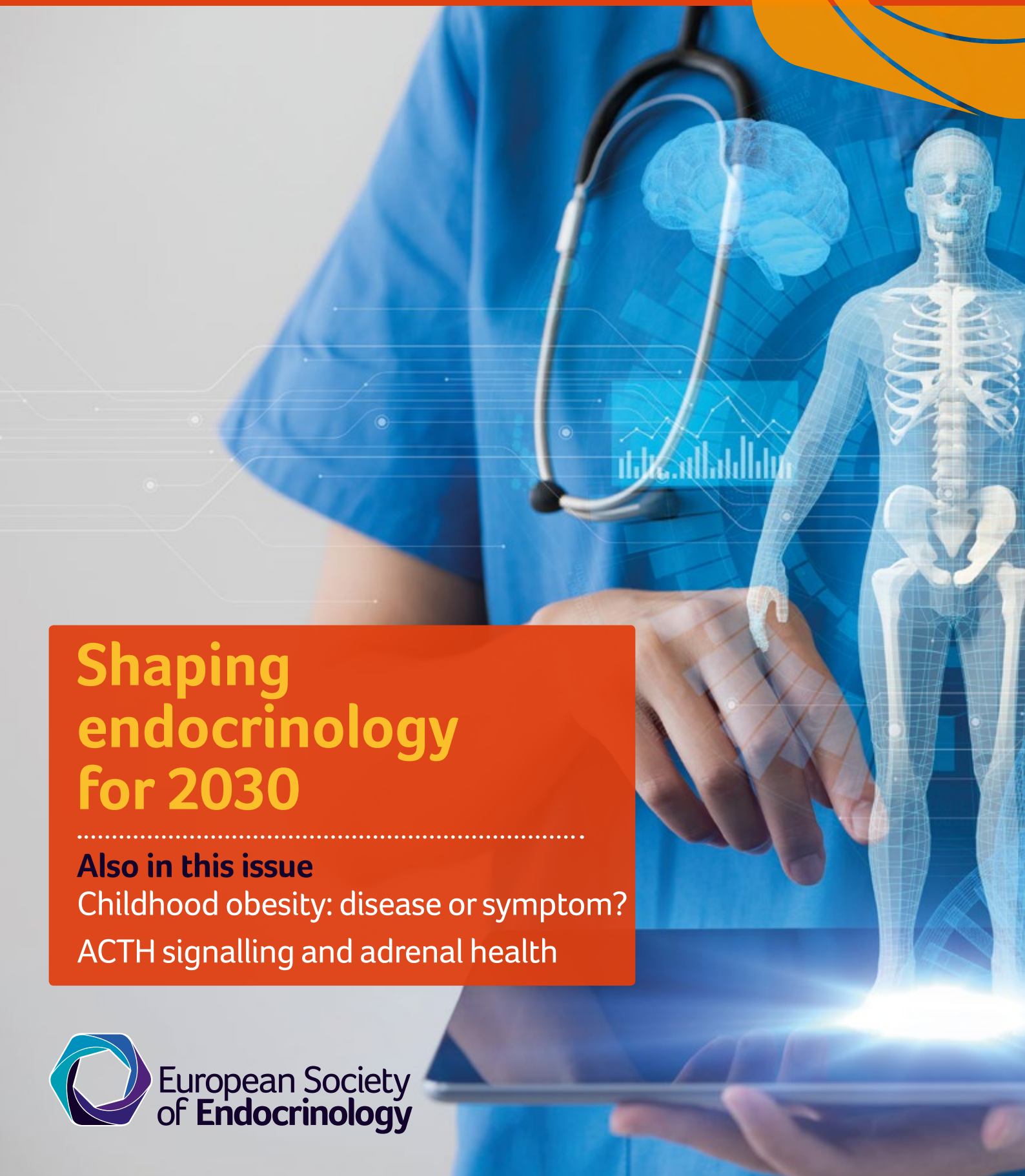
Issue 40 Autumn 2019

ESE News

The newsletter of the European Society of Endocrinology

ISSN 2045-1563 (print)
ISSN 2045-1571 (online)



Shaping endocrinology for 2030

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This document is available on the ESE website, **www.ese-hormones.org**

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European Society of Endocrinology

Editorial

The future of endocrinology is in our hands. How should our discipline appear in 2030? What systems, diseases and topics should it include? What methodology and technology will we need to understand? What will be best for our patients? How should we prepare? In this issue of *ESE News*, we consider these questions and how best to answer them.

As you know, I believe 'inclusion' is an essential part of the solution. Based on the membership of our National Affiliated Societies, at least 22 500 endocrinologists currently work across Europe. We must ensure that they all feel included in and represented by our Society. In this way, endocrinology in 2030 will span all our interests – from the rarest diseases to those endocrine conditions that are now so common that they risk being 'lost' to general medicine.

On page 7, I expand upon my vision, which not only comprises inclusion, but equality and integration. Later, on page 9, your new ESE President-Elect, Martin Reincke, agrees and adds his thoughts. Together, we look forward to addressing the challenges, to secure the future of our field.

Education is clearly essential in preparing the next generation for life in the lab or clinic in 2030. On page 8, Camilla Schalin-Jäntti (ESE Education Committee) and Luís Cardoso (ESE Young Endocrinologists and Scientists) explain how ESE is working to shape our discipline and prepare our members.

Obesity is a classic example of a disorder at risk of not being considered 'endocrine' – and, in fact, of not being considered a disease. ESE has launched several parallel initiatives to remedy this situation, as you will discover on page 10. Then, on page 11, Olaf Dekkers, Deputy Editor of *European Journal of Endocrinology*, considers how we might use the next decade to address the short-comings of science publishing, by maximising the benefits of peer review in enhancing the exchange of ideas.

Pages 12 and 13 highlight papers published in *Endocrine Connections* on two distinct topics that will feature large in the coming decade: obesity and the adrenal gland. Then, on pages 14 and 15, colleagues from clinical and basic endocrinology reflect on the changes our field has seen in the last 40 years, and extrapolate to the future.

As well as looking to the future, this issue also has plenty of exciting news from the present, such as the opening of our new EU Office in Brussels. It's also time to prepare your abstracts for ECE 2020, before the submission deadline of 3 February. I encourage you to read on...

Andrea Giustina
ESE President
Co-Editor of *ESE News*

The voice of endocrinology in Brussels

With the recent opening of our EU office in Brussels, a new chapter has begun for ESE's engagement at the EU level. The new office will form a bridge between the ESE community, the EU institutions, and the European stakeholders with whom ESE aspires to work. In future, ESE intends to expand the office further, and so amplify the voice of endocrinology at the EU level.

The coming months

For the remainder of 2019, ESE will focus on providing input to a European Commission consultation, which will guide the work programmes and calls for proposals for the first 4 years of the next EU research and innovation programme, 'Horizon Europe' (2021–2027). The ESE Science Committee, chaired by Felix Beuschlein (Switzerland), has carefully selected a number of pressing challenges in endocrinology, and conveyed these to the European Commission as the official ESE response to the consultation. The selected challenges include rare diseases, endocrine cancers and the development of European patient registries for rare (endocrine) diseases.

ESE's second priority this year will be to reach out to the newly elected Members of the European Parliament and engage them in ESE's upcoming public affairs activities. We are implementing mini social media campaigns to raise awareness around World Osteoporosis Day, World Acromegaly Day, Neuroendocrine Tumour Awareness Day and World Diabetes Day in October and November.

Finally, on behalf of ESE, our Endocrine Disrupting Chemicals (EDC) Working Group, chaired by Josef Köhrle (Germany), will continue its commitment to reducing the impact of endocrine disruptors on society within the EU and beyond.

Looking to the future

The ESE Executive Committee, supported by the ESE Office, has the challenging – but exciting – task of setting the Society's public affairs priorities for 2020–2021. These priorities will be aligned with the results of last year's survey 'Mapping Endocrinology in Europe' (see panel) and key political developments in Europe in the area of health.

