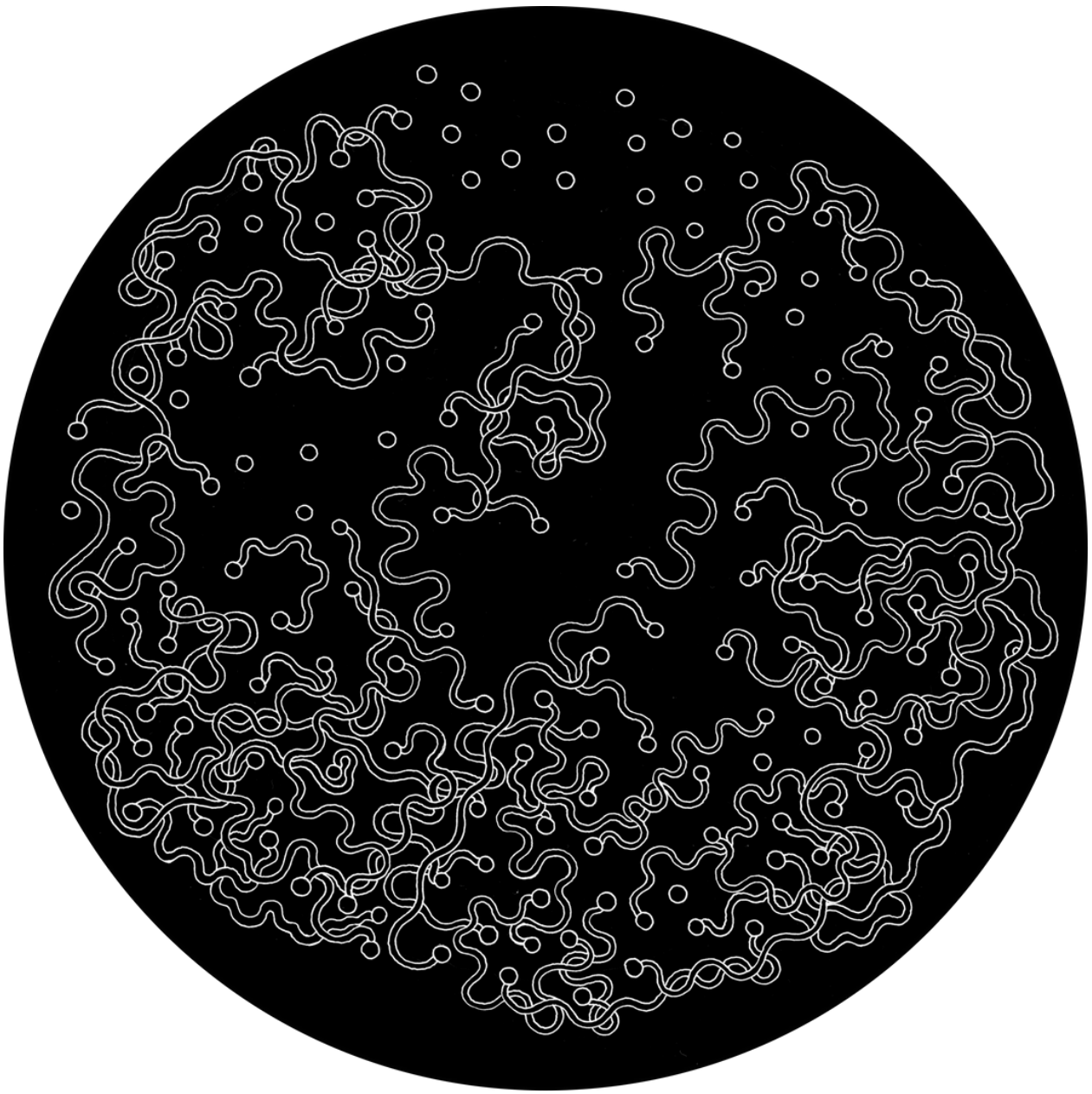
ANNUAL REPORT

ENDOCRINE SOCIETY OF AUSTRALIA

2022

esa



ANNUAL REPORT ESA 2022

01 | ABOUT THE ESA

02 | ESA STRATEGIC PLAN

04 | KEY AREAS OF PRIORITY

06 | COUNCIL AND OFFICE BEARERS

10 | REPORTS FROM THE BOARD

17 | REPORTS FROM MEMBERS

25 | RECOGNITION OF MEMBERS

28 | AWARD WINNERS

43 | SEED GRANT REPORTS

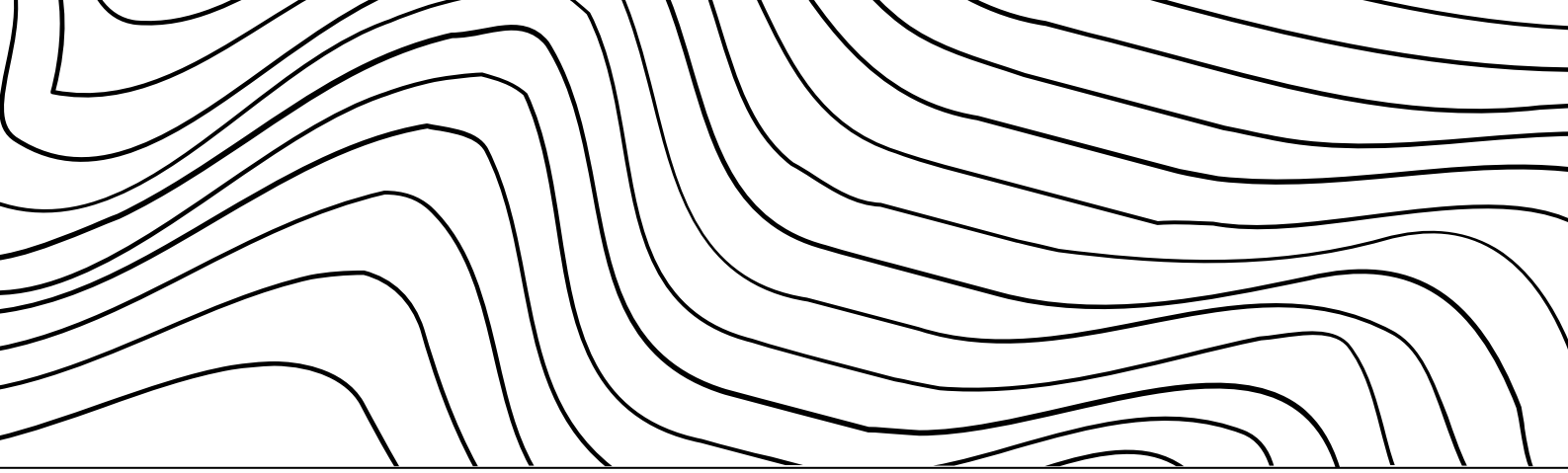
54 | HORMONES AUSTRALIA

55 | SPECIAL INTEREST GROUPS

56 | ESA JOURNALS

59 | UPCOMING EVENTS

60 | CONTACT



About the Endocrine Society of Australia

Who We Are

The Endocrine Society of Australia (ESA) is a national non-profit organisation of scientists and clinicians who conduct research and practice in the field of Endocrinology.

The society was founded in 1958 and incorporated in 1986 in the State of Victoria. The Society is governed by the ten members of its Council who are elected every two years by a ballot of the membership in accordance with the Constitution.

Our Growth

Our membership continues to grow every year: we currently have 1051 members.

This society is strengthened by its composition of both clinicians and basic science members; and we believe that this true integration of disciplines is one reason for its continued success.

Our Mission

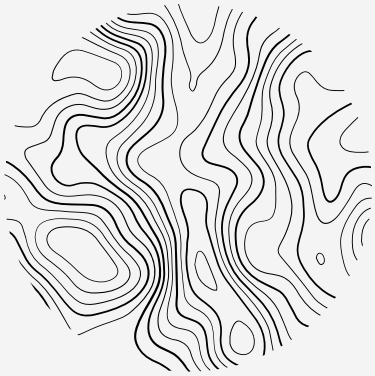
The mission of the ESA is to be the premier society in Australia in the field of endocrinology through promoting excellence in research, fostering the integration of clinical and basic sciences, and facilitating the translation of our science to health care and clinical practice.

Key objectives to achieve these goals include:

- the nurturing and developing the future generations of basic and clinical scientists and other health professionals
- the dissemination of new knowledge in endocrinology through our Annual Scientific Meeting and Seminars.

The ESA will be proactive in shaping the research and health policies based on scientific advances in our field.

ESA Strategic Goals

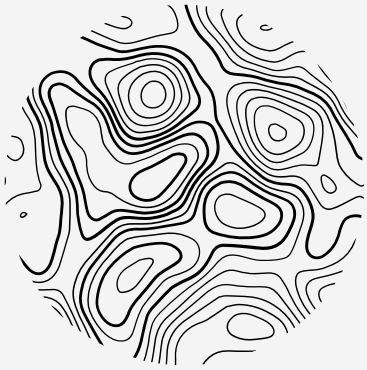


Our Vision

To be recognised as the authoritative voice for Endocrinology, Endocrinologists and Endocrine Researchers in Australia and Southeast Asia

Our Purpose

To educate about, engage in, and promote clinical practice and research in Endocrinology in the region and world-wide



Our Values

To be knowledgeable, accessible, sustainable and committed

ESA Strategic Directions

01 | **Financial**

To maintain financial sustainability for the future

02 | **Education**

To promote the education of our current and future endocrinologists and endocrine researchers

03 | **Listening**

To listen to our membership

04 | **Engagement**

To engage with our members, government bodies, funding bodies and the public to address and resolve issues that affect endocrinology and endocrine research

05 | **Promotion**

To promote the profile of the Endocrine Society of Australia

06 | **Continuity**

To ensure the governance of the society has continuity of knowledge and expertise

Key Areas of Priority

01 | Financial Sustainability

1.1 Achieve a sufficient and more reliable income stream through investments, industry, bequests and conferences

1.2 Maintain a productive operating budget

1.3 Maintain long term financial sustainability of the scholarship programs

02 | Education

2.1 Provide high quality conferences and meetings that attract international and national interest

2.2 Provide support for junior members, both clinical and basic scientists with membership, training, education and scholarships

2.3 Support continued training of high quality endocrinologists through work force planning and addressing issues affecting training

03 | Internal Engagement

3.1 Hear the needs of our members

3.2 Retain and ensure sustainability of our expertise within the membership

3.3 Communicate and engage other endocrine based societies to increase membership both nationally and internationally

3.4 Ensure ESA members are assisting ESA to reach its objectives

Key Areas of Priority

04 | External Engagement

4.1 Engage consistently with the RACP for endocrinology training, secretariat business and endocrine advocacy

4.2 Engage with industry for sponsorship and financial sustainability

4.3 Engage with Government for addressing endocrine issues that affect ESA sustainability and profile

4.4 Engage with the NHMRC at every possible level to promote the funding of endocrine research, for endocrine advocacy and for the joint production of position statements

4.5 Engage with the public via the media to enhance the ESA profile and opportunities for bequests

4.6 Increase our presence and effectiveness on other boards and panels of institutions

05 | Governance

5.1 Maintain a highly skilled and motivated board

5.2 Source skilled, motivated and committed consultants with clearly defined roles to drive our objectives

5.3 Have the right committees with the right people to deliver strategic objectives

5.4 Educate board members in governance so our strategic ability and decision making is enhanced

06 | Profile

6.1 Promote Endocrinology within Australia via our branding

6.2 Provide education, networking opportunities and showcase our research

6.3 Promote our expert members both nationally and internationally

6.4 Be recognised as the authoritative voice for endocrinology, rare endocrine disorders and obesity in Australia and the region

Council and Office Bearers 2022

President

Professor Bu Yeap

President until 15.11.22

Harry Perkins Institute of Medical Research
Fiona Stanley Hospital
Murdock WA

President-Elect

Dr Ann McCormack

President-elect until 15.11.22
President from 15.11.22

Staff Specialist
Department of Endocrinology
St Vincent's Hospital
Sydney

Head
Hormones and Cancer Group
Garvan Institute of Medical Research
Darlinghurst NSW

President-Elect

Associate Professor (Peter) Shane Hamblin

Councillor until 15.11.22
President-elect from 15.11.22

Department of Endocrinology & Diabetes
Western Health
Sunshine Hospital
St Albans VIC

Treasurer

Dr Belinda A. Henry

Treasurer until 15.11.22

Research Fellow
Department of Physiology
Monash University

Council and Office Bearers 2022

Treasurer-Elect

Professor Jenny Gunton

Councillor and Treasurer from 15.11.22

Director of the Centre for Diabetes and Obesity Research at the Westmead Institute for Medical Research

