

JANUARY 2021

THE LEADING MAGAZINE FOR • ENDOCRINOLOGISTS

Endocrine news

INTERNATIONAL

In the MIX

Rethinking Combination Therapy for Hypothyroidism

While evidence-based guidelines don't encourage it, many endocrinologists recognize a need to give combination therapy a trial in some patients with hypothyroidism.

- A small but significant number of patients have been dissatisfied by their hypothyroidism treatment with levothyroxine.
- Evidence suggests a subset of patients may benefit from a combination that includes T3 — and that appropriate doses are safe.

HIRE POWER:

Zooming in on potential staff

MIGHTY MOUSE:

Could the brain unlock the key to combatting obesity?

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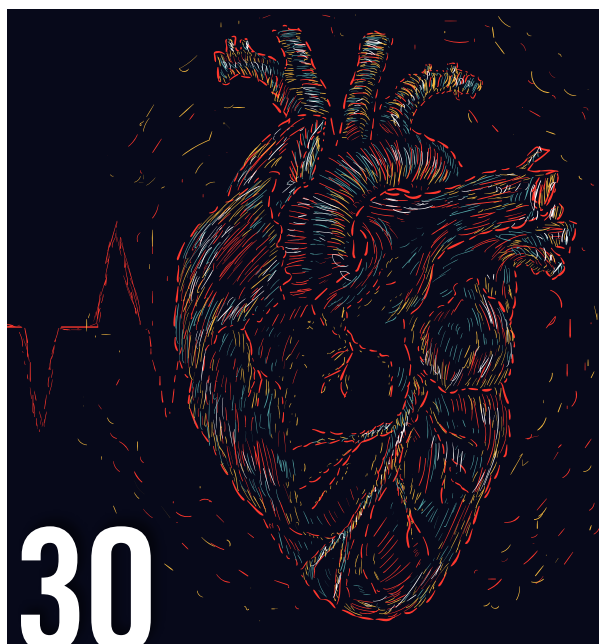
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Fostering Growth for Future Endocrinology Leaders

The Endocrine Society has long been a nurturing home for our early-career members to seek training and guidance on how to navigate, sustain, and advance in their careers. While working to fulfill our strategic mission of providing networking opportunities, career development services, and leadership to support scientists and clinicians through every stage of their careers, we continue to offer a broad portfolio of outstanding programs that enhance the training of our more than 4,000 trainee and early-career members. The success of these early-career scientists is of the utmost importance, especially during these uncertain times, and we are here to help.

Here are a few highlights of the dynamic career development programs and events offered by the Society.

ENDO 2021 Programming

ENDO is an invaluable resource for career development providing our early-career members with enriching education and professional development opportunities. The **ENDO 2021** virtual conference will deliver on-demand and live broadcast Professional Development Workshops during each of the four days of the meeting. Each of the live sessions will allow for the audience to interact with faculty and ask those burning questions that are top of mind for our members at the earliest stages of their careers. You don't want to miss timely sessions like "Let's Talk: Science, Communication, and Social Media," "Tackling Burnout and Achieving Life Balance," "Reducing the Bias: Ways Perceptions Influence Behavior and How We Can Do Better," and "Keys to Education Excellence: Innovative and Effective Teaching Strategies."

Trainee authors of highly scored abstracts will have a chance to sharpen their presentation skills and get valuable feedback from faculty and peers at a special poster presentation competition. Learn more about leading-edge endocrine research from our trainees as they showcase their work.

Additional Opportunities

The Future Leaders Advancing Research in Endocrinology (FLARE) is entering its ninth year of training senior graduate students, postdoctoral and clinical fellows, and junior faculty of communities historically underrepresented in science and medicine who are interested in advancing their careers

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While working to fulfill our strategic mission of providing networking opportunities, career development services, and leadership to support scientists and clinicians through every stage of their careers, we continue to offer a broad portfolio of outstanding programs that enhance the training of our more than 4,000 trainee and early-career members.

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in endocrine research. This program offers participants unparalleled opportunities to learn from and be mentored by renowned endocrine experts while providing a distinct set of professional development and enhancement training that helps them build confidence, enhance their professional skills, expand their networks, and better prepare for the next level in

their careers. A newly added component of next year's program will place qualified FLARE fellows in the Endocrinology Early-Career Reviewer program to work with the associate editors to learn reviewing skills. This comprehensive leadership development program has helped launch the careers of several of our early-career endocrinology leaders.

Building on the success of our FLARE program, we are exploring a new opportunity to enhance the leadership development of underrepresented minority clinical fellows. This program will offer fellows a pathway to develop their leadership abilities, gain guidance and coaching from dedicated Society mentors, and participate in career-building service opportunities through Society activities.

The Early-Career Forum invites our trainee members to learn from dedicated faculty who are also well known and inspirational leaders within the organization. The 2021 Early-Career Forum will be held in a highly interactive virtual environment to provide education and professional development programming designed around career transitions and job opportunities and intended to give basic science and clinical trainees a leg up on the competition. Keep an eye out for announcements regarding this exciting event that will feature impactful sessions and networking opportunities between trainees and internationally recognized endocrine leaders.

The Society invests in programs and awards for trainees and early-career members to recognize their early accomplishments in endocrine research. If you are a first- or second-year graduate student or first year medical student, the Research Experiences for Graduate and Medical Students program is for you. The Research Experiences for Graduate and Medical Students program awards stipends to students enrolled in graduate or medical school programs to support their summer research in endocrinology labs. Additionally, the program is built around a comprehensive series of activities that span beyond the summer and include involvement in a variety of engaging skills development activities and volunteer opportunities within the Society.

The Early Investigators Awards recognize the outstanding achievements of early-career investigators within 10 years of their terminal degree-granting date. The details of these and other awards, including application requirements and submission deadlines for 2021, are on the Society's Awards website.

The newly launched Early-Career Special Interest Group (SIG) is an online community that connects early-career clinicians and researchers around the world. The SIG is part of the Endocrine Society's Community Connect and is open to any member with an interest in issues facing early-career professionals. Within the Early-Career SIG, you will find resources, articles, discussions, and webinars on a range of topics from "Expert

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The Society invests in programs and awards for trainees and early-career members to recognize their early accomplishments in endocrine research.

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Negotiations: Career Tips for Clinicians and Scientists” to “Demystifying Controversial Topics: Communication Skills for Busy Physicians and Scientists.” I encourage all early-career members to share resources and website links that support discussions and networking in this group.

As you can see, there are many exciting opportunities within the Endocrine Society that promote the development of early-career endocrine scientists while building a community where you will thrive. I can assure you that during my presidency, we will continue to assess the needs and make advances toward fostering the growth of our future leaders. We hope you take full advantage of all that is available to you and wish you much success as you navigate your career.

If you have any questions or comments, you can reach me at: president@endocrine.org 

Gary D. Hammer, MD, PhD
President, Endocrine Society



FROM THE **EDITOR**

A Fresh Embrace of Science and Research



As we kick off a new year and leave 2020 in our wake, *Endocrine News* is giving you quite a variety of articles this month, all of which highlight the science and practice of endocrinology.

What better way to start off 2021 than with an article that could hold the key to a possible solution to obesity? In “Mighty Mouse” on page 34, senior editor Derek Bagley looks at a new mouse study that shows that by targeting a specific brain molecule, researchers could be on the path to a therapy that would potentially enable patients to reduce calories while increasing exercise levels. The mice in the study appeared to favor exercise while simultaneously shunning fatty foods! While there is still much more research needed, this study could provide a possible therapeutic target for patients who struggle with obesity.

On page 22, Eric Seaborg examines the use of combination therapy in treating patients with hypothyroidism in “In the Mix: Combination Therapy for Hypothyroidism Gets Another Look.” As a small number of hypothyroid patients become dissatisfied with their treatment with levothyroxine, more evidence has shown that some patients could benefit from a combination therapy that includes T3, but only at an appropriate and safe dose. According to Leonard Wartofsky, MD, director of the thyroid cancer research unit at the MedStar Health Research Institute in Washington, D.C., and a former Endocrine Society president, professional societies that issue guidelines have not endorsed combination therapy but neither have they condemned it. “They have

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gotten a little looser in terms of recognizing data that raise significant questions that at least warrant further study,” he says.

As you may have heard, **ENDO 2021** will be all virtual this year, taking place March 20 – 23 with the usual heavy hitters presenting the latest in breaking science from the world of endocrinology. On page 26, we are featuring one of the presidential plenary talks that focuses on the latest developments in basic tissue engineering in “Plenary Pioneers, Part I: When Engineering and Endocrinology Meet.” In part one of a two-part series of articles highlighting the plenary session, “The Impact of Basic Tissue Engineering and the Basic Biology of GPCRs in Emerging Therapies,” Kelly Horvath speaks to Andrés Garcia, PhD, about his presentation on synthetic hydrogels, his research, what it

means for future therapies, and what attendees can expect from his session.

Look for the second part of this two-part series in an upcoming issue, just in time for you to get a preview before the first all-virtual **ENDO** gets underway. For more information or to register, go to: www.endocrine.org/meetings-and-events/endo2021.

As always, if you have any questions, comments, or even ideas for future articles, feel free to email me at: mnewman@endocrine.org. 

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

CONGRATULATIONS TO OUR NEW 2021 PRESIDENT-ELECT



We are pleased to announce the new President-Elect who will be joining our leadership team at the conclusion of ENDO 2021. Please join us in congratulating and welcoming our future leader!

Ursula B. Kaiser, MD

Brigham and Women's Hospital
Boston, MA, USA

Endocrine Society Elects Ursula B. Kaiser, MD, as 2022 – 2023 President

Endocrine Society members have elected Ursula B. Kaiser, MD, to serve as president for the 2022 – 2023 term.



Kaiser is chief, Division of Endocrinology, Diabetes and Hypertension and George W. Thorn, MD Distinguished Chair in Endocrinology at Brigham and Women's Hospital, professor of medicine at Harvard Medical School, and director of the Brigham Research Institute in Boston, Mass. She will serve as president-elect for a year beginning in March 2021 before becoming president in June 2022.

Kaiser's research and clinical work focuses on neuroendocrinology and reproductive endocrinology. She is a past vice president of the Endocrine Society and is currently deputy editor-in-chief of *The Journal of Clinical Endocrinology & Metabolism*. She has held many roles with the Endocrine Society and was selected to receive the 2021 Sidney H. Ingbar Award for Distinguished Service for her contributions to the Society and the field at large.

The Society also selected four members to join its board of directors beginning in March 2021. The new board members are: Jeffrey B. Boord, MD, MPH – Executive Committee, secretary treasurer-elect; Arthur Gutierrez-Hartmann, MD – board at large; Rocio Pereira, MD – board at large; and Carolyn L. Smith, PhD – board at large. The new board members will begin serving their three-year terms following **ENDO 2021**. The Society's annual meeting will take place from March 20 to 23, 2021 in a state-of-the-art digital platform.



Boord is the chief quality and safety officer for Parkview Health, a community not-for-profit health system based in Fort Wayne, Ind. He is also a practicing clinical endocrinologist with expertise in diabetes, lipid disorders, and cardiometabolic medicine, and is a volunteer clinical assistant professor of medicine at the Indiana University School of Medicine-Fort Wayne. He currently serves as chair of the Endocrine Society's Hypoglycemia Prevention Initiative Steering Committee and as a member of the Society's Innovative Models of Care in Diabetes Task Force.



Gutierrez-Hartmann retired from the University of Colorado Anschutz Medical Campus in Aurora, Colo., in August 2020, where he was the associate dean for research education in the School of Medicine, the director of the Medical Scientist Training Program for 26 years, the founding director of the Physician Scientist Residency Training Program, and a professor in the Departments of Medicine and of Biochemistry & Molecular Genetics. He has served

on numerous Endocrine Society committees and task forces and as an associate editor of *Molecular Endocrinology*, a Society journal that merged with *Endocrinology* in 2016.