Meanwhile, staff in the ESE Office are working to finalise the outcomes from the Mapping Endocrinology in Europe project, leading to the publication of a comprehensive report and a White Paper. We plan to launch the latter during an ESE policy event in the European Parliament in Brussels in the first quarter of 2020. The main objectives of that policy debate include the increased recognition of endocrinology as a critical specialty in the delivery of healthcare, and the importance of (EU) innovative medical research in this area.

'...a new chapter has begun for ESE's engagement at the EU level. The new office will form a bridge between the ESE community, the EU institutions, and the European stakeholders with whom ESE aspires to work'

Mapping Endocrinology in Europe project

In November 2018, ESE launched a survey to map the current status of endocrinology in Europe. The results allow the development of an up to date picture. This will include the professional demographics of the discipline, and the views of clinicians and researchers concerning present and future challenges, with the ultimate aim of developing a policy and advocacy approach to influence decisions at the European level that affect clinical care and research. Views were gathered from 3111 clinicians and researchers and 41 national societies represented through ECAS (the ESE Council of Affiliated Societies). The membership of the 41 national societies suggests there are at least 22 500 active endocrinologists across Europe. The results of the project will provide a foundation for ESE's policy and advocacy work.

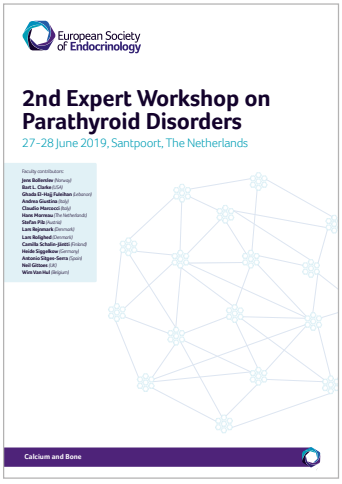
PARAT: making progress in parathyroid management

The ESE PARAT Programme aims to identify unmet needs and solutions in the management of individuals with parathyroid disorders. It will define and plan the delivery of schemes to improve patient outcomes and care.

The PARAT Steering Committee (pictured) is chaired by Jens Bollerslev (Norway) and supported by the ESE Focus Area on Calcium and Bone and the wider parathyroid community. The Programme comprises a 4-year plan, encompassing expert meetings, educational materials, research activities and publications. It is supported by a grant from Takeda.

In September 2018, the 1st Expert Workshop on Parathyroid Disorders brought together 30 key leaders and experts from the parathyroid field, including endocrinologists, surgeons, pathologists and researchers. It focused on parathyroid cancers, primary hyperparathyroidism and hypoparathyroidism, and aimed to identify the challenges faced during the diagnosis and management of patients with these conditions.

The report from this meeting was sent to relevant stakeholders (such as ESE Members, ECE delegates and others who expressed an interest in the calcium and bone field). If you do not have a copy, you can find it at **www.ese-hormones.org/PARAT**.




Jens Bollerslev (Norway)


Andrea Giustina (Italy)


Claudio Marcocci (Italy)


Lars Rejnmark (Denmark)


Camilla Schalin-Jäntti (Finland)


Wim Van Hul (Belgium)

The PARAT Steering Committee developed the outcomes of this meeting into an article entitled 'Unmet therapeutic, educational and scientific needs in parathyroid disorders: consensus statement from the first ESE workshop (PARAT)' (Bollerslev *et al.* 2019 *European Journal of Endocrinology* **181** P1–P19).

The 2nd Expert Workshop on Parathyroid Disorders took place in June 2019. It expanded on the first meeting, bringing together 51 experts, and focused on primary hyperparathyroidism, hypoparathyroidism and other rare parathyroid disorders (including atypical parathyroid adenomas, familial hypercalcaemic hypocalciuria and autosomal dominant hypocalcaemia). It drew on the challenges identified by the preceding meeting, considered further needs within these new areas, and developed plans to address these through the development of clinical guidance and education.

Through these expert meetings, the PARAT Steering Committee has identified several key areas of focus for the next phase of the programme. These include:

- clinical guidance on essential topics, such as managing parathyroid disorders during pregnancy
- multidisciplinary educational initiatives focused on ensuring endocrinologists, surgeons and the wider healthcare community are aware of the diagnostic and treatment considerations relevant to parathyroid disorders, and
- development of an engaged parathyroid community working together to improve patient care.

We look forward to the next phase of the ESE PARAT Programme and the clinical benefits it produces. For more information on this, or any other, ESE programme, please visit **www.ese-hormones.org**.

Submit your ECE abstracts by 3 February

Abstract submission for ECE 2020 on 23-26 May in Prague, Czech Republic, is now open. **Make sure to submit your best research by Monday 3 February**.

The early bird registration deadline is Wednesday 8 April.

To submit your abstract, register for the Congress or find out more, see **www.ece2020.org**.

Shaping the future

ESE welcomed three members to its Executive Committee at the last AGM. They will join the other Committee members in running your Society and shaping our discipline for the future. We are delighted to introduce them to you here.

'I feel extremely privileged to serve this thriving and powerful society as the next President: ESE has been at my heart since its foundation.'

Martin Reincke

President-Elect 2019-2021, Ludwig Maximilians University of Munich, Germany

Since its inception in 2006, I have been a strong supporter of ESE, its activities and congresses. The basis for its success is the unique creative potential of our ESE network of clinicians, basic scientists and healthcare professionals.

Over the last 25 years, I have been active in the management of national and European organisations. I have served on executive committees, such as those of ESE, the German Endocrine Society and the European Society of Clinical Investigation, and as President of the German Endocrine Society. I have organised national, European and international congresses. I was Chair of the Programme Organising Committee of ICE/ECE 2012 in Florence, Italy, the largest European endocrinology congress of its time.

As a researcher, I know about the importance of access to excellent funding opportunities. As a clinician, I know about the shortcomings of economised healthcare.

I will dedicate my energy and enthusiasm to meet your expectations as individual endocrinologists and as national endocrine societies. Without question, there are major challenges ahead. How can we shape the future of ESE, its continuing success and further growth? In my extended article on page 9 of this issue, I expand on my vision for the future of our field.

Thank you for voting for me!

'I will actively contribute to the Society's mission to advance endocrinology, to promote collaboration and best practice.'

Simona Glasberg

Executive Committee Member 2019-2023, Hadassah-Hebrew University Medical Center, Jerusalem, Israel

As head of one of the leading centres for both patient clinical care and research in neuroendocrine tumours, I strongly believe that translational medicine, 'from bed to bench and back', is crucial in understanding a disease and finding a cure. Education to increase awareness of aspects related to diagnosis and treatment, and to stimulate an inner interest in research, is fundamental.

I am an Advisory Board Member of the European Neuroendocrine Tumor Society, and I have chaired the Israeli Forum on Neuroendocrine Tumors since its creation 10 years ago. I have a leading role in the organisation of many meetings, including as scientific leader of the biennial Israel National Congress on Neuroendocrine Tumors. I will use my extensive experience to the benefit of ESE.

As an Executive Committee member, I want to promote interdisciplinary collaboration between endocrinologists and other medical specialists, and to encourage close working relationships with other related societies. To facilitate collaboration 'without borders', my aim is to encourage the involvement in ESE activities of colleagues from geographic areas beyond Europe. I also wish to help develop a support network and resources for endocrine-related health professionals within ESE.

It is an honour and a privilege to be elected to the ESE Executive Committee.

'I have experienced ESE as a warm and inclusive society, that continuously pushes endocrinology forward through science, education, and collaboration.'

Robin Peeters

Executive Committee Member 2019-2023, Erasmus MC Academic Center for Thyroid Disease, Rotterdam, The Netherlands

One of ESE's major strengths is that it combines the full spectrum of general endocrinology with detailed knowledge in its Focus Areas.

As a member of the Executive Committee, I aim to strengthen the relationship with our affiliated national and specialty societies. I would also like to further increase the number of early career clinical and basic science members, and the number of members from under-represented countries.

