disease.
https://www.keystonesymposia.org/conferences/conference-listing/meeting?eventid=7106

SfE BES 2025

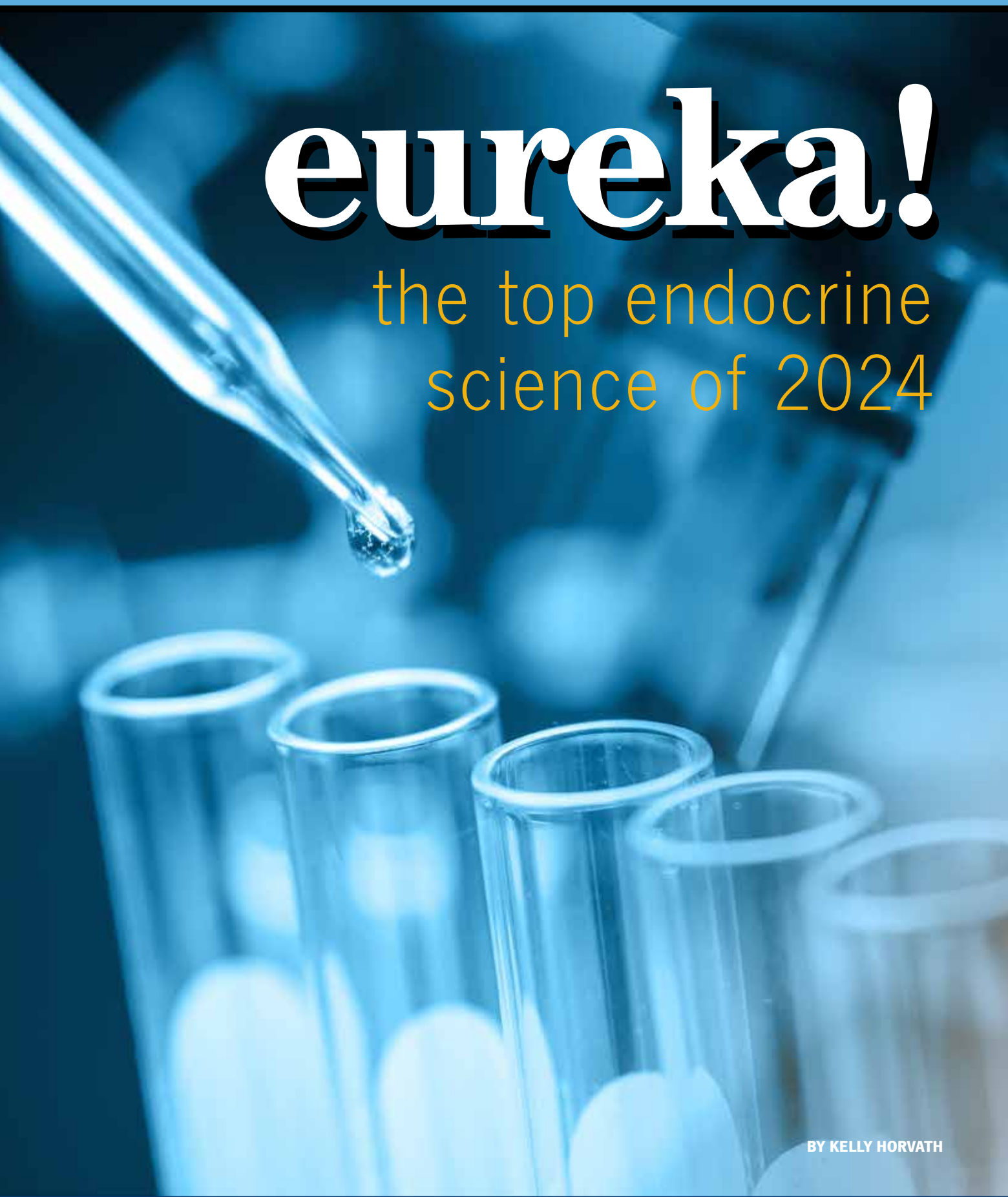
Harrogate, United Kingdom
March 10 – 12, 2025

SfE BES is the annual conference of the Society for Endocrinology, bringing together the best of basic science, translational research, clinical investigation, and clinical practice over a three-day program.
https://www.endocrinology.org/events/sfe-bes-conference/sfe-bes-2025/

ATTD 2025

Amsterdam, The Netherlands
March 19 – 22, 2025

ATTD is the ultimate meeting to discover the latest worldwide research, devices, and developments in the diabetes field. Join the community of experts, clinicians, researchers, and industry professionals to stay up to date with the latest advancements in our field. Together, we can continue driving revolutionary changes and making a positive impact on those battling diabetes.
https://attd.kenes.com/



eureka!

the top endocrine science of 2024

BY KELLY HORVATH

For the 10th year running, *Endocrine News* talks to editors from Endocrine Society publications to unearth the most impressive breakthroughs in endocrine science and research in 2024. This year, we also talk to some of the "scientists behind the science" to get their insights on their cutting-edge research.

For the 10th year running, *Endocrine News* talks to editors from Endocrine Society publications to unearth the top endocrine discoveries of 2024 and the incredible scientists behind them.

Despite this being Eureka's "tin anniversary," these studies are pure gold, as selected by Endocrine Society journal editors-in-chief as well as associate editors as to what they consider the top endocrinology studies published in the past 12 (or so) months.

These discoveries bridge molecular mechanisms through clinical applications and share a common thread: the increasing recognition that endocrine disorders require more personalized and nuanced approaches to treatment, whether in cancer therapy, metabolic disease, or age-related conditions.

Scientists have further illuminated the complex interplay between hormones and systemic health. The discovery of brain-derived cellular communication factor 3 (CCN3) has revealed previously unknown connections between biologic systems, while new insights into the hormone LEAP2 have expanded our understanding of metabolic regulation. These findings are complemented by research showing how liver androgen receptors differently influence metabolic health in males and females, highlighting the importance of sex-specific approaches to endocrine disorders.

In the therapeutic realm, researchers have made significant strides in multiple areas: from targeted radiotherapy for metastatic pheochromocytomas to innovative approaches for preserving beta cell function in diabetes. Advances were also made in understanding the extraskeletal benefits of parathyroidectomy and the potential of combining glucagon-like peptide (GLP)-1 receptor agonists with lifestyle interventions for optimal outcomes in weight management.

Findings related to the clinical heterogeneity of polycystic ovarian syndrome (PCOS) and the varying predictive value of sex hormone–binding globulin (SHBG) levels across different populations emphasize the need for more individualized treatment approaches. This trend extends to the management of autoimmune endocrinopathies and early puberty, where both genetic and environmental factors are now better understood.

These discoveries — thanks to the scientists who made them — collectively promise to revolutionize patient care through more precise, personalized treatment strategies. By deepening our understanding of endocrine system complexity and its far-reaching effects on human health, these advances are paving the way for more effective interventions that can be tailored to individual patients' needs, ultimately leading to better outcomes across a broad spectrum of endocrine disorders.

From the Editor of *Endocrine Reviews*

Endocrine Reviews Editor-in-Chief Ashley Grossman, FMedSci, emeritus professor of endocrinology, University of Oxford; senior research fellow, Green Templeton College;

The Scientist Behind the Science:

Karel Pacak, MD, DSc, PhD, of the Eunice Kennedy Shriver National Institute of Child Health and Human Development, National Institutes of Health, Bethesda, Md., says, "['Approach to the Patient: Concept and Application of Targeted Radiotherapy in the Paraganglioma Patient'] presents an updated approach to using targeted radiotherapy for patients with inoperable or metastatic pheochromocytoma and paraganglioma. Unlike earlier perspectives on systemic radiotherapy for these tumors, which often provided a simplified view for selecting radiopharmaceuticals, this article offers a more comprehensive and nuanced approach.

Previously, clinicians often selected a radiotherapy based on the sheer number of positive lesions for a specific radiopharmaceutical, without differentiating between lesions in critical organs (lungs/liver) versus bones/lymph nodes. This oversimplified strategy risked treatment failure, as organ lesions are known to pose greater danger than bone metastases in such cases. Additionally, certain radiotherapies induce higher bone marrow toxicity, particularly relevant in older patients and must be factored into treatment planning.

This updated approach integrates a deep understanding of both tumor and patient characteristics. For example, the selection of an appropriate radiopharmaceutical is guided by the extent of positivity in organ lesions, along with factors like tumor size (burden) and growth rate. Consider a case in which radiopharmaceutical 1 shows uptake in 25 stable bone lesions and two growing liver lesions for Patient 1, while radiopharmaceutical 2 shows uptake in five stable bone lesions and five large, actively growing liver lesions for Patient 2. Prioritizing radiopharmaceutical 1 over radiopharmaceutical 2 here would represent a suboptimal choice. Similarly, a radiopharmaceutical that causes significant bone marrow suppression may not be suitable for older patients, and one that induces catecholamine release may be inappropriate for patients with elevated plasma or urinary metanephrine levels.