Chair of Medicine at Westmead Hospital, University of Sydney

Honorary Secretary

Professor Mathis Grossmann

University of Melbourne, Austin Health

Councillor

Dr Emily Mackenzie

Councillor until 15.11.22

Department of Diabetes and Endocrinology Princess Alexandra Hospital Woolloongabba QLD

Councillor

Professor Roderick Clifton-Bligh

Councillor from 15.11.22

Head Department of Endocrinology Royal North Shore Hospital, St Leonards, Sydney

Professor in Medicine University of Sydney

Council and Office Bearers 2022

Councillor

Associate Professor Diana Learoyd

Councillor until 15.11.22

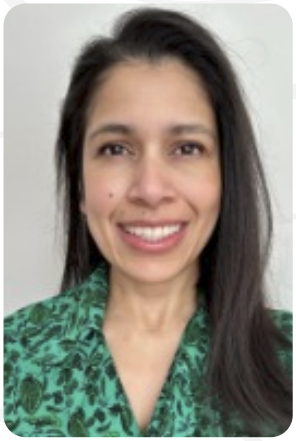
Northern Clinical School
Faculty of Medicine and Health
University of Sydney

Councillor

Dr Liz Johnstone

Councillor until 15.11.22

Harry Perkins Institute of Medical Research
QEII Medical Centre
Nedlands. WA



Councillor

Associate Professor Sunita De Sousa

Councillor from 15.11.22

Endocrinology & Genetics Royal Adelaide Hospital
Adelaide Medical School University of Adelaide

Councillor

Dr Sheila Cook

Councillor from 15.11.22

Senior Staff Endocrinologist and Obstetric Physician
St Vincent's Private Hospital Toowoomba and Toowoomba Hospital

Academic Lead
University of Queensland Rural Clinical School Toowoomba

Council and Office Bearers 2022

Councillor

Associate Professor Frances Milat

Endocrinologist and
Deputy Director of
Endocrinology
Monash Health

Head
Metabolic Bone
Services
Monash Health

Head
Metabolic Bone
Research Group
Hudson Institute of
Medical Research

Adjunct Associate
Professor
School of Clinical
Sciences
Monash University

Councillor

Dr Ada Cheung

Endocrinologist and
NHMRC Research
Fellow
Department of
Medicine
Austin Health
Heidelberg Victoria
and
The University of
Melbourne
Parkville Victoria

Executive Officer

Ms Ivone Johnson

145 Macquarie Street
Sydney NSW

Administrative Assistant

Ms Melissa Dupavillon

145 Macquarie Street
Sydney NSW

President's Report

After holding online Annual Scientific Meetings and AGMs in 2020 and 2021, it is a major step forwards to return to face-to-face meetings in 2022. This has been challenging year, with flooding on the East Coast, war in Europe, and a background of persisting COVID infections with new variants. Our thoughts and best wishes go to those affected, and we hope that things will improve over the remainder this year and 2023.

Adoption of ESA's new Constitution at last year's AGM helped us focus on ESA's core goals, to promote the prevention, control and optimal treatment of endocrine and related medical conditions. We aim to advance endocrine science, guide clinical practice, be an authoritative voice for our discipline, provide collegiate support and nurture the next generation of endocrine specialists, researchers and scientists. Council, the Medical Affairs Committee, the Early Career Committee and our Seminar, Clinical Weekend and Annual Scientific Meeting, and our multiple ESA research grants and awards, including the Ken Wynne Award and the forthcoming Robert Archibald Burns Award, are the structures by which ESA members volunteer, contribute and participate to help ESA achieve these goals. Our ESA and Hormones Australia websites support us in this work and provide a means of outreach beyond our immediate membership.

We aim to advance endocrine science, guide clinical practice, be an authoritative voice for our discipline, provide collegiate support and nurture the next generation of endocrine specialists, researchers and scientists.

200+ of us enjoyed an excellent Seminar in Launceston in April/May, with 300+ joining online. plenary speaker Gary Hammer gave two excellent presentations and spoke at an insightful leadership session. Julie Miller provided valuable endocrine surgical input. We had 200+ registrations for the Clinical Weekend and 700+ for the ASM here in Christchurch, welcoming the participation of Harrison Lecturer Shalender Bhasin and Taft Lecturer Graeme Eisenhofer. The programs for all three meetings were educational, informative and inspiring. Our meetings exemplify the way in which ESA looks to the best nationally and internationally for endocrine science and clinical practice, and the way ESA members learn from, share with and support each other.

Of course, these meetings could not happen without the many ESA members who generously volunteer their commitment. On behalf of ESA, may I express our thanks to Seminar co-convenors Di Learoyd and Anna Story, Clinical Weekend co-convenors Catherine Conway and Emily Brooks, and our ASM POC co-chairs Mitch Lawrence and

President's Report

Jun Yang, and their respective organising committees, and to all our speakers and contributors. In addition to our plenary speakers, I also thank our symposium, meet-the-expert and abstract presenters who contribute tremendously to the richness and excitement of our meetings. Thanks also to our sponsors for supporting our meetings and sharing their perspectives with us.

During the course of the ASM, we have announced or will announce the recipients of the ESA Young Investigator scientific article award, the Paul Lee, Ken Wynne and Mid-Career awards, the ESA Gail Risbridger Junior Scientist Award, and the Bryan Hudson Clinical Endocrinology Award. These awards recognise the striving for excellence in research as well as clinical practice that is ingrained in ESA's DNA. On behalf of ESA, I thank Gail Risbridger, a longstanding ESA member and Life Member, and an outstanding ESA contributor and researcher, for generously accepting Council's invitation to associate herself with the Junior Scientist award.

In addition to the financial award provided by ESA, Gail will provide mentoring to the winner to help advance their research career. At the close of the AGM, we will announce the winners of the ESA research seeding grants. Before the end of the year, we will announce the winners of the Ipsen Travel Award, the ESA Higher Degree Travel Scholarship, the ESA Postdoctoral Award and the ESA Ken Wynne Award. These three ESA awards provide substantive monetary support to the recipients to conduct independent research, in the case of the Higher Degree Travel Scholarship including a period of time aboard. To be the best, we have to reach out and learn from all over the world.

To be the best,
we have to
reach out and learn
from all over the world.

An important part of ESA's role in this regard is to interact with other Societies who share our goals. This year's ASM is a joint meeting with SRB, ANZSPED and NZSE. Next year we will meet with SRB in Brisbane, in 2024 with SRB and ANZBMS in Adelaide, and in 2025 with SRB and ANZOS in Perth. In this year's ASM, we held a joint symposium with the Korean Endocrine Society, on challenges in thyroid cancer management, building on a joint session on testosterone the T4DM trial hosted by KES at the Seoul International Congress of Endocrinology and Metabolism in 2021. We welcome the participation of KES in this year's ASM and hope to build on our collaboration with KES over time.

President's Report

Collaborations and partnerships
2022 ESA ASM with SRB, ANZSPED and NZSE
2023 ESA ASM with SRB
2024 ESA ASM with SRB, and ANZSPED
ESA-SfE Scholar Exchange Program (including presenting at the SfE meeting)
ICE/AOCE/AFES meeting
ISE and the Endocrine Society
ES Global Leadership Academy

In 2023, we will inaugurate the ESA-SfE Scholar Exchange Program, by which ESA will sponsor two ESA early-mid career researchers (one basic science and one clinical researcher) to visit research centres in the UK and present at the SfE meeting, and will host two early-mid career researchers sponsored by SfE to visits to Australia and presentations at the ASM in Brisbane.

We hope that this will be an ongoing program to boost collaborations between our societies. ESA continues to interact with like-minded Societies across our region, with ESA members making notable contributions to the ICE/AOCE/AFES meeting in August this year.

ESA will also continue its collaborations with the ISE and the Endocrine Society. We continue to send ESA nominees (one with a basic science and one with a clinical background) to the ES Global Leadership Academy, the 2023 nominees being Liz Johnstone and Ada Cheung.

Recently, Council approved Warrick Inder's nomination for Life Membership of the ESA. Warrick has been an extraordinary contributor to the ESA, as a clinician and researcher, a mentor to junior researchers, advanced trainees and colleagues, a previous member of Council, President and Past-President of ESA. He was awarded ESA's Outstanding Clinical Practitioner Award in 2021. Even after stepping down from Council as President and Past-President, his dedication to ESA saw him come back to help us with the drafting of our new Constitution.

It is therefore my great pleasure to recommend to this AGM that Warrick Inder become a Life Member of ESA.

President's Report

I would like to acknowledge the many members who contribute their time, energy and expertise to ESA. Thanks to my fellow Councillors for their work on behalf of ESA especially Belinda Henry our Treasurer, and Mathis Grossmann our honorary Secretary. Thanks also to the Medical Affairs Committee led by Ann McCormack and Emily Mackenzie, who provide endocrine expertise and policy guidance to other organisations and government bodies. Thanks to other fellow Councillors Shane Hamblin, Di Learoyd, Ada Cheung and Fran Milat, and many others for their valued contributions throughout the year. Especial thanks to Sunita De Sousa and Liz Johnstone who led the ESA Early Careers Committee, and their active and enthusiastic committee for their contributions. Thanks also to our efficient and effective Secretariat, our Executive Officer, Ivone Johnson, ably supported by Melissa Douglas, and to Jim Fawcett and the ASN Events team for their tireless work.

ESA and our members face continued challenges, but by supporting our members in their clinical and research activities, holding high quality meetings, managing ESA's finances and sustaining our activities and our programs of research support and recognition of excellence, I firmly believe we will thrive.

On a personal note, it has been my pleasure and a great honour to serve the ESA, as a Councillor since 2006, President-elect from 2018-2020, and President these past two years. ESA continues to fulfil its aims in an exemplary fashion thanks to the engagement and enthusiasm of ESA members. ESA and our members face continued challenges, but by supporting our members in their clinical and research activities, holding high quality meetings, managing ESA's finances and sustaining our activities and our programs of research support and recognition of excellence, I firmly believe we will thrive.

I have the fullest confidence in my successor as ESA President, Ann McCormack, and our continuing and new ESA Councillors, and I wish them, and the ESA, ongoing success.

Thank you once again to all of you for your support.

Bu Yeap
President, ESA

Treasurer's Report

Operating results: Net loss of $175,230 compared to a profit of $248,153 (2021) and a previous loss of $120,916 (2020).
Current value of ESA net assets: $2,415,290 compared to $2,769,457 in 2021.

Seminars and meetings

Seminar Weekend	Clinical Weekend	ASM	Estimated final surplus
$38,226	Projected: $4,000 Final: +$817	Projected: $10,000 Estimate now -$5,320	$33,723

Hub24 accounts

The Endocrine Portfolio	The Wynne Portfolio
Balance at 20/10/2021: $ 1,444,293 Balance at 18/10/2022: $1,336,405	Balance at 20/10/2021: $844,625 Balance at 18/10/2022: $748,232

Two funds managed by Jason Dix (Carrington Financial Services)
We have seen a great deal of volatility in the market which has led to an overall loss in our investment accounts.

Membership

Increase in membership to 1310 members (847 financial) increased from 1198 in 2021.

Accounts held at the National Australia Bank

Working account	Two fixed term deposits
Balance at 08/11/22: $106,747	Balance at 20/10/2021: $127,413 Balance at 20/10/2021: $96,493

Awards

ESA is dedicated to ensuring that we provide financial support in the form of scholarships, fellowships and awards. In the past financial year, we have provided $193,000 in award funding to our members. This was increased compared to $136,500 in 2021. We have reinstated travel awards in 2022.

Belinda Henry
Treasurer, ESA

Medical Affairs Report

The Medical Affairs Committee (MAC) continues to be a busy sub-committee of ESA. Clinical councillors represent ESA offering input across a wide range of projects instituted by other organisations, advocating for ESA members on a variety of important issues and endorsing (or not) endocrine-related clinical guidelines and position statements.

Request for ESA feedback

In 2022, the ESA was requested to provide comment on a number of items.