I served on the Programme Organising Committees of ECE 2016 (as Clinical co-Chair), ECE 2017 and ECE 2019, and am the current Clinical Lead of the Thyroid Focus Area. As a member of the Steering Committee of the Endo-ERN (European Reference Network on Rare Endocrine Conditions), I am well-prepared to take part in advocacy efforts with EU policymakers and scientific organisations, to influence areas that are important to members of ESE.

It is a great honour to serve on ESE's Executive Committee, and to chair the Clinical Committee. I will write about my vision for that Committee in the next issue of *ESE News*.

Further info

You can find out more about ESE's Executive Committee and all its members at **www.ese-hormones.org/about-us/committees/executive-committee**.

7th EYES Meeting: the best place to be

Attendees at the 7th EYES Meeting

With 200 participants from around the world, and a total of 115 abstracts (68 oral communications and 47 posters), the 7th EYES Meeting in September was the very best place for a young endocrinologist or endocrine scientist to be.

Against the backdrop of the Greek capital, delegates enjoyed this high quality original research alongside six invited lectures and two workshops delivered by well known senior Greek endocrinologists.

Nikolaos Nikolaou (Greece/UK) and Jose L Flores-Guerrero (The Netherlands) delivered the two best oral presentations and were awarded the privilege of delivering their presentations at ECE 2020 and at the 2020 Hellenic Endocrine Society Meeting respectively. For the first time, all abstracts from the meeting will be published in *Endocrine Abstracts*.

Beyond excellent science, participants could network, with friends old and new, in the cultural and historical centre of Athens. At the meeting venue, just in front of the famous Temple of Zeus and below the sacred rock of the Acropolis, we shared wonderful moments and created unforgettable memories.

The 7th EYES Meeting was organised by the EYES Committee and the local Athens 2019 EYES Team, which comprised 40 enthusiastic young Greek endocrinologists, led by EYES Committee member Stavroula Paschou. You can find out more at **www.athens2019eyesmeeting.gr**.

The 8th EYES Meeting will be in Birmingham, UK, in September 2020.


Stavroula Paschou

eyes
ESE young endocrinologists and scientists looking forward

New name for EYES

The ESE Young Endocrinologists and Scientists is the new name for the European Young Endocrine Scientists. The name will better reflect the group's role in supporting both early career clinicians and scientists, and that EYES is an established community within ESE.

From the ESE Office

The ESE Office has been busy over recent months, with a focus on raising awareness, increased access to online materials and building the team.

One priority is to raise ESE's profile as much as possible. To this end, we have increased our attendance at events in Europe and internationally, for example by having a presence at the Society for Endocrinology BES conference and the Czech Endocrine Society meeting, and at meetings of the endocrine societies in Nepal and India, as well as an increased promotional presence at our own events.

Our main aim is to increase our membership. The annual fee (starting at €10 per year and including a huge range of benefits) is incredible value. Every new member helps us to support and represent all of you more effectively! Please encourage your colleagues to join and support us.

In response to your feedback as members, we are increasing access to online resources by recording additional material from our educational courses. You will soon see a change in our website as 'ECE on Demand' becomes 'ESE on Demand' (**www.eseondemand.org**). We will also launch an interactive version of the *ESE Recommended Curriculum of Specialisation in Clinical Endocrinology, Diabetes and Metabolism*, enabling you to easily access a raft of ESE and non-ESE material directly from the curriculum, to further support your career development.

I am delighted to welcome Armelle Mabiala, who recently joined the ESE Team as an Executive Assistant, mainly supporting Alex Harrison, our Scientific Programmes Manager, and Andrea Davis, our Governance and Office Manager. You will be able to meet Armelle and the rest of the team at the ESE stand at ECE 2020.

I look forward to seeing many of you at ECE 2020 in Prague, Czech Republic, on 23–26 May. It may feel a long time away, but it will be here before we know it: abstract submission is now open, with a deadline of 3 February 2020, so prepare your submissions now!

As always, please contact me with your thoughts and feedback.

Helen Gregson
Chief Executive Officer, ESE
helen.gregson@ese-hormones.org

The future of endocrinology

Our new President, Andrea Giustina, anticipates the challenges and opportunities that he is ready to embrace over the next 2 years.

ESE is a young society. In its 12 years of existence, it has already met significant milestones. These include the organisation of the annual European Congress of Endocrinology – which has become a 'must' for many European endocrinologists. In addition, we celebrate the success of ESE's many courses, as well as clinical initiatives such as the European core curriculum in endocrinology and the publication of our guidelines. These activities have been admirably initiated under the leadership of our past Presidents. Now I am ready, with your help, to guide ESE through the next steps.

Broadening our reach

To best position European endocrinology as a key global player, and to enable ESE to speak with the most authoritative voice in the name of our discipline with European institutions in Brussels, we have recently opened an ESE office in that city.

Europe is home to at least 22 500 active endocrinologists, based on the membership of our National Affiliated Societies, and ESE should be the place that best unites them all, and integrates them professionally. It is not by chance that my strategy to reform ESE is called the **Inclusion Strategic Plan**. This will create an ad hoc Membership Committee to tackle this objective, together with ECAS (the ESE Council of Affiliated Societies).

In this way, we must attract all those young clinicians and basic researchers around Europe who are interested in endocrine diseases and involve them in our activities, alongside the young endocrinologists who are already members. EYES (newly renamed the ESE Young Endocrinologists and Scientists) is an important aspect of the Inclusion Strategic Plan, as 'young for young' initiatives are essential, and a top-down process will not work in isolation.

Equality across Europe

We all know that the EU is facing critical challenges, such as Brexit. Differences in languages and cultures, regional economic imbalance and the massive burden of immigration have recently more divided than united European citizens.

Through the establishment of ECAS, with its detailed knowledge of national and regional matters, ESE has made an important effort to reach out and really engage with our members everywhere on our continent. However, there still remains much to do in this area. Based on my experience as ESE President-Elect, energetic efforts should be made to enable equal representation in all the Society's roles for western and eastern countries. We should aim to transcend language and economic barriers, to allow harmonious and productive professional growth of endocrinology in all of Europe and beyond.

The importance of integration

In Europe, there are many successful societies for endocrine subspecialties. An important task facing ESE will be to strengthen the links with these societies, and to involve them in the programme of our annual Congress, or in the joint organisation of our themed courses and workshops. In the same way, we should also embrace the inclusion of colleagues who work alongside us, such as endocrine surgeons and endocrine pathologists.

From the perspective of clinical efficiency, and (most importantly) in the best interests of our endocrine patients, these improved relationships may facilitate the creation of integrated endocrine-surgical units, where all related specialists may work harmoniously and effectively together, to ensure the best patient outcomes. This initiative may also be responsive to the needs of public health agencies and funders who, quite reasonably, require value-based therapeutic outcomes for all diseases.

The rare, the common and the novel

The laudable establishment of the European Reference Network on Rare Endocrine Conditions (Endo-ERN), devoted to the care of those with rare endocrine diseases in Europe, is so relevant that the Inclusion Strategic Plan will see the creation of a Rare Disease Committee, reporting to the ESE Executive Committee.

It is all too common for many major endocrine diseases to no longer be recognised as such, and therefore to be more frequently dealt with by other specialists, both clinically and culturally. Classic examples include osteoporosis, obesity, diabetes and reproductive endocrinology. One major task for ESE will be to bring back the endocrinologist as a key player in the management of these important disorders.

Moreover, emerging areas, such as environmental endocrinology (including endocrine disruptors), also need to be pursued, to better deal with rapidly emerging requests from European citizens and health authorities.

From bench to bedside

Basic and translational endocrine science are major strengths of our discipline. ESE should play an increasingly active role in fostering the training of basic endocrinologists in Europe by funding experiences in established labs.

Moreover, ESE should work to improve the access of endocrine investigators to European research funds, and also establish a task force to develop a framework, so integrated basic and clinical researchers can successfully compete for specific, funded European research.