Pereira is the chief of endocrinology at Denver Health in Colorado, and associate professor of medicine at the University of Colorado School of Medicine, Division of Endocrinology,

Metabolism, and Diabetes in Aurora, Colo. She also leads the Denver Health Diabetes QI Committee and is the founder/director of a community-based lifestyle intervention program for Latino immigrants. Pereira's work is focused on addressing health disparities in diabetes and obesity-related diseases. She is a former chair of the Society's Committee on Diversity and Inclusion and a current member of the Trainee and Career Development Committee.



Smith is professor of molecular and cellular biology, and urology at Baylor College of Medicine in Houston, Texas. She is also the dean of the Graduate School of Biomedical Sciences. Her research

interests focus on the molecular pharmacology of estrogen receptors, regulation of gene expression by transcriptional coactivators and corepressors, tamoxifen resistance in breast cancer, and steroid hormone action in urothelial carcinomas. Smith has served on many Endocrine Society task forces and committees, including as basic science chair of the Annual Meeting Steering Committee and then overall chair in 2020, and as the Society's representative to the FASEB Science Research Conferences Advisory Committee.

E. Dale Abel, MD, PhD, Discusses His COVID-19 Vaccine Injection

On December 14, Endocrine Society past-president E. Dale Abel, MD, PhD, was one of the first physicians at the University of Iowa's Carver College of Medicine to receive the COVID-19 vaccination.

Abel, chair of the Department of Internal Medicine; director, Fraternal Order of Eagles Diabetes Research Center; and professor of medicine, biochemistry, and biomedical engineering at the University of Iowa, Carver College of Medicine,



E. Dale Abel, MD, PhD, gets a dose of the Pfizer/BioNTech COVID-19 vaccine on December 14, 2020.

in Iowa City, received the Pfizer/BioNTech vaccine, and he says he experienced both a tinge of excitement as well as a small amount of anxiety when he received notification about his injection.

"Overall, I was eager to do this because of my conviction that the COVID-19 vaccine is safe and highly effective, and represents a major advance

towards ending this pandemic," he tells *Endocrine News*. "I also felt that as a highly visible underrepresented minority, it was important for me to be a public example to motivate members of our community to consent to receiving the vaccine when it becomes more widely available."

Upon receiving the injection, Abel says that he did not feel the actual shot even though he was aware of the "cool" liquid entering his arm. He adds that later in the day and the following morning he felt only mild soreness in his arm and a low-grade temperature, which, for him is an increase of his typical temperature of 97.4 F to 98.0 F.

None of this stopped Abel from his morning exercise, and the arm soreness was gone by the evening of the second day, "as if nothing had happened." He is scheduled for his booster shot at some point in early January, but he adds that he will continue to wear a mask outside of his home as well as practice physical distancing.

"As more of us get immunized, I am confident that we will gradually be returning to life as normal," he says. "This might not happen though until the end of 2021, but it will be worth it!"



Endocrine Society Recommends New Policies to Reduce Insulin Prices

The Endocrine Society is calling on policy makers to include government negotiation as part of an overall strategy to reduce insulin prices in its updated position statement published in the January issue of *The Journal of Clinical Endocrinology & Metabolism* (JCEM).

“

High costs are forcing some people with diabetes to ration or choose their insulin over other necessities, including food. Many are unable to afford their insulin and adhere to their medication regimens, resulting in unnecessary hospitalizations and complications.

— CAROL WYSHAM, MD, PRESIDENT-ELECT, ENDOCRINE SOCIETY;
ROCKWOOD/MULTICARE HEALTH SYSTEMS, SPOKANE, WASH.

”

More than 34 million Americans have diabetes, and another 88 million are at risk for developing the disease. The cost of insulin has nearly tripled in the past 15 years, and a lack of transparency

in the drug supply chain has made it challenging to identify and address the causes of soaring costs.

Federal law currently prohibits Medicare, which accounts for a third of all drug spending, from negotiating directly with pharmaceutical companies over drug prices. Legislation empowering the government to negotiate lower insulin prices could save billions and provide more benefits to Medicare beneficiaries.

“Insulin is a life-saving medication for many people with diabetes,” says Endocrine Society president-elect Carol Wysham, MD, of the Rockwood/MultiCare Health Systems in Spokane, Wash. “High costs are forcing some people with diabetes to ration or choose their insulin over other necessities, including food. Many are unable to afford their insulin and adhere to their medication regimens, resulting in unnecessary hospitalizations and complications.”

Rising costs have limited access to affordable insulin for many people with diabetes, especially low-income individuals, those on high-deductible health plans, Medicare beneficiaries, and those who turn 26 and must transition from their parents’ insurance.

All stakeholders across the supply chain from manufacturers to employers have a role to play in addressing the high cost of insulin. Patient Assistance Programs need to be more inclusive and accessible, and rebate programs, another effort to reduce costs, should be used by employers to reduce patients’ out-of-pocket costs and health insurance premiums.

The Society recommends the following policy changes to increase access to affordable insulin:

- ▶ Allowing government negotiation of drug prices;
- ▶ Creating greater transparency across the supply chain to understand rising insulin costs;
- ▶ Limiting future list price increases to the rate of inflation;
- ▶ Limiting out-of-pocket costs through one or more of the following policies without increasing premiums or deductibles:
 - Limiting cost sharing to a co-pay of no more than \$35
 - Providing first-dollar coverage
 - Capping costs at no more than \$100 per month;
- ▶ Eliminating rebates or passing savings from rebates along to consumers without increasing premiums or deductibles;

- ▶ Expediting the approval of insulin biosimilars to create competition in the marketplace;
- ▶ Including real-time benefit information on medication costs in electronic medical records; and
- ▶ Developing a payment model for Medicare Part B beneficiaries in addition to Part D that lowers their out-of-pocket co-pay.

The position statement, “*Addressing Insulin Access and Affordability: An Endocrine Society Position Statement*,” is available online in JCEM and at: www.endocrine.org/membership/100-years-of-insulin.

The Society is celebrating the discovery of insulin throughout 2021 with this collection of resources and member and patient stories.

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Endocrine Experts Unite to Call for Evidence-Based Policies Governing Transgender and Gender Diverse Healthcare

The Endocrine Society and the Pediatric Endocrine Society oppose legislative efforts to block transgender and gender diverse individuals from accessing gender-affirming medical and surgical care, the two medical societies said in a joint policy perspective published in *The Journal of Clinical Endocrinology & Metabolism*.

In the past three years, legislators in 17 states have proposed more than two dozen bills barring medical and surgical treatments for transgender and gender diverse youth and adults. Many of these bills reflect widespread misinformation about the nature of evidence-based gender-affirming medical care.

“For young children experiencing feelings that their gender does not match the one assigned at birth, known as gender dysphoria, an initial intervention is likely to be a new haircut or clothing,” says the manuscript’s first author and co-chair of the Pediatric Endocrine Society’s Transgender Special Interest Group Advocacy Subcommittee, Abby Walch, MD, of the University of California, San Francisco and UCSF Benioff Children’s Hospitals in San Francisco, Calif. “The first course of action is to support the child in living as their affirmed gender identity and to provide mental health support as needed.”

After transgender and gender diverse minors start puberty, prescribing hormones to suppress puberty is the recommended



strategy if desired and if diagnostic and treatment criteria are met. This treatment, which is completely reversible, gives adolescents more time to explore their options.

Only reversible treatments are recommended for adolescents until they demonstrate the ability to provide informed consent

“

Barring gender-affirming medical and surgical care for transgender and gender diverse individuals would force many to go through distressing and even traumatic experiences in life related to misgendering. No bill should criminalize physicians who provide the standard of care for this vulnerable population.

— SEAN J. IWAMOTO, MD, UNIVERSITY OF COLORADO SCHOOL OF MEDICINE AND ROCKY MOUNTAIN REGIONAL VA MEDICAL CENTER, AURORA, COLO.; CO-CHAIR, ENDOCRINE SOCIETY'S TRANSGENDER RESEARCH AND MEDICINE SPECIAL INTEREST GROUP

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and experience sustained feelings of gender dysphoria. Even then, gender-affirming hormone therapy to help individuals experience puberty in a way that matches their gender identity is partially reversible.

Three High Court judges in the United Kingdom ruled December 1 that minors younger than the age of 16 likely could not give informed consent for pubertal suppression. Though it is likely to be challenged, this decision is a problematic development

that could prevent transgender and gender diverse minors from obtaining the medical care they need.

“Considering transgender and gender diverse individuals face a disproportionately high risk of suicide and other health disparities, it is crucial that they have access to essential and often life-saving, gender-affirming care from well-informed health care professionals,” says senior author and co-chair of the Endocrine Society's Transgender Research and Medicine Special Interest Group, Sean J. Iwamoto, MD, of the University of Colorado School of Medicine and Rocky Mountain Regional VA Medical Center, both in Aurora, Colo. “Barring gender-affirming medical and surgical care for transgender and gender diverse individuals would force many to go through distressing and even traumatic experiences in life related to misgendering. No bill should criminalize physicians who provide the standard of care for this vulnerable population.”

The course of gender-affirming treatment should be determined by patients and their healthcare providers, not by policy makers. Experts should be consulted regarding any policies governing treatment for transgender and gender diverse individuals, the authors wrote.

The Endocrine Society has updated its transgender position statement to incorporate additional information about the importance of care for minors.

Other authors of the policy perspective include: Caroline Davidge-Pitts, MB, BCh, of the Mayo Clinic in Rochester, Minn.; Joshua D. Safer, MD, FACP, of Mount Sinai Center for Transgender Medicine and Surgery and Icahn School of Medicine at Mount Sinai in New York, N.Y.; Ximena Lopez, MD, of University of Texas Southwestern Medical Center in Dallas, Texas.; and Vin Tangpricha, MD, PhD, of Emory University School of Medicine in Atlanta, Ga., and of the Atlanta VA Medical Center in Decatur, Ga.

The manuscript, “Proper Care of Transgender and Gender Diverse Persons in the Setting of Proposed Discrimination: A Policy Perspective,” was published online, ahead of print.


Endocrine Society, IPEN Partner on New EDC Report

Due to the unprecedented dangers that many endocrine-disrupting chemical (EDC)-containing plastics pose to human health, the Endocrine Society has partnered with the International Pollutants Elimination Network (IPEN) to create a comprehensive new report.

Entitled *Plastics, EDCs & Health*, the report presents a summary of international research on the impact of EDCs and details the alarming health effects of contamination from EDCs in plastics. The report describes a wealth of evidence supporting direct cause-and-effect links between the toxic chemical additives in plastics and specific health impacts to the endocrine system.

Key findings in the report include:

- ▶ One hundred and forty-four chemicals or chemical groups known to be hazardous to human health are actively used in plastics for functions varying from antimicrobial activity to colorants, flame retardants, solvents, UV-stabilizers, and plasticizers.
- ▶ Exposure can occur during the entire life span of plastic products, from the manufacturing process to consumer contact, to recycling, waste management and disposal.
- ▶ EDC exposure is a universal problem. Testing of human samples consistently shows nearly all people have EDCs in their bodies.
- ▶ Microplastics contain chemical additives, which can leach out of the microplastic and expose the population. They can also bind and accumulate toxic chemicals from the surrounding environment, such as seawater and sediment, functioning as carriers for toxic compounds.
- ▶ Bioplastics/biodegradable plastics, promoted as more ecological than plastics, contain similar chemical additives as conventional plastics and also have endocrine-disrupting effects.

“Many of the plastics we use every day at home and work are exposing us to a harmful cocktail of endocrine-disrupting chemicals,” said the report’s lead author, Jodi Flaws, PhD, University of Illinois at Urbana-Champaign, Urbana, Ill. “Definitive action is needed on a global level to protect human health and our environment from these threats.” 