- The Australian Council on Healthcare Standards (ACHS) sought feedback on collection of relevant endocrine clinical indicators as part of an ACHS clinical data program aimed to improve patient care and health quality in Australia.
- ESA provided input into the AMA Discussion Paper on reform of the private healthcare sector.
- The Medicare Benefits Schedule Review Advisory Committee requested ESA input into a proposal for MBS funding of genetic counselling.
- MAC also provided feedback in the RACGP Do No Harm Subclinical Hypothyroidism educational material.
- Additional input was provided to the Australian Cancer Plan survey and to Recordati for their PBS submission of osilodrostat for Cushing's syndrome

Advocacy

Issues raised by ESA members have been actioned by MAC on many important issues:

- A request to PBAC to review current PBS requirements of scrotal-only application of Androforte 5 to enable transgender and those with disabilities to apply on alternative body parts.
- A letter was written to Pfizer to raise concerns about the lack of supply of needles with Solu-cortef medication.
- More recently a letter was written to the General Manager of Merck Healthcare requesting their re-engagement with the Department of Health in facilitating male access to PBS-funded recombinant hCG (Ovidrel) for gonadotropin stimulation as part of infertility care.
- MAC also wrote to the PBAC with concerns about the proposed expansion of the risedronate PBS listing.

Medical Affairs Report

Guidelines and position statements

ESA endorsed the two-part Primary Hyperparathyroidism in Adults position statement written by a working group representating the ESA, Australian & NZ Endocrine Surgeons, the NZ Society of Endocrinology and the ANZ Bone & Mineral Society.

Christian Girgis represented ESA as a working group member of the Sun Summit which resulted in publication of a position statement on the harms and benefits of sun exposure in Australian adults.

ESA was also represented as part of the "Renaming Diabetes Insipidus" Working Party which led to simultaneous publication across multiple endocrine journals of a position statement proposing a name change to "arginine vasopressin deficiency" for central causes and "arginine vasopressin resistance" for renal causes.

Acknowledgements

Thank you to all ESA MAC members, and other ESA members who have contributed expertise when approached. I am grateful for the combined support of colleagues that has produced very meaningful contributions of ESA to the wider community.

Thanks to ESA MAC team: Di Learoyd, Mathis Grossman, Shane Hamblin, Ada Cheung, Fran Milat, John Walsh and Leon Bach.

Finally thank you again to Ivone Johnson, our wonderful Executive Officer, who is the backbone of the ESA.

Ann McCormack, Emily Mackenzie
Co-chairs, Medical Affairs Committee

Seminar Reports

ESA Seminar Meeting

ESA Seminar 2022 was held in Launceston Tasmania from April 29th to May 1st. It was the first ESA meeting to be held in the now familiar hybrid format. The flexibility of attendance format resulted a record number of Seminar registrations of 562; 240 face to face and 322 for the virtual component. There was an overall profit of $38226 for the meeting; an excellent result boosted by sponsorship achieved by ESA through Business Tasmania.

For those who attended in person, Launceston provided a picturesque, historic location where accommodation and social activities were mostly within walking distance of the conference venue, the Grand Chancellor Hotel. The social programme was a huge success with strong attendance across the Saturday afternoon activities; who knew so many endocrinologists would want to rock climb and abseil?

The Friday Cocktail event at Alida introduced our plenary speaker, Prof Gary Hammer. The Saturday conference dinner was a highlight; show casing the finest produce of Launceston and the guest speaker, a marine biologist specializing in the endocrine system of fish, made the evening sparkle. The plenary speaker was Prof Gary Hammer, who travelled 35 hours from Ann Arbor Michigan to be in Tasmania, despite Covid-travel uncertainty (including a risk that he may not be allowed back into the USA, if testing Covid positive). Prof Hammer is the recently-retired 2020 President of the US Endocrine Society and an internationally renowned expert on adrenal tumours. He gave 2 inspiring plenary talks and an additional session on leadership and mentorship. He spoke at the opening night cocktail party on the challenges of leading his lab team and the US Endo Society through the start of the pandemic in the USA.

Local speakers reviewed all aspects of adrenal disease, including adrenal surgery, including review topics and cases. There were additional sessions covering type 1 diabetes, thyroid, bone, calcium disorders and MEN1.

There were some audiovisual hitches which were "local" issues, beyond the control of the very-well-prepared ASN events team. Overall, the meeting received excellent feedback. We are very grateful to Jim Fawcett and his team from ASN events, to Prof Gary Hammer, to ESA speakers, chairpersons, registrants and to the people of Launceston who assisted so ably with the social programme.

Anna Story and Diana Learoyd
Co-convenors ESA Seminar 2020-2022

Seminar Reports

Clinical weekend

We were excited to welcome all delegates to Christchurch for the Clinical Weekend in 2022, held at Rydges Latimer from the 11th to 13th of November. It was enjoyable meeting again in person after three years and lovely to also be joined by so many of our New Zealand colleagues who attended the Clinical Weekend.

This year's program featured twelve excellent registrar case presentations covering the themes of pituitary, adrenal and neuroendocrine, sex steroids and diabetes and metabolic conditions.

Each finalist received an award at the Saturday night dinner and the winner was awarded $1000 to cover publication costs for their case study in an approved journal, as well as registration for the 2023 Clinical Weekend. We thank our three judges, Morton Burt, Jane Holmes-Walker and Jeremy Krebs, who had a very difficult decision. We also thank our case study reviewers who reviewed the 39 case study submissions and all trainees who submitted case studies. The selection of only twelve finalists was exceptionally difficult.

We were very fortunate to have two guest plenary speakers, Professor Shalender Bhasin and Professor Graeme Eisenhofer, who delivered engaging presentations on "A Patient-Centric, Evidence-based Approach to Shared Treatment Decision in Older Men with Testosterone Deficiency" and "Metabologenomics and biochemical diagnosis of phaeochromocytoma and paraganglioma", respectively.

Delegates also enjoyed the different social functions and activities throughout the weekend. The Friday night welcome function was held at Christchurch's Cardboard Cathedral on the Friday evening. The concept was a relaxed Friday night allowing delegates to catch up with colleagues over drinks.

The Saturday night dinner located at the hallowed Great Hall of the Arts Centre featured a Harry Potter theme with many memorable costumes and themed entertainment from the Court Jesters.

Other social events included a popular and exhilarating Zip line tour in the Christchurch Adventure Park, a street art tour through Christchurch and an historic tram ride. Enthusiastic delegates also participated in the Sunday morning walk or run through Hagley Park.

Seminar Reports

The Clinical Weekend in 2022 was the first Clinical Weekend to offer both in person and virtual registration. As of 4th November 2022, we had 199 in-person registrations and 67 virtual registrations.

We were fortunate to have obtained significant financial support, with a total of $27,600 from principal sponsor, Eli Lilly, and major sponsors, Ipsen and Sandoz. Thank you to our sponsors who helped make the weekend the success it was.

Finally, we would like to thank the organising committee, Jim Fawcett and ANZ events, case reviewers, session chairs, judges, delegates, and organisers and participants of our social activities throughout the weekend.

Catherine Conway, Emily Brooks
Co-Convenors Clinical Weekend 2022

Seminar Reports

ESA/SRB/APEG/NZSE ASM 2022

With opened borders and a desire to travel following the COVID-19 pandemic, the ESA/SRB/APEG/NZSE meeting was held in person at Te Pae, Christchurch, New Zealand. The Clinical Weekend and ASM was planned for the 12th -16th November, 2022.

The 2022 program featured outstanding international and national plenary speakers from all societies including Prof Graeme Eisenhofer from University of Dresden (ESA Taft Lecturer) and Prof Shalender Bhasin from Harvard Medical School (ESA Harrison Lecturer).

We also held a joint symposium with the Korean Endocrine Society on challenges in thyroid cancer management.

Other themes for this year included neuroendocrinology in reproduction and metabolism, endocrine problems in young adults, testosterone in men's health and aging, diabetes management across the lifespan, endocrine testing in children and adults, and cardiovascular endocrinology.

Our Hot Topics session focused on cell- and immune-based therapies. Lunchtime forums included meet-the-expert sessions on endocrine diseases in indigenous populations and transgender care.

There were 710 registrations for the ASM with over 500 people registered for the conference dinner.

Sponsorship was strong, with a total of $296,988 raised in sponsorship so far for the four societies. The sponsorship target was $273,470 so we reached 109% of the target.

We would like to thank ESA Council, Ivone Johnson, the POC and LOC committee members, as well as ASN events for their support in organising our first face to face conference in 3 years!

Jun Yang, Mitchell Lawrence
Co-Chairs of POC

Early Career Committee

The inaugural ESA Early Career Committee (ECC) was formed in August 2019, and currently consists of nine early career members (ECMs).

The aim of the ECC is to help advance the clinical and research endeavours of ECMs by:

- Creating professional development activities
- Expanding research opportunities
- Fostering participation of ECMs within ESA
- Facilitating interaction between junior and senior members.

ESA ECC Members

In November 2021, we invited the RACP Advanced Training Committee Trainee Representative, Dr Shejil Kumar (NSW) to become a member of the ESA ECC, increasing the committee's membership from 8 to 9 members.

At the upcoming 2022 AGM, three of our members will come to the end of their three-year term as inaugural members: Sunita De Sousa (SA), Liz Johnstone (WA) and Alicia Jones (Vic). The remaining five members are: Alexander Rodriguez (Qld), Matti Gild (NSW), Annabelle Warren (Vic), Emily Brooks (Qld) and Lachlan Angus (Vic).

We sent out a request for expressions of interest for new members to replace the outgoing members and received many highly competitive applications. A selection committee representing ESA Council and the ECC ultimately appointed Amy Dwyer (SA), James McNeil (SA) and Lauren Tyack (WA).

The committee will continue to have a balanced representation of scientists and clinical endocrinologists, gender and location. With the current Chairs completing their inaugural term at the 2022 AGM, the committee will now be led by Amy Dwyer (Scientific Chair) and Lachlan Angus (Clinical Chair) from November 2022 to 2024.

In 2022, the ESA ECC updated its structure to include the following positions:

Early Career Committee

Clinical (1) and Scientific (1) Co-Chairs

Responsible for organising ECC meetings, setting ECC meeting agendas, liaising with the ESA Council, and drafting ECC reports to be submitted to the ESA Council once or twice a year.

Secretary (1)

Responsible for taking and circulating minutes at ECC meetings and organising ECC polls where needed.

Clinical Affairs Representatives (2)

Responsible for endocrinology training issues and contributing to the dissemination of information relating to ESA grants and awards and conferences held by ESA and related societies. Unless otherwise decided, the RACP Endocrinology ATC Representative will serve as one of the two Clinical Affairs Representatives.

Advocacy and Engagement Representatives (2)

Responsible for organising and reporting on ECM surveys, creating and maintaining a social media presence for ESA, promotion of ECM publications and achievements (e.g. via the Hormones Australia website) and advocacy in broader endocrine issues relevant to the general population (e.g. climate and environmental pollution).

Event Representatives (2)

Lead the coordination of ECM events such as ECM workshops and seminars at the ESA Annual Scientific Meeting, the ESA Clinical Weekend and the ESA Seminar. Where possible, the Event Representatives will sit on the ESA Annual Scientific Meeting Program Organising Committee and/or the ESA Annual Scientific Meeting Early Career Organising Committee.

Early Career Committee

Events

At the ESA Virtual ASM 2021, we worked with early career members from the Society for Reproductive Biology (SRB) and the Australian Bone and Mineral Society (ANZBMS) to hold several events.

The first was an Early Career Development Session entitled 'Building collaborations and networking – the keys to a successful career'. This session was co-chaired by Dr Emily Brooks from the ESA ECC, and had three speakers: Prof Helena Teede (Vic; ESA), Prof Neil Gemmell (NZ, SRB) and Dr Sandra Iuliano (Vic, ANZBMS).

We also organised a virtual social event called "Meeting of the Minds", as well as a speed networking event called "Science at Speed", both of which brought together scientists and clinicians from diverse backgrounds.

At this year's ESA Clinical Weekend, we have organised an advanced trainee session and invited A/Prof Jane Holmes-Walker, current RACP Endocrinology Advanced Trainee Committee Chair, to provide an update on endocrinology advanced training and RACP training requirements and hold a question and answer session for trainees.

ESA/SRB/APEG/NZSE ASM 2023

At this year's joint ESA/SRB/APEG/NZSE ASM, we are organising two sessions, in collaboration with ECMs from the other societies.

The first is a Panel Session co-organised by all three societies. The session is titled "Meeting the demands of being a modern day early career researcher/clinician", and each society has invited one speaker, each with a different focus. We have invited Dr Izzy Smith (NSW) to speak about "Science Communication", while APEG has invited Dr Yassmin Musthaffa (Qld) to speak about "Managing time for success" and SRB has invited A/Prof Natalie Hannan to speak about "Diversity and inclusion in research". Following the speaker's presentations there will be a question and answer session with our ECM audience.

The second session we are organising is a social event called "Meeting of the Minds" to be held at Dux Central, which aims to encourage networking between scientists and clinicians from diverse backgrounds.