This is my vision. I look forward to working alongside you on our journey together.

Andrea Giustina
President, ESE
Follow me on Twitter @EsePresident

Shaping endocrinology for 2030

ESE has a central role to play in determining what endocrinology will mean in the future, according to how we define our educational goals, strategies and the means to reach these goals.

The Society's vision is to shape the future of endocrinology to improve science, knowledge and health. What does this mean with respect to preparing endocrinologists, especially younger ones, for the changes of the next decade? What is currently happening to shape our discipline for 2030, and are we doing enough?

Recruitment

One important mission is fostering early career endocrinologists, by creating a dynamic community which will inspire medical students and young doctors to become endocrinologists, and remain in endocrinology. ESE and EYES (the ESE Young Endocrinologists and Scientists) work together to achieve this. EYES has increasing direct access to and influence on the operational committees of ESE, including those primarily responsible for educational activities, such as the Education Committee and the organisation of postgraduate courses.

The process of updating the ESE curriculum in endocrinology, diabetes and metabolism was initiated this summer, with input from EYES. The idea now is also to join forces with UEMS (the European Union of Medical Specialists) to harmonise and strengthen education in endocrinology across Europe.

The breadth of our field

What then should ESE courses and educational programmes include, to prepare for the future? Endocrinology's role should broaden and increase in the upcoming decade. To ensure that we effectively cover the whole spectrum of topics and needs, ESE activities are now organised in eight Focus Areas.

These include classical endocrinology, such as adrenal and pituitary disorders, as well as neuroendocrine tumours (NETs) and neuroendocrinology. Novel treatments in the field of NETs push endocrinologists to broaden their engagement and provide more active leadership in the interdisciplinary field of endocrine oncology.

There is a need to strengthen the role of endocrinologists within most of the defined Focus Areas. This applies to Reproductive Endocrinology as well as to our Focus Areas that address common disorders and major health issues in the population, such as Diabetes, Obesity and Metabolism, Thyroid, and Calcium and Bone, which includes disorders such as osteoporosis and vitamin D deficiency.

In addition to preparing young endocrinologists to take charge of very common endocrine disorders, we must help them face the challenges posed by many rare endocrine disorders. This will include not only interpreting data from new technologies in the clinical decision-making process, but also recognising patient singularity, and individual treatments.

This challenge of taking charge of both common and rare disorders is something that will continue to make endocrinology so fascinating. There will be a need for subspecialists in aspects of either common or rare disorders, to achieve the best diagnostic and treatment results for our patients.

The interconnection between basic, translational and clinical sciences will remain of paramount importance in endocrinology, and we will certainly see an increasing number of translational PhD/research programmes in our field. Similarly, the ESE Focus Area on Environment, Society and Government, as well as that on Interdisciplinary Endocrinology, will be increasingly important.

New technologies

Young endocrinologists will need to gain deep insights into molecular genetics and the use of gene panels, to establish the gene defect that may underlie an endocrine disorder, and to tailor specific treatments. In type 2 diabetes, the field of novel anti-diabetic agents is exploding, and the same holds true for sophisticated techniques for glucose monitoring and treatment (e.g. the artificial pancreas) in type 1 diabetes.

By 2030, these techniques and others, such as gene panels/arrays prescription, execution and interpretation/counselling, will be part of daily routine, so increasing the specialty spectrum of action and definitely contributing to the individualisation of care. While interpreting test results, the young endocrinologist should also recognise testing pitfalls.

Other emerging diagnostic techniques and treatments include nuclear medicine and the use of different isotopes in combination with PET/CT (positron emission tomography/computed tomography), as well as PRRT (peptide receptor radionuclide therapy) for different NETs. The awareness of endocrine-disrupting chemicals and their impact on human reproduction and other hormonal feedback systems calls for action by endocrinologists to promote change at a political and governmental level around the globe.

Lastly, the recent ESE project 'Mapping Endocrinology in Europe' gathered the views of 3111 endocrine clinicians and researchers. It will provide those shaping endocrinology in Europe with huge amounts of data concerning the wishes of our colleagues, as we look to the future.

Luís Cardoso
EYES Representative, ESE Education Committee

Camilla Schalin-Jäntti
Chair, ESE Education Committee

Endocrinology: my vision for 2021–2023

Martin Reincke is the new President-Elect of ESE. Although his Presidency will not start until 2021, we asked him to share his thoughts about the challenges he may face when he comes to the role.

As a strong believer in the values of Europe, I gladly applied for the position of the next President of ESE earlier this year. Since the Society's foundation in 2006, I have been a strong and continuous supporter of ESE, its activities and congresses.

I was elected in 2010 as a member of the Executive Committee, which was a fantastic experience. I joined a dedicated and gifted group of colleagues who developed the (at that time) young society into today's professional and successful organisation. The basis for its success is the unique creative potential of our ESE network of clinicians, basic scientists and healthcare professionals. As I look forward, I feel extremely privileged at the prospect of serving this thriving and powerful society as its next President, starting in 2021.

My term will follow those of former President AJ van der Lely (2015–2019) and current President Andrea Giustina (2019–2021). Professor van der Lely initiated fundamental changes within ESE. He professionalised the Society by recruiting our Chief Executive Officer Helen Gregson, followed more recently by several other appointments to consolidate a talented and experienced team (**www.ese-hormones.org/about-us/our-team**). He also initiated the eight Focus Areas, to ensure that ESE effectively covers the spectrum of topics and needs within endocrinology.

Professor Giustina has developed his clear vision, building on this solid foundation. As you can read on page 7, his strategy focuses on inclusion: the inclusion of societies and disciplines close to endocrinology and our Society and, as a consequence, further increase in the membership of our Society, in order that it truly represents European endocrinologists.

My vision for ESE

First of all, I will dedicate my energy and enthusiasm to support Andrea Giustina in his goals. Secondly, I will make use of the next 2 years to learn everything about your needs, as members of ESE and of our National Affiliated Societies, in order to shape the future of ESE, and ensure its continuing success and further growth.

'I share the view of Andrea Giustina. With political Europe navigating steep challenges, I consider it extremely important to reach out to those thousands of European endocrinologists who currently do not affiliate with ESE'

Reaching out

I share the view of Andrea Giustina. With political Europe navigating steep challenges, I consider it extremely important to reach out to those thousands of European endocrinologists who currently do not affiliate with ESE.

This has to be done with a great sense of community between ESE and our National Affiliated Societies. A strong ESE requires strong national societies. We need continuous, energetic efforts to increase ESE membership so that, in the near future, we include at least 50% of the 22 500 (or more) endocrinologists who are working within Europe, as members of our Society.

Education and funding

ESE should stand for a dynamic young scientist community with excellent clinical and basic early career opportunities. We will have to nurture the coming generations of endocrinologists and guarantee the growth of our Society.

Consequently, I will put a special emphasis on education, at every level and every age. We also need a strategic plan to achieve an optimal funding scheme at the European level for both rare and common endocrine diseases.

A voice that cannot be ignored

Finally, excellent science at the European Congress of Endocrinology, high quality guidelines, top quality education programmes and strong advocacy efforts with European governing bodies should turn ESE into the voice to be heard in Europe. ESE should be the key global player for European endocrinology.

Martin Reincke
President-Elect, ESE

Endocrinology steps up to the obesity challenge

The increasing prevalence of obesity presents a major challenge, partly because wider society does not yet recognise it as a 'disease'. ESE is striving to ensure that this is rectified, and that the role of endocrinologists in addressing the pandemic is seen as crucial.

It will not be news to ESE members that an increasing proportion of the European population is overweight or obese. According to the WHO, in the European region, more than 50% of people are overweight or obese, and over 20% are obese. The statistics are set to worsen significantly in most European countries by 2030, accompanied by rising levels of co-morbidities and healthcare costs.