In summary, systemic radiotherapy for pheochromocytoma and paraganglioma (PPGL) patients requires more than just identifying positive lesions. It demands careful consideration of each lesion's growth, functional characteristics, and location as well as the patient's overall health status. This detailed clinical assessment often leads to improved outcomes for patients with metastatic PPGL. Furthermore, this paper identifies potential tumor/patient characteristics that may cause failure of systemic radiotherapy and discusses potential strategies and provides future perspectives to tackle them and make them work."

"Reading ['Transformation of a Benign Adrenocortical Adenoma to a Metastatic Adrenocortical Carcinoma Is Rare But It Happens'] gave me the chills. The authors present a 64-year-old man with a 3-cm lipid rich ... and nonfunctioning adrenal adenoma that, 13 years later, developed into a high-grade cortisol- and androgen-secreting adrenocortical carcinoma. **Endocrinology is a humbling subspecialty, and we are challenged by cases that defy conventional wisdom."** — WILLIAM F. YOUNG, JR., MD, MSC, EDITOR-IN-CHIEF, *JCEM CASE REPORTS*

consultant NET endocrinologist, Royal Free London; professor of neuroendocrinology, Barts and the London School of Medicine; and consultant endocrinologist at the London Clinic Centre for Endocrinology, in the U.K., chose three JCEM publications he says will impact clinical practice.

The first is a very detailed and comprehensive review of targeted radiotherapy for metastatic pheochromocytomas/paragangliomas from September titled **"Approach to the Patient: Concept and Application of Targeted Radiotherapy in the Paraganglioma Patient,"** by Pacak K., Taieb D., Lin F.I., and Jha A. "In recent years, targeted radiotherapy for these tumors has become increasingly popular due to accumulating evidence of efficacy, in spite of the lack of large-scale controlled trials, with few of the adverse events associated with more conventional forms of treatment," Grossman says. "High-activity 131I-MIBG has unfortunately been withdrawn, but the effectiveness of peptide receptor radionuclide therapy with 177Lu-dotatate suggests that this will soon be the initial treatment of choice and should be actively considered by all physicians dealing with these fascinating tumors. The article is very comprehensive and well-illustrated."

Grossman's second pick is from July. "Also, in the area of endocrine oncology," he says, "one not infrequently comes across patients with a MEN1 phenotype but negative genetic screening. Could these have MEN4, due to mutations of the CDKN1b gene responsible for the tumor suppressor p27?" In **"Beyond MEN1, When to Think About MEN4? Retrospective Study on 5,600 Patients in the French Population and Literature Review,"** by Chevalier B., et al., among a very large French cohort investigated for MEN1, only four patients were identified as having MEN4. "These patients had milder disease, less frequently had pancreatic neuroendocrine tumors,

The Scientist Behind the Science:

"['Skeletal Effect of Parathyroidectomy on Patients With Primary Hyperparathyroidism: A Systematic Review and Meta-Analysis,']], based on data from over 200,000 patients with primary hyperparathyroidism, found that parathyroidectomy can reduce the overall fracture risk by 20% and specifically lower hip fracture risk by 37%, despite an annual bone mineral density gain of only 1% — 2% compared to conservative therapy," says corresponding author **Kanchana Ngaosuwan, MD, PhD**, of the Princess Srisavangavadhana College of Medicine, Chulabhorn Royal Academy, in Bangkok, Thailand. "We believe the additional benefits of parathyroidectomy extend beyond mineral content enhancement, involving both skeletal and extraskeletal factors.

Regarding skeletal factors, prolonged parathyroid hormone (PTH) excess not only reduces bone density but also damages bone microarchitecture and alters skeletal geometry. By normalizing PTH levels, parathyroidectomy can enhance microarchitecture and skeletal geometry, leading to improved bone strength.

As for extraskeletal factors, PTH excess impairs balance, weakens neuromuscular function, and contributes to cognitive dysfunction, all of which increase fall risk — a key factor in hip fractures. Parathyroidectomy can improve neuromuscular and cognitive function, thereby lowering fall risk and, consequently, hip fracture risk.

In summary, our study highlights the reduced fracture risk following parathyroidectomy in patients with primary hyperparathyroidism, and this benefit likely involves more than mineral density gains alone. We speculate that parathyroidectomy may also confer protective effects by potentially improving bone microarchitecture, skeletal geometry, and neuromuscular and cognitive function."

The Scientist Behind the Science:

"Identification of Environmental Compounds That May Trigger Early Female Puberty by Activating Human GnRHR and KISS1R" corresponding author **Natalie D. Shaw, MD, MMSc,** head of the Pediatric Neuroendocrinology Group, Clinical Research Branch, National Institute of Environmental Health Sciences and also appointed in the NIEHS's Reproductive and Developmental Biology Laboratory in Research Triangle Park, N.C., says "When evaluating a patient with early puberty, it may be prudent for doctors to begin inquiring about exposure to musk ambrette and related compounds. In addition, this study suggests that, out of an abundance of caution, it is important to only use personal care products in children that are federally regulated."

and were diagnosed at an older age with hyperparathyroidism," Grossman says. "This is clearly a very rare syndrome and should cause us a little less concern that we are missing the diagnosis on routine gene panel screening."

"Returning to primary hyperparathyroidism," he says, "it is often quite difficult to decide when surgical intervention is required, in spite of various guidelines to assist us. In particular, is there truly an improvement in bone architecture following selective parathyroidectomy?" In "Skeletal Effect of Parathyroidectomy on Patients With Primary Hyperparathyroidism: A Systematic Review and Meta-Analysis," from July, Kongsaree N., et al. undertook a detailed review and meta-analysis, including 233,188 patients with hyperparathyroidism. "Fractures at any site were reduced, specifically hip fractures, although not in spine or radius fractures, and interestingly associated with only minimal changes in bone density," Grossman explains. "They concluded that indeed there are improvements to be expected in bone architecture at the hip following parathyroidectomy, an argument that can be considered in some borderline patients being considered for this operation. This will certainly influence my approach to such patients with primary hyperparathyroidism, in particular those with borderline indications for operation."

More From the Editors of *Endocrine Reviews*

Lauren Fishbein, MD, PhD, MTR, assistant professor in medicine at the University of Colorado School of Medicine in the Division of Endocrinology, Metabolism, and Diabetes and an associate editor of *Endocrine Reviews,* chose "Outcomes of SDHB Pathogenic Variant Carriers," by Davidoff D.H., et al., from the September issue of JCEM. "This systematic review provides data about those who carry a germline succinate dehydrogenase type B (SDHB) pathogenic variant (PV)," Fishbein says. "This is a rare/understudied condition. Those with SDHB germline PVs are at risk for developing hereditary paraganglioma-pheochromocytoma syndrome. We are finding more incidental genetic mutations or pathogenic variants through genetic testing for other reasons — part of biobanks or done for other cancers in the family, etc. The authors for this paper focus on those non-probands who

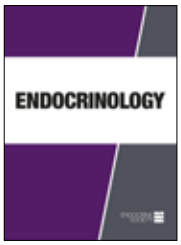
The Scientist Behind the Science:

"While adrenocortical cell transplantation remains in a pre-clinical phase currently, our work suggests that a skin site to receive transplanted cells may be feasibly used after modification with implantation of a biodegradable temporizing matrix to increase intracutaneous vascularity," says lead author of ["In Vivo Formation of Adrenal Organoids in a Novel Porcine Model of Adrenocortical Cell Transplantation"] **Brigette M. Clarke, MBBS**, of the Faculty of Health and Medical Sciences, University of Adelaide; the Endocrine and Metabolic Unit, Royal Adelaide Hospital; and the Endocrine and Diabetes Services, the Queen Elizabeth Hospital, Adelaide, Australia. "Also, while further optimizations are still required before human clinical translation, cell replacement therapies hold significant potential as an alternative approach to the treatment of primary adrenal insufficiency, with the capability to address some of the major limitations of traditional pharmacologic management."