Early Career Committee

Clinical Affairs

In 2022, the Early Careers Committee established the ESA Clinical & Research Fellowship Database. This database aims to collate information about available clinical and research opportunities (outside of state-based match processes) around Australia to assist Advanced Trainees and Fellows with career planning. We communicated with the ESA membership via email and social media to advertise this initiative and received 15 responses. This information has subsequently been shared with members via email and social media and will feature on the ESA website in a members-only section.

In addition to the database, we have also started several other initiatives focussing on clinical ECMs. We have created a Facebook group for Endocrine ATs to share resources/deadline date reminders etc. There are currently over 65 members. We have also held preliminary discussions regarding creating a resource for ATs, junior consultants and junior researchers in the form of interview transcripts that cover important topics yet to be addressed elsewhere. Lastly, we have made an endocrine events calendar and ESA grants/scholarships calendar which will soon be uploaded onto the ESA website. This will be beneficial to both clinical and basic science ECMs.

Advocacy and Engagement

The Advocacy & Engagement sub-committee has been working on 3 initiatives this year.

First, we have improved our social media connectivity by launching an ESA-wide Facebook group (currently at 235 members, you can join at this address: https://www.facebook.com/groups/628322285149286) and we are looking to engage a volunteer.

Next, on the advocacy front, led by Dr Warren, the ESA has been invited to join the Climate and Health Alliance, and to sign an open letter by Healthy Futures from health groups to endorse 100% renewable energy target for Victoria and NSW by 2030 (joining SA, Tasmania and the ACT who have already set this target).

Future goals include transitioning the ESA's financial holdings away from fossil fuels and starting a conversation about greening our offices, and looking to minimise air travel, such as improving online options for conferences and seminars - which has the dual benefit of promoting equity, by improving access for ESA members with caring and other responsibilities.

Early Career Committee

Finally, led by Dr Rodriguez, a grant was submitted to the Victorian state government seeking funding to get translations of the patient information sheets hosted on the Hormones Australia website. Whilst this was unsuccessful, the project has pivoted, and we are now seeking volunteers from within ESA (application to be announced shortly) for contributions.

In 2023, we aim to close off these projects and eagerly anticipate what exciting outcomes eventuate from them.

Other initiatives

This year we have developed two new Early Career Awards. The first is a Publication Grant, to support publication of a high impact endocrinology-focussed scientific article by an ESA early career member through reimbursement of publication costs. This award is for $3000 and will be awarded annually to both a clinical and a basic science member, starting in 2023. The second is an Early Career Contribution to Endocrinology Award, to recognise early career members who have contributed significantly to the field of endocrinology and/or the ESA, through excellence in mentoring, teaching, leadership, research and advocacy. Two awards will be awarded annually to both a clinical and a basic science member, starting in 2023. Awardees will receive free registration to the ASM.

We have also updated the ECC Terms of Reference, which was first generated in 2019. The new Terms of Reference includes the new committee positions and structure as detailed above, as well as other minor amendments.

Finally, we also been working with members from the UK's Society for Endocrinology to develop an exchange award, which would allow successful applicants to travel and present at the other society's meeting, and also to participate in a research project in the other country. The award is for $AU7,000 for flights, accommodation and other expenses. Applications will open 16 January 2023, and outcomes will be announced in June 2023.

In closing, we wish the ongoing ECC members the very best in their wide-ranging endeavours and we sincerely thank all ESA Council members for their support and advice during our time as inaugural Co-Chairs of the ECC.

Co-Chair (Clinical): Dr Sunita De Sousa MBBS (Hons) MSc FRACP
Co-Chair (Basic): Dr Liz Johnstone PhD

Recognition of Members

Life Membership

Congratulations to ESA Life Member **Warrick Inder**!

College Medal 2022

The ESA warmly congratulates Prof Susan Davis on her receipt of the College Medal 2022 from the Royal Australasian College of Physicians, for her "outstanding contribution and leadership in endocrinology and women's health".

Prof Davis is a longstanding member of ESA. She is an internationally recognised and highly awarded researcher into women's health and the effects of menopause. She has made important research discoveries and translated her research into practical guidelines for care of peri- and post-menopausal women.

She recently led an international expert group to produce guidelines and a global consensus statement on the use of testosterone for hypoactive sexual desire disorder in postmenopausal women. This has been widely published and has made a major impact on the care and health of postmenopausal women.

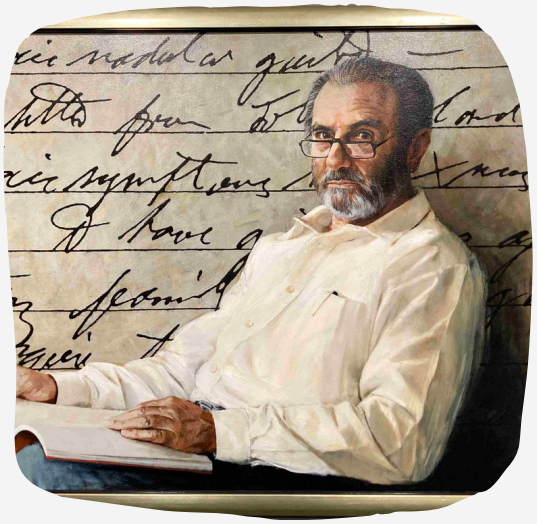
She has trained and mentored many young physicians who have gone on to make their own marks in the field of endocrinology. She has launched numerous health education initiatives to improve health of women in the community, and indigenous women's health. She was an advisor for the Australian National Women's Health Strategy 2020-2030. Her distinguished professional service includes being a past-President of the Australian Menopause Society, and recent President of the International Menopause Society. Her many contributions to the ESA were recognised by her being invited to present the ESA Senior Plenary award lecture at the Annual Scientific Meeting in 2019, and her being awarded Life Membership of the ESA in 2020.

Australia Day Honours 2022

Member (AM) in the G Division

Professor Bronwyn Gwenneth Stuckey for significant service to medical research, to endocrinology, and to women's health.

Recognition of Members



Members Passing

VALE PROFESSOR LESLIE "LES" LAZARUS 1929-2022
MBBS MRACP FAACB FRACP FRCPA AO

The Australian endocrine community is mourning the loss of one its pioneers. Professor Leslie Lazarus, affectionately known as "Les", was a founding member of the ESA serving on council for a number of years including vice president between 1972-4 with award of honorary life membership in 1982.

Graduating from the University of Sydney Medical School in 1953 he went onto postgraduate training at St Vincent's Hospital, Sydney and awarded fellowship of the Royal Australasian College of Physicians in 1958. Under the mentorship of one of the UK's eminent endocrinologists, Sir John Nabarro, he completed a 2-year fellowship at Middlesex Hospital Medical School in London. Returning to his home city in 1962 he became St Vincent's first full-time endocrinologist and set up Australia's first endocrine laboratory with ambition to develop state-of-the-art hormone assays. Starting with just 1 chair, a desk and 2 metres of lab space in the Biochemistry Department he saw opportunity when the new Garvan building opened across the road in 1963. There he took up residence along with close collaborator of many years, Margaret Stuart. He became the Garvan Institute's first sole Director in 1969, a position he held for more than 20 years.

His scientific insight saw his application of monoclonal antibody techniques to develop new immunoassays for a range of hormones, including growth hormone, LH, insulin, secretin and gastrin. He also conducted studies of aldosterone metabolism in heart failure. He established an outstanding hormone assay state reference service. Initially, his predominant research interest was in pituitary hormones and disease. He worked with Kevin Bleasel, neurosurgeon, on the cryogenic hypophysectomy technique although this was later abandoned. During the 1960s there was a major expansion of the human pituitary collection programme and Les went onto represent ESA on the Human Pituitary Advisory Committee becoming its chairman in 1968. In 1970 the program was collecting 8000 glands per year resulting in treatment of 65 patients with GH and 109 with FSH for infertility with 45 pregnancies. The programme was stopped in 1985 after US reports of Creutzfeld-Jakob disease in patients treated with pituitary-derived GH.

Recognition of Members

In the 1970s Les established a leading diabetes research group, the first to discover the benefit of low-dose insulin infusion for treatment of diabetic ketoacidosis which rapidly became internationally accepted management and remains standard of care today. His team went onto complete the first version of an artificial pancreas, a system taking up half a room. At the time there was a very negative research environment in Sydney with the ratio of NHMRC funding awarded to Melbourne versus Sydney research groups being 7:1 and many promising Sydney graduates migrating south of the border. Les rallied business groups and the State government with a successful visit to the Garvan by Paul Keating which ultimately resulted in key appointments to the Garvan in the 1980s including Rob Sutherland (cancer), John Eisman (bone), Ken Ho (pituitary) who supplemented the very active research activities of the diabetes program (Don Chisholm, Ted Kraegen). He also recruited John Shine who drove the application of molecular biology within the Institute and eventually took over directorship of the Garvan in 1990 when Les transferred over to head Sydpath (St Vincent's Hospital pathology).

In the 1970s Les established a leading diabetes research group, the first to discover the benefit of low-dose insulin infusion for treatment of diabetic ketoacidosis which rapidly became internationally accepted management and remains standard of care today.

Les collaborated and mentored successfully for many years resulting in key publications involving the regulation and action of growth hormone, prolactin and insulin as well as contributing to the understanding of the hormonal control of breast and prostate cancer. During his later years at the Garvan, Les worked with Paul Compton on the application of artificial intelligence to the interpretation and reporting of laboratory tests.

Les was awarded an Order of Australia in 1988 in recognition of his outstanding service to Australian research and clinical leadership. His 3 children, 6 grandchildren and 4 great grandchildren can be very proud of his remarkable career.

Ann McCormack
Acknowledging contributions from Don Chisholm and Lesley Campbell.

2022 ESA Award Winners

As usual, the competition for the annual ESA awards was fierce in 2022, with a very high standard of applications received by the society. We congratulate all award recipients on their success.

Congratulations to ESA award winners:

ESA Mid Career Research Award
Jun Yang

ESA Gail Risbridger Junior Scientist Award
Ben Lawrence

Bryan Hudson Clinical Endocrinology Award Winner
Brendan Nolan

ESA Paul Lee Best Abstract Award
Charmaine Cheung

ESA Australian Women in Endocrinology (AWE) Travel Awards
Ayanthi Wijewardene

2022 ESA Award Winners




ESA Australian Women in Endocrinology Outstanding abstract award
Kharis Burns
Elizabeth Johnstone
Elena Tucker
Eleanor White



ESA Research Seed Grants 2022
Kelly Short
Martyn Bullock
Pieter Jansen




ESA Research Seed Grants 2021
Ann McCormack
Nicholas Russell
Varun Venkatesh
Diane Rebourcet

2022 ESA Award Winners

EESA Young Investigator Scientific Article Award
Renata Libianto

Best Basic Science Poster
Isabel Everard

Best Clinical Study Poster
Matti Gild

Bioscientifica-EDM-Case Reports-Best Case Report
Annabelle Hayes

ESA Clinical Weekend - Case Study Presentation
James Nolan

ESA Postdoctoral Award 2021
Sunita De Sousa

2022 ESA Award Winners

SA Research Higher Degree Scholarship-2021
Ayanthi Wijewardene

ESA Ken Wynne Memorial Postdoctoral Research Award 2021
Sarah Glastras

RACP Endocrine Society of Australia (ESA) Research Establishment Fellowship in Endocrinology 2022
Brendan Nolan

ESA Young Investigator Scientific Article Award

The ESA Young Investigator Scientific Article Award is made annually to recognise the best scientific paper published in the 12-month period preceding the closing date for abstracts for the Annual Scientific Meeting by an active member of the Endocrine Society of Australia early in their career.

I am truly honoured to receive the 2022 ESA Young Investigator Scientific Article Award for my publication in the Medical Journal of Australia, titled "Detecting primary aldosteronism in Australian primary care: a prospective study" (doi: 10.5694/mja2.51438). I would like to thank ESA for the opportunity to present this work, on behalf of my co-authors, at the 2022 ESA Annual Scientific Meeting in Christchurch. This work was conducted in collaboration with General Practitioners (GPs) in Victoria and formed a part of my PhD study, which aimed to establish the prevalence of primary aldosteronism in the Australian community.

Hypertension affects over 6 million Australians and is a leading risk factor for cardiovascular disease. Most people with hypertension have essential hypertension, but a proportion have a treatable secondary cause of which the most common is primary aldosteronism (PA). PA, caused by excessive production of aldosterone from the adrenal glands, is associated with higher rates of cardiovascular complications compared with age, sex and blood pressure-matched essential hypertension. When diagnosed in a timely manner, PA may be cured with unilateral adrenalectomy or effectively treated with mineralocorticoid receptor antagonists

However, PA has traditionally been considered rare and therefore not often screened for, leading to a substantial underdiagnosis.