For more than a decade, obesity has been among the most prevalent disorders that an endocrinologist might expect to encounter. Data from the USA in 2009 showed a prevalence of obesity of 19–32%, alongside diabetes mellitus at 6–22%, prediabetes at 7–26% and metabolic syndrome at 34–39%.[1] In 2013, the American Medical Association voted to recognise obesity as a disease state, requiring treatment and prevention.

A role in countering the pandemic

As endocrinologists, we consider obesity to be one of the foremost diseases in our practice. We have a central role to play in the comprehensive management of overweight and obese patients. This starts from the first consultation, where possible underlying endocrine disorders need to be excluded. It then extends to counselling for lifestyle modifications and possible pharmacological interventions that interact with the complex system of appetite regulation, screening for associated diseases and – as a last option – referral to bariatric surgery.

Lifelong guidance from an endocrinologist for overweight and obese patients is necessary, due to the high rate of weight regain even after initial successful weight reduction, and to treat associated metabolic diseases. It is equally important after bariatric interventions, in order to avoid the severe consequences of malnutrition.

There would be evident benefits and opportunities associated with endocrinologists being increasingly involved in obesity prevention, as well as in improving public and political awareness.

A need for endocrine research

Obesity is the prototypical disease in which the appropriate control of inter-organ communication is lost. The cross-talk between brain and peripheral organs to orchestrate appropriate feeding behaviour and an organism's use of calories is derailed. In understanding obesity, it is essential to comprehend how what we eat alters inter-organ communication. Knowledge about the underlying biology will pave the way towards more efficacious treatments.

Because endocrinology is the study of the way organs communicate with each other, by means of hormones, nutrients and other metabolites, research in our discipline is fundamental to finding solutions to address the problem of obesity. Indeed, the most promising pharmacological treatment options for obesity are derived from endocrine research.

Hormone science is key to understanding obesity, and endocrinologists are at the forefront of major efforts to prevent and manage this disorder in Europe and beyond. Indeed, European research is very active in this context, with a number of internationally known laboratories investigating the pathophysiology of obesity.

ESE initiatives

ESE is working to ensure that obesity is widely recognised as a disease within the remit of endocrinologists. Our policy and advocacy work in Brussels will push the topic up the EU agenda. ESE has established a Diabetes, Obesity and Metabolism Taskforce to focus on this area and to engage with industry.

The Society will also continue to support the work of clinicians and researchers in the field. The latest ESE Clinical Guideline addresses the topic of obesity and will be published shortly (led by Renato Pasquali, Italy). The ESE Focus Area on Diabetes, Obesity and Metabolism (**www.ese-hormones.org/focus-areas/diabetes-obesity-and-metabolism**) serves to improve collaboration between researchers and healthcare professionals, leading to a better understanding of the conditions and helping us reach the goal of being able to treat them, and ultimately to develop ways to prevent their manifestation.

You can help ESE to raise the profile of endocrinologists' role in tackling obesity and its associated diseases by supporting the Society's many initiatives, and by continuing to submit your high quality research to the annual Congresses.

Anton Luger and **Daniela Cota**
Clinical and Basic Leads, ESE Diabetes, Obesity and Metabolism Focus Area

Bulent Yildiz
ESE Executive Committee Lead, Diabetes, Obesity and Metabolism Taskforce

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Publishing in 2030:
new solutions to today's problems?

Olaf Dekkers contemplates the obstacles and opportunities that you may encounter in the next decade when publishing your research.

In 2019, journals mostly still look 'traditional': a weekly or monthly edition including a set of articles on a more or less well-defined area in medicine. Also, the shape of research articles seems to be set in stone: introduction – methods – results – discussion, a format introduced back in the 1950s.

There is no doubt that these articles have contributed importantly to our understanding of disease processes and still guide our treatment decisions. But it makes me wonder how things will look in 10 years from now, especially as our system of publishing science has come under scrutiny.

Rapid growth and research waste

The number of publications is growing rapidly, with over 7 million scientific papers published yearly.[1] This poses a challenge, as being up-to-date is hardly possible. But not only is the increasing number criticised, the quality and relevance are also often questioned.[2]

In his highly cited paper, the epidemiologist Ioannidis claims that most research findings are false.[3] This claim does pertain to papers published in peer-reviewed journals and does not even take into account the validity of papers published in predatory journals.

What should the attitude of journals such as *European Journal of Endocrinology* be, regarding the increasing number of papers and regarding so-called 'research waste'? A simple solution would be to consider one's own journal a meaningful contribution to science, and to continue publishing in the same way as scientists have for the past 70 years. While there is definitely value in keeping the quality of individual journals high, this would, however, constitute a narrow view of a problem that affects medical science in general.

The value of scrutiny

Not long ago, we had a paper accepted for publication, just a few hours after submission: 'Congratulations, your paper is accepted; no comments.' While this was a milestone for the PhD student, I ultimately felt unsatisfied. We sent out a Twitter poll and, interestingly, 40% of responders favoured the option to resubmit the paper and ask for peer review. Apparently, many researchers want their work to be scrutinised before publication.

Indeed, peer review guards authors from inaccuracies, but peer review can also be considered the first scientific discussion related to a publication. As a starting point, journals could consider themselves not primarily as an enterprise aiming to produce scientific papers, but as a platform facilitating scientific discussion.

The relevance of scientific discussion was underlined when Nissen and representatives of the pharmaceutical company met to discuss the publication of a meta-analysis, which showed a potentially increased cardiovascular risk for rosiglitazone. The company tried to persuade Nissen not to publish the data, given the suboptimal statistical approach.[4] Nissen argued that the best way to come closer to the truth was to publish the paper and get engaged in a critical scientific discussion.

An exchange of ideas

Indeed, science is about the exchange of ideas, and this viewpoint probably helps to make journals future-proof. Apparently, peer review is relevant for check and balance. But if we could consider a paper not the final statement regarding a scientific hypothesis, but a step in a broader scientific discussion, this would be an argument to publish the peer review reports as well, as some journals already do.

An interesting and provocative suggestion is to have a peer-reviewed publication process, but to let the authors ultimately decide on publication.[5] The question would be, 'Given the views from peer review that will be published alongside your paper, are you willing to have it published in our journal?' Another option would be to facilitate open discussion, even after publication.

Could such open discussion on a journal's platform also reduce research waste? Is it conceivable that authors will raise their own quality standard if they know that the paper will be the starting point for an open discussion? Yes, it is possible.

The future of publishing is open, but *European Journal of Endocrinology* is definitely willing to be engaged in discussions to make our journal future-proof.

Olaf M Dekkers
Deputy Editor, *European Journal of Endocrinology*

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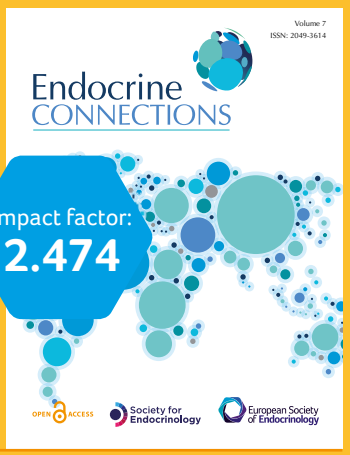


Childhood obesity: disease or symptom?

New research highlights the value of 'steroidal fingerprints' in differentiating between obese children with and without liver disease.[1]

Classifying a child as 'obese' is only a small part of their phenotype. Childhood obesity (Ch-Ob) stems from and affects multiple physiological and pathophysiological mechanisms. The question of whether non-syndromic Ch-Ob is a 'disease' or a 'symptom' has significant connotations for the approach one takes to its understanding and treatment. Our group regards Ch-Ob as a symptom of several entities and considers its classification from a viewpoint of systems medicine.