The Scientist Behind the Science:

Regarding **"Progesterone Receptor Signaling Promotes Cancer Associated Fibroblast Mediated Tumorigenicity in ER+ Breast Cancer,"** corresponding author and the previous *Endocrinology* EIC **Carol A. Lange, PhD**, professor of medicine (Division of Hematology, Oncology, and Transplantation) and Pharmacology; Tickle Family Land Grant Endowed Chair of Breast Cancer Research; co-lead, Cellular Mechanisms of Cancer Program; and director, Molecular, Genetic, and Cellular Targets of Cancer Training Program at the University of Minnesota Masonic Cancer Center in Minneapolis, says, "I think the surprising and clinically relevant finding is this: The hormone progesterone is secreted by cancer-associated fibroblast (CAF) cells in co-clusters with breast cancer cells that enter the circulation and later give rise to metastases — as such, these CAF cells are supplying the key hormone (progesterone) known to support the cancer stem cell compartment. The addition of antiprogestins to current endocrine therapies for estrogen receptor-positive breast cancers is predicted to target these circulating CAF/tumor-cell clusters by cutting off their ability to support breast cancer stem cells."

have SDHB PVs and do a systematic meta-analysis for the risk of developing pheo/para, developing multifocal pheo/para and developing metastatic disease. Their work suggests there is a lower risk than previously reported for those with SDHB PVs to develop pheo/par and also a lower risk of developing metastatic disease than previously reported. These data may change our clinical management and our counseling of patients as we find more and more individuals with incidental pathogenic variants through more and more genetic testing for other reasons."



From the Editor of *Endocrinology*

Editor-in-Chief Zane B. Andrews, PhD, from the Department of Physiology at Monash University in Melbourne, Australia and deputy head of the Metabolism, Diabetes, and Obesity Program at the Monash Biomedicine Discovery Institute selected eight papers from *Endocrinology*.

- **"Identification of Environmental Compounds That May Trigger Early Female Puberty by Activating Human GnRHR and KISS1R,"** by Yang S., et al., published in October.

- **"Primary Cilia are Required for Cell-Type Determination and Angiogenesis in Pituitary Development,"** by Yoshida S., et al., published in July.

- **"In Vivo Formation of Adrenal Organoids in a Novel Porcine Model of Adrenocortical Cell Transplantation,"** by Clarke B.M., et al., and **"Potential Differences in Psychedelic Actions Based on Biological Sex,"** by Shadani S., Conn K., Andrews Z.B., and Foldi C.J. published in August.

Four papers came from the September issue:

- **"Liraglutide Impacts Iron Homeostasis in a Murine Model of Hereditary Hemochromatosis,"** by Bozadjieva-Kramer N., et al.

- **"Progesterone Receptor Signaling Promotes Cancer Associated Fibroblast Mediated Tumorigenicity in ER+ Breast Cancer,"** by Diep C.H., et al.

- Toledo M.P., Xie G., and Wang Y.J.'s **"Comprehensive Characterization of Islet Remodeling in Development and in Diabetes Using Mass Cytometry"**

- **"The LEAP2 Response to Cancer-Related Anorexia-Cachexia Syndrome in Male Mice and Patients,"** by Varshney S., et al.

Andrews also especially liked Babey M.E., et al.'s paper out of the Holly A. Ingraham Laboratory, **"A Maternal Brain Hormone That Builds Bone,"** from the July issue of *Nature*.

Said Andrews: "These papers highlight the remarkable discoveries published in *Endocrinology* or by Endocrine Society members. For example, it's not every day that a new hormone is identified, as was reported by Endocrine Society member Holly Ingraham or that anti-obesity medications have beneficial effects on seemingly unrelated systems, such as iron homeostasis (from Bozadjieva-Kramer N., et al.). Other highlights include examining how endocrinology may affect the actions of psychedelics, which is more traditionally the domain of neuroscience (from Shadani S., et al.) or how the environmental compounds hidden in the world around us may affect female puberty (from Yang S., et al.). These advances cover the breadth of endocrinology, including the pituitary where primary cilia were identified as critical regulators of cell survival, determination, and angiogenesis during pituitary gland development (from Yoshida S., et al.), or the importance of progesterone receptors on cancer-associated fibroblasts in breast tumorigenesis (from Diep C.H., et al.). Moreover, these diverse advances include the role of a liver hormone in cancer-related anorexia-cachexia syndrome (from Varshney S., et al.), the ability of transplanted adrenocortical cells to survive and self-organize into adrenal organoids (from Clarke B.M., et al.) and, the comprehensive characterization of human islets from controls, type 1 and type 2 diabetes donors (from Toledo M.P., et al.).

The Scientist Behind the Science:

Discussing **"The LEAP2 Response to Cancer-Related Anorexia-Cachexia Syndrome in Male Mice and Patients,"** corresponding author **Jeffrey M. Zigman, MD, PhD**, of the University of Texas Southwestern Medical Center in Dallas, Texas, says, "Here are the top 3 takeaway messages for clinicians:

1. We demonstrate for the first time that reducing levels of the hormone LEAP2, which has been shown to reduce food intake and body weight, lessens manifestations of cancer-related cachexia-anorexia syndrome in experimental mouse models.

2. We confirm previous work suggesting that reducing signaling by the related hormone ghrelin, which has been shown to increase food intake and body weight, worsens manifestations of cancer-related cachexia-anorexia syndrome in experimental mouse models.

3. We also show that the presence of relatively lower blood levels of LEAP2 and higher blood levels of ghrelin in patients with cancer are associated with less weight loss in the preceding six months."

The Scientist Behind the Science:

Cited by both JES associate editor Bruno Ferraz-de-Souza, MD, PhD, and *Endocrinology* Editor-in-Chief Zane B. Andrews, PhD, **"A maternal brain hormone that builds bone,"** from the July issue of *Nature* turned a lot of heads in the scientific community. "We may have uncovered a new therapeutic strategy to reverse bone loss in age-related or drug-induced osteoporosis," says the study's corresponding author **Holly A. Ingraham, PhD,** Herzstein Endowed Professor of the Department of Cellular and Molecular Pharmacology, University of California, San Francisco, adding "Discoveries often begin with an unpredictable and perplexing observation. As scientists, the ability to freely tackle and eventually solve these puzzles is our ultimate reward."

More From the Editors of *Endocrinology*

Associate Editor Stanley Andrisse, PhD, MBA, assistant professor of medicine at Howard University College of Medicine in Washington, D.C., also contributed, selecting **"Liver Androgen**

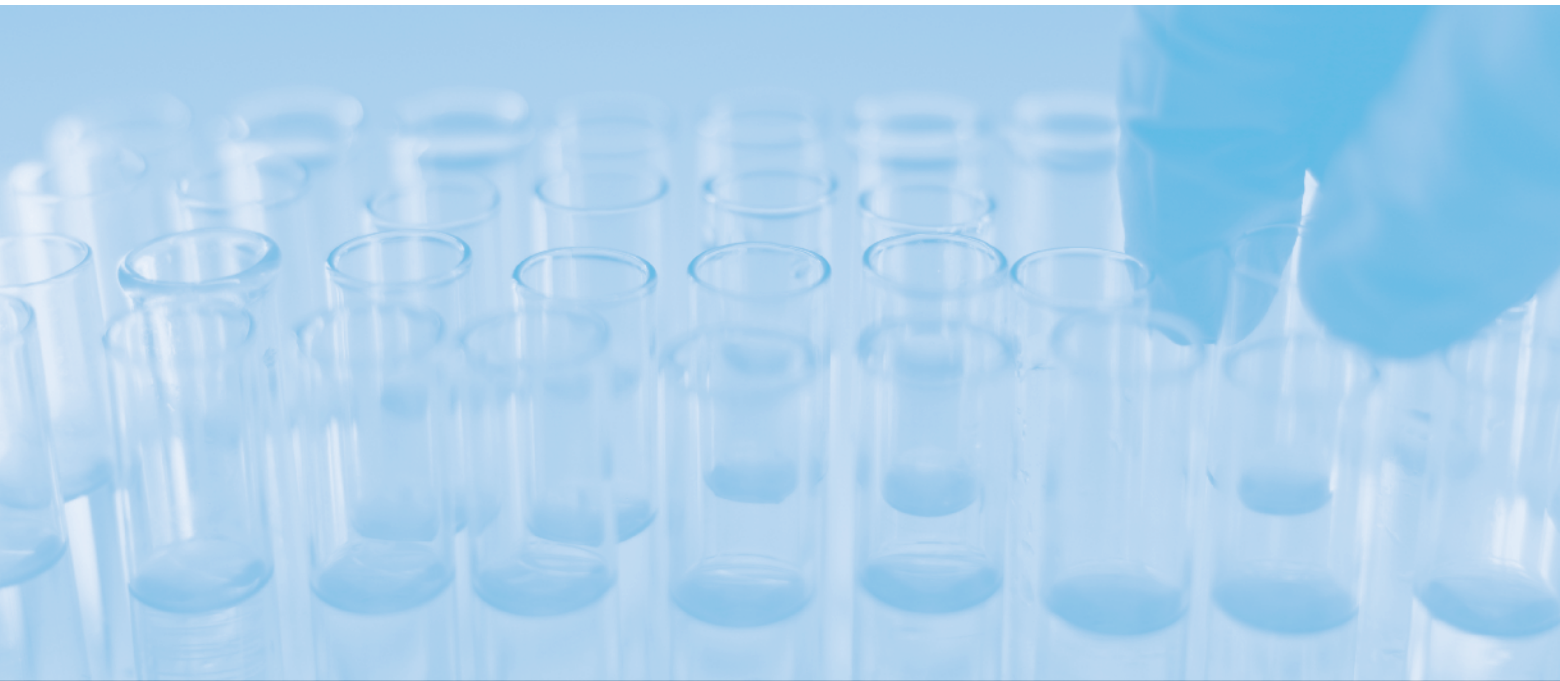
“These papers highlight the remarkable discoveries published in *Endocrinology* or by Endocrine Society members. For example, it’s not every day that a new hormone is identified, as was reported by Endocrine Society member Holly Ingraham **or that anti-obesity medications have beneficial effects on seemingly unrelated systems, such as iron homeostasis (from Bozadjieva-Kramer N., et al.).”** — ZANE B. ANDREWS, PHD, EDITOR-IN-CHIEF, *ENDOCRINOLOGY*