BY DEREK BAGLEY
Senior Editor

Different Forms of Sugar Impact Hunger-Suppressing Hormones in Young Adults

Drinks with sucrose compared to glucose may cause young adults to produce lower levels of appetite-regulating hormones, according to a study recently published in *The Journal of Clinical Endocrinology & Metabolism* (JCEM).

Researchers led by Kathleen Page, MD, of the USC Keck School of Medicine in Los Angeles, Calif., point out that sugar consumption is becoming more associated with global obesity rates, which continue to rise dramatically. However, the authors of the JCEM paper write that few studies have compared peripheral glucose and hormone responses to acute



sucrose versus glucose consumption in humans, and findings from the limited number of studies to date have been difficult to interpret due to several factors, including comparisons of unequal doses of glucose and sucrose, testing the effects of sucrose and glucose beverages consumed in combination with meals, and very small sample sizes. “We hypothesized that sucrose and glucose would provoke differential hormone responses after oral ingestion, and that these differential peripheral responses would differ by obesity, and insulin resistance, and sex,” they write.

The researchers studied 69 young adults between the ages of 18 and 35 who participated in two

study visits where they consumed drinks containing either sucrose or glucose. They found that when the young adults consumed drinks containing sucrose, they produced lower amounts of hormones that suppress hunger compared to when they consumed drinks containing an equal dose of glucose. They also found that individual characteristics, including body weight and sex, affected the hormone responses to the different sugars. “Our findings suggest that oral sucrose may be less efficient at postprandial peripheral satiety signaling compared to oral glucose, and that individual biological factors influence differential peripheral hormone responses to sucrose vs. glucose consumption,” Page and her team write.

Based on their findings, the researchers conclude that sucrose is less efficient at signaling postprandial satiation than glucose, and biological factors influence differential hormone responses to sucrose versus glucose consumption. “These findings highlight the importance of considering individual characteristics that may affect the metabolic consequences of consumption of specific nutrients, such as different types of sugar,” they write.

“Our study found that when young adults consumed drinks containing sucrose, they produced lower levels of appetite-regulating hormones than when they consumed drinks containing glucose (the main type of sugar that circulates in the bloodstream),” Page says. “This study is the first to show how individual characteristics, including body weight, sex, and insulin sensitivity, affect hormone responses to two different types of sugar, sucrose and glucose. These findings highlight the need to consider how individual characteristics affect the body’s responses to different types of sugar and other nutrients in our food supply.”



“

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Vitamin D treatment should be recommended in COVID-19 patients with low levels of vitamin D circulating in the blood since this approach might have beneficial effects in both the musculoskeletal and the immune system.

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80% of COVID-19 Patients Have Vitamin D Deficiency

More than 80% of 200 patients with the novel coronavirus in a Spanish hospital have vitamin D deficiency, according to a study recently published in *The Journal of Clinical Endocrinology & Metabolism* (JCEM).

The authors of this JCEM paper point out that vitamin D deficiency is a common condition across the world and that low serum 25OHD levels are frequently found in elderly individuals or those with chronic conditions such as diabetes and cancer — conditions that have been shown to worsen COVID-19 outcomes. The researchers go on to write that COVID-19 can lead to “cytokine storm” that precedes the acute respiratory distress syndrome, a characteristic of the severe form of COVID-19. “In this sense,” they write, “vitamin D can inhibit proinflammatory cytokine production in human monocytes/macrophages, and chronic vitamin D deficiency may induce RAS activation, leading to the production of fibrotic factors and, therefore, lung damage.”

In a retrospective case-control study of 216 COVID-19 patients and 197 population-based controls, the researchers found that 80% of the patients with the novel coronavirus at the Hospital Universitario Marqués de Valdecilla had vitamin D deficiency, and men had lower vitamin D levels than women. COVID-19 patients with lower vitamin D levels also had raised serum levels of inflammatory markers such as ferritin and D-dimer.

The authors write that while they did not find any relationship between serum 25OHD levels and COVID-19 severity, they did have the opportunity to assess 19 patients with COVID-19 who were on oral vitamin D supplements at hospital admission, although they are careful to note that because of the small sample, it may be difficult to draw any



solid conclusions. “We observed that they had a slightly less unfavorable outcome than COVID-19 patients who did not take vitamin D supplements, with a significantly more favorable PaO₂/FIO₂ ratio, lower ferritin levels, and decreased requirements for tocilizumab, and even a trend for lower ICU admissions,” the researchers write.

“One approach is to identify and treat vitamin D deficiency, especially in high-risk individuals such as the elderly, patients with comorbidities, and nursing home residents, who are the main target population for the COVID-19,” says study co-author José L. Hernández, PhD, of the University of Cantabria in Santander, Spain. “Vitamin D treatment should be recommended in COVID-19 patients with low levels of vitamin D circulating in the blood since this approach might have beneficial effects in both the musculoskeletal and the immune system.”

COVID-19 Research Studies the ‘Opportunity Window’ for Treating Hospitalized Patients with Diabetes or Hyperglycemia

A study recently published in *Diabetes Care* found a higher risk of mortality for patients who did not achieve target blood glucose levels soon after admission. This includes a sevenfold mortality risk for non-ICU patients with severe hyperglycemia after 48 to 72 hours. The study was supported by Glytec.

Researchers led by David C. Klonoff, MD, of the Diabetes Research Institute at Mills-Peninsula Medical Center in San Mateo, Calif., point out that while prior studies have shown hyperglycemia on admission to the hospital is a predictor of death and other severe outcomes of COVID-19, whether intervention to improve glycemia can improve outcomes has not been addressed by careful examination of postadmission glycemia.

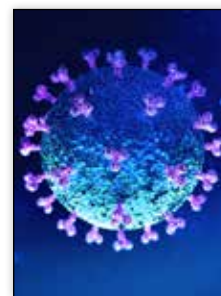
This research was conducted using pooled data in the Glytec national database from patients in 91 hospitals across 12 states. The database included 9,959 patients with COVID-19 positive laboratory tests and blood sugar measurements from March 1 to May 8, 2020, when the analysis was conducted. After omitting patients, including those admitted for fewer than 24 hours, those younger than 18 years of age, and active admissions (those who had neither died nor been discharged), 1,601 patients were included in the final analysis. Only 12% of the study population used commercial glucose management software, and the study did not analyze this detail.

The researchers found that reaching a glucose value of 140 mg/dL or 141 – 180 mg/dL within two days after ICU admission or between two and three days in the non-ICU setting, respectively, is associated with reduced mortality. This is statically significant in the non-ICU setting and trending

toward significance in the ICU population. The greater survival of individuals with better control after admission, compared with patients with uncontrolled glucose levels (greater than 250 mg/dL), is clinically meaningful and indicates the need to start treatment of hyperglycemia on admission.

“This research suggests that blood sugars should be high on the order set for COVID-19 patients, irrespective of a pre-existing diabetes diagnosis. We can control blood sugars in the hospital, but for a variety of reasons, this study shows that it’s not happening or hasn’t been a priority for COVID-19 patients,” says Guillermo E. Umperiez, MD, chief of diabetes and endocrinology at Grady Memorial Hospital and co-author of the research. “Our findings strongly suggest that early intervention to bring blood glucose into a target range will reduce mortality rates in COVID-19 patients.”

“The high percentages of patients with COVID-19 presenting with hyperglycemia who did not reach a target blood glucose range represents a missed opportunity to improve clinical outcomes. More than half of the patients in our study could have benefitted from earlier and more aggressive treatment of hyperglycemia during their hospitalization,” says Jordan Messler, MD, executive director of clinical practice at Glytec and co-author of the research. “Our analysis suggests patients with COVID-19 should promptly receive treatment to improve glycemic control. The opportunity window is a very important aspect of care, especially when you consider the number of people living with undiagnosed diabetes and the fact that steroids — which contribute to hyperglycemia — are being widely used to treat COVID-19 patients.”



“

This research suggests that blood sugars should be high on the order set for COVID-19 patients, irrespective of a pre-existing diabetes diagnosis. We can control blood sugars in the hospital, but for a variety of reasons, this study shows that it's not happening or hasn't been a priority for COVID-19 patients.

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What would be fascinating and incredibly rewarding is if we can actually show a significant increase in lifespan while regulating obesity and osteoporosis through a single, FSH-blocking agent.

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Researchers Develop First-in-Class Humanized Antibody Targeting Bone and Fat

A treatment for obesity and osteoporosis could be on the horizon as Mount Sinai researchers have developed a first-in-class humanized antibody to the follicle-stimulating hormone (FSH) that will reduce body fat, increase bone mass, enhance metabolism, and lower cholesterol. The antibody has the potential to prevent and treat obesity, osteoporosis, and hypercholesterolemia — diseases that affect millions of people worldwide. The study provides a framework for clinical testing of the humanized antibody.

Researchers led by Mone Zaidi, MD, PhD, MACP, director of the Mount Sinai Bone Program and professor of medicine at the Icahn School of Medicine at Mount Sinai in New York City point out that while obesity and osteoporosis affect hundreds of millions of people worldwide, resources to prevent these diseases remain limited.

FSH was known for years to be an important part of the reproductive system. But research showed in a mouse model that FSH also plays a direct role in bone loss and belly-fat gain — and that blocking FSH would reverse those effects. In the most recent study, researchers explain the development of a “humanized” monoclonal antibody to block FSH signaling. Furthermore, new evidence was found that blocking FSH also lowers serum cholesterol.

The FSH research builds on a long-term collaboration spanning nearly two decades between Zaidi and Clifford Rosen, MD, a senior scientist at Maine Medical Center Research Institute. Mouse-based data that Zaidi and Rosen concurrently confirmed in each other’s laboratories showed that blocking FSH reduces



obesity and increases energy expenditure in both male and female mice fed on a high-fat diet. The most recent study shows the humanization of this FSH-blocking antibody.

“This next stage brings us even closer to an effective therapy with an FSH-blocking antibody aimed at preventing and treating both obesity and osteoporosis,” Zaidi says. “Targeting and blocking FSH was found in past studies to be effective in male as well as female mice, so its benefits could extend to both genders in people. What would be fascinating and incredibly rewarding is if we can actually show a significant increase in lifespan while regulating obesity and osteoporosis through a single, FSH-blocking agent.” ^{EN}

Lipid Management in Patients with Endocrine Disorders

A NEW STANDARD FOR CARE

Learn the latest best practices for assessing and treating high cholesterol in patients with endocrine diseases like hypothyroidism, menopause, and Cushing Syndrome.

Guideline Highlights:

- ▶ Obtain a lipid panel in adults with endocrine disorders to assess triglyceride levels and to calculate low-density lipoprotein cholesterol (LDL-C).
- ▶ Treat adults with type 2 diabetes and other cardiovascular risk factors with a statin in addition to lifestyle modifications, aiming for an LDL-C goal of < 70 mg/dL.
- ▶ Consider statin therapy, irrespective of the cardiovascular risk score, in adults with type 1 diabetes who are age 40 years and older, and/or have a history of diabetes of at least 20 years, and/or either microvascular complications, chronic kidney disease in stages 1-4, or obesity.

READ THE GUIDELINE AT
[ENDOCRINE.ORG/LIPID2020](https://endocrine.org/lipid2020)



ENDO 2021

VIRTUAL EVENT

March 20 – 23, 2021

The all-virtual **ENDO 2021** will mirror the principal elements of **ENDO**, including top-flight educational programming, an interactive EXPO center, and networking opportunities. **ENDO 2021** is the leading global meeting for endocrinology research and clinical care.