Steroid metabolomic disease signature

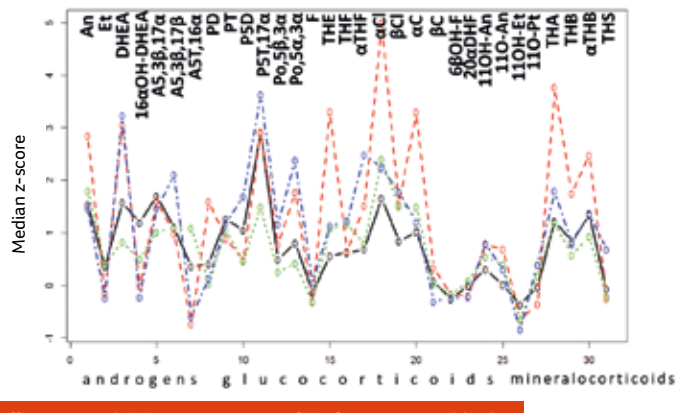
We have used the profile based on 31 steroid metabolites quantified by gas chromatography–mass spectrometry as a biomarker to add precision to the term 'obese'.

An individual urinary steroid metabolite profile represents a subject's unique metabolic *fingerprint* and offers a means of phenotyping individuals at a biochemical level. A person's 'steroidal fingerprint' is affected by their environment, diet, age, gender, body habitus, liver and kidney function. A cluster of similar steroidal fingerprints related to a disease might be regarded as a 'steroid metabolomic disease signature'.[2] This represents the disease's impact on people who differ in their phenotypes or have other health problems.

By using powerful state of the art analytical methods (**www.metaboanalyst.ca**), we previously clustered individual steroidal fingerprints. This allowed us to reclassify Ch-Ob into five groups with distinctive signatures, although with comparable severity of obesity, which may need cluster-individualised management/therapy.

A liver disease signature

As steroid hormones are partially catabolised and conjugated by liver enzymes, we assumed that liver diseases would impact the steroid metabolic signature. The consequences of obesity-related non-alcoholic fatty liver disease (NAFLD) on liver metabolism are insufficiently understood, and were the subject of our last prospective investigations.



Different steroidal disease signatures of the four groups: $L1^{A}$ (red), $L1^{L}$ (green), $L1^{AL}$ (blue) and L0 (black)

We focused on 85 patients with Ch-Ob (>8 years) with non-syndromic obesity, and precisely defined their clinical and biochemical phenotype.[1] Increased hepatic echogenicity, without causes for secondary hepatic fat accumulation, was categorised as a diagnosis of NAFLD. Liver disease (L1) was assessed by elevated alanine aminotransferases ($L1^{A}$), NAFLD based on ultrasonography ($L1^{L}$) or both ($L1^{AL}$).

Almost 25% of the patients met the criteria of liver disease (L1), in line with previously published data. Interestingly, their clinical phenotype parameters were comparable with those of children without positive markers of liver diseases (L0). Different steroidal disease signatures of these four groups ($L1^{A}$, $L1^{L}$, $L1^{AL}$ and L0) were generated (Figure), and we defined the steroidal signature of liver disease (L1).

Revealing the signature

The L1 signature was marked by low urinary dehydroepiandrosterone and its metabolites, and lower mineralocorticoid metabolites, but higher glucocorticoid metabolites due to an increased glucocorticoid production rate. It was characterised by derangement of the cortisol/cortisone shuttle generated by 11β-hydroxysteroid dehydrogenase (11βHSD) type 1, enhanced 3βHSD activity and enhanced 21-hydroxylase activity.

Our findings may suggest less hepatic recycling of cortisone to cortisol (reduction) in liver steatosis, which is followed by increased adrenal cortisol generation and further metabolic consequences resulting from higher glucocorticoid concentrations – this mechanism resulting in a model of a vicious circle.

It was predictable that a higher tetrahydrocortisone concentration in liver disease will correspond to an unfavourable biochemical profile characterised by insulin resistance and higher triglycerides. We assumed that our complex findings, reflecting previously published but single observations, might shed light on steroid-related metabolic sequelae of liver disease in non-syndromic CH-Ob.

Towards personalised medicine

Undoubtedly steroid metabolomics, like other '-omics' data, can potentially lead towards an individualised approach to medicine. Identifying a steroidal signature of liver (or other) diseases in a given child would then be used to develop personalised prognostic, diagnostic and therapeutic approaches, and could be applied to monitoring of disease evolution and progression, treatment choices and efficacy, predisposition to drug-related side effects and potential relapse.

Aneta Gawlik, Michael Shmoish, Michaela F Hartmann, Stefan A Wudy, Zbigniew Olczak, Katarzyna Gruszczynska and **Ze'ev Hochberg**
Upper Silesia Children's Care Health Centre, Katowice, Poland;
Technion – Israel Institute of Technology, Haifa, Israel;
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ACTH signalling and adrenal health

A recent review article in *Endocrine Connections* brings us up to date with research on one of the classical endocrine organs.[1]

Since the discovery of adrenocorticotrophin (ACTH) as an adrenal-stimulating factor from the anterior pituitary in 1930s, and the subsequent cloning of the ACTH receptor (also known as the melanocortin 2 receptor; MC2R) in 1992, we have learnt much about the actions of ACTH. These include its adrenal and extra-adrenal effects, though ACTH acts predominantly on the adrenal gland.

Lessons from familial glucocorticoid deficiency

A major part of our understanding of the adrenal function of ACTH comes from the finding that loss-of-function mutations in *MC2R* give rise to a disease of ACTH resistance: familial glucocorticoid deficiency (FGD).[2] Patients with FGD present early in life with isolated glucocorticoid deficiency and extremely elevated plasma ACTH levels. The condition is inevitably fatal unless treated early.

For many years, it was clear that the MC2R required an accessory factor in adrenal cells to function, without which the receptor did not traffic to the cell surface in non-adrenal cells. This factor was eventually found and named as the melanocortin 2 receptor accessory protein (MRAP) in 2005.[3]

A valuable knockout model

Since its discovery, we have continued to learn about this unique, small, single transmembrane domain protein that forms anti-parallel homodimers. We generated an *Mrap*-knockout (*Mrap*-KO) mouse model.[4] The generation and characterisation of this mouse was no mean feat and took the best part of 7 years, with many roadblocks on the way. In the laboratory we joke that, if this were a child, they would be school-aged by now!

Jokes aside, the *Mrap*-KO model has proved invaluable in yielding new insights into the actions of ACTH in adrenal progenitor cell differentiation and gland zonation, whilst providing the best mouse model yet of FGD and isolated glucocorticoid deficiency.

ACTH signalling and the role of MRAP

There is growing understanding that fine tuning of the hypothalamo-pituitary-adrenal axis plays an important role in human health over a lifetime. We now know that the cells within the adrenal gland are constantly renewed, with progenitor cells in the adrenal capsule/subcapsular region migrating inwards towards the adrenal medulla, and differentiating en route to become cells of the three adrenocortical zones: the outer zona glomerulosa, inner zona fasciculata and innermost zona reticularis.

Using the *Mrap*-KO model, we have shown that MRAP deficiency impairs adrenal progenitor cell differentiation and gland zonation. We found that, in the adrenal glands of *Mrap*-KO mice, various signalling pathways (such as WNT/β-catenin and SHH) are dysregulated in the absence of MRAP and ACTH signalling. It also highlights the potential for regulating the stem cell niche in patients with FGD and other conditions that require glucocorticoid treatment.

As work in adrenal stem cell biology gathers pace, we hope our new data and knowledge of MRAP and ACTH signalling will contribute to future endeavours in adrenal gland regeneration and in the development of therapies for FGD.