Receptor Knockout Improved High-fat Diet Induced Glucose Dysregulation in Female Mice But Not Male Mice,” from the April issue of JES, by Osei-Ntansah A., et al., and for which Andrisse is corresponding author. “I chose to highlight this publication because it provides valuable insights into how liver androgen receptors influence metabolic health differently in males and females, particularly under a high-fat diet,” Andrisse explains. “This study not only expands our understanding of sex-specific mechanisms in glucose dysregulation but also opens up potential for targeted therapeutic approaches in metabolic diseases, such as insulin resistance, especially among populations at risk for metabolic syndrome. By observing improved glucose metabolism in female LivARKO mice compared to males, this research underscores the importance of considering sex differences in metabolic research and the role of androgen receptors beyond reproductive health.”

From the Editor of the *Journal of the Endocrine Society*

JES Editor-in-Chief Zeynep Madak-Erdogen, PhD, associate professor of nutrition; Sylvia D. Stroup Scholar at the University of Illinois Urbana-Champaign, chose two papers from JES due to their frequency of access. **“SHBG, Free Testosterone, and Type 2 Diabetes Risk in Middle-aged African Men: A Longitudinal Study,”** by Seipone I.D., et al., published in August.

“Fundamental Body Composition Principles Provide Context for Fat-free and Skeletal Muscle Loss with GLP-1 RA Treatments,” by Tinsley G.M. and Heymsfield S., published in November.



More from *Journal of the Endocrine Society* Editors

Associate Editor Bruno Ferraz-de-Souza, MD, PhD, associate professor and chair of the Basic & Clinical Sciences Domain at the University of Notre Dame Australia School of Medicine in Fremantle, Western Australia, and also honorary principal investigator and postgraduate supervisor in endocrinology at the University of Sao Paulo School of Medicine, in Sao Paulo, Brazil, gives nod number two to **"A Maternal Brain Hormone That Builds Bone"** from the Ingraham Lab and published in the July issue of *Nature*, saying it was his "absolute favorite" of the year. "It's not every day that a whole new mechanism is uncovered linking unexpected biological systems, so I am in awe of their diligence leading to this discovery, that may have a lot of translational consequences in years to come," he says.

From the Editor of *The Journal of Clinical Endocrinology and Metabolism*

Editor-in-Chief of JCEM, Paul M. Stewart, MD, FRCP, FMedSci, executive dean and professor at the University of Leeds School of Medicine in the United Kingdom, selected five papers from JCEM that "highlight some of the remarkable advances that JCEM communicates across the globe — from technology-driven applications into clinical practice such as artificial intelligence and the power of genetic analysis to the understanding of disease mechanism, first-in-man investigation of novel therapeutics, and seminal clinical trials."

- **"An Open-label Phase 2 Study of Eneboparatide, a Novel PTH Receptor 1 Agonist, in Hypoparathyroidism,"** by Takacs I., et al.. published in March.
- **"Polycystic Ovary Syndrome Physiologic Pathways Implicated Through Clustering of Genetic Loci,"** by Stamou M.I., et al.. published in November 2023.

The Scientist Behind the Science:

"This is the first study to suggest a role for the breast cancer predisposition gene, CHEK2, in pituitary tumorigenesis, with a germline mutation yield of 3% in individuals with pituitary adenomas," says lead author of **"Increased Prevalence of Germline Pathogenic CHEK2 Variants in Individuals With Pituitary Adenomas,"** **Sunita M. C. De Sousa, MBBS, PhD**, of the Endocrine & Metabolic Unit, Royal Adelaide Hospital; the South Australian Adult Genetics Unit, Royal Adelaide Hospital; and the Adelaide Medical School, University of Adelaide, Australia. "Beyond the possibility of CHEK2 as a new pituitary tumorigenesis gene, our work here and in a related 2023 paper suggests that relatively common, less penetrant variants in genes like CHEK2 and PAM might act as risk alleles for pituitary adenoma formation. The risk allele hypothesis might explain both the high frequency of pituitary adenomas and patchy pedigrees in affected kindreds."

The Scientist Behind the Science:

Regarding **"Harmine and Exendin-4 Combination Therapy Safely Expands Human β Cell Mass In Vivo in a Mouse Xenograft System,"** corresponding author **Adolfo Garcia-Ocaña**, professor and chair of the Department of Molecular & Cellular Endocrinology and the Ruth B. & Robert K. Lanman Endowed Chair in Gene Regulation & Drug Discovery Research, Department of Molecular and Cellular Endocrinology, Arthur Riggs Diabetes and Metabolism Research Institute, City of Hope Beckman Research Institute, in Duarte, Calif., says, "The most important observation of this study is that treatment with the combination of a DYRK1A inhibitor with a GLP-1R agonist (exendin-4) increases actual human beta cell mass in vivo by a mean of four- to sevenfold in diabetic and nondiabetic mice over three months and reverses diabetes, without alteration in human alpha cell mass. The treatment was safe with no tissue abnormalities detected following analysis of multiple tissues in these mice.

We believe this is an important therapeutic observation for diabetes treatment since it could help to recover the beta cell mass lost in diabetes. Specifically, in people with type 2 diabetes, a four- to sevenfold increase in three months would seem more than sufficient. Although type 1 diabetes provides a greater challenge because baseline beta cell mass is lower in established type 1 diabetes than in type 2 diabetes, a four- to sevenfold increase in three months should improve glycemic control and reduce 'fragility,' once control of autoimmunity is in place."

- **"Artificial Intelligence Model Assisting Thyroid Nodule Diagnosis and Management: A Multicenter Diagnostic Study,"** by Ha E.J., et al., published in August.

- **"Increased Prevalence of Germline Pathogenic CHEK2 Variants in Individuals With Pituitary Adenomas,"** by De Sousa S.M.C., et al., published in November.

- **"Depressive Syndromes in Men With Hypogonadism in the TRAVERSE Trial: Response to Testosterone-Replacement Therapy,"** by Bhasin S., et al., published in July.

From the Editor of *JCEM Case Reports*

William F. Young, Jr., MD, MSc, professor of medicine in the Mayo Clinic College of Medicine and Science in Rochester, Minn., chose three papers from *JCEM Case Reports*.

- **"Pembrolizumab-induced Thyroiditis, Hypophysitis, and Adrenalitis: A Case of Triple Endocrine Dysfunction,"** by Rossi S., et al., published in November. "Immunotherapy has revolutionized the field of medical oncology," Young explains. "However, one of the unintended consequences of immune checkpoint inhibitors is autoimmune endocrinopathies. In this report, the authors present a remarkable case of multiple sequential endocrine toxicities. This case serves as a good reminder for clinicians regarding the multiple different effects on target glands and the key role for endocrinologists in sorting out complex and dynamic endocrine dysfunction."

- **"Transformation of a Benign Adrenocortical Adenoma to a Metastatic Adrenocortical Carcinoma Is Rare But It Happens,"** by Angelousi A., et al. published in August. Young says: "Reading this case report gave me the chills. The authors present a 64-year-

The Scientist Behind the Science:

"The TRAVERSE Trial is the largest and one of the longest randomized trials of testosterone replacement therapy (TRT) in middle-aged and older men with hypogonadism. The TRAVERSE trial's findings have several important clinical implications," according to lead author of **"Depressive Syndromes in Men With Hypogonadism in the TRAVERSE Trial: Response to Testosterone-Replacement Therapy," Shalender Bhasin, MB, BS**, of the Research Program in Men's Health: Aging and Metabolism, Boston Claude D. Pepper Older Americans Independence Center, Brigham and Women's Hospital, Harvard Medical School in Boston, Mass.