Join us for the most well attended and valued translational endocrinology meeting in the world. Bringing together leading experts, researchers, and the most respected clinicians in the field, **ENDO 2021** represents a convergence of science and practice that highlights and facilitates breakthrough discoveries in the field of endocrinology. Spend time connecting with peers and colleagues, exchanging ideas and information, and getting out in front of the latest trends and advancements in hormone health.

ENDO 2021's comprehensive virtual program offers attendees the opportunity to learn about the latest developments in hormone science and medicine from renowned investigators, expert clinicians, and educators from all over the world. You will get inspired by experts and stay at the forefront of scientific discovery and high-quality patient care.

This year's program includes:

- ▶ More than 70 live sessions and another 70 sessions accessible on-demand;
- ▶ Six plenary sessions including two presidential plenaries on data in endocrine research and the impact of basic tissue engineering in emerging therapies;
- ▶ 24 live Meet the Professor sessions and another 20 available on-demand; and
- ▶ More than 20 oral sessions and a robust poster hall for accepted scientific abstracts.

www.endocrine.org/endo2021

IMPORTANT NOTE: To receive the member rate, your membership must be renewed for 2021 before registering for **ENDO 2021**.

Medical Management of the Metabolic-Bariatric Surgery Patient Webinar

February 3, 2021

10:00 a.m. – 5:45 p.m. (ET)

Severe obesity and its complications are best managed by an interdisciplinary team including both surgical and medical providers. This session will utilize presentations by leading experts, panel discussions, and dedicated time for interactive Q&A to cover best-practice recommendations for the pre- and post-operative management of patients undergoing metabolic-bariatric surgery. Topics will include optimizing pre-operative care, as well as recognizing and developing approaches to the variability in post-operative weight loss and remission rates of obesity-related complications in both adult and pediatric patients.

www.obesity.org/meetings-education/webinars/

Clinical Endocrinology 2021

Live Streaming

March 9 – 13, 2021

For nearly 50 years, renowned experts in endocrinology at Harvard Medical School and Massachusetts General Hospital have delivered the CME course Clinical Endocrinology — the acclaimed annual update of current endocrine diagnostic and management strategies. If you provide care to patients with endocrine disorders, this course will be invaluable to your medical decision making and patient care.

<https://endocrinology.hmscme.com/>

Miami Thyroid Oncology Symposium

April 9 – 10, 2021

Miami, Florida

Organized by the Miami Cancer Research Center, this two-day program offers a course on Thyroid Nodules & Cancer: Cutting Edge Ultrasound and Molecular Diagnostics to provide a foundation for practicing physicians in understanding the evolving role of clinical molecular testing and its integration with the contemporary ultrasound imaging for diagnosis and management of thyroid nodules and cancer. The plenary session, Frontiers in Thyroid Oncology, will review the clinical guidelines, address the controversies, and bring new insight to the molecular and genomic therapeutics in a didactic and interactive format. There will also be a Scientific Paper Presentations/Case Discussions session and a Multidisciplinary Tumor Board session led by experts in the field to offer a platform for physicians in training and all academic and practicing physicians to present and discuss their research work and clinical experience.

<https://miamicancerresearch.org/events/symposium/>

INTERNATIONAL ITINERARY

2nd BES Mayo Advanced Course in Endocrinology 2021

February 21 – 23, 2021

Dhaka, Bangladesh

The Advanced Course in Endocrinology is a collaboration between the Bangladesh Endocrine Society (BES) and the Mayo Clinic, Rochester, Minn. This intensive two-day, interactive course will cover all aspects of clinical endocrinology. Helmed by world-renowned faculty from the Mayo Clinic, this valuable course has garnered rave reviews from practicing endocrinologists throughout Southeast Asia.

<https://besmayo.com>

ICE 2021: 19th International Congress of Endocrinology Virtual Meeting

February 24 – 28, 2021

19th International Congress of Endocrinology (ICE 2021), 4th Latin American Congress of Endocrinology (CONLAEN), and 13th Congress of the Argentine Federation of Endocrinology Societies (FASEN) is organized by MCI Group — Argentina. Topics to be discussed include: big data and its impact in health, human diseases, artificial intelligence, and big-data mining; thyroid cancer diagnosis and treatment; advances in pheochromocytomas and paragangliomas; the tsunami of diabetes in lower- and middle-income countries; preserving reproduction in cancer patients; and so much, much more.

<https://icevirtualcongress.com>

Plenareno Diabetes, Obesity, and Cholesterol Metabolism Conference 2021 (PDOC 2021)

May 24 – 25, 2021

Belgrade, Serbia

PDOC 2021 will provide the platform for diabetologists, endocrinologists, nutritionists, and other related professionals to present their latest research. It aims for invaluable scientific discussions and contributes to the future innovations and recent trends in diabetes, obesity, and endocrinology and also will bring together an interdisciplinary and global team of research professionals. Keynote and plenary sessions followed by young researchers and poster sessions will allow for widespread participation of attendees at all career stages.

<https://metabolicdiseases.plenareno.com/>



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“While working to fulfill our strategic mission of providing networking opportunities, career development services, and leadership to support scientists and clinicians through every stage of their careers, we continue to offer a broad portfolio of outstanding programs that enhance the training of our more than 4,000 trainee and early-career members. **The success of these early-career scientists is of the utmost importance, especially during these uncertain times, and we are here to help.**”

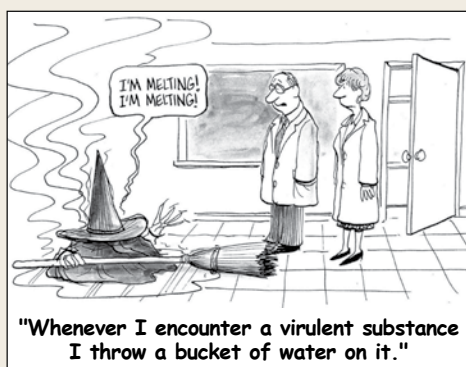
— Endocrine Society president, Gary D. Hammer, MD, in this month's "President's Viewpoint" on page 6, discussing how important it is for early-career members to have a professional home that will foster their growth and learning throughout their careers.



60ng

The amount of flame retardant in plastic kitchen utensils that people are exposed to every day, according to *Plastics, EDCs, and Health*, from the Endocrine Society and IPEN.

— SOURCE: THE SCIENCE OF THE TOTAL ENVIRONMENT



Diabetes is the silent epidemic that claims **4.2 million** lives around the world every year — almost **three times** as many deaths as COVID-19. Diabetes is on the march, with experts predicting that **one in 10** will be affected by **2045**.

— SOURCE: INTERNATIONAL DIABETES FEDERATION

2.3x

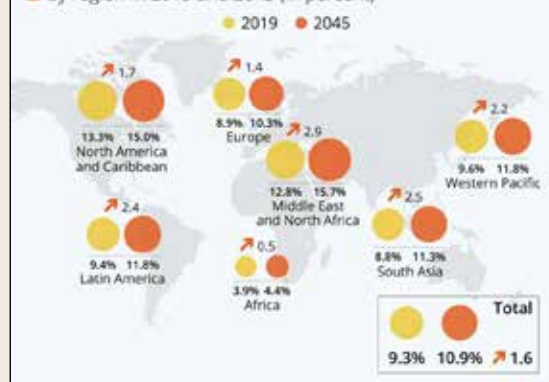


A study of a large cancer database found that blacks are **2.3 times** more likely to get the most aggressive form of thyroid cancer (anaplastic).

— SOURCE: WWW.HORMONE.ORG

Where Diabetes Burdens Are Rising

Estimated share of people 20-79 y/o with diabetes by region in 2019 and 2045 (in percent)



— SOURCE: INTERNATIONAL DIABETES FEDERATION



36% Percent of clinicians who plan to recommend that patients automatically increase their glucocorticoid dosage with administration of their first COVID-19 vaccine injection.

— SOURCE: THE PITUITARY SOCIETY



In The Mix:

Combination
Therapy for
Hypothyroidism
Gets Another
Look

BY ERIC SEABORG

While evidence-based guidelines don't encourage it, many endocrinologists recognize a need to give combination therapy a trial in some patients with hypothyroidism.

Although treatment guidelines specify levothyroxine as the standard of care for hypothyroidism, many thyroid specialists acknowledge a dirty little not-so-secret: When pressed by an insistent patient, many clinicians find it prudent to explore a trial of T4 and T3 combination therapy.

And now some experts are saying new evidence is making them take another look at combination therapy.

Decades ago, patients received extracts that contained both hormones. That stopped with the advent of a synthetic version of T4 in levothyroxine. But some 10% to 20% of patients have consistently expressed dissatisfaction with the results of this treatment, and in the internet age there is growing danger that these patients will seek out treatments that, can harm them.

“The professional societies that issue guidelines have not endorsed combination therapy, but neither have they condemned it,” says Leonard Wartofsky, MD, director of the thyroid cancer research unit at the MedStar Health Research Institute in Washington, D.C., and a former president of both the Endocrine Society and the American Thyroid Association.

“They have gotten a little looser in terms of recognizing data that raise significant questions that at least warrant further study.” But he notes that guideline writers base their recommendations largely on randomized clinical trials, which have not found a benefit to combination therapy over the established T4 therapy. Without new information, it’s difficult to change guideline recommendations.

Antonio C. Bianco, MD, PhD, professor of medicine at the University of Chicago and also a former president of the American Thyroid Association, says that these trials could be looked at in a different way: Because the trials haven’t found a difference between the treatments, then the two treatments can be considered equivalent.

Problems Converting T4 to T3

Bianco notes that monotherapy with T4 does not restore circulating T3 levels, which provides a rationale for combination therapy. There is also evidence — not from clinical trials — that a subset of hypothyroid patients could benefit from combination treatment. A recently discovered genetic polymorphism that

occurs in some 16% of the population of the United Kingdom interferes with metabolism of T4 to T3. The polymorphism has been replicated in a mouse model to generate a form of hypothyroidism that can be corrected with administration of T3.

Although this association has not been replicated in another population, the existence of a genetic cause interfering with generation of T3 from T4 provides a potential mechanism to explain why many patients are not satisfied with receiving T4 alone.

Francesco S. Celi, MD, MHSc, chair of the Division of Endocrinology, Diabetes, and Metabolism at Virginia Commonwealth University in Richmond, says that there is also animal evidence that T3 administration is required to get this active form into all tissues.

Which Patients to Treat

These kinds of evidence can be heartening to endocrinologists who must decide how to deal with patients who come to appointments armed with internet research that has convinced them that T3 will cure their ills.

Wartofsky will consider such a request when a patient on T4 replacement therapy complains about symptoms such as “feeling lousy,” “brain fog,” and weight gain without increased food consumption.

He starts by measuring the patient’s free T4 and T3 ratio. If the T3 levels are ample, he suggests that the test results indicate thyroid hormones are not the problem and the patient may be suffering from depression. But if the free T3 is low relative to the

free T4, he’ll suggest a trial of adding T3 for three to six months to see if it alleviates the patient’s symptoms.

Celi is also amenable to a trial of combination therapy if the patient is adamant, or he feels they have exhausted other treatment options. “I make a sort of contract with my patients, asking them what symptoms that they attribute to hypothyroidism bother them the most,” Celi tells *Endocrine News*. “Then after three to six months of combination therapy, we revisit the symptoms and make an assessment as to whether we made a difference or not. If there is a positive difference, we continue with the combination therapy. Otherwise, it is really not worth the cost and effort of taking extra medication.”

He makes a very rough estimate that even among those who embark on a trial of T3, only about a third report enough benefit to continue taking T3. The lack of a timed-release formulation — and the need to take a pill more frequently than once a day — remains a hurdle in taking T3.

“There is no evidence that combination therapy is harmful if it is done properly. As long as we don’t make our patient thyrotoxic, I don’t see any untoward effect,” Celi says. There is ample evidence that T3 given in 5 to 10 microgram quantities is safe and does not cause the problems seen with higher doses, such as atrial fibrillation. In fact, studies have shown that patients receiving T3 can have lower cholesterol and greater weight loss compared with those on T4.