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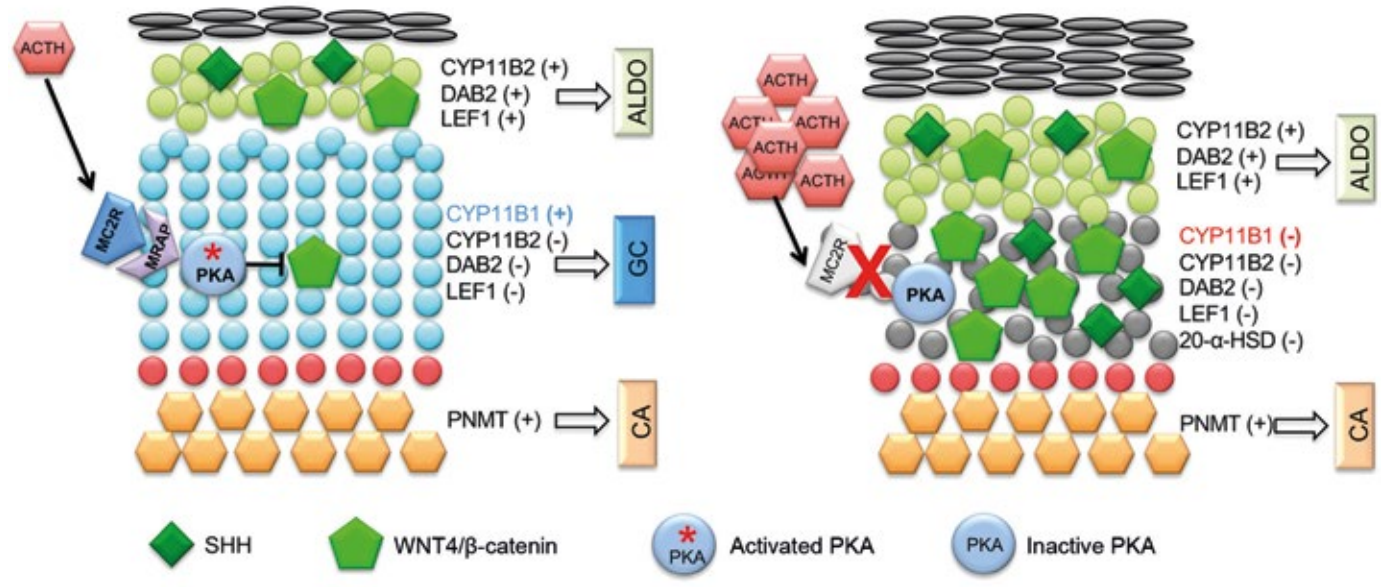


Morphological alterations and pathway deregulation in FGD type 2 (right) compared with normal adrenal (left). Within the capsule (grey ellipses) lie cells of the zona glomerulosa (green circles), zona fasciculata (ZF; blue circles), the X zone in mice (red circles) and the adrenal medulla (orange hexagons). In normal ZF, protein kinase A (PKA) activation suppresses WNT4, leading to ZF cell differentiation. In FGD type 2, the lack of PKA activation results in the complete absence of ZF (grey circles indicate abnormal cells). ALDO, aldosterone; GC, glucocorticoids, CA, catecholamines. Adapted from Novoselova *et al.* 2019 *Endocrine Connections* **8** R122–R130 by permission

A decade in the life of...

...four endocrinologists

In this issue looking at the likely shape of endocrinology in 2030, four endocrinologists with different perspectives glance back at how things have changed over the last 40 years, and try to extrapolate to the future.

Clinical endocrinology: yesterday, today and tomorrow

Susan Webb (Barcelona, Spain) reflects on her early career in the 1980s, while Roos Drexhage (Rotterdam, The Netherlands) provides a perspective on behalf of today's young endocrinologists. Together they imagine the changes that will come about in the next decade.


Susan Webb


Roos Drexhage

The 1980s

Susan: I completed my 4 years of postgraduate endocrine training in December 1979, and decided to spend an extra year in London, at St Bartholomew's Hospital, to get further experience of pituitary diseases, which had always intrigued me most.

At that time, we diagnosed pituitary lesions using plain skull X-rays, where we looked for a double floor, which reflected a large tumour which asymmetrically made the sellar floor lower on one side than the other. The alternative was computed tomography scans – hardly very sensitive for small adenomas like those in Cushing's disease.

Sometimes a pneumoencephalography would be performed: a most unpleasant test where air was injected via a lumbar puncture in order to later identify a possible suprasellar extension of a tumour by means of radiology. What an advance it was to have magnetic resonance imaging in the mid-1980s, when we could begin to see the pituitary tissue itself, and its relationship to surrounding structures!

Analytically, the radioimmunoassays were not as sensitive as the current biochemical methods for measuring hormones. This meant we had to perform more stimulation and inhibition tests to evaluate the endocrine status of our patients. For example, the sensitivity of thyrotrophin (TSH) measurements was around 1mIU/l, while it is now below 0.01mIU/l. So a TSH of <1 could be normal or inhibited, and to identify primary hyperthyroidism, we sometimes had to perform a TSH-releasing hormone stimulation test to see if TSH was inhibited or not.

Another difference is the empowerment of patients themselves. They now often have a say in the proposed work-up and therapy; this was not so before, when they were often not asked about their preferences, but obeyed the rather paternalistic attitude of the healthcare providers. Patients are, on the whole, better informed now about their health problems (access to information on the internet has undoubtedly helped), and are rightly more demanding in asking for optimal therapy, with few if any sequelae or persistent consequences, although this is not always possible. Allowing the patients to understand their disease better usually makes it easier for them to follow treatment and to improve their lifestyle.

The 2010s

Roos: Last year I finished my training as a clinical endocrinologist at the Erasmus Medical Center. I started working in the Department of Immunology a decade ago, during my PhD project on monocytes and T cells in endocrine disorders, such as thyroid disease and diabetes mellitus.

After that, I started my clinical training in general internal medicine with the final 2 years in endocrinology. Now I supervise the day care centre (where all the endocrinology tests are performed) and work in the Centre for Thyroid Disease and the Centre for Obstetric Medicine. I like working with different patient groups and pregnant women; my work is very varied and ensures I gain a lot of experience. I enjoy involving the patients and discussing with them what is best in their situation and how we can put a treatment plan together accordingly.

It is very exciting and rewarding to be part of an experienced team, knowing that I have the opportunity to continue learning in the coming years. I am looking forward to the future very much!

Imagining 2030

Both: In the next 10 years, we believe more personalised medicine will prevail, provided by multidisciplinary teams. Individual genomic information will dictate specific therapies and information regarding future health. The latter will be made accessible to different health providers thanks to electronic notes, although confidentiality must be guaranteed.

A compromise will have to be found between the ever-growing cost of medications, the profits of pharmaceutical companies and the affordability of drugs to the individual patient or the national or private health systems.

e-Health and e-Consultations will play a greater role in diagnosing and treating patients. We will be able to use the experience of different centres of expertise from all over the world to find the best treatment for an individual patient.

However, with all these endless possibilities and information on the internet, it will be necessary to guide patients and to give them the right information on which we will, together, base their individual treatment plans.

Due to all the technical advancements, more and more time will be spent behind the computer instead of with the patient. We expect and hope that smarter systems will be able to undo this trend, so more time can once again be spent with the patient.

1980 1990 2000 2010 2020 2030

Basic endocrine research: past, present and future

Pilar Santisteban (Madrid, Spain) looks back at life in the lab for an endocrinologist 35 years ago, while Peter Aldiss (Birmingham, UK) relates the current situation for those embarking on their career. Together, they contemplate the lab of the future.


Pilar Santisteban


Peter Aldiss

The 1980s

Pilar: My experience is in basic research concerning the thyroid gland and hormones. In the 1980s, there was less knowledge of the main physiological mechanisms that govern endocrine control and, consequently, most research was performed *in vivo* with experimental animal models. Any experimental design was carefully considered and the pros and cons analysed before it began.

Full development of the radioimmunoassay broke barriers, contributing to the analysis of hormonal levels in experimental situations. Though today this seems easy, in the past it involved difficulties in the use of radioactivity, although it gave important information about physiology. My memory is that we used many radioactive techniques to study hormone–receptor binding, hormone action and second messengers.

In the early 1980s, endocrine research was more descriptive than mechanistic. It was in the mid- and late 1980s that cellular and molecular biology fully became part of endocrinology. Cell cultures allowed us to understand processes, such as the role a specific hormone plays, regardless of the complexity of the whole organism. It was also the time when progress was made in understanding how hormones regulated gene expression, and considerable advancement was made in transcription studies. Cloning of many hormones and their receptors began; these were time-consuming experiments compared with today's massive sequencing.