"First, a majority of middle-aged and older men with hypogonadism enrolled in TRAVERSE (50.8%) reported significant depressive symptoms. So middle-aged and older men with hypogonadism should be evaluated for depressive symptoms because depression adversely affects quality of life, ability to function in daily life, and increases the risk of substance use and self-harm.

Second, the trial, by virtue of its large size and relatively long duration, provided the first high-quality evidence that TRT improves mood and energy in men with hypogonadism and low mood.

Third, over 10% of men in the trial reported major depressive disorder or had severe depressive symptoms. TRT did not improve depressive symptoms in these men with major depressive disorder. Thus, TRT does not represent an effective treatment option for most men with clinical depressive disorders.

Fourth, the trial dispelled a widely held dogma in the field that mid- or late-life onset, low-grade, persistent depressive disorder (LG-PDD, previously called dysthymia) is specifically associated with testosterone deficiency and improves with TRT. The prevalence of late life LG-PDD in the study participants was very low (about 1.5%).

The TRAVERSE trial's findings should facilitate a more informed appraisal of the benefits and risks of testosterone treatment by middle-aged and older men with hypogonadism and their clinicians."

old man with a 3-cm lipid rich (unenhanced CT attenuation <10 Hounsfield units) and nonfunctioning adrenal adenoma that, 13 years later, developed into a high-grade cortisol- and androgen-secreting adrenocortical carcinoma. Endocrinology is a humbling subspecialty, and we are challenged by cases that defy conventional wisdom..."

- **"Recurrent Falls Due to Hypoglycemia: Case of an IGF-2-producing Fibrous Tumor of the Pleura,"** by Guijt, M. C.; Heineman D.J., and Jonker J.T., published in May. "I enjoy reading case reports like this one — where the broad differential diagnosis of an endocrine disorder is discussed and the authors walk through the step-by-step diagnostic assessment," Young says. "Here, the authors discuss the broad differential diagnosis of hypoglycemia, which, based on a thorough diagnostic evaluation, leads to non–islet cell tumor hypoglycemia caused by an IGF-2–producing fibrous tumor of the pleura."

More From the Editors of *JCEM Case Reports*

Associate editor Bulent Okan Yildiz, MD, professor of endocrinology and metabolism at Hacettepe University of Medicine in Ankara, Turkey, selected **"Understanding the genetic complexity of puberty timing across the allele frequency spectrum,"** by Kentistou K.A., et al., from the July issue of *Nature Genetics*. "Early puberty is several times more common in girls than boys and we witness puberty happening at younger ages," he explains. "This has significant implications both in the short and long term including higher risk for cardiometabolic disease and cancer. Therefore, it is highly important to explore determinants of age at menarche. The study by Kentistou et al., is the largest genome-wide association study on this topic so far and identifies several genetic alterations that might trigger puberty and potentially link reproductive timing to diseases in adult life."

Yildiz also liked Rosselot C., et al.,'s **"Harmine and Exendin-4 Combination Therapy Safely Expands Human β Cell Mass in Vivo in a Mouse Xenograft System"** from the July issue of *Science Translational Medicine*. "Viable strategies on restoration of beta cell function are highly relevant for diabetes management. Commonly used antidiabetic medications are not able to increase the number of β cells. Combining a dual tyrosine-regulated kinase 1A (DYRK1A) inhibitor with a glucagon-like peptide 1 (GLP1) receptor agonist, Rosselot et al., show a four- to sevenfold increase in β cell mass in diabetic and non-diabetic mice in three months and reversal of diabetes. They also show β cell mass increases through enhanced cell proliferation, function, and survival. These data point to therapeutic potential of a novel combination for treatment of diabetes." EN

– HORVATH IS A FREELANCE WRITER BASED IN BALTIMORE, MD. IN NOVEMBER, SHE WROTE ABOUT THE NEW RESEARCH ON DIABETES MEDICATIONS PRESENTED AT **ENDO 2024.**

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Q&A with 2025 Endocrine Society Laureates David Mangelsdorf, PhD, and Steven Kliewer, PhD

BY DEREK BAGLEY

Recipients of the Endocrine Society's 2025 Edwin B. Astwood Award for Outstanding Research in Basic Science, David Mangelsdorf, PhD, and Steven Kliewer, PhD, have spent a lot of time in the lab with drunken mice. Find out how these besotted rodents may hold the secrets behind the evolution of how fibroblast growth factor 21 might impact the liver-brain pathway and what led these researchers to endocrine science in the first place.

Last year, David Mangelsdorf, PhD, and Steven Kliewer, PhD, made headlines by getting mice drunk and then sobering them back up again. In a paper published in *Cell Metabolism*, Mangelsdorf, Kliewer, and their laboratory team found that fibroblast growth factor 21 (FGF21) protects mice against ethanol-induced loss of balance and righting reflex.

Previous studies had shown that FGF21 suppresses ethanol preference, induces water drinking to prevent dehydration, and protects against alcohol-induced liver injury, and their study showed that FGF21 plays a broader role in defending against the harmful consequences of ethanol exposure than previously thought.

The results suggested that the FGF21 liver-brain pathway evolved to protect against ethanol-induced intoxication. According to the authors, this pathway may modulate a variety of cognitive and emotional functions to enhance survival under stressful conditions.

"These results reveal a mechanism for selectively targeting noradrenergic neurons that could prove useful for treating both the loss of consciousness and impaired mobility that occur during acute alcohol poisoning," Mangelsdorf, Kliewer, and their co-authors wrote in the conclusion.

This year, Mangelsdorf and Kliewer made headlines again, taking home the Endocrine Society's Edwin B. Astwood Award for Outstanding Research in Basic Science, which recognizes individuals who have made significant contributions to the field of endocrinology via their outstanding basic science research.

Mangelsdorf, distinguished chair in molecular neuropharmacology and a Howard Hughes Medical Institute Investigator at the University of Texas (UT) Southwestern Medical Center in Dallas, Texas, and Kliewer, distinguished chair in developmental biology at UT Southwestern Medical Center, have made groundbreaking discoveries in endocrine signaling through nuclear receptor research. Their discoveries include the elucidation of the key signaling pathways governing cholesterol, lipid, and bile acid homeostasis, the identification of a conserved mechanism controlling the way in which animals react to nutritional stress, and the characterization of the mechanism underlying parasitic nematode infections.

Endocrine News caught up with Mangelsdorf and Kliewer to hear how the entire lab reacted with "delight and surprise" when they heard the news of receiving the award, what led to their interest in endocrine signaling, and what's next for them over the next few years.

Endocrine News: First off, congratulations on taking home the Edwin B. Astwood Award for Outstanding Research in Basic Science. How does it feel, and what does this award mean for your lab?

David Mangelsdorf and Steven Kliewer: For the two of us, it is a nice recognition of us as a team. For the lab, it is a wonderful appreciation of their hard work and achievements in scientific discovery.

_EN_: Tell us a little about yourselves. What led to your interest in science and medicine?

STEVEN KLIEWER, PHD,

DISTINGUISHED CHAIR IN DEVELOPMENTAL BIOLOGY

UNIVERSITY OF TEXAS SOUTHWESTERN MEDICAL CENTER

DALLAS, TEXAS

"I became enamored with endocrinology as a postdoc ... . It became obvious that each of the orphan receptors represented an opportunity to discover a fundamental new signaling pathway. ***I decided then and there to become a hormone hunter!"***

Mangelsdorf: For me, this was spurred by a biochemistry class that I took in college. In that class, I had to pick a topic of my choosing to discuss, and the one I chose was on the biochemistry of cancer. It reset my career goals from initially wanting to be a marine biologist to the emerging fields of molecular biology and metabolism.

Kliewer: In college, I learned that I really enjoyed lab work and analyzing the resulting data. It made sense to pursue these interests in the context of the exciting new field of molecular biology.

***EN*: From there, what led to your interest in endocrine signaling, especially in the two pathways your lab focuses on — nuclear hormone receptors and endocrine fibroblast growth factors?**

Mangelsdorf: My interests stemmed from my graduate student thesis project cloning the vitamin D receptor, which we showed was a member of the newly revealed family of nuclear receptors. That led to postdoctoral work in Ron Evans' lab at the Salk Institute, where we discovered the first of several orphan nuclear receptors. In our own independent labs, we went on to show that the downstream targets of two of those receptors (PPARalpha and FXR) were the endocrine growth factors, FGF19 and FGF21.

Kliewer: I became enamored with endocrinology as a postdoc in the Evans Lab. It became obvious that each of the orphan receptors represented an opportunity to discover a fundamental new signaling pathway. I decided then and there to become a hormone hunter!