In our study, we invited GPs in Victoria to screen for PA in patients with treatment-naïve hypertension. Remarkably, 14% (or 1 in 7) of these patients tested positive for PA. A survey of the GPs prior to this study found that less than 0.1% of their hypertensive patients had PA, suggesting a substantial under-diagnosis of the disease. This finding has important public health implications; many patients currently labelled as having "essential hypertension" may in fact have PA, for which targeted treatment with either unilateral adrenalectomy or mineralocorticoid receptor antagonist could result in cure or significant improvement in blood pressure, and reduction in cardiovascular risks. Further work is needed to raise awareness on PA and improve its detection rate.

I am very grateful to my supervisors A/Prof Jun Yang, Prof Peter J Fuller and A/Prof Morag J Young, as well as the Endocrine Hypertension team at Hudson Institute and all the participating GPs. I would also like to acknowledge the support from NHMRC and National Heart Foundation, and thank the ESA again for this award.

Renata Libianto

ESA Mid-Career Award

This award is designed to recognise an outstanding mid-career researcher in endocrinology.

I would like to express my gratitude to the ESA for acknowledging my work with the Mid-Career Award. The ESA has been a crucial part of my journey thus far, both in developing my clinical training and providing numerous opportunities to advance my research. I am most thankful to the mentoring provided by many senior ESA Members, the funding provided by ESA Postdoctoral, Seed and Travel Awards, and the networking opportunities at its scientific meetings.

Together with my mentors, students, collaborators and consumers, we have demonstrated that PA is common, with a prevalence of ~10% even amongst primary care patients with newly diagnosed hypertension, but is diagnosed in less than 1% of affected patients.

My research focus is on Primary Aldosteronism (PA), a common, potentially curable but significantly neglected form of hypertension. In my presentation, "Primary Aldosteronism: Lessons from Cells, Clinics and Consumers", I shared the story of how I accidentally fell into this research field and transitioned from a discovery science PhD to a more translational research program to improve the diagnosis and management of this condition. Together with my mentors, students, collaborators and consumers, we have demonstrated that PA is common, with a prevalence of ~10% even amongst primary care patients with newly diagnosed hypertension, but is diagnosed in less than 1% of affected patients. We demonstrated barriers to diagnosis, including lack of awareness in both primary and tertiary care settings, heterogeneity in the diagnostic pathways and inadequate capacity to meet the demands of testing. These findings underpinned subsequent MRFF grants to evaluate the impact of routine PA screening in primary care clinics and to optimise diagnostic methods through national and international collaborations.

It has been incredibly rewarding to witness the impact of research on real outcomes. Since establishing the management guidelines for PA at Monash Health, we have witnessed a 40-fold increase in the number of patients diagnosed with PA over a 10-year period (2010-2020) together with an increase in the success rate of adrenal vein sampling (~40% to > 95%) and improved selection of patients with unilateral PA for curative adrenal surgery. The increase in diagnosis and demand for specialist review led to the establishment of a dedicated Endocrine Hypertension Service in 2016. We have been able to integrate research into routine clinical practice, with numerous studies inspired by dilemmas encountered in clinic. This Service also serves as a platform for training (with Nephrology, General Medicine and Endocrinology Registrars) and clinical trial recruitment (with three current clinical trials). With increasing expertise in the field, we have been invited to participate in international research projects in America, China, Germany, Italy and the Netherlands in a global effort to combat PA.

ESA Mid-Career Award

Moving forward, I am most excited about working with researchers in primary care, endocrinology, cardiology, nephrology, neurology, rheumatology, geriatrics, radiology, pathology, surgery, molecular biology, health economics, implementation science, biostatistics, and very importantly, consumer advocates, so that we engage the full spectrum of stakeholders required to improve the diagnosis of PA throughout Australia (and beyond).

Apart from thanking the ESA, I would like to acknowledge the tremendous support of my longstanding mentors, Prof Peter Fuller and A/Prof Morag Young, whose humility, wisdom and tenacity have inspired me to pursue an academic career. I am also thankful to A/Prof Colin Clyne for his support throughout my PhD, and Prof John Funder and Prof Michael Stowasser for being exemplary role models as "PA Warriors".

There are many other crucial team members who I am grateful to: doctors and nurses who strive for the best in the Endocrine Hypertension Service; students and research assistants who dedicate their time and effort; collaborators who share their knowledge and expertise; support staff in finance, media, fundraising and administration who do all the behind-the-scenes work; and patients who generously contribute their ideas to make a difference.

Last but not least, I could not have reached the "mid-career" milestone without the incredible support of my family.

Jun Yang

ESA Gail Risbridger Junior Scientist Award

This award is designed to recognise an outstanding mid-career researcher in endocrinology.

I am incredibly honoured to receive the ESA Junior scientist award for 2022 at the annual scientific meeting for ESA. This was the first year that the award was presented after being renamed to acknowledge Professor Gail Risbridger's significant contributions to the society and to endocrinology research. This award enables me to have the privilege of ongoing mentorship with Prof Risbridger which will be instrumental in helping me achieve my career goals.

I would like to extend my appreciation to Dr Diane Rebourcet, Prof Lee Smith, and Dr Liza O'Donnell who have assisted with both my project and my development as a scientific researcher.

At the ESA ASM 2022 I presented my work entitled, 'Blockade of both canonical and alternate androgen biosynthetic pathways reveals a third androgen-production pathway in mice'.

My research investigates how androgens are produced and how disruptions to the androgen production pathways impact male development and fertility. This study used both single and double gene knock-out mouse models, to investigate the role of two biosynthetic enzymes HSD17B3, responsible for testosterone synthesis in the canonical pathway,and SRD5A1, important for converting androgen precursors in the alternate pathway.

My work has shown that when these enzymes are non-functional, knock-out male mice develop normally, remain fertile and continue to produce testosterone, suggesting the existence of an unknown androgen production pathway in mice. Candidates that may be responsible for the maintenance of androgen production have been identified and our lab is developing methods to target these genes to assess their function using adeno-associated virus (AAV) technology.

My research aims to gain better understanding of how androgens are produced in the hope of developing new strategies to treat men with androgen deficiency. Our goal is to develop therapies that can stimulate endogenous androgen production, providing a safer and more effective alternative to exogenous testosterone therapies that are widely prescribed.

I'd like to thank ESA for providing a wonderful opportunity for me to present at a fantastic conference and assisting me with travelling to Christchurch New Zealand. This conference really motivated me and has encouraged me to continue in research. I look forward to attending future meetings and maintaining important connections and collaborations.

Ben Lawrence

My work ... suggests the existence of an unknown androgen production pathway in mice.

Bryan Hudson Award

The Bryan Hudson Clinical Endocrinology Award will recognize the best clinical research presentation at the Annual Scientific Meeting by an active member of the Endocrine Society of Australia early in their career.

I am extremely honoured to be the recipient of the 2022 Bryan Hudson Clinical Endocrinology Award for the presentation "Testosterone therapy on gender dysphoria, depression, and suicidality in transgender and gender diverse individuals seeking masculinisation: a randomised controlled trial".

There are disproportionate rates of mental health comorbidities including depression and suicidality amongst trans individuals. Commencement of gender-affirming hormone therapy has been associated with reduced gender dysphoria and depression in cross-sectional and uncontrolled prospective studies. However, no randomised controlled trial has been performed, and there are limited data evaluating the influence of hormone therapy on suicidality.

Our three-month randomised controlled trial demonstrated that testosterone therapy, compared to no treatment (standard care waiting list of 3 months prior to commencement), reduces gender dysphoria, depression, and suicidality. Importantly, early access to testosterone therapy resulted in a clinically significant reduction in depression, and over half of individuals in the intervention group had resolution of suicidality.

Our data support the use of testosterone therapy to significantly reduce gender dysphoria, depression, and suicidality in trans and gender diverse individuals desiring testosterone therapy. These findings have critical implications for service access and delivery to ensure timely access to gender-affirming hormone therapy. Further studies are underway evaluating the influence on quality of life and health economics.

I am very grateful to ESA for this prestigious award. I would also like to acknowledge the support of my supervisors, in particular Associate Professor Ada Cheung and Professor Jeffrey Zajac.

These findings have critical implications for service access and delivery to ensure timely access to gender-affirming hormone therapy.

This research was supported by a National Health and Medical Research Council (NHMRC) Postgraduate Scholarship and Ferring Innovation and Clinical Excellence (FICE) Award.

Brendan Nolan

RACP ESA Research Establishment Fellowship in Endocrinology

The purpose of this award is to further medical research in endocrinology.
This Fellowship is made available by a grant from the Endocrine Society of Australia, matched with funds provided by Fellows of the RACP.

Project

Short-term effects of micronised progesterone in transgender individuals: a randomised placebo-controlled cross-over trial

Dr Brendan Nolan is an endocrinologist and clinician researcher with primary interests in improving outcomes for trans and gender diverse individuals undergoing gender-affirming hormone therapy.

During his PhD studies, Brendan examined the safety of gender-affirming hormone therapy on several outcomes including the first randomised controlled trial demonstrating that testosterone therapy reduces gender dysphoria, depression, and suicidality in trans individuals desiring testosterone therapy. He was awarded the 2022 Bryan Hudson Clinical Endocrinology Award for this work.

This fellowship will support Brendan to investigate the "Short-term effects of micronised progesterone in transgender individuals: a randomised placebo-controlled cross-over trial".

AWE Australian Women in Endocrinology Outstanding Abstract Award

The purpose of this award is to further medical research in endocrinology.
This Fellowship is made available by a grant from the Endocrine Society of Australia, matched with funds provided by Fellows of the RACP.

I am honoured to receive the ESA/AWE Outstanding Abstract Award for my presentation titled "Changing Paradigms in Low-Risk Papillary Thyroid Cancer Treatment: Development of a Clinical Support Tool".

This research has been undertaken as part of a thyroid cancer research fellow role via Royal North Shore Hospital and will underpin the basis of my upcoming PhD focus, which aims to de-escalate the treatment of low-risk thyroid cancer.

Our project looked at the development of a prototype clinical decision support tool which aims to help clinicians determine if their patient is suitable for active surveillance of low-risk papillary thyroid cancer (PTC). We performed a retrospective analysis within our thyroid cancer database of patients who had undergone hemithyroidectomy (with final histopathology demonstrating PTC) over a 10 year period.

This research ... will underpin the basis of my upcoming PhD focus, which aims to de-escalate the treatment of low-risk thyroid cancer.

Utilising this tool in our single centre cohort, almost half (48%) of patients with BV/BVI FNA and PTC on final histopathology would have met criteria for active surveillance based on our tool. No patients had evidence of disease recurrence throughout our follow up period. Further prospective studies are required to evaluate this tool.

I would like to extend my gratitude to my supervisors, Dr Matti Gild, Professor Rory Clifton-Bligh and A/Prof Anthony Glover. I would also like to acknowledge the support of our radiology colleagues (Dr Geoffrey Schembri and Dr Bridget Abbott) who collaborated on the project, and to the Endocrine department at Royal North Shore Hospital. Thank you to the ESA for the opportunity to present this research and to the Australasian branch of Women in Endocrinology (AWE).

Eleanor White

AWE Australian Women in Endocrinology Outstanding Abstract Award

The purpose of this award is to further medical research in endocrinology.
This Fellowship is made available by a grant from the Endocrine Society of Australia, matched with funds provided by Fellows of the RACP.

Thank you to the Endocrine Society of Australia for the Australian Women in Endocrinology Outstanding Abstract award. It is an honour to receive such a prestigious award.

The research I presented at the 2022 ASM was part of an ongoing project I have been working on investigating the pharmacological changes that occur when two receptors interact with one another at the cell membrane. This process is called receptor heteromerisation, and leads to changes in downstream molecular pharmacology as well as subsequent physiological changes. Understanding these processes can inform novel drug discovery avenues.

This research investigated evidence for, and the molecular consequences of, the heteromerisation of the angiotensin II type 2 receptor and the bradykinin type 2 receptor.

I have had a particular focus on angiotensin receptors for many years, and this research investigated evidence for, and the molecular consequences of, the heteromerisation of the angiotensin II type 2 receptor and the bradykinin type 2 receptor.

We found strong evidence that these two receptors do form a functional heteromer, and found that upon heteromerisation, the heteromer signals through a novel G protein pathway that neither individual receptor signals through.