I could say that everything happened more gradually, but was very well thought out. The lack of commercial kits made researchers consciously learn the experimental approaches. The lack of continuous, fluent communication between scientists was a barrier that has now been overcome with the internet. However, this period in endocrinology saw advances at the frontier of knowledge. Then, as now, it is enthusiasm that motivates scientists.

The 2010s

Peter: I am studying how the NAD+ precursor, nicotinamide riboside, regulates skeletal muscle physiology at the Institute for Metabolism and Systems Research (IMSR) in Birmingham, UK.

When asked how things compare now and 30 or 40 years ago, my initial thought was the wealth of technology at our fingertips. We can now do so much, opening up a world of possibilities. Sequencing the genome is becoming cheaper and faster day-by-day, while high resolution imaging, such as the COMPARE centre at IMSR, leads the way in visualising single membrane proteins and their interactions.

The development of -omics technologies, which can take an unbiased look at the whole proteome or metabolome, and the advent of bioinformatics pipelines, aimed at both integrating these and making them intuitive to biologists, endocrinologists and physiologists alike, has given us a much deeper understanding of what happens in whatever condition we are interested in.

Collaboration is much easier now. We see a method, or a finding we like, and a simple email can often lead to great things.

With all of this, we can now look into the roles of molecules we never knew were involved in a condition, rather than just focusing on our preconceived notions of disease aetiology. In some cases, this may well be 'fishing'. In many others, however, it is a genuine attempt to further understand novel regulators of disease.

The issue here is that we are firmly in the 'reductionist era'. This boom in molecular biology and big data has led many to focus on single genes, proteins or metabolites as 'the cause' of many conditions, with everyone looking at single knock-out models, mechanisms and 'master regulators' as they chase publications in high impact journals and, ultimately, an academic career lasting longer than 12 months.

Many forget about integrative physiology and the whole system but, nevertheless, it is a truly exciting time to be a basic endocrinologist.

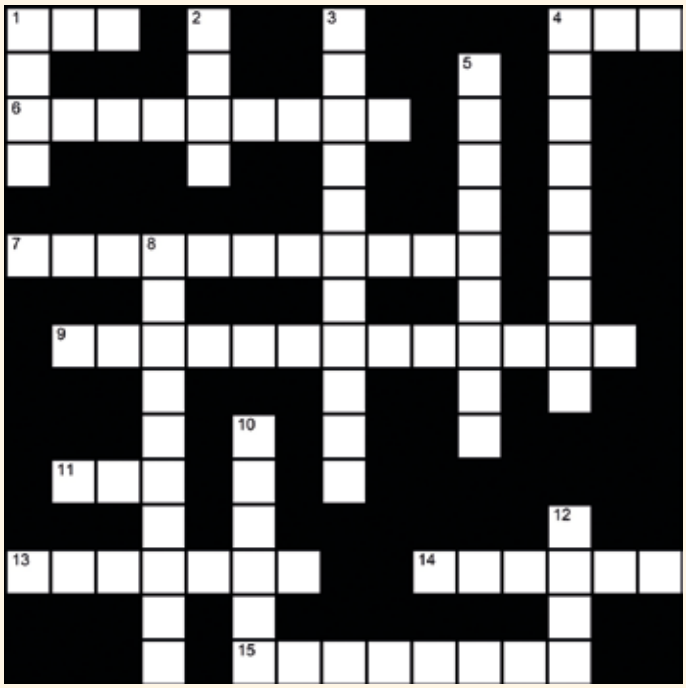
Imagining 2030

Both: Will this reductionist focus change? We can hope that there will be a shift towards a focus on actual physiology in the not too distant future and, as a Society, it will fall to us to ensure this happens. How will drug discovery progress? Will pharmaceutical companies learn from mistakes of the past and develop a pipeline where drugs don't regularly fail in the clinical stages? And how will academia look in a decade, if funding and support remain so hard to come by for early career researchers?

All of these issues and more depend on how we react as a Society, and community, over the next few years. Can we work together to enact real, meaningful change? Or do we continue down the same route, raising the same issues in another 10 years? It is now our job to work together to drive this change, not just for us, but for the patients and public alike.

The Endo Crossword

Send us your solutions to this topical puzzle for your chance to win one of three €20 Amazon vouchers! Let us have your answers, along with your name and email address, by emailing them to info@euro-endo.org or faxing them to 0044 1454 642222.



Congratulations

Our winner from issue 39 was Iulia Pirga (Romania).

Answers to the puzzle in issue 39

Across 1. Forbes, 4. Jacobi, 6. Henrietta, 10. Maud, 11. Lacks, 15. Shaver, 17. Yvonne, 18. Ruth, 21. Illig, 23. Putnam, 24. Virginia

Down 2. Barr, 3. CAT, 5. Buck, 7. Andersen, 8. Bloomberg, 9. Linda, 12. Curie, 13. Sakati, 14. Mary, 16. His, 19. HIV, 20. Carr, 22. Lyon

Across

1 Amino acid shown to reduce appetite (abbrev.) (3)
4 A DNA codon for **1 across** (not **11 across**) (3)
6 Mineral cofactor essential for vitamin D metabolism (9)
7 Form of MODY (maturity onset diabetes of the young), often asymptomatic (11)
9 Peptides processed from **1 down** (13)
11 A DNA codon for **1 across** (not **4 across**) (3)
13 Hormone secreted by Sertoli cells (7)
14 Dietary fibre shown to reduce appetite (6)
15 Steroidal insect prohormone controlling larval molting and metamorphosis (8)

Down

1 Hormone precursor produced by the arcuate nucleus (abbrev.) (4)
2 **See 12 down**
3 White marks on the nails (11)
4 Hormone derived from the amino acid tyrosine (9)
5 Peptide derived from proglucagon (9)
8 Active form of vitamin D (10)
10 Essential mineral in **4 down** (6)
12 **and 2 down** A genetic mutation circa 8000 years ago led to which common human trait? (4,4)

Did you know?

Hit and miss predictions of the future

One can forecast the future with mixed success, as these predictions from a 1967 article in *US News & World Report* reveal.

The article's authors anticipated that not only would organ transplants be commonplace by the mid-1980s, but also that artificial organs would be used. They supposed that microbial disease would be almost eliminated by 2000, and the average human lifespan would increase from 70 to nearly 100 years.

Unravelling the human genome, and the creation of primitive artificial lifeforms in the lab, were both expected before the end of the century.

One contributor sagely predicted, 'School can be used to take up a major portion of a person's life. You can see it coming. A student will get his bachelor's degree, then his master's, then his PhD, then his postdoctoral, and then his post-postdoctoral. He will be in school until his thirties!'

Find the full article at www.usnews.com/news/blogs/press-past/2013/01/30/the-wondrous-world-of-1990-a-look-at-past-predictions-of-the-future.

Save the date

For more information about any ESE event see www.ese-hormones.org.

International Symposium on Graves' Orbitopathy
7–9 November 2019
Pisa, Italy

Europit 2019
14–17 November 2019
Annecy, France

26th ESE Postgraduate Training Course on Endocrinology, Diabetes and Metabolism
19–22 March 2020
Tbilisi, Georgia

22nd European Congress of Endocrinology
23–26 May 2020
Prague, Czech Republic

23rd European Congress of Endocrinology
22–25 May 2021
Stockholm, Sweden

Deadlines

30 November 2019
ESE Short-Term Fellowship
Application deadline

3 February 2020
ECE 2020
Abstract submission

28 February 2020
ESE Awards:
- Geoffrey Harris Award
- *European Journal of Endocrinology* Award
- Clinical Endocrinology Trust Award
- European Hormone Medal
- Jens Sandahl Christiansen Awards

Nomination deadline

8 April 2020
ECE 2020
Early bird registration