***EN*: Your work has led to the discovery and creation of life-saving drugs that have had an incredible impact on human health. Can you talk about how that feels, and maybe share some of your findings you're most excited about or proud of?**

Mangelsdorf and Kliewer: The goal of our work has always been to ask the biggest question in the field and then follow where the science leads us. This type of discovery biology is often risky and requires one to leave their comfort zone. However, we have found that such research is fun and has an amazing way of providing unexpected insights that eventually lead to impacts on health and medicine. That is very rewarding.

_EN_: How many young researchers make up your laboratory team? What has been the most rewarding part of making discoveries with them?

Mangelsdorf and Kliewer: We have a team of about 15 lab members. Watching their hard work pay off with a discovery is the most rewarding.

_EN_: What led to your joining the Endocrine Society? How has the Society helped with your work?

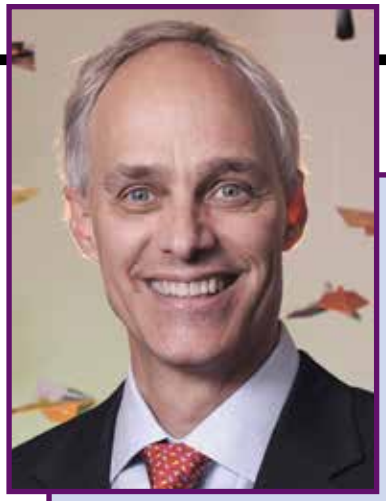
Mangelsdorf and Kliewer: The Endocrine Society has been our home since we were students. It has been quite fulfilling and appropriate that our careers have never wandered far from our roots in nuclear endocrine receptor biology.

_EN_: What's next for your research, say over the next five years?

Mangelsdorf and Kliewer: We have two very active projects in the lab. The first continues to focus on the roles of FGF21 in governing the body's response to alcohol. The second project really takes us back to our roots and centers on the discovery of a novel nuclear receptor pathway that controls nematode parasite lifecycles.

In his citation recommending Mangelsdorf and Kiewer for the 2025 Astwood Award, Donald McDonnell, PhD, the Glaxo-Wellcome Distinguished Professor of Molecular Cancer Biology, and professor of pharmacology and cancer biology, cell biology, and medicine in the School of Medicine at Duke University in Durham, N.C., remarked that "their work has led to the creation of life-saving drugs with FDA approval and impacted human health on a global scale," McDonnell wrote, adding that Mangelsdorf and Kliewer separately pursued investigations into nuclear receptors and finally joined forces in 2002 when Kliewer was recruited to UT Southwestern, where Mangelsdorf had been doing research.

"Overall," McDonnell continued, "their contributions have expanded our understanding of metabolic pathways, physiological regulators, and potential therapeutic interventions, demonstrating immense potential for human health, agricultural applications, and beyond." EN



DAVID MANGELSDORF, PHD

DISTINGUISHED CHAIR IN MOLECULAR NEUROPHARMACOLOGY

UNIVERSITY OF TEXAS SOUTHWESTERN MEDICAL CENTER

DALLAS, TEXAS

"The goal of our work has always been to ask the biggest question in the field and then follow where the science leads us. This type of discovery biology is often risky and requires one to leave their comfort zone. ***However, we have found that such research is fun and has an amazing way of providing unexpected insights that eventually lead to impacts on health and medicine. That is very rewarding."***

– BAGLEY IS THE SENIOR EDITOR OF *ENDOCRINE NEWS*. IN THE OCTOBER ISSUE, HE WROTE ABOUT THE POTENTIAL VIABILITY OF A MALE CONTRACEPTION GEL.

In September, Lorenzo Smith attended the Rally for Medical Research on Capitol Hill to promote the importance of scientific research. "Our big ask was for them to try to promote higher budget appropriations for NIH funding to support more research," Smith says.

Lorenzo Smith takes his passion for science all the way to Capitol Hill.

Dr. Smith *goes to* Washington

BY GLENDA FAUNTLEROY SHAW

PhD candidate Lorenzo Smith recently experienced his first Hill Day with the Endocrine Society's advocacy team and discusses what the lawmakers shared with him about the importance of scientific research, as well as the heartfelt reason he first became interested in a career devoted to creating therapies to help others.

Lorenzo Smith attributes part of his early-career success to the many teachers and mentors who encouraged him to pursue a life in science or research. And as one of the Endocrine Society's most dedicated advocates on Capitol Hill, he now makes it his mission to pay it forward to help others benefit from the research discoveries of scientists like him.

Smith, who is a fifth-year PhD candidate at Huntsman Cancer Institute at the University of Utah in Salt Lake City, was recently chosen as a 2024 Howard Garrison Advocacy Fellow of the Federation of American Societies for Experimental Biology (FASEB). *Endocrine News* spoke with Smith to learn more about his early research career goals and what motivates him to walk the halls of Capitol Hill.

Endocrine News: How did endocrinology become your area of research study?

Smith: My undergraduate training at the University of Wisconsin Stevens Point was actually in biochemistry. So, I did a lot of chemistry research as an undergrad, and I was hoping to begin to better understand how I could use my chemistry research background and intersect

During his first Hill Day, Smith met with representatives from the offices of Utah legislators Sens. Mitt Romney and Mike Lee, and Rep. Blake Moore. Here, he is pictured (center) with Rep. Moore and Sophia Kaska, PhD, the Endocrine Society's manager of science policy and research affairs.

Lorenzo Smith, PhD candidate

> “I think something we really need to think about as scientists, we put so much time and work into trying to establish new treatments, but if those treatments cannot be accessed by the majority of people who could benefit the most, then really, **what’s the point of the work we do?”**
>
> — LORENZO SMITH, PHD CANDIDATE, HUNTSMAN CANCER INSTITUTE, UNIVERSITY OF UTAH, SALT LAKE CITY

that with biological research. That led me to these biomedical umbrella programs throughout the United States for PhD students.

I was accepted into the biomedical PhD program here in Utah, and one of my first-year rotations was in the lab of Katie Basham, PhD, who is now my advisor. She had an interesting project looking at the effects of aging biology on the development of adrenal cancer, and I was really excited about the project. That’s when my endocrine journey really began.

EN: Was it that early research project that sparked the research you’re working on now?

Smith: In Dr. Basham’s research group, we’re interested in understanding adrenocortical carcinoma, or ACC, which is a type of cancer that arises in the adrenal gland. ACC is quite poorly understood, and current strategies to treat patients with advanced ACC are largely ineffective. So, looking at my project specifically, I’m investigating how the biology of aging contributes to the development of the disease, and something to point out is, like other cancers, the likelihood of developing ACC increases with advancing age. Yet, intriguingly, we still grapple with understanding how the biology of aging supports tumor development and progression, especially in under-studied cancers like ACC.

EN: Let’s talk about your other interest. You also do quite a bit of advocacy work on Capitol Hill. What are the chief issues that spurred you to start advocacy work on behalf of the Endocrine Society?

Smith: I’ve always been drawn to service and have always felt a need to give back. I grew up as a first-generation student in a low-income household, and I understand how easy it could have been for me to not attend college and not be the scientist I am today. Without the teachers and mentors who believed in me, I wouldn’t have had the confidence, or even the basic understanding of how to pursue science or research, and even more so without educational scholarships or training programs.

Become an Advocate!

If you would like to be an advocate on behalf of the practice and science of endocrinology, go to **https://www.endocrine.org/advocacy** to find out how you can get involved.

I think many scientists should think about how valuable they are, how valuable it is for them to be in the positions they are in today, and how they should utilize their platform to give back. To me, it only makes sense to use my educational training and pay it forward in any way I can.

I think my biggest motivation for pursuing scientific training is because I thought I could utilize and leverage my scientific training to help people. Perhaps one of the hardest things I've experienced was watching my older sister develop schizophrenia. I think for people who are familiar with how schizophrenia works, I feel like I had lost my sister who was really my childhood best friend, to a disease that dramatically changed her personality. So, for reasons like this, I understand how difficult diseases are to deal with, not only for an individual but also for the family. And as an undergrad, this motivated me to pursue a research career in sciences because I thought I could at least help initiate progress in preventing the ability for diseases to end or dramatically change the close relationships that we have in our life.

I think something we really need to think about as scientists, we put so much time and work into trying to establish new treatments, but if those treatments cannot be accessed by the majority of people who could benefit the most, then really, what's the point of the work we do?

EN: When you contact our representatives in Congress, are they receptive to listening to scientists like yourself?

Smith: Absolutely! In September, I attended the Rally for Medical Research on Capitol Hill [Hill Day] and met with the teams of my state representatives to discuss the importance of scientific research. Our big ask was for them to try to promote higher budget appropriations for NIH funding to support more research. The resounding message from all the teams was "Yes, scientific research is so important for our society."