I would like to thank my supervisor Prof Kevin Pfleger, as well as my colleagues who also worked on this research, Mohammed Akli Ayoub, Rebecca Hertzman and Ruth Seeber.

Elizabeth Johnstone

AWE Australian Women in Endocrinology Outstanding Abstract Award

The purpose of this award is to further medical research in endocrinology.
This Fellowship is made available by a grant from the Endocrine Society of Australia, matched with funds provided by Fellows of the RACP.

I am honoured to be the recipient of the ESA Australasian Women in Endocrinology (AWE) Award for outstanding abstract at the Endocrine Society of Australia annual scientific meeting in New Zealand 2022, for my oral presentation titled 'Genome wide association study meta-analysis finds DENND1A, C8orf49 and XBP1 associated with lean PCOS'.

The focus of my PhD research has been exploration of the genetic aetiology of PCOS, with a focus on the lean phenotype and how this subtype differs in terms of clinical features and aetiology.

Lean and overweight/obese women with polycystic ovary syndrome (PCOS) display different clinical characteristics, implying a different pathophysiology depending on body mass index (BMI).

This study was a meta-analysis of case-control genome wide association study (GWAS) data from over 250,000 Caucasian women, pooled from Australian, American, Netherlands, Estonian and Finnish cohorts and separated according to BMI stratifications.

The study showed clear differences in the genetic architecture between lean and overweight/obese PCOS. Genetic loci meeting genome-wide significance for lean PCOS were identified within the genes DENND1A and XBP1. Gene based testing also showed C8orf49 as significantly associated with lean PCOS. These genes all have links with PCOS and related traits suggesting involvement in pathophysiology. These findings support the notion that lean PCOS is both clinically and genetically different from overweight/obese PCOS.

These findings support the notion that lean PCOS is both clinically and genetically different from overweight/obese PCOS.

I would like to thank my supervisors Professor Bronwyn Stuckey and Professor Scott Wilson for their unwavering support and guidance in this work. I would also like to thank Dr Benjamin Mullin for his help in this research. I am grateful to the 5 other international research groups, from the PCOS International Consortium, for their collaboration enabling us to facilitate this meta-analysis. Lastly, I would like to thank the ESA for the opportunity to present this research.

Dr Kharis Burns

ESA Australian Women in Endocrinology (AWE) Travel Awards

The purpose of this award is to provide financial support to younger women involved in Endocrine-related training and/or research to present their work at the USA ENDO Meeting 11-14 June 2022

Thank you to the Endocrine Society of Australia for the Australasian Women in Endocrinology Travel Award. This award was greatly appreciated and allowed me the opportunity to present my work "IPET score: combining whole body iodine scan and 18 fluorodeoxyglucose positron emission topography to predict recurrence in differentiated thyroid cancer" at ENDO 2022 in Atlanta, Georgia, USA in June 2022. This work was recognised with an outstanding abstract award.

A well-known 'flip flop' phenomenon exists between WBS and 18FFDG PET imaging in differentiated thyroid cancer (DTC) such that cancer progression is typically associated with reduced iodine uptake and increased FDG avidity. Patients with FDG avidity have a poor clinical outcome while those with iodine avid lesions are more responsive to radioactive iodine therapy (RAI) and have a better prognosis .

IPET score is a novel scoring system incorporating WBS and 18FFDG PET imaging which predicts recurrence and death in patients with FDG avid thyroid cancer.

A spectrum however exists, as thyroid cancers become less well differentiated, when they will be both iodine and FDG avid. Current scoring systems in thyroid cancer are limited to a single imaging data set. IPET score is a novel scoring system incorporating WBS and 18FFDG PET imaging which predicts recurrence and death in patients with FDG avid thyroid cancer. Our work has now been published in the journal Clinical Endocrinology.

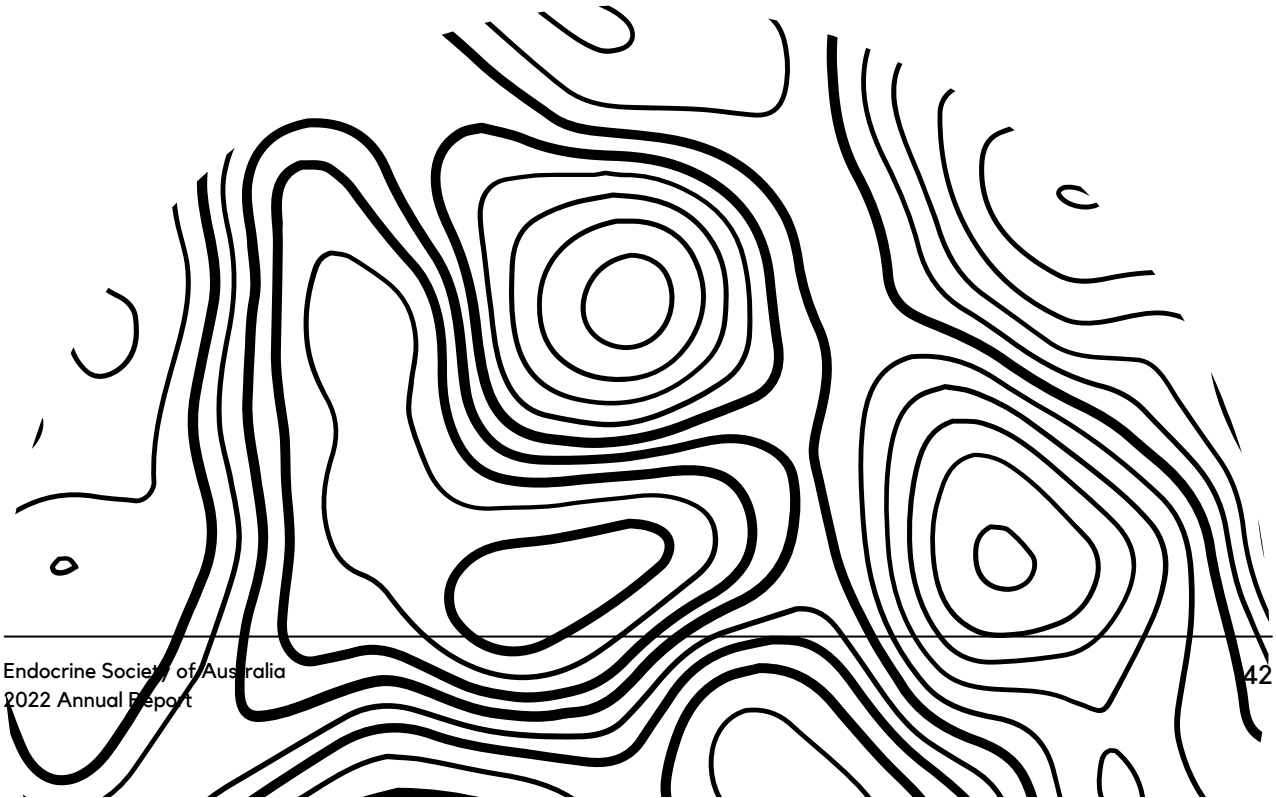
I would like to thank all the people involved in this project, of particular note, Dr Jeremy Hoang from the Nuclear Medicine Department at Royal North Shore Hospital. I would also like to thank my PhD supervisors Dr Lyndal Tacon, Dr Matti Gild and Professor Roderick Clifton-Bligh for their support and guidance. Thank you once again to the ESA, who has supported me throughout my PhD and allowed me the opportunity to expand and share my research findings.

Ayanthi Wijewardene

ESA Clinical Weekend Case Study Presentation

Endocrinology advanced trainees are invited to submit a single case report each for presentation ESA Clinical Weekend meeting.

James Nolan is a first year Endocrinology trainee based at Sir Charles Gairdner Hospital in Perth. After graduating from the University of Western Australia, he completed Basic Physician Training at Sir Charles Gairdner Hospital. He has a broad interest in clinical Endocrinology and research, having published diabetes and thyroid GWAS research.



Seed Grant Report:

Towards precision medicine for pituitary tumours

Recipients: Nele Lenders, Ann McCormack

The purpose of this award is to provide funding to support early stage research or small research projects by a mid-career ESA member. These grants may be used for research in any area of endocrinology. The research must be conducted in Australia.

This project aimed to evaluate a range of IHC-based biomarkers in a cohort of 200 pituitary tumours that have well characterised clinical outcome data as part of the St Vincent's Pituitary Biobank and Database. IHC has been completed on this cohort and analysis via the Image Analysis Platform, HALO, is almost finished.

The next step is to build these results into an algorithm-based calculator. The $10000 awarded from the ESA Seed Grant has been used to fund assistance from a statistician from UNSW Stats Central who has been guiding us in data collection methodology that will facilitate generation of the calculator in our development cohort. We can then work with the statistician on use of the calculator in testing and validation cohorts with the aim of launching this as an online resource.

Seed Grant Report:

Serum copeptin as a predictor of response to tolvaptan in hospitalised patients with moderate-profound hyponatraemia

Recipient: Nicholas Russell

The purpose of this award is to provide funding to support early stage research or small research projects by a mid-career ESA member. These grants may be used for research in any area of endocrinology. The research must be conducted in Australia.

A sub study of the Tolvaptan versus Fluid Restriction in acutely hospitalised patients with moderate-profound hyponatraemia trial (TVFR-HypoNa)

Aim: To determine the utility of serum copeptin measurement to predict response to tolvaptan therapy in patients with hyponatraemia enrolled in an active randomised trial of tolvaptan versus a rigorous, protocol-based fluid restriction in acute hospital inpatients with moderate-to-profound euvolaemic or hypervolaemic hyponatraemia.

Hypothesis: Serum copeptin will predict the degree of serum sodium response to tolvaptan therapy in patients with hyponatraemia, and higher concentrations will identify patients at risk of overcorrection

Background: Low serum sodium, known as hyponatraemia, is the most common electrolyte disorder, affecting 15% of acute hospital inpatients – up to 420,000 Australians per year (1, 2) . It can lead to the serious clinical sequelae of cerebral oedema including confusion, ataxia and falls, seizure and cerebral herniation. Hyponatraemia at hospital admission is associated with increased inpatient mortality, but causation is not established (3). Our group's Australian data has shown an association between increased severity of hyponatraemia and prolonged length of hospital stay (4) .

A critical clinical consideration in the management of moderate-profound hyponatraemia is the need to avoid excessively rapid correction which may lead to osmotic demyelination syndrome and permanent neurological disability. Guidelines recommended aiming to correct serum Na by 5-8 mmol/L per day, and not to exceed 10 mmol/L rise per 24 hours (5) .

Most cases of euvolaemic or hypervolaemic hyponatraemia are perpetuated by non-osmotic release of arginine vasopressin (AVP, also known as antidiuretic hormone), causing water retention. Oral fluid restriction is the current standard of care for patients with hyponatraemia who are not hypovolaemic (5, 6). Fluid restriction is frequently slow or ineffective, particularly when renal water retention is severe, because fluid restriction does not address this pathophysiology directly.

Tolvaptan is an oral vasopressin V2-receptor antagonist that blocks AVP action in the kidney, inducing a water diuresis to raise serum sodium. The efficacy of tolvaptan in hyponatraemia has been established in the pivotal SALT trials in mild-to-moderate hyponatraemia (mean serum Na 129 mmol/L; 50% > 130 mmol/L). These trials did not enrol acutely hospitalised patients and all patients with neurological impairment or serum Na < 120 mmol/L were excluded (7) . Tolvaptan was approved by the Therapeutic Goods Administration in Australia in 2012.

Seed Grant Report:

Serum copeptin as a predictor of response to tolvaptan in hospitalised patients with moderate-profound hyponatraemia

Recipient: Nicholas Russell

Post-approval observational studies of tolvaptan in moderate-profound hyponatraemia have shown highly variable rates of biochemical overcorrection of serum sodium (rise >12 mmol/L) in patients with initial serum sodium <125mmol/L, ranging from 0-30% of cases (8-10). Current international guidelines are divided on the use of tolvaptan in moderate-profound hyponatraemia, due to concern regarding the risk of overly rapid serum sodium correction - European guidelines recommend against in the use of tolvaptan (5),whereas US guidelines acknowledge that there is insufficient evidence for tolvaptan use with serum sodium <120 mmol/L, but endorse its use with appropriate monitoring of plasma sodium, and interventions if the recommended rate of increase is exceeded (6). Known risk factors for overcorrection of sodium following tolvaptan include underlying syndrome of inappropriate antidiuresis (SIAD), presence of cancer (possibly because of higher AVP concentrations), lower initial serum sodium, lower body mass index and concurrent use of other treatments for hyponatraemia (11) .

