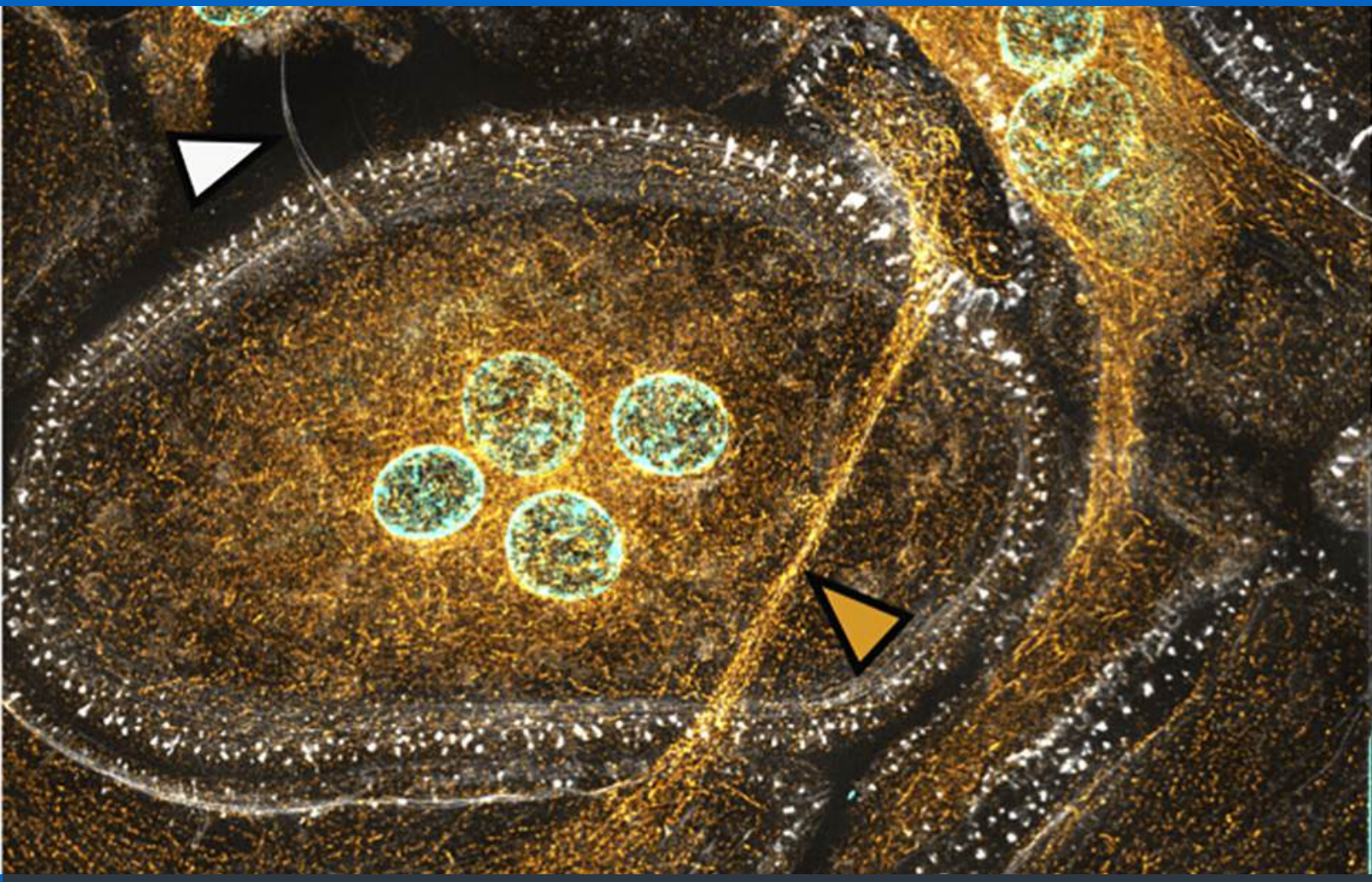
Issue 4, December 2025

ANZBMS Newsletter



Newsletter Editorial Board Updates

Committee Updates

ECIC Report

Member Awards and Spotlight

Member Publication Highlights

Calendar of Events

Cover image from work by Dufrançais et al, whose recent publication on the role of is featured in this issue, showing thin (white arrowheads) and thick tunneling nanotubes (orange arrowheads), F-actin (phalloidin, white), nuclei (DAPI, cyan), and microtubules (α-tubulin, orange).

Welcome to the ANZBMS Newsletter

In this issue

Welcome to the last ANZBMS Newsletter of 2025!