“I think many scientists should think about how valuable they are, how valuable it is for them to be in the positions they are in today, and how they should utilize their platform to give back. **To me, it only makes sense to use my educational training and pay it forward in any way I can.”**

— LORENZO SMITH, PHD CANDIDATE, HUNTSMAN CANCER INSTITUTE, UNIVERSITY OF UTAH, SALT LAKE CITY, UTAH

EN: How does the 10-month Howard Garrison Advocacy Fellowship dovetail in your long-term career goals?

Smith: I wasn't aware of the FASEB Fellowship until the policy team at the Endocrine Society told me about the opportunity. They've been exceptional for providing me with opportunities like the day on Capitol Hill, and then also sharing opportunities like this that I can apply for. The program begins with introductory coursework into science policy and how government systems operate, and we also are trained in our policy-writing skills, by writing a science policy memo to a science agency in the federal government. I feel really lucky to be a part of the program. It has really opened my eyes to the many comprehensive ways policy is constructed, especially for science. EN

– SHAW IS A FREELANCE WRITER BASED IN CARMEL, IND. SHE IS A REGULAR CONTRIBUTOR TO *ENDOCRINE NEWS* AND AUTHOR OF LABORATORY NOTES.

deciphering SCIENCE

Q&A with V. Krishna Chatterjee, MD

The Endocrine Society's 2025 recipient of the Gerald D. Aurbach Award for Outstanding Translational Research, V. Krishna Chatterjee, MD, tells *Endocrine News* why it's so important for clinicians and basic scientists to work together to improve human health.

BY GLENDA FAUNTLEROY SHAW

V. Krishna Chatterjee, MD

In 2021, when our lives were still gripped by the deadly COVID-19 pandemic, V. Krishna Chatterjee, MD, pivoted to join U.K. researchers on the world's first clinical trial to study the effectiveness of the booster dose of the COVID-19 vaccine. The trial was conducted at unprecedented speed — signaling hope to Chatterjee that translating discovery science into health benefits for other diseases could also be done at a faster pace.

His long list of research achievements, including his valuable contribution to the vaccine trial, led the Endocrine Society to recognize Chatterjee as the 2025 Gerald D. Aurbach Award winner for Outstanding Translational Research. The award honors outstanding contributions to research that accelerates the transition of scientific discoveries into clinical applications.

Chatterjee is a professor of endocrinology, based at the Institute of Metabolic Science in the University of Cambridge, a consultant endocrinologist at Cambridge University Hospitals, and director of the National Institute for Health Research Cambridge Clinical Research Facility in Cambridge, U.K. In 2023, he was appointed the high honor of Commander of the Order of the British Empire (CBE) for services to people with endocrine disorders.

Notable for his contribution to the molecular basis of endocrine disorders and its application to clinical medicine, Chatterjee and fellow researchers first discovered Resistance to Thyroid Hormone alpha, a rare disorder of thyroid hormone action. He and his team also identified different mutations in the PPARγ gene, causing a rare form of diabetes that is also associated with early-onset hypertension. This discovery would eventually lead to the development of new drugs to treat the condition.

Endocrine News asked Chatterjee about his renowned discoveries and what he enjoys most when he's outside the lab.

***Endocrine News*: The Laureate award for Outstanding Translational Research is named in honor of Dr. Gerald**

“It was a privilege to contribute to a [COVID-19 vaccine] trial, undertaken at unprecedented speed and scale, which informed U.K. vaccination policy immediately. **Going forward, I hope this indicates that it should be possible to translate discovery science into health benefits faster in other disease areas, too.”**

— V. KRISHNA CHATTERJEE, MD, PROFESSOR OF ENDOCRINOLOGY, INSTITUTE OF METABOLIC SCIENCE, UNIVERSITY OF CAMBRIDGE; CONSULTANT ENDOCRINOLOGIST, CAMBRIDGE UNIVERSITY HOSPITALS; DIRECTOR, NATIONAL INSTITUTE FOR HEALTH RESEARCH CAMBRIDGE CLINICAL RESEARCH FACILITY, CAMBRIDGE, U.K.

Aurbach, the Society’s 68th president and a renowned researcher and clinician. What did news of the recognition mean to you?

Chatterjee: I am very honored to receive this award, which also recognizes the contributions, over many years, of both basic scientists and clinicians in my research group.

***EN*: You’ve been honored for your contributions that focused on genetic and molecular endocrinology, especially Resistance to Thyroid Hormone β and α as well as defective PPARγ causing a rare form of insulin-resistant diabetes and early-onset hypertension. What are your lab’s current research goals that may extend your contributions to translational science?**

Chatterjee: Having found that patients with Resistance to Thyroid Hormone β are at increased risk of atrial fibrillation, major cardiovascular events, and earlier mortality, we wish to develop interventions that address this unmet need in the disorder. We wish to determine whether thyroid hormone therapy in Resistance to Thyroid Hormone α, including treatment of patients identified at birth, can prevent adverse health outcomes.

***EN*: How many scientists are currently on your lab team, and what do you enjoy most about collaborations in the research lab?**

Chatterjee: My current research team includes two basic scientists and a clinical health professional. I continue to collaborate with both clinicians and basic scientists around the world. My past collaborations with basic scientists have sometimes yielded our most fulfilling contributions to knowledge and understanding.

***EN*: You were a contributor to the world’s first clinical trial that studied the effectiveness of the booster dose of COVID-19 vaccine. I vividly recall anxiously waiting until the third dose became available. When you look back on the early months of the pandemic, did you think we’d get to where we are now?**

Chatterjee: It was a privilege to contribute to a trial, undertaken at unprecedented speed and scale, which informed U.K. vaccination policy immediately. Going forward, I hope this indicates that it should be possible to translate discovery science into health benefits faster in other disease areas, too.

Chatterjee is shown here (far right, fourth row from top) with other attendees at the 9th Annual International Workshop on Resistance to Thyroid Hormone, which took place at Magdalene College, Cambridge, U.K., in September 2010.

EN: When you are not in the lab, what is your favorite way to pass the time?

Chatterjee: As a keen supporter of Arsenal, I am happy to see the good times again at this football club. We may even win the league … someday soon!

In his Laureate Award citation, J. Larry Jameson, MD, PhD, interim president of the University of Pennsylvania, who previously served as the inaugural editor-in-chief of the *Journal of the Endocrine Society*, praised Chatterjee for his important discoveries in the clinical understanding of Resistance to Thyroid Hormone, delineating cardiac hyperthyroidism, dyslipidaemia, hepatic steatosis, and increased cardiovascular morbidity and mortality in RTHβ.

"He has shown that RTHα is a form of congenital hypothyroidism associated with near-normal thyroid function tests, which is underdiagnosed," Jameson wrote. "His observation that thyroxine therapy can prevent many adverse consequences of RTHα, highlights a need for increased, future ascertainment of this condition."

Jameson added that Chatterjee has translated his research into biochemical and genetic tests and biomarkers that constitute an internationally recognized diagnostic service for disorders of thyroid hormone action, which inform therapeutic approaches (e.g., selective thyromimetics) in these disorders. "His research, which spans the basic-clinical interface, is an exemplar of translational investigative science," he concluded.

ENDO 2025 attendees in San Francisco, Calif., will get the chance to meet Chatterjee — and the other 2025 Laureate Award recipients — when he is presented the Aurbach Award for Outstanding Translational Research. **ENDO 2025** takes place July 12 – 15, 2025. EN

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ENDOCRINE SOCIETY

Endocrine Society Urges Congress to Address Critical Endocrine Research and Practice Issues

Congress returned to Washington, D.C., following the November elections for a "lame duck" session to complete work before the end of the year. Several important issues for endocrine research and practice are at stake. The Endocrine Society is advocating protecting our members' interests on the following:

- a 2.83% cut to the Medicare Physician Fee Schedule (MPFS)
- extension of telehealth waivers

Funding for the NIH and the SDP

Funding for the National Institutes of Health (NIH) and the Special Diabetes Program (SDP) expires December 20 unless Congress passes legislation. Because there is little time left, there is a risk that Congress will not complete a funding bill but rather will pass another short-term continuing resolution and extend the SDP for the same shortened period. The problem with this approach is that until permanent funding is established, the NIH will be unable to fully commit resources to multi-year grants, resulting in delays in funding for extremely competitive grants and high-impact new projects. To avoid disruptions to research, the Endocrine Society is advocating for Congress to complete the FY 2025 appropriations bill and provide a multi-year extension of SDP by the December deadline.

If you receive funding from the NIH, your research is at risk. We urge you to join our online campaign calling on Congress to complete the appropriations process for FY 2025 and to extend SDP before the December 20 deadline. Please visit **endocrine.org/advocacy/take-action** today to join our campaign.