Copeptin is a cleavage product of AVP which is more stable in solution. Serum copeptin does not aid in differentiating the underlying cause of hyponatraemia as most cases of hyponatraemia are perpetuated by non-osmotic AVP release, hence copeptin is elevated (12) . Copeptin has been evaluated as a predictor of response to fluid restriction, but was not found to be helpful in that context (13). There are no published data regarding whether the degree of copeptin elevation in a selected non-hypovolaemic cohort may help predict response to AVP-receptor blockade with tolvaptan.

There are no published data regarding whether the degree of copeptin elevation in a selected non-hypovolaemic cohort may help predict response to AVP-receptor blockade with tolvaptan.

Of particular clinical interest would be if patients at higher risk of overcorrection could be identified, so that alternative treatments or more cautious use of tolvaptan with closer monitoring could be implemented to reduce the risk of adverse events.

Methods: We are currently conducting an open-label randomised trial Tolvaptan versus Fluid Restriction in Hyponatraemia (TVFR-HypoNa). This trial is enrolling hospitalised patients with euvolaemic or hypervolaemic hyponatraemia and serum sodium of 115-130 mmol/L at Austin Health, a tertiary care centre in Melbourne, Australia. Participants are randomised 1:1 to receive either tolvaptan (initial dose 7.5mg) or fluid restriction (initial limit 1000ml per 24 hours), with titration of therapy based on serum sodium response according to a pre-determined protocol over a 72-hour intervention period. Serum sodium is monitored every 6-12 hours throughout the study period, with pre-specified thresholds for commencing intravenous 5% dextrose if serum sodium rise targets are exceeded. The trial is overseen by an independent Data Safety Monitoring Board. The trial has ethics approval from Austin Health Human Research Ethics Committee (HREC/48055/Austin-2019) and is registered with the Australia and New Zealand Clinical Trials Registry (ACTRN12619001683123).

Seed Grant Report:

Serum copeptin as a predictor of response to tolvaptan in hospitalised patients with moderate-profound hyponatraemia

Recipient: Nicholas Russell

The primary endpoint of our current trial is between-groupchange in serum sodium over time, from study day 1 to day 4.

In this proposed sub study, we will freeze and store serum samples at study baseline Day 1 and exit Day 4 for batched analysis of serum copeptin concentration. The aim is to determine whether there is an association between copeptin concentration and change in serum sodium, or in rates of overcorrection or need for re-lowering of sodium with intravenous dextrose.

Item	Unit Price	Cost for 50 participants (=100 samples)
Sample Freezing and Storage by Austin Health Pathology Service	$30	$3000
Copeptin Analysis by NSW Health Pathology Service	$60.25	$6025
Sample Transport, Ethics Amendment	-	$975
Fee and Study Personnel Co-ordination	-	-
		$10,000

Seed Grant Report:

Serum copeptin as a predictor of response to tolvaptan in hospitalised patients with moderate-profound hyponatraemia

Recipient: Nicholas Russell

Progress Update (February 2023):
Dr Annabelle Warren, Endocrinologist Austin Health, is coordinating this trial as the main experimental component of her PhD.

Recruitment commenced: 17 May 2021

First patient first visit: 21 May 2021

Progress as of 2 Feb 2023:

- 1285 patients with sodium <130mmol/L screened electronically for inclusion
- 89 patients screened face to face
- 34 patients ineligible after further assessment
- 27 patients declined
- 33 patients enrolled (target: 52 completed)
- Randomisation: 17 Fluid Restriction, 16 Tolvaptan (1 withdrawn prior to receiving intervention)

Estimated last patient last visit: 1 February 2024

References:

1. Australian Institute of Health and Welfare. Admitted patient care 2017–18 Australian hospital statistics. Canberra, Australia: Australian Government; 2019.
2. Upadhyay A, Jaber BL, Madias NE. Incidence and prevalence of hyponatremia. Am J Med. 2006;119(7 Suppl 1):S30-5.
3. Mohan S, Gu S, Parikh A, Radhakrishnan J. Prevalence of hyponatremia and association with mortality: results from NHANES. Am J Med. 2013;126(12):1127-37.e1.
4. Vu T, Wong R, Hamblin PS, Zajac J, Grossmann M. Patients presenting with severe hypotonic hyponatremia: etiological factors, assessment, and outcomes. Hosp Pract (1995). 2009;37(1):128-36.
5. Spasovski G, Vanholder R, Allolio B, Annane D, Ball S, Bichet D, et al. Clinical practice guideline on diagnosis and treatment of hyponatraemia. Eur J Endocrinol. 2014;170(3):G1-47.
6. Verbalis JG, Goldsmith SR, Greenberg A, Korzelius C, Schrier RW, Sterns RH, et al. Diagnosis, evaluation, and treatment of hyponatremia: expert panel recommendations. Am J Med. 2013;126(10 Suppl 1):S1-42.
7. Schrier RW, Gross P, Gheorghiade M, Berl T, Verbalis JG, Czerwiec FS, et al. Tolvaptan, a selective oral vasopressin V2-receptor antagonist, for hyponatremia. N Engl J Med. 2006;355(20):2099-112.
8. Tzoulis P, Waung JA, Bagkeris E, Carr H, Khoo B, Cohen M, et al. Real-life experience of tolvaptan use in the treatment of severe hyponatraemia due to syndrome of inappropriate antidiuretic hormone secretion. Clin Endocrinol (Oxf). 2016;84(4):620-6.
9. Kleindienst A, Georgiev S, Schlaffer SM, Buchfelder M. Tolvaptan versus Fluid Restriction in the Treatment of Hyponatremia Resulting from SIADH Following Pituitary Surgery. Journal of the Endocrine Society. 2020.
10. Humayun MA, Cranston IC. In-patient Tolvaptan use in SIADH: care audit, therapy observation and outcome analysis. BMC Endocr Disord. 2017;17(1):69.
11. Kim Y, Lee N, Lee KE, Gwak HS. Risk factors for sodium overcorrection in non-hypovolemic hyponatremia patients treated with tolvaptan. Eur J Clin Pharmacol. 2020;76(5):723-9.
12. Fenske W, Störk S, Blechschmidt A, Maier SG, Morgenthaler NG, Allolio B. Copeptin in the differential diagnosis of hyponatremia. J Clin Endocrinol Metab. 2009;94(1):123-9.
13. Winzeler B, Lengsfeld S, Nigro N, Suter-Widmer I, Schütz P, Arici B, et al. Predictors of nonresponse to fluid restriction in hyponatraemia due to the syndrome of inappropriate antidiuresis. J Intern Med. 2016;280(6):609-17.

Seed Grant Report:

The role of ghrelin in the neurobehavioural consequences of post-traumatic stress disorder

Recipient: Dr Luba Sominsky

Summary: Emerging research has indicated that a stomach-derived hormone, ghrelin, plays a key role in driving the memory disruption symptoms of stress-induced post-traumatic stress disorder (PTSD). However, ghrelin's role in the depression, anhedonia and disruption to reward pathways that occur with PTSD is unknown. Here, we hypothesized that exposure to chronic stress will result in prolonged elevation of ghrelin, contributing to PTSD-like symptoms. We also hypothesised that limiting the action of ghrelin can improve these stress-induced consequences.

Aims: This project had two aims:

- Aim 1: To test in a mouse model of PTSD if blocking the ghrelin receptor alleviates the neurobehavioural consequences of PTSD.
- Aim 2: To characterise the intracellular interactions of the ghrelin receptor with dopaminergic and serotoninergic signals regulating stress, motivation and reward by using RNAscope technology.

Progress: I was awarded this funding on 25th of May 2020. Due to COVID-19-related restrictions there have been significant delays with the execution of the project, as well as with my ability to access the laboratory and perform the experimental work. Nevertheless, to address Aim 1 of the project we were able to perform a behavioural assessment and use our archived animal tissue of mice exposed to chronic stress or no stress and treated with a ghrelin receptor antagonist or saline.

Our preliminary data show that chronic stress reduces the preference of mice to drink a sweetened solution (saccharin-flavoured water), a behaviour typically associated with a depressive-like phenotype, while blockade of the ghrelin receptor increases saccharin preference. Exposure to chronic stress increases hypothalamic expression of ghrelin-related genes. However, the expression of stress-regulatory genes in the hypothalamus and the pituitary is blunted, with the latter typically seen in a PTSD-like phenotype. Interestingly, ghrelin receptor antagonism does not appear to have an effect on this blunted gene expression, suggesting that while ghrelin receptor antagonism may alleviate the behavioural consequences of stress, on a molecular level the increase in ghrelin may be essential for the appropriate resolution of the chronic stress response. To address Aim 2, we purchased RNAscope-related reagents and consumables. This innovative technology is now contributing to a PhD project in my current position at Deakin University, due to commence in the second half of 2023.

Conclusions and career implications: Our preliminary findings indicate a complexity associated with the role of ghrelin in the regulation of stress responsivity, and the potential for ghrelin and its receptor to play different roles in the behavioural versus molecular and neurological responses to stress. The award of this funding further supported my career progression and the development of my research impact in the field of ghrelin and stress. As a result, my expertise in ghrelin has been recognised by the invitation to be part of a Ghrelin Nomenclature Consensus Group, with the group's recommendations recently published (Perello et al., J Neuroendocrinol, 2022.)

Seed Grant Report:

Leveraging testosterone's fat decreasing actions to discover new potential treatments for obesity

Recipient: Varun Venkatesh

I wish to formally express my gratitude to you for funding this project. The funding from the ESA has enabled me to access specialist core facilities to perform the proteomic analysis and develop the cell culture model described below.

Background: This project sought to identify novel therapeutic targets for the treatment of obesity. In Australia, 67% of adults and, 25% of children aged 2 to 17 years, are obese or overweight with a higher prevalence in those most socioeconomically disadvantaged.

Obesity is a major risk factor and driving force behind several co-morbidities such as, type 2 diabetes, cancer and arthritis. This in turn confers a significant social and economic burden on Australia, conservatively estimated to be totalling $5.9 billion a year.

Identifying novel therapeutics to add to the toolkit to treat obesity would be invaluable to reducing this burden. It's well established that testosterone is effective at reducing fat mass in specific patient groups including men with low testosterone, however, the mechanism(s) by which this fat reduction occurs are unclear.

Additionally, the side effects of testosterone make it undesirable for use in patient groups including women and men seeking fertility.
In a previous study, we identified a novel testosterone cell signalling mechanism whereby mice expressing the androgen receptor (AR) only in their pluripotent bone marrow precursor stem cells (BMPCs) had markedly reduced fat mass and were metabolically healthier than control mice.

We hypothesised these mice (termed PC-AR Gene Replacement mice) possessed markedly reduced fat mass and healthier metabolic profile in part due to testosterone acting via the androgen receptor in BMPCs to secrete a signalling factor(s) that enters the circulation to regulate fat mass. Additionally, in a subsequent study, we showed that PC-AR Gene Replacement mice were resistant to fat accumulation following short term (8-weeks) feeding of a high caloric diet (Venkatesh et al 2022).

It's well established that testosterone is effective at reducing fat mass in specific patient groups including men with low testosterone, however, the mechanism(s) by which this fat reduction occurs are unclear.

The aim of this project was to identify the AR-regulated BMPC-secreted protein/s that are responsible for decreasing fat mass and improving metabolic function in our novel PC-AR Gene Replacement mice.

The specific objectives of this project were to:

1. Use unbiased proteomic analysis to identify factors of interest within the extracellular fluid (ECF) surrounding the BMPCs which we hypothesise would be rich in factors secreted by the BMPCs.
2. Establish a translational in vitro adipocyte cell culture model with which to test the effects of the isolated ECF from PC-AR Gene Replacement mice on adipogenesis.

Seed Grant Report:

Leveraging testosterone's fat decreasing actions to discover new potential treatments for obesity

Recipient: Varun Venkatesh

Significance and Outcomes: Identifying the AR-regulated proteins secreted by the BMPCs responsible for decreasing fat mass will not only be a significant advance in our understanding of the actions of testosterone to decrease fat mass but also has the potential for identifying novel therapeutic targets for the treatment of obesity. Such treatments that target the specific actions of testosterone to decrease fat without unwanted side effects is pertinent to large groups of patients including women.

Results:

Objective 1: To date we have collected ECF samples from our novel PC-AR Gene Replacement mouse models and controls for optimisation of global proteomic analysis performed at Bio-21.

Since performing the analysis we have identified several novel targets of interest using volcano plot analysis. These novel targets have been further interrogated for their role in fat metabolism by performing literary analysis using PubMed, Genebank and human proteome database analyses.