Dangers of Self-Treatment

But an additional reason to respond to patients’ concerns is the ease with which they can turn to the internet to find alternative “experts” and supplements marketed to boost their thyroids.

“

The professional societies that issue guidelines have not endorsed combination therapy, but neither have they condemned it. **They have gotten a little looser in terms of recognizing data that raise significant questions that at least warrant further study.”**

— LEONARD WARTOFSKY, MD, DIRECTOR, THYROID CANCER RESEARCH UNIT, MEDSTAR HEALTH RESEARCH INSTITUTE, WASHINGTON, D.C.

In a study published in *Thyroid* in 2013, researchers who tested 10 over-the-counter supplements marketed for “thyroid support” found that most “contained clinically relevant amounts of T4 and T3, some of which exceeded common treatment doses for hypothyroidism.”

Celi recently had a patient who presented with multi-organ failure and a huge amount of T3 in her blood after taking large amounts of one such supplement. She was taking dollops any time she felt the need of an internet-purchased concoction that had fine print on its label reading “not for human consumption.”


“Patients can seek alternative paths that can lead to severe harm. We need to find a middle ground where we can work with patients. Just denying the existence of their problems is not going to help anybody.”

— FRANCESCO S. CELI, MD, MHSC, CHAIR, DIVISION OF ENDOCRINOLOGY, DIABETES, AND METABOLISM, VIRGINIA COMMONWEALTH UNIVERSITY, RICHMOND, VA.

“Patients can seek alternative paths that can lead to severe harm. We need to find a middle ground where we can work with patients. Just denying the existence of their problems is not going to help anybody,” he says.

Designing a Trial

As part of the increased attention the thyroid community is giving to combination therapy, Bianco and Celi participated in a special session to discuss the evidence at the November 2019 American Thyroid Association meeting that was co-sponsored by the European Thyroid Association and the British Thyroid Association. That session led to the publication in the Dec. 4, 2020, issue of *Thyroid* of a consensus statement “to guide development of future clinical trials of LT4/LT3 combination therapy” — based on the belief that there could be a subset of patients who could potentially benefit from combination therapy, but that past trials have not been designed to identify them.

A confounding factor in creating such a trial — and in treating these patients — is the nonspecific nature of their symptoms. But however vague to the clinician, the patients think they are real and want them to be taken seriously. 

— SEABORG IS A FREELANCE WRITER BASED IN CHARLOTTESVILLE, VA. IN THE DECEMBER ISSUE, HE WROTE ABOUT THE UNDERLYING THREATS OF PRIMARY ALDOSTERONISM.



AT A GLANCE

- ▶ Since the advent of levothyroxine to treat hypothyroidism, a small but significant number of patients have been dissatisfied with the results.
- ▶ More evidence has accrued that a subset of patients may benefit from a combination that includes T3 — and that appropriate doses are safe.
- ▶ Patients who feel their physicians are not taking their concerns seriously can easily find self-proclaimed “experts” on the internet willing to sell potentially dangerous supplements to “boost thyroid health.”

Hydrogels can be delivered via an injectable liquid that gels into a solid and stays in place.

WHEN Engineering AND Endocrinology MEET

At **ENDO 2021**, the first time the Endocrine Society's annual conference will be all-virtual, a live Presidential Plenary on March 20 will feature a pair of presentations on the latest developments in basic tissue engineering. *Endocrine News* speaks with Andrés J. Garcia, PhD, about his session, "Synthetic Hydrogels as Engineered Niches in Regenerative Medicine."

BY KELLY HORVATH

ENDO 2021

Happening March 20 – 23, 2021, **ENDO 2021** offers more than 70 live sessions in addition to another 70 on demand via a state-of-the-art digital platform that also accommodates interactivity among participants and networking opportunities.

One live session you won't want to miss is "The Impact of Basic Tissue Engineering and the Basic Biology of GPCRs in Emerging Therapies," a presidential plenary on March 20, from 11:00 a.m. to 12:00 p.m.

Comprising two talks, this plenary showcases pioneering advances in therapy with "Synthetic Hydrogels as Engineered Niches in Regenerative Medicine," by Andrés J. García, PhD, executive director, Parker H. Petit Institute for Bioengineering and Bioscience and George W. Woodruff School of Mechanical Engineering Regents' Professor at the Georgia Institute of Technology in Atlanta, Ga., and "Structural Insights into G Protein-Coupled Receptor Activation: Implications for Drug Discovery," by Brian Kobilka, MD, professor and chair of molecular and cellular physiology at the Stanford University School of Medicine, Stanford, Calif., and co-recipient of the 2012 Nobel Prize in Chemistry for his work with GPCRs.

In part one of a two-part series of articles highlighting this plenary session, *Endocrine News* speaks to García about his research, what it means for future therapies, and what attendees can expect from his session.

Tissue Engineering: Biomaterial Technology to Address Clinical Limitations

"My lab develops biomaterials for regenerative medicine," says García. Looking forward to making his debut at an **ENDO** conference, he explains that his work as an engineer intersects with the field of endocrinology in designing materials that can be delivered to the body for tissue repair.

"I will present our work with synthetic hydrogels, which are fully defined, cross-linked polymer networks," he says. These very soft, gelatin-like materials are composed of about 95% water and about 5% polyethylene glycol. "We engineer the hydrogels to mimic extracellular matrices — normal materials in the body."

The artificial matrices can be designed for different applications, for example, to deliver pancreatic islets into patients with diabetes to achieve



“ The hydrogels have generated a lot of excitement because our materials are fully defined, and they're of a chemical synthetic nature, so, as we move to clinical translation into humans — we're not there yet, but we're moving toward that — from both a regulatory standpoint and associated safety considerations as well as from the manufacturing standpoint and scalability, **this synthetic nature is much preferred over extracts of human or animal cadaver origin.**”

— ANDRÉS J. GARCÍA, PHD, EXECUTIVE DIRECTOR, PARKER H. PETIT INSTITUTE FOR BIOENGINEERING AND BIOSCIENCE AND GEORGE W. WOODRUFF SCHOOL OF MECHANICAL ENGINEERING REGENTS' PROFESSOR AT THE GEORGIA INSTITUTE OF TECHNOLOGY IN ATLANTA, GA.



better metabolic control or to be combined with intestinal organoids in culture for transplantation and engrafting into intestinal wounds. The potential applications are, indeed, probably limitless.

“The hydrogels have generated a lot of excitement because our materials are fully defined, and they’re of a chemical synthetic nature,” García says. “So, as we move to clinical translation into humans — we’re not there yet, but we’re moving toward that — from both a regulatory standpoint and associated safety considerations as well as from the manufacturing standpoint and scalability, this synthetic nature is much preferred over extracts of human or animal cadaver origin. Those are more variable from lot to lot and from sample to sample, whereas with the synthetic material, we know precisely how to make

it and with what characteristics. We can establish very good quality control,” he continues.

As cutting edge as this developing technology is, García likens the hydrogel material to a simple fishnet, with the ropes that make up the netting akin to the cross-linked chain of molecules of the polymer and the open space of the net akin to the interstices of the overall matrix. “Just like in a fishnet, the majority is water or open space, and the actual backbone of the fishnet takes up very little space. This is how these hydrogels look molecularly,” he explains.

Moreover, polyethylene glycol is used in other U.S. Food and Drug Administration–approved devices. “There’s a long track record of safety using this material, and then we add functionality to it. For example, we can add adhesion peptides derived from normal matrices that the cells recognize and can adhere to. We can also add in other biological signals essentially to communicate with the cells or with the immune environment of the host,” García says.

The delivery system is as ingenious as the rest of this enterprise and itself confers special advantages. “We can put our materials in a pre-test block, and we can formulate the materials in an injectable carrier so it’s in a liquid form and injectable through a needle or a catheter. When it reaches the site that we want it to go into, it will gel into a solid and localize there. So, we have a lot of control in terms of how we make the material, what biological sequences we want to add to the material, and how the material degrades, and you cannot do this with naturally derived materials,” García says.

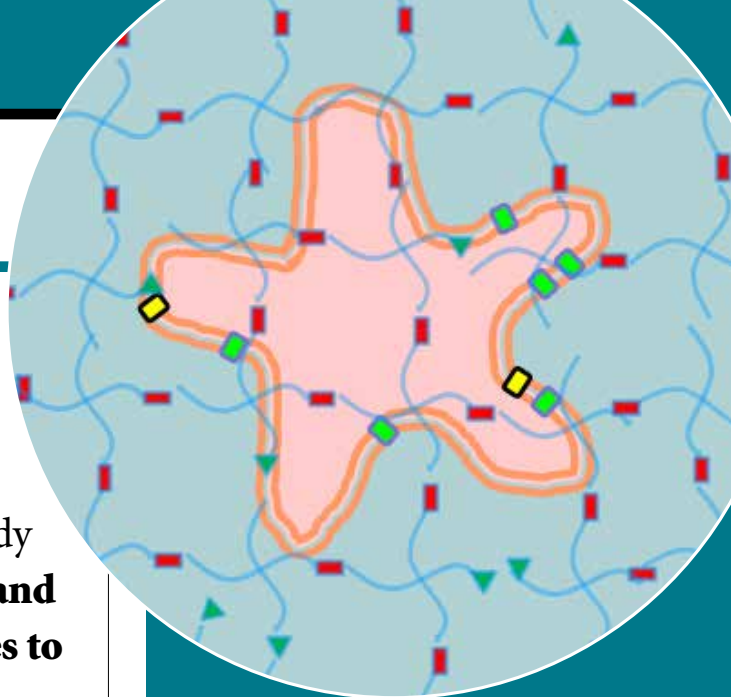
Presidential Plenary: The Impact of Basic Tissue Engineering and the Basic Biology of GPCRs in Emerging Therapies

Saturday, March 20, 2021, 11:00 a.m.–12:00 p.m.

- **Andrés J. García, PhD**, will present “Synthetic Hydrogels as Engineered Niches in Regenerative Medicine,” to demonstrate how synthetic matrices can be customized with certain characteristics to restore tissues.
- **Brian Kobilka, MD**, will present “Structural Insights into G Protein–Coupled Receptor Activation: Implications for Drug Discovery,” to elucidate how understanding GPCR structure can inform the development of targeted drug therapies.

“Several of the more advanced projects are now in large animal studies and showing very positive results. One in particular will likely be a first in human study next year. **There’s a lot of potential there, and we’re working through the different stages to see how it works.**”

— ANDRÉS J. GARCÍA, PHD, EXECUTIVE DIRECTOR, PARKER H. PETIT INSTITUTE FOR BIOENGINEERING AND BIOSCIENCE AND GEORGE W. WOODRUFF SCHOOL OF MECHANICAL ENGINEERING REGENTS’ PROFESSOR AT THE GEORGIA INSTITUTE OF TECHNOLOGY IN ATLANTA, GA..




An Easily Tailored Blank Slate

The nature of the hydrogel as a “blank slate” that can be tailored with any number of biochemical and biophysical properties to achieve targeted functionalities as its main utility. They are also especially compatible with the microenvironment of human cells, which is also mostly water. But they can’t fix everything — at least not yet. “The limitation is that they are relatively soft. If the mechanical demands in the body are very high, these materials will not work well. We can’t use them to replace bone or cartilage in the knee, for example; this material would get destroyed,” García explains.

Nevertheless, he is not daunted. “As an engineer, I’m a problem solver, and I love going to these conferences and talking to clinicians and other basic scientists to learn what problems they face, and usually together we can identify a solution or a potential way to address those problems.”