Practice Issues

During December, Congress also has the opportunity to pass two issues important to our clinician members. We are advocating for Congress to pass legislation to avert the 2.83% cut to the Medicare Physician Fee Schedule (MPFS) and provide an inflationary increase to the MPFS tied to the Medicare Economic Index (MEI). The MPFS final rule includes a 2.83% payment cut to Medicare reimbursement, which is scheduled to go into effect on January 1, 2025, unless Congress acts. Finally, we urged Congress to pass legislation providing a two-year extension of the Medicare telehealth waivers. These important waivers, which expire on December 31, ensure that physicians can deliver care via telehealth and audio-only visits. The Society will continue to advocate for Congress to address all these issues in the coming weeks.

Medicare Publishes Final Rule for Physician Fee Schedule; New Rates Go into Effect January 1

The Centers for Medicare and Medicaid Services (CMS) published its rule summary and final payment rates for the Medicare Physician Fee Schedule (MPFS) final rule for Calendar Year 2025. You can find the rule summary and the final payment rates chart on the physician payment page (**https://www.endocrine.org/improving-practice/macra**) on our website. This annual rule updates payment policies and payment rates for Part B services furnished under the MPFS. Below are several highlights of the final rule. For a full analysis of the rule, please review the summary on our website:

- **Conversion Factor for 2025:** The conversion factor for 2025 is set to decrease by approximately 2.83% from $33.2875 to $32.3464. The Society continues to urge Congress to pass legislation to avert this cut and we recently endorsed the Medicare Patient Access and Practice Stabilization Act introduced by Representative Greg Murphy (R-NC) and Representative Jimmy Panetta (D-CA) that would avert this cut and provide an inflationary update to physician payment in 2025.

- **Determination of Practice Expense Relative Value Units (RVUs):**CMS finalized its policy not to adjust RVUs using Medicare Economic Index (MEI) methodology. There is no change in the methodology, and the agency will wait for updated practice expense data from the AMA before making any significant changes.

- **Payment for Medicare Telehealth Services:** CMS has added audio-only communication technology to the definition of a telehealth service. The agency plans to complete a comprehensive analysis of future rulemaking of all the services on the list. They provided an initial list of services that have been requested to be added, which includes continuous glucose monitoring, care management codes, and frequency limitation codes.

- **Evaluation and Management (E/M) Visits:** the final rule allows billing of Healthcare Common Procedure Coding System (HCPCS) code G2211, the add-on code to report patient complexity, with an annual wellness visit, vaccine administration service, or any Medicare Part B preventative service delivered in the office or outpatient setting.

- **Direct Supervision:** CMS will continue to allow direct supervision to permit the presence and immediate availability of the supervising practitioner through real-time audio-only and visual interactive telecommunications systems until the end of 2025.

Endocrine Society delegates Amanda Bell, MD, and Daniel Spratt, MD, attended the AMA House of Delegates Interim Meeting to represent the Society and advocate for issues important to endocrinology.

Endocrine Society Participates in AMA House of Delegates Policy Meeting

In November, the American Medical Association (AMA) House of Delegates met in Orlando, Fla., to establish policy positions on topics of importance to healthcare providers and patients.

Endocrine Society delegates Amanda Bell, MD, and Daniel Spratt, MD, attended the meeting to represent the Endocrine Society and advocate for issues important to endocrinology. During the meeting, we supported resolutions focused on women's health, lowering prescription drug prices for patients, and improving care for incarcerated individuals.

The Society is also participating in an AMA Task Force that focuses on the physician-patient relationship and successfully nominated Spratt to serve. During the November meeting, Spratt participated in the Task Force's Informational Session and Open Forum. The AMA House of Delegates, which is the legislative and policy-making body of the AMA, meets twice a year to consider changes to AMA policy. A very special thanks to our delegates for attending the AMA meeting and representing the Society.

Society Members Advance Science in Global Plastics Treaty

In November, delegations from countries around the world met in Busan, Republic of Korea, for the fifth session of the Intergovernmental Negotiating Committee to develop an international legally binding instrument on plastic pollution (INC5). As the only medical and scientific professional society with a delegation to the treaty, Endocrine Society members Marina Fernandez, PhD, and Leonardo Trasande, MD, MPP, continued to represent the Society and advocate for a treaty that helps reduce exposure to EDCs in plastic products and protect human health.

While the treaty process has been hampered by procedural delays and strong disagreements over critical provisions, the Endocrine Society has made a real impact by advocating for provisions related to health in the treaty text. Additionally, and in alignment with our suggestions, countries have worked in recent months to develop proposals related to chemicals of concern, including EDCs, which could be included in the treaty. At INC5, Fernandez and Trasande discussed our priorities with delegations and explained how the latest endocrine science reinforces the need for strong language on chemicals of concern. We also urged delegations to act swiftly to ensure that the treaty is drafted and implemented in a timely manner, given the significant delays that have hampered progress in the negotiations so far.

While the outcome of treaty adoption remains uncertain, a legal drafting group has been established to commence the work of incorporating the diverse opinions of the various member states into legal text. We will review the draft treaty text to ensure that our priorities are included and continue to engage with member states to build support for health-protective provisions to ensure that they are included in the final treaty. EN

Keys To the Lab

For endocrinologists working in dynamic and demanding lab environments, having the right furniture and equipment is essential to support accurate, efficient, and safe research.

From specialized workbenches and fume hoods to containment cabinets and ergonomic seating, today's lab furniture is designed to streamline workflows, maintain strict environmental controls, and ensure researcher safety during sensitive experiments. Whether looking for a full lab build-out or guidance on lab renovations, explore this roundup to see some of HEMCO's latest innovations and equipment for the endocrinology lab.

COMPILED AND WRITTEN BY COURTNEY CARSON

◀ UniLine Furniture

UniLine Furniture offerings include base cabinets, wall cabinets, countertops, sinks, fixtures, base tables, mobile workstations, specialty storage cabinets, and peg boards. The UniLine Casework Groupings are designed to incorporate the most popular casework styles in a complete package. UniLine also offers the option of a complete turnkey installation experience to allow researchers to spend their time in the lab focused on their specialty.

▶ Workstation Benches for Enclosures

These Workstation Benches are designed to hold laboratory equipment including fume hoods, tabletop workstations, and enclosures. Available in a variety of sizes in both width and depth, the Workstation bench is designed to fit a specific lab space. The two-inch-square steel legs are also adjustable, offering a variety of heights for researchers. The bench load capacity is tested to 2,000 pounds, and available options include worksurfaces, bottom shelves, and seismic levelers.

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◂ UniFlow AireStream Fume Hoods

The UniFlow AireStream Fume Hood is a high-performance hood aimed at maximizing user protection and energy savings. This hood is constructed of chemical-resistant, flame-retardant, nonmetallic composite resin materials and features an exclusive "unitized" construction that does not require screws, bolts, rivets, or metallic hardware for assembly. Equipped with a 36" high extended view height, the UniFlow AireStream features a vector slotted rear VaraFlow baffle system, aerodynamic sash lift with perforated air-sweep feature, and molded-in belled outlet collar for reduced airflow resistance. The lighting is a vapor-proof LED strip fixture with a central switch, pre-wired to a single-point junction box 115V/60Hz. The hood is shipped completely assembled and can include a wide selection of accessories that can be factory-installed to meet a lab's specific needs.

◂ MicroFlow Workstation

The MicroFlow Workstation is a ductless carbon-filtered workstation equipped with particle pre-filter and activated carbon filtration ideal for fumes, odors, and non-hazardous chemical vapors. The workstation is self-contained and features a recessed work surface to contain spills. A clear viewing shroud surrounds the work area for product protection and includes a hinged safety viewing panel for user protection. Variable speed fan control allows for multiple options including high-speed airflow through a sash opening or medium and low flow for sensitive operations.

▸ CleanAire II Ductless Hoods

The CleanAire II Ductless Hood features a built-in carbon filtration system to absorb nontoxic fumes and odors. The hood is equipped with an integral blower, vapor proof light, fan, and light switches. The hood superstructure is constructed of chemical and flame-resistant, non-metallic, composite resin with a molded one-piece seamless interior fume chamber. A vertical sliding clear acrylic sash protects the user and contains the process fumes. The carbon filter that is included absorbs the fumes and then re-circulates the air back to the laboratory. The hood is shipped completely assembled and ready for operation.

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– CARSON IS A FREELANCE WRITER BASED IN BIRMINGHAM, ALA., AND HAS BEEN PROVIDING *ENDOCRINE NEWS* WITH VARIOUS TRAVELOGUES, ENDOGEAR COLUMNS, AND MORE FOR SEVERAL YEARS.

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