The AR is a transcription factor capable of regulating gene expression; to confirm the likelihood of the AR regulating potential candidates the Cistrome DB database was used to identify the probability that the proteins of interest interact with the AR. A short-list of the top 3 candidates are currently being further investigated.

Objective 2: We have established an invitro adipocyte model in our laboratory to identify the effects of the ECF collected from the bone marrow of PC-AR Gene Replacements and littermate controls on adipogenesis. A number of experiments have been performed testing the effects of ECF collected from the PC-AR Gene Replacement mice and controls on adipogenesis and fat deposition. An image analysis tool to quantitate the amount of fat formed in these experiments is currently being developed.

In summary, the data generated from this project identifies several candidates of interest that, once validated, may provide the basis for novel therapeutics to treat obesity.

Furthermore, the establishment of this translational in vitro model will enable us to understand any fat modulating effects induced by ECF as well as any candidates identified.

Once more, I thank the ESA council for funding this work.

Notes:

1. Venkatesh V, Russell PK, Fam White B, Clarke MV, Golub S, Mangiofico S, Haralambous C, Lokan J, Andrikopoulos S, Zajac JD, Davey RA. The AR in bone marrow progenitor cells protects against short-term high caloric diet induced weight gain in male mice. Journal of Molecular Endocrinology, 01 April 2022, https://doi.org/10.1530/JME.

2. This work was presented at the Weary Dunlop Foundation Symposium, 12th October 2022.Titled: Leveraging Testosterone's fat-reducing effects to discover novel pathways for the treatment of obesity" by investigator Dr Varun Venkatesh.

Seed Grant Report:

A pioneering approach to switch on/off steroid production using light.

Recipient: Dr Diane Rebourcet

Background: Steroid hormones regulate many crucial physiological functions such as reproduction, response to stress, salt balance and metabolic processes. Any alteration in their production or activity can have major pathophysiological implications (ie polycystic ovary syndrome, Addison disease, hypogonadism, diabetes, stress). Whilst hormone replacement therapy (HRT) can be helpful, it largely relies on daily medications by pill or injection, which can be painful and uncomfortable, and have risks of overdosing. The long-term effects of HRT remain unclear. There is a recognised need to develop safer and more effective therapies to support lifelong health, using new technologies and breakthroughs like nano-implants inserted under the skin and allowing the assessment and controlled release of steroid with just one injection.

There is a recognised need to develop safer and more effective therapies to support lifelong health, using new technologies and breakthroughs like nano-implants inserted under the skin and allowing the assessment and controlled release of steroid with just one injection.

Steroid production occurs in the gonads or adrenals and is regulated by the hypothalamic-pituitary axis. The luteinising hormone (LH) or the adrenocorticotropic hormone (ACTH) bind respectively to their receptor present on the surface of Leydig cells in the testis or adrenal cells, leading to the activation of key enzymes in the steroidogenic pathway.

Initially developed in neuroscience to control neural activity, optogenetics has provided a new toolset permitting an unmatched and precise spatiotemporal manipulation of signalling and cellular processes by light. Combining both endocrinology and optogenetics, herein we want to determine if we can switch on or off steroid production by engineering Leydig or adrenal like cells with optogenetic tools.

1. Can we engineer steroidogenic cell to be sensitive to specific wavelength stimulation without altering their viability?

We employed an in vitro approach and transfected steroidogenic cell lines (MLTC1: Leydig cells and Y1: Adrenal cells) with controls (lipofectamine control, control GFP construct) and optogenetic constructs. Cells were exposed to different regimens of light (470nm) at intervals with 5 seconds on, and 10 seconds off, for 24 hours, 30 minutes or 0 minute (control). First, we assessed the consequences of both transfection of the optogenetic construct and light exposure (phototoxicity) on the survival of the cells.

We ran a cell viability assay (MTT assay) on the cells on at least three biological replicates (in technical triplicates). We observed that for both cell lines the transfection of the optogenetic construct did not alter cell viability. However, following 24 hours light exposure, we evidenced a reduction of cell survival (2 way-ANOVA *$P<0.05$) in all conditions (Lipofectamine control, control GFP construct and optogenetic construct) in MLTC1 ($n=5$) and not in Y1 ($n=3$) cells.

Seed Grant Report:

A pioneering approach to switch on/off steroid production using light.

Recipient: Dr Diane Rebourcet

Overall, the data suggest a differential resistance of steroidogenic cell lines with MLTC1 undergoing phototoxic effects following extended exposure to light exposure.

2. Can the steroidogenic pathway be activated using photoactivated genes, bypassing the necessity of LH or ACTH binding to their receptors?

Cells were transfected with controls (lipofectamine control, control GFP construct) and optogenetic constructs, and subsequently exposed to light (470nm, pulse) and for a duration of 0 min, 30 min or 24 hours. A control group was also treated with different doses of hCG (LH agonist) to allow comparison of the amount of steroid production. Media and cells were collected and assessed for hormonal (mass-spectrometry) and steroidogenic enzyme (qPCR) profiles.

Transcript levels of key steroidogenic genes, such as StAR, rate-limiting step in steroid biosynthesis, were significantly increased following 30 minutes and 24 hours of light exposure to similar levels as LH stimulation in MLTC1 (ANOVA, *P<0.05, **P<0.01). The upregulation of StAR was also confirmed in Y1 cells.

Overall, this data suggests that transfection of the steroidogenic cell lines with the optogenetic construct allows the photoactivation of the steroidogenic pathways.

We, next, analysed the hormonal profile in the media using mass spectrometry.

We assessed the steroid profile in the MLTC1 and observed that both progesterone and testosterone levels were significantly increased following 24 hours of light exposure only in the cells transfected with the optogenetic construct (the 30 minutes end point is yet to be assessed). Due to an optimisation issue on the mass spectrometry, we were yet unable to assess the steroid levels in the Y1 cell cohort.

Overall, this data demonstrates the ability to switch on steroid production by engineering Leydig like cells with optogenetic tools and validate the efficiency of the optogenetic tools in stimulating steroid production.

Next steps (ongoing): Can we switch on/off the production of steroids?

With the ability of the spatiotemporal control of the optogenetics, herein, we tested the on/off switch system capability. Applying a similar approach to that described above, following transfection, MLTC1 cells were exposed to pulse light at intervals of 1 hour for 6 hours initially. A fraction of media was collected at each hour time point and the hormonal profile was assessed by mass spectrometry.

Our preliminary data demonstrates an incremental increase of progesterone levels in the media at each endpoint when the light is switch on.

This data suggests the ability of the optogenetic tools to switch on/off steroid production in vitro.

Seed Grant Report:

A pioneering approach to switch on/off steroid production using light.

Recipient: Dr Diane Rebourcet

Conclusion: These novel findings provide a proof of concept as to the efficiency of optogenetic tools to improve endogenous steroid profiles in two steroidogenic lines, demonstrating the broader uses of the tools in the endocrine system. This data offers a potential refinement over current therapy approaches with less side effects, treatment burden and better dose management.

Steroids are at the crossroads of many biological processes; therefore, these findings will find application in a broad range of disciplines involving metabolic disorders and reproduction research areas, including mental health.

The success of this grant has been reflected by:

1. The validation of the proof of concept

2. Dissemination of the data at conferences such as the ARU-2022 (selected speaker) and SRB-ESA 2022 (invited speaker and poster)

3. The use of the pilot data and experience gained to support an application for further funding - Fellowship and Ideas Grant submitted

4. The support of the career development and training of a young female researcher.

Hormones Australia

Hormones Australia is an initiative of the Endocrine Society of Australia (ESA). Its purpose is to increase awareness and provide information about hormones and how they affect the body, as well as information about common hormone-related conditions.
The Endocrine Society of Australia is the national authority and peak body for the treatment of endocrine related conditions and disease, and a specialist society of the Royal Australasian College of Physicians (RACP).

Osteoporosis risk for men with obesity

Faster decline in bone mineral density in obese men, bone density assessments are important to identify early changes

Endocrine Disrupting Chemicals: Should we be avoiding plastic?

Endocrine disrupting chemicals exist in the things we buy, make and grow as well as in the places we work and live.

The impact of climate change on endocrine health

Australians are already experiencing the impacts of climate change. A heating and increasingly unstable climate can impact endocrine health.

Special Interest Groups

ANZPA

ANZPA is a network of specialist consultants, registrars and fellows with an interest in pituitary medicine.

About ANZPA

ANZPA Education

ANZPA Annual Meeting

ANZPA Monthly Meeting

WOMENDO

Women in Endocrinology special interest group

WOMENDO Meetings

Informal discussions on topics important to females in endocrinology. Females AND males welcome!

ESA Journals

ESA has partnered with the Journal **Clinical Endocrinology**.
This will be our Society's journal. ESA members will have electronic access to this journal and will be able to get articles published. The editorial board can be expanded to include more Australian members.

Clinical Endocrinology publishes papers and reviews which focus on the clinical aspects of endocrinology, including the clinical application of molecular endocrinology. It does not publish papers relating directly to diabetes care and clinical management. It features reviews, original papers, commentaries, cases of the month, book reviews and letters to the editor. Clinical Endocrinology is essential reading not only for those engaged in endocrinological research but also for those involved primarily in clinical practice.

To access the journal, use the member log-in on the homepage:
http://www.endocrinesociety.org.au/
Go to "Membership" then "Clinical Endocrinology Journal"

Journal of Endocrinology is the highest impact journal dedicated to basic endocrinology. Journal of Endocrinology publishes original research articles, reviews and science guidelines. Its focus is on endocrine physiology and metabolism, including hormone secretion; hormone action and biological effects. The journal publishes basic and translational studies at the organ, tissue and whole organism level.

ESA endorses Journal of Endocrinology entitling the ESA membership to a 25% discount on colour figure charges.
Impact Factor: 4.706
http://joe.endocrinology-journals.org/

ESA Journals

Journal of Molecular Endocrinology is the only society-owned journal dedicated to molecular endocrinology. The journal focuses on molecular and cellular mechanisms in endocrinology, including: gene regulation, cell biology, signalling, mutations, transgenics, hormone-dependant cancers, nuclear receptors, and omics. Basic and pathophysiological studies at the molecule and cell level are considered, as well as human sample studies where this is the experimental model of choice. Technique studies including CRISPR or gene editing are also encouraged.

ESA endorses Journal of Molecular Endocrinology entitling the ESA membership to a 25% discount on colour figure charges.
Impact Factor: 3.577
http://jme.endocrinology-journals.org/

Endocrinology, Diabetes & Metabolism Case Reports is a unique, open-access resource that publishes and links together case reports, enabling practitioners to communicate findings, share knowledge and convey medical experiences efficiently and effectively; furthering both medical education and clinical practice. The search and browse functionality enables fluid navigation between case reports, facilitating discovery, connections and comparisons; making it the go-to resource across all the many disciplines intersecting with endocrinology, diabetes and metabolism. ESA is one of many leading international societies that endorse EDM Case Reports in collaboration with Bioscientifica, a publisher wholly owned by the Society for Endocrinology.

Members of ESA are eligible for a 25% discount on the publishing fee.
www.edmcasereports.com

Australian Endocrinology Research Review is an independent medical update. Each edition features 10 key medical articles from global endocrinology journals with commentary from Professor Cres Eastman and Professor Duncan Topliss on why it matters to Australian practice. It is free to receive for all Australian health professionals and is delivered by email as a PDF attachment.

Sign Up here to receive the publication on a regular basis.
http://www.researchreview.com.au/au/Clinical-Area/Internal-Medicine/Diabetes-Obesity/Endochrinology.aspx

Patient Resources

Hormone Health NETWORK® FROM THE ENDOCRINE SOCIETY

The Endocrine Society of Australia have established an international collaboration with the US Endocrine Society to adapt patient information to the Australian setting and make them readily available.

These resources are rigorously developed, evidence based and aimed to support patients to understand their endocrine condition with the support of their doctor.

These are available in both English and Chinese.

Click here for resources

This information is designed to be informative and educational. It is not intended to provide specific medical advice or replace advice from your doctor.

Please note that only the information on the Australian link is adapted to national settings including medications and tests.

Other resources on the US website may be helpful but may not be consistent with Australian practice.

Upcoming Events

endocrine society of australia

We thank you for your continued support

Contact

Endocrine Society of Australia
145 Macquarie Street
Sydney NSW 2000

endocrinesociety.org.au
hormones-australia.org.au

find us on facebook
find us on twitter

Secretariat:
ijohnson@endocrinesociety.org.au