The García Lab is not the only lab to be working with hydrogels, but they may soon be moving out of the proof-of-principle stage with some applications. “In our pipeline, several of the more advanced projects are now in large animal studies and showing very positive results. One in particular will likely be a first in human study next year. There’s a lot of potential there, and we’re working through the different stages to see how it works.”

Although the hydrogels have obvious implications for cosmetic applications (e.g., growing hair, filling in wrinkles), García and team are committed to finding solutions to address human disease. 

Part II of the “Plenary Pioneers” series will appear in an upcoming issue of Endocrine News.

AT A GLANCE

- ▶ Hydrogels are soft, gelatin-like materials composed of about 95% water and about 5% polyethylene glycol. Molecularly, hydrogels resemble a net of cross-linked polymers that can be engineered to mimic extracellular matrices.
- ▶ Hydrogels have so far been developed for applications like repairing intestinal wounds and replenishing pancreatic islet stores, and their potential for addressing other human diseases is exploding.
- ▶ So far, the study of hydrogels has been very successful in animal models, which researchers hope will evolve into possible human trials at some point in 2021.

— HORVATH IS A FREELANCE WRITER IN BALTIMORE, MD. IN THE DECEMBER ISSUE, SHE WROTE ABOUT THE TOP ENDOCRINE DISCOVERIES OF 2020.

A Broader View:



Evaluating Lipids and Cardiovascular Risk

A first-of-its-kind Endocrine Society clinical practice guideline recommends lipid profiles and cardiovascular risk assessment for patients with endocrine disorders.

BY ERIC SEABORG

“

Hormones modulate every pathway involved in lipid metabolism. Therefore, it is not surprising that some endocrine diseases are associated with an abnormal lipid profile and increased risk of atherosclerotic cardiovascular disease. **We hope that the guideline will make a lipid panel a routine test in adults with endocrine diseases and cause a greater focus on assessment of the risk of heart disease and stroke.”**

— CONNIE NEWMAN, MD, NEW YORK UNIVERSITY GROSSMAN SCHOOL OF MEDICINE, NEW YORK, N.Y.; CHAIR, GUIDELINE WRITING COMMITTEE

Pay more attention to lipids and cardiovascular risk when you are treating people with endocrine diseases. That is the plea from the new publication, “Lipid Management in Patients with Endocrine Disorders: An Endocrine Society Clinical Practice Guideline.”

“Hormones modulate every pathway involved in lipid metabolism,” says Connie Newman, MD, of the New York University Grossman School of Medicine, New York, N.Y., who chaired the panel that created the guideline. “Therefore, it is not surprising that some endocrine diseases are associated with an abnormal lipid profile and increased risk of atherosclerotic cardiovascular disease. We hope that the guideline will make a lipid panel a routine test in adults with endocrine diseases and cause a greater focus on assessment of the risk of heart disease and stroke.”

“This guideline is the first of its kind. We wanted to provide guidance on an area where there was a gap in guideline recommendations,” Newman tells *Endocrine News*. Although there are many guidelines related to cholesterol, this guideline is noteworthy for its specific focus on lipid management in endocrine diseases. “With the exception of type 2 diabetes, endocrine diseases are not discussed in detail in cholesterol management guidelines,” Newman says.

Seeing the Whole Disease

Newman says that many endocrinologists may be surprised at a key recommendation to consider the lipid levels and cardiovascular risk factors of patients with endocrine disorders such as thyroid disease, Cushing syndrome, or acromegaly because they are so focused on treating the primary disorder.





The guideline writers hope that endocrinologists will remember to broaden their views of endocrine disorders to include all the potential ramifications.

Specifically, the guideline recommends that adults with endocrine disorders have a lipid panel to assess triglyceride levels and calculate low-density lipoprotein cholesterol, as well as an assessment of traditional cardiovascular risk factors — including calculation of 10-year atherosclerotic cardiovascular disease risk using a tool such as the Pooled Cohort Equations.

The guideline also describes the use of coronary artery calcium measurement to refine risk assessment when the decision about statin treatment is uncertain.

More Aggressive Treatment in Diabetes

Newman notes that one of the most important points of the guideline is to consider statin therapy at an earlier age in adults with type 1 diabetes who have obesity, vascular complications (such as retinopathy or kidney abnormalities as indicated by albumin in the urine), or a 20-year history of diabetes.

“We believe strongly that adults who have type 1 diabetes should receive statin therapy earlier than they usually do,” Newman says, although she emphasizes that this is not one-size-fits-all, but a hope that endocrinologists will give stronger consideration to the use of statins than has happened in the past.

Editor's Note:

In addition to Connie Newman, members of the guideline writing committee are Michael Blaha, MD, MPH; Jeffrey Boord, MD, MPH; Bertrand Cariou, MD, PhD; Alan Chait, MD; Henry Fein, MD; Henry Ginsberg, MD; Ira Goldberg, MD; M. Hassan Murad, MD; Savitha Subramanian, MD; and Lisa Tannock, MD. Andrea Hickman of the Endocrine Society provided technical and administrative support.

The consideration for more aggressive treatment applies to type 2 diabetes as well. “In adults with type 2 diabetes and other cardiovascular risk factors, we recommend statin therapy in addition to lifestyle modification in order to reduce cardiovascular risk,” the guideline says. If statin therapy is not successful in meeting low-density lipoprotein and triglyceride goals in these patients, the guideline suggests adding eicosapentaenoic acid ethyl ester (or a fibrate if this is not available) to reduce cardiovascular risk.

Thyroid Disease and Cushing Syndrome

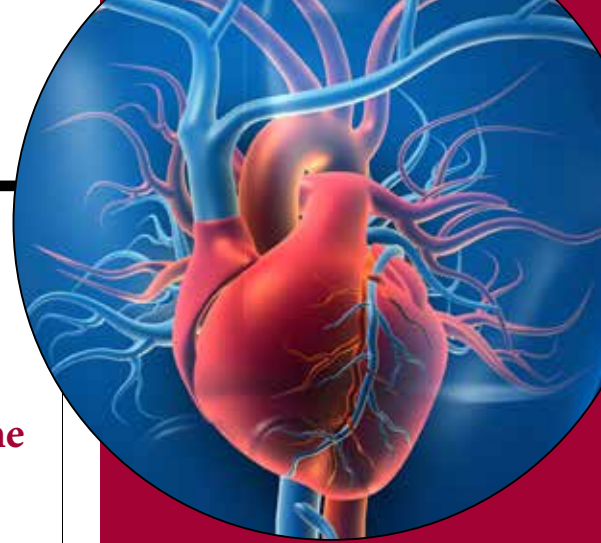
When a clinician encounters a patient with hyperlipidemia, the guideline recommends ruling out the possibility of hypothyroidism before prescribing a lipid-lowering medication.

“Thyroid hormone affects lipid pathways,” Newman notes, so a meta-analysis of the literature done as part of the guideline-writing process provided evidence to confirm that treating a patient’s hypothyroidism could improve lipid levels. Once a patient’s thyroid hormones are in the normal range, the guideline recommends re-evaluating the lipid profile. It recommends the same approach in patients with subclinical hypothyroidism who have hyperlipidemia, because thyroxine treatment could reduce low-density lipoprotein levels without the use of statins.

In adult patients with Cushing syndrome, the guideline recommends monitoring the lipid profile to identify cases of dyslipidemia. In adults with persistent endogenous Cushing syndrome, the guideline suggests statin therapy as an adjunct to lifestyle modification to reduce cardiovascular risk regardless of the patient’s cardiovascular risk score. In adults whose Cushing syndrome has been treated successfully, the guideline advises that the approach to cardiovascular risk assessment and treatment should be the same as in the general population.

Specifics on Other Endocrine Disorders

In adults receiving chronic glucocorticoid therapy above replacement levels, the guideline suggests assessment and treatment of lipids and other cardiovascular risk factors because of the increased risk of cardiovascular disease associated with the steroid therapy.



“The guideline evaluates the degree to which treatment of the endocrine disease improves dyslipidemia and makes recommendations about the use of lifestyle modification and medications to lower lipids and lipoproteins.”

— CONNIE NEWMAN, MD, NEW YORK UNIVERSITY GROSSMAN SCHOOL OF MEDICINE, NEW YORK, N.Y.;
CHAIR, GUIDELINE WRITING COMMITTEE

Specifics on other disorders include:

- ▶ Recommending that adults with growth hormone deficiency have a lipid profile done at diagnosis to assess for dyslipidemia;
- ▶ Suggesting that adults with acromegaly have lipid profiles done before and after treatment of growth hormone excess;
- ▶ Advising that patients with very low high-density lipoprotein levels be investigated for anabolic steroid abuse; and
- ▶ Recommending a fasting screening lipid panel at diagnosis in women with polycystic ovary syndrome to assess cardiovascular risk.

Menopausal Considerations

The guideline has some recommendations relating to post-menopausal patients as well. It recommends treating high cholesterol or triglycerides in post-menopausal women with statins rather than hormone therapy because hormone therapy is considered a risk factor for increased cardiovascular disease.

Women who enter menopause early (before the age of 40 – 45 years) should have their cardiovascular risk factors and lipid levels assessed and be treated as needed, keeping in mind that early menopause raises cardiovascular disease risk. “You don’t always think about that when you see a patient who has what we used to call premature menopause,” Newman says.

Newman says that the guideline, which was cosponsored by the European Society of Endocrinology and published in the December print issue of *The Journal of Clinical Endocrinology & Metabolism*, contains a wealth of information that endocrinologists will find useful in treating a variety of disorders: “The guideline evaluates the degree to which treatment of the endocrine disease improves dyslipidemia and makes recommendations about the use of lifestyle modification and medications to lower lipids and lipoproteins.” ^{EN}

Resources

“*Lipid Management in Patients with Endocrine Disorders: An Endocrine Society Clinical Practice Guideline*” is available at: www.endocrine.org/lipid_mgmt_cpg.

AT A GLANCE

- ▶ A new Endocrine Society clinical practice guideline is the first to focus on lipid management in patients with endocrine disorders, many of which raise cardiovascular risk.
- ▶ Endocrinologists should routinely obtain a lipid profile and perform a 10-year cardiovascular risk assessment in patients with endocrine disorders because hormones modulate every pathway in lipid metabolism.
- ▶ In both type 1 and type 2 diabetes, clinicians should consider being more aggressive in treating lipid levels, including the use of statins at younger ages.

— SEABORG IS A FREELANCE WRITER BASED IN CHARLOTTESVILLE, VA. IN THE DECEMBER ISSUE, HE WROTE ABOUT THE UNDERLYING THREATS OF PRIMARY ALDOSTERONISM.



BY DEREK BAGLEY

Mighty Mouse:

Could a Part of the Brain Unlock the Key to Combatting Obesity?

A new mouse study shows promise in addressing the ongoing worldwide obesity epidemic. By targeting a specific brain molecule, researchers could be on the path to a therapy that would potentially enable patients to reduce calories while increasing exercise levels.



If Constantine A. Stratakis, MD, DSci, PhD, had his way, clinicians could soon offer their patients with obesity a nasal spray they could take every day that would not only entice them to exercise but also avoid unhealthy foods. A lofty goal maybe, but endocrine science continues to reach new heights.

In a mouse study recently published in *JCI Insight*, Stratakis, chief of the Section on Genetics and Endocrinology at the Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD) at the National Institutes of Health (NIH), and his team found that by knocking out a single molecule in the brain — *Prkar2a* — the affected mice showed “decreased consumption of palatable, ‘rewarding’ foods and increased motivation for voluntary exercise.”

Exercise and a healthy diet remain the first line of treatment for patients with obesity, but the disease is still a global epidemic, and the numbers continue to climb. As the authors point out, increasing activity levels and decreasing caloric intake seems

plays in metabolic regulation, and what it could mean for patients who continue to struggle with obesity. “It’s an amazing phenotype because to my knowledge, there’s no other mouse, there’s no other animal model that has this highly desirable phenotype of wanting to exercise and avoiding dessert,” Stratakis says.

Obesity and Addiction Overlap

London, Stratakis, and the other authors write that the habenula is part of the brain responsible for reward processing, among other things — a part of the brain separated into two major subdivisions, the lateral Hb and the aforementioned MHB. *Prkar2a* is a molecule that codes for CAMP-dependent protein kinase (PKA), and unlike other PKA subunits, *Prkar2a* is minimally expressed in the brain, except in the MHB.

Stratakis had already been studying PKA phenotypes in mice as they relate to cancer. However, when London arrived at



simple enough, but that regimen is not always an easy thing to follow, since there are “many opposing drives that are exacerbated by overscheduled sedentary lifestyles, changes in the food supply, and genetics.”

So, the researchers turned to the brain — specifically an area that has been somewhat overlooked when it comes to metabolic dysregulation — the medial habenula (MHB). “This area is really intricately involved in reward pathway signaling, aversive of stimuli and processing both positive experiences and negative. So, in that respect, it’s been studied in nicotine addiction, and withdrawal, depression, anxiety, a number of other mood related disorders,” says Edra London, PhD, a staff scientist in the Section on Genetics and Endocrinology at the NIH, and lead author of the *JCI Insight* paper.

Here, we’ll take a look at what led London, Stratakis, and their team to looking at *Prkar2a*, the unexpected role the molecule

Stratakis’s lab, she noticed that the mice that had *Prkar2a* deficiency (RII α -knockout [RII α -KO]) were not getting obese like the wild-type mice. “My main interest was in obesity, metabolic dysfunction,” London says. “Interestingly, I’ve always been interested in where the overlap is between obesity and addiction. So, this mouse was kind of a gift in some ways.”

An initial study had London challenging different PKA mouse models with high-fat diets. She and her colleagues noticed that after chronic exposure to a high-fat diet, almost every mouse would become obese eventually. Some would stay lean for longer than others, but only to a certain point. The researchers eventually found that that RII α -KO mice were regulating their caloric intake more. If given a choice, the RII α -KO mice still preferred the high-fat diet to the dry, low-fat diet, but they seemed to moderate more. “When we actually systematically measured, we found out they actually were eating less,” London says.



That finding led the team to go further, so for this current study they gave the mice free access to running wheels and found that even though there are some mouse models where the animals become hyperactive at night, that was not the case here. The mice just seemed to take pleasure in running, whether they were receiving some kind of neurochemical reward for it, the authors aren't sure. "That part isn't completely clear yet, but it was a pretty interesting phenomenon to see along with the suppressed intake of high-fat, palatable foods, and also sugar," London says.

The fact that the mice seemed to enjoy running so much assuaged some of the worries the researchers had about anhedonia, since these mice were not eating as much, which could be a sign of an anxious or depressive state. London tells *Endocrine News* that she and her colleagues performed basic behavioral tests to look for anxiety, to see whether the mice were avoiding certain situations, but they found no signs of anxiety.

In fact, the only negative response the mice showed was when they were denied access to their running wheels. The researchers at one point put invisible locks on the wheels so the mice could get on the wheels, but they would not turn. "It was pretty interesting

to see the parts of the brain that lit up with this immediate early gene expression," London says.

Stratakis explains that they used a marker in the brain to track which parts lit up when the mice were denied the chance to run — parts of the brain that show anger.

"I mean, I kind of feel bad doing that," London says.

Unlocking the Brain's Secrets

Stratakis and London are careful to point out that this line of research may not be an answer to all types of obesity, but since *Prkar2a* is expressed in an area of the brain associated with addiction, targeting that molecule could provide some answers in disordered eating. Again, this is an area of the brain that has not been fully explored, but it could provide some insights into cravings and the overlap between addiction and obesity, in the same way that some people are susceptible to substance abuse when others aren't. "It's nice to see that PKA really has clearly such a big role in enough different cell types to kind of control these two really key behaviors in different directions," London says.

“It’s very significant for endocrinology that a small part of the brain experiences so specifically a single part of this major signaling pathway. And its inactivation leads to such a very robust phenotype.”

— CONSTANTINE A. STRATAKIS, MD, DSCI, PHD, CHIEF, SECTION ON GENETICS AND ENDOCRINOLOGY, EUNICE KENNEDY SHRIVER NATIONAL INSTITUTE OF CHILD HEALTH AND HUMAN DEVELOPMENT, NATIONAL INSTITUTES OF HEALTH, BETHESDA, MD.

“My main interest was in obesity, metabolic dysfunction. Interestingly, I’ve always been interested in where the overlap is between obesity and addiction. **So, this mouse was kind of a gift in some ways.**”


— EDRA LONDON, PHD, STAFF SCIENTIST, SECTION ON GENETICS AND ENDOCRINOLOGY, NATIONAL INSTITUTES OF HEALTH, BETHESDA, MD.

This research is still relatively new, and Stratakis, London, and their team continue to look into the mechanistic explanations for this phenotype and phenomenon, from other molecules that are also expressed or continual release of rewarding chemicals that become reinforcing and change the brain chemistry. The newest functional magnetic resonance imaging should be sensitive enough to see what’s going on, but London says that would require collaboration with another lab.

London says that now they will look at the effects of a high-fat diet on a whole array of genes involved in dopamine, serotonin, and other neurotransmitters. “We’re trying to explore on a different front, looking a little bit at potential small molecule inhibitors, which I guess goes along the lines of the dream of a nasal spray one day,” she says.

“The idea is, if one came up with a short-acting inhibitor that would go directly to the brain, a nasal spray, for example, and you wake up in the morning and you want to exercise but might not feel like it, you can take the nasal spray, your mood goes up, and you can go running,” Stratakis says.

For now, Stratakis hopes others will follow this research. He notes that the cyclic AMP signaling pathway has been studied extensively. As a result, it has received the most Nobel Prizes for medicine and physiology from any other hormonal signaling pathway. “It’s very significant for endocrinology,” he says. And cyclic AMP signaling has been widely exploited as a drug target for various therapeutic applications. “That a small part of the brain experiences so specifically a single part of this major signaling pathway. And its inactivation leads to such a very robust phenotype.”

“I think the differences we see really start to highlight some of the underlying differences in behavior, and how we respond to stimuli,” London says. “There is no end to the avenues to explore for this project since it seems to have relevance to diet-induced obesity and likely other behaviors related to the consumption of rewarding substances/activities.” 



AT A GLANCE

- ▶ Obesity remains a global epidemic, and while decreasing caloric intake and increasing activity levels to treat this disease sounds like a simple enough regimen, it’s not always easy to follow.
- ▶ A recent mouse study found that targeting a molecule in the brain could lead to a decreased desire for unhealthy foods and increased motivation to exercise.
- ▶ There is still much research to be done, but the work provides a possible therapeutic target for patients who struggle with obesity.

— BAGLEY IS THE SENIOR EDITOR OF *ENDOCRINE NEWS*. IN THE DECEMBER ISSUE, HE WROTE ABOUT THE ENDOCRINE SOCIETY’S NOTABLE ACCOMPLISHMENTS THROUGHOUT 2020.

BY GLENDA FAUNTLEROY SHAW

Hire Power: Zooming in on Potential Staff

Just how the COVID-19 pandemic has changed everything about how we interact with each other this year so has the traditional job interview and hiring process been turned upside down. Gone are the days of walking a prospective laboratory team member through the lab or introducing candidates to the entire team in the conference room. Welcome to staffing your lab by video.

While conducting interviews remotely, whether by phone or video, is not a new concept, many lab managers are just stepping into this arena as they adjust to COVID-19 travel and work-from-home restrictions. For many, if initial interviews were done by phone or video, final meetings were scheduled in-person whenever possible.

For Gregory Steinberg, MD, professor and Canada Research Chair in Metabolism and Obesity at McMaster University in Ontario, video recruiting by Zoom has been a long-time method to fulfill his laboratory team vacancies.

Just because we're all connected via teleconferencing software these days doesn't mean you have to put off hiring for your lab. Here are a few tips for how to effectively recruit star performers in a virtual world.



“ I suspect that like many academic laboratories online interviews are nothing new. We have been doing this for many years given the international nature of laboratories and our desire to recruit the world’s best talent. **We’ll continue to conduct remote interviews even once we’re back to normal, in-person interactions.**”

— GREGORY STEINBERG, MD, PROFESSOR, CANADA RESEARCH CHAIR IN METABOLISM AND OBESITY, MCMASTER UNIVERSITY, ONTARIO, CANADA

“I have done many interviews with students and postdoctoral fellows remotely and found the experience to be effective,” Steinberg says.

“I suspect that like many academic laboratories online interviews are nothing new,” he adds. “We have been doing this for many years given the international nature of laboratories and our desire to recruit the world’s best talent. We’ll continue to conduct remote interviews even once we’re back to normal, in-person interactions.”

Regardless of whether online recruiting is old hat for you or if you’re begrudgingly accepting the new way, conducting a successful video interview does not have to be difficult. In the past few months, Zoom, Skype, Microsoft Teams, and Google Hangout Meet have become widely used platforms, and millions of remote working professionals, college students, and kindergarten through 12th graders are logging on every day. We are all adapting.

Your virtual interview process should showcase your laboratory in its best light. The Association of American Medical Colleges has offered some of the following tips for making certain the experience is a successful one:


Choose the right environment. Find a private, quiet space that is free of possible distractions. Be sure enough light is available with a window or lamp so the candidate can see you clearly. Keep your background neat and also distraction-free.

Give candidates advance details. In communications before the interview date, make sure to share what platform you will be using. This allows time for the candidates to download software, if necessary, and familiarize themselves with using

the technology. Each platform has its own nuances so be prepared for a learning curve adjustment. If you plan to record the interview, let the candidate know ahead of time and get their permission.

Check your technology before the call. Lower the chances of technical hiccups by doing a video test run before the interview starts. Check to see that your camera and microphone are working well and work consistently. Be sure the camera is positioned so the candidate can easily see and hear you. If you plan on sharing your screen, try that feature and make sure you can use it effortlessly. Also, be mindful of potential audio and/or video delays on the candidate’s end. Not all internet signals are created equal. Have the candidates phone number handy in case of a disconnection.

Treat a virtual interview just like an in-person one. Once you both are on screen, be personable and start the interview with something casual to break the ice. These are unusual times for all of us and starting of the conversation warmly is helpful. Do you normally greet candidates in your lab coat? Don the same attire for the video camera. Remember to smile and make and sustain eye contact (with the camera, not the screen). Think of it as a way of replacing the firm handshake that you’ve always used to greet candidates. Introduce yourself, giving your name and title.

Follow the typical interview protocol. Keep the questions the same as you would have asked in an in-person interview. Ask any required questions and/or optional questions if permitted. Take notes, and allow the candidate to ask questions. Close the interview with providing guidelines on next steps in the process. 

Congress Reaches Agreement on End-of-Year Legislative Package that Includes Endocrine Priorities

It took weeks of intense, protracted negotiation, but just days before Christmas, House and Senate leaders finally clinched an agreement to send a massive end-of-year legislative package, including \$900 billion in coronavirus relief, a \$1.4 trillion spending bill to fund all federal agencies until the end of September 2021, and extension of the Special Diabetes Program through 2023 to President Donald Trump's desk.

Democrats and Republicans struggled for months to reach agreement on a new round of coronavirus relief that both sides said was long overdue. But they differed greatly on how big an aid package should be and what it should contain. House Democrats last spring sought as much as \$3.4 trillion in new aid, while Senate Republicans offered about \$500 billion. But a path toward compromise was cleared when a bipartisan group of House and Senate lawmakers proposed a \$908 billion package just before the holidays in December.

The coronavirus stimulus package provides much-needed aid for small businesses, schools, and unemployed Americans. The deal includes \$600 checks for certain individuals; \$9 billion for vaccine distribution; \$20 billion for Biomedical Advance Research Defense Authority (BARDA); \$3 billion for the Strategic National Stockpile; \$22 billion to states for testing and contact tracing; \$4.5 billion for mental health programs; and \$1 billion to the National Institutes of Health (NIH) to support research on COVID-19.

Also included in the overall legislative package is legislation to end surprise medical billing that was opposed by the American Medical Association and health insurance community. The deal on surprise billing yielded \$18 billion in savings for the federal government, creating the opportunity to fund the extension of several health programs due to expire, including the Special Diabetes Program (SDP), which the Endocrine Society led advocacy to support.

The passage of this end-of-year legislative package is a victory for the Endocrine Society's advocacy for research funding and the SDP. We advocated throughout the

year for increased funding for the NIH, a long-term extension of the SDP, and COVID-19 relief. This included: Hill Days, meetings with congressional staff and members of Congress, letters to Congress, congressional testimony, educational congressional briefings, letters to the editor, and multiple online grassroots campaigns. We hope our members see our advocacy made a difference and thank all those who took action.

Following congressional passage of the legislation, President Trump created turmoil by announcing that he was not going to sign the bill into law because he had concerns with a number of "extraneous" provisions and wanted to increase the amount of relief for individuals to \$2,000. Consequently, for several days over Christmas it was not clear if the government would shutdown or the fate of the legislation. Ultimately, he did support the legislation.



Medicare Physician Fee Schedule Rule Revised in Year-End Legislation, Impacts Endocrinologists

On December 1, 2020, the Centers for Medicare and Medicaid Services (CMS) released the Medicare Physician Fee Schedule (MPFS) final rule for CY 2021. This rule updates payment policies and payment rates for Part B services furnished under the MPFS, as well as makes changes to the Quality Payment Program.

As a result of changes included in the rule, endocrinologists are expected to see a 13% increase in Medicare reimbursement while other specialties faced significant cuts. However, in an unusual move, Congress revised provisions of the Medicare regulation in its final year-end legislation to mitigate the cuts

for some specialties. Consequently, funding for the add-on complexity code for office E&M that would have been applied to essentially all endocrinology visits was removed and will reduce the amount of the previously predicted increase in total Medicare reimbursements for endocrinologists.

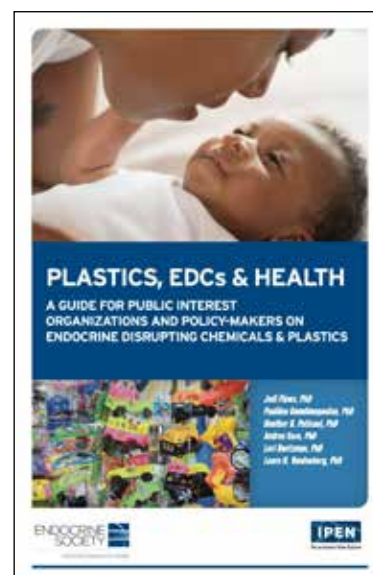
The Society has provided additional information on this reimbursement change at: www.endocrine.org/improving-practice/macra.

Society Releases New Report on EDCs in Plastics & Risks to Human Health to Guide Policy Makers

On December 15, the Endocrine Society and the International Pollutants Elimination Network (IPEN) jointly released an authoritative new report, *Plastics, EDCs & Health*. The report provides guidance targeted to policy makers and public interest organizations about the hazardous chemicals in plastics that can become sources of EDC exposures for humans. The writing group was led by Jodi Flaws, PhD, and included contributions from Paulina Damdimopolou, PhD, Heather B. Patisaul, PhD, Andrea Gore, PhD, Lori Raetzman, PhD, and Laura N. Vandenberg, PhD. Experts from IPEN also provided guidance on the text.

In the report, the authors catalogue EDCs in plastics, synthesize decades of international research on the health impacts of EDC in plastics, and describe pathways of contamination and biological effects of the plastic chemicals. Many familiar chemical classes, such as bisphenols, phthalates, perfluorinated chemicals (PFAS), and dioxins are reviewed with scientific evidence showing their harmful effects on endocrine systems.

The authors note that global chemical manufacturing is contributing to enormous increases in plastic production and anticipate a rise in the rates of acute and chronic diseases and deaths resulting from exposure to EDCs in plastics. The report asserts that, based on the scientific evidence, governments and companies should enact policies that minimize exposure to EDCs to protect public health and the environment.



Endocrine Society Continues Work with the Organisation for Economic Co-operation and Development to Influence EDC Regulation



The Organisation for Economic Cooperation and Development (OECD) is an intergovernmental economic organization comprising 37 member countries. Among its activities, the OECD is engaged in international efforts to control endocrine-disrupting chemicals (EDCs). Specific initiatives include the development of harmonized assays, methods, and approaches for use by member countries for assessing and regulating EDCs. For several years the Endocrine Society, under the guidance of our OECD Task Force, has contributed to OECD meetings and other activities related to chemical, detection, testing, and assessment of EDCs.

In 2020, even with the challenges created by the pandemic, Endocrine Society members remained

highly active in OECD global efforts by contributing to online meetings for the Advisory Group on Endocrine Disruptors Testing and Assessment, the Validation Management Group for Ecological Assessment, the Extended Advisory Group on Molecular Screening and Toxicogenomics, and the Integrated Approaches to Testing and Assessment (IATA) Case Studies Project. Society members also contributed to the scientific review and revisions of the OECD's Detailed Review Paper on the Retinoid System.

Our participation in these activities help ensure that international efforts to control EDCs include scientists with expertise in hormonal systems and biology. Through our participation in these meetings, we have weighed in on the OECD's efforts to develop and implement new and alternative methods (NAMs) to animal testing. We also provided guidance on how to improve new efforts to screen and assess EDCs, including Adverse Outcome Pathways and IATAs, to ensure that these approaches can accurately and effectively identify harmful EDCs.

The Endocrine Society's OECD Task Force under the leadership of Scott Belcher, PhD, will continue to engage with the OECD and other partner organizations on chemical safety activities in 2021 with a focus on understanding how approaches can be optimized for use in detecting EDCs. The OECD Task Force will also collaborate with other Society EDC Task Forces to advance new scientific tools and projects, such as the Key Characteristics of EDCs, that will help regulators make faster and more health-protective decisions.

European Commission Hosts Second Stakeholder Forum on EDCs

On December 17 – 18, the European Commission hosted the second annual forum on endocrine disruptors. The annual forum was established following the November 7, 2018, Commission Communication “Towards a Comprehensive European Union (EU) Framework on Endocrine Disruptors.” The forum brings together scientists, policy makers, and public and private stakeholders with expertise on endocrine disruptors to exchange information and best practices, identify challenges, and build synergies to inform the Commission’s work on EDCs.

The 2020 forum took place online due to the COVID-19 pandemic, but attendees were still able to hear expert speakers and participate in question-and-answer sessions to hear new information about the EU’s approach to EDCs. Speakers gave updates from relevant EU agencies and representatives from the Organisation for Economic Cooperation and Development (OECD), academic institutions, and regulatory agencies described new advances in test methods. Josef Köhrle, a member of the Society’s EU EDC Task Force, participated in a closing panel discussion with stakeholders from a variety of interests including non-governmental organizations and representatives from the plastics and chemicals industry.

The forum was also an opportunity to learn more about the Commission’s plans for the coming year. As we approach the new year, there are already several open consultations that will require expert input from Endocrine Society members. The European Food Safety Agency recently released a consultation on a draft Scientific Committee Opinion on the biological plausibility of nonmonotonic dose responses and their impact on the risk assessment. Meanwhile, the European Commission initiated a consultation on draft regulations to amend the REACH authorization list to include endocrine disrupting properties for several phthalates due to their ability to interfere with hormonal systems.


The Endocrine Society will work with our EU Task Force to respond to these important consultations to ensure that they reflect the latest science on endocrine disruption. 



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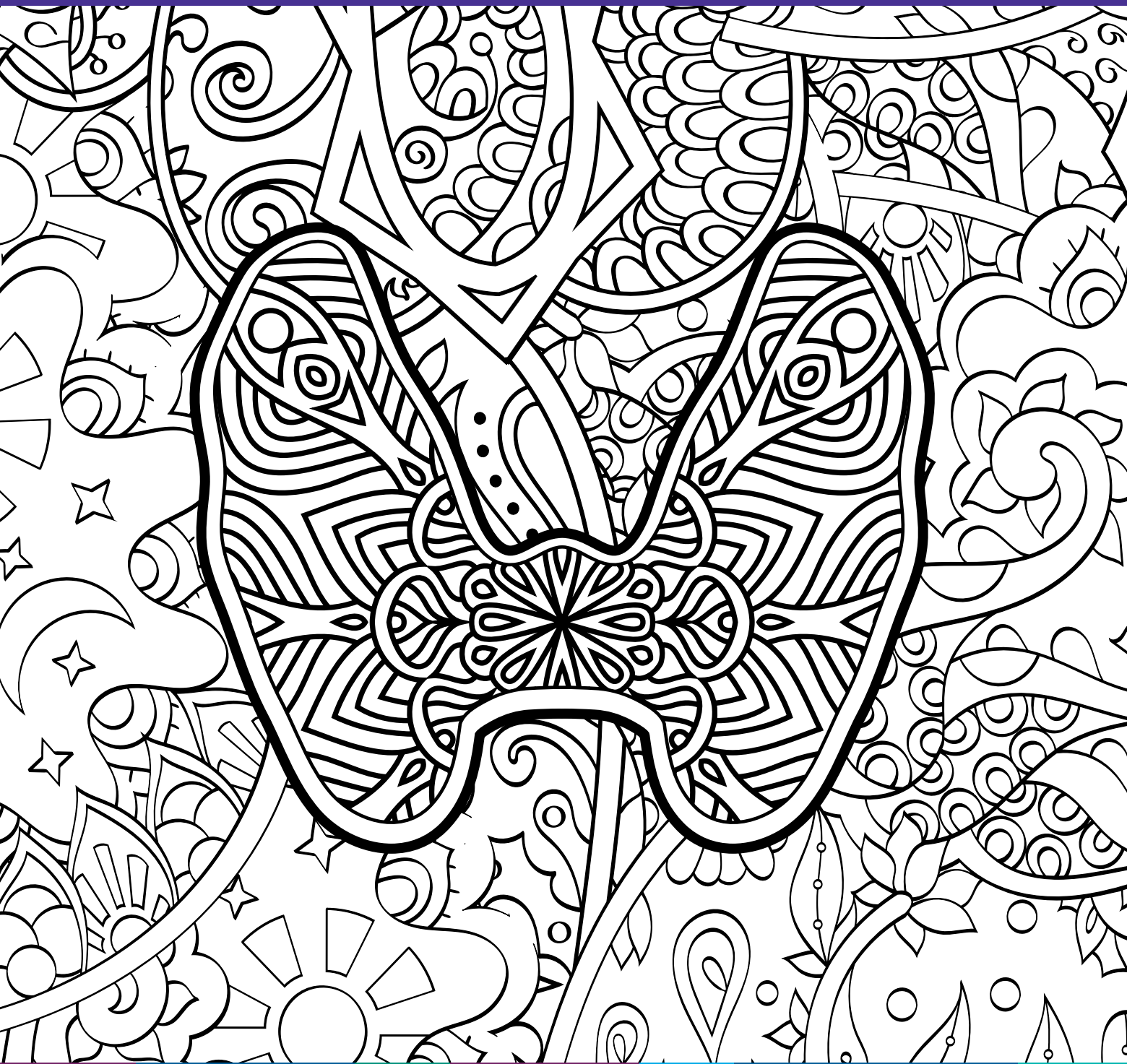
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