In this issue we celebrate both transition and continuity across our Society. In his final President's Comment, Mark Cooper reflects on his term, the growth of our ASM and clinical education portfolio, and ANZBMS' increasingly visible role in national advocacy – from densitometry services on the MBS to PBS access for new osteoporosis therapies. We also acknowledge the handover of the Presidency to Michelle McDonald and the many members who contribute their time and energy to the Council and Committees.

You'll find a rich series of committee updates, including highlights from the 35th ANZBMS Annual Scientific Meeting in Cairns and the IFMRS Herbert Fleisch Workshop: Asia Pacific. This issue also features an ANZBMS Lab Spotlight on the Disorders of Mineralisation Research Group at Edith Cowan University, illustrating how multidisciplinary teams combine clinical insight, nutrition, AI and imaging to tackle cardio-musculoskeletal health.

We are also delighted to celebrate member achievements and awards, including national recognition and advocacy successes. The Member Publications section highlights cutting-edge work spanning osteoclast biology and tunnelling nanotubes, novel 3D-printed scaffolds for bone regeneration, and the impact of exercise intensity on bone strength in ageing.

As always, we'd love to hear from you – if you have suggestions, achievements to celebrate, or would like to get involved, please contact us at newsletter@anzbms.org.au

Thank you for all you have contributed to ANZBMS in 2025. Happy reading, and we look forward to sharing more of your stories in 2026!

ANZBMS Newsletter Editorial Board

Dr Pholpat Durongbhan

Dr Haniyeh Hemmatian

Jacob Harland

Dr Kai Chen

Tony Huang

Dr Kaitlyn Flynn

Mackenzie Skinner

Dr Chelsea Tan

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Next Issue: March 2026

newsletter@anzbms.org.au

ANZBMS Early Career Investigators

@ANZBMSoc

From the President

I'm writing this after my recent transition from President to Past President. I hope over my Presidency I have achieved the objective of ANZBMS strengthening its role as the leader in bone research, education, and clinical practice. As a Council we have endeavoured to support our early career investigators, our research community in general, and our clinical members.

Meetings:

Our Annual Scientific Meeting (ASM) remains the most anticipated event on the calendar, and this year's meeting again was fantastic. I applaud the efforts of our POC leads, Agnes Arthur and Kirtan Ganda, the Meetings Committee Chair, Michelle McDonald, and the wider POC. They put together a well-balanced program with cutting-edge research presentations and interactive topics ranging from bone disease pathogenesis to innovative therapeutic approaches. We had excellent input from our international visitors, not just during their talks, but through their wider interaction during the meeting. I can't wait until the next meeting in Auckland.

ANZBMS has also hosted a range of other meetings over the last year. These include the Advanced Clinical Postgraduate Course which is proving an excellent update for both trainees and seasoned practitioners. This year's meeting had over 220 registrants and the attendee feedback was exceptional. ANZBMS is now unquestionably the major source of education in the bone and mineral space for both trainees and established consultants. I thank Jasna Aleksova, the members of the Clinical Practice Committee and the faculty of these meetings for such a comprehensive and stimulating program. Our Clinical Imaging Committee has also held 2 bone densitometry courses. These continue to be the flagship densitometry courses nationally. Thanks Nick Pocock and the team for continuing to lead these courses.

Research Grants and Fellowships and advocacy for Bone Health:

ANZBMS continues to be committed to supporting the next generation of researchers in the field of bone and mineral metabolism. This is through a range of opportunities including presentations and awards at the ASM and mentorship and grant writing support. In recent years we have had a fruitful collaboration with the Bone Health Foundation (BHF) to co-fund a range of grants and this has continued again this year. These include Health Innovation, Interdisciplinary Collaborative, and Grand-in-Aid grants. We are continuing to look at ways we can fund research jointly, addressing aspects of the missions of both societies where they overlap.

As I know the membership desires, ANZBMS remains an advocate for policies that prioritize bone health at both the state and national governmental levels. This year, we continued our advocacy efforts to increase funding for musculoskeletal research and improve access to new bone disease diagnostic tests and treatments. Much of this advocacy is done quietly but effectively through our Clinical Practice and Therapeutics Committees or in association with partners such as Healthy Bones Australia. A notable example of significant successes in terms of advocacy is our support for the PBS listing of abaloparatide as a first and second line agent in people with osteoporosis at high risk of fracture. The PBAC

From the President

made note that support from societies such as ours was an important part of their decision making. Although not yet available on the PBS we are expecting it to be available any time soon.

I would like to give a further shout-out here to Nick Pocock and his colleagues for his feedback on behalf of ANZBMS on the "Review of Bone Mineral Densitometry services on the Medicare Benefits Schedule". The importance of this document and Nick's response might not be immediately evident but Nick pulled together the evidence in support of funding multiple areas of clinical care that we would like to see introduced or expanded within Australia.

Society Governance and Sustainability:

I would like to thank all members of Council and the chairs and members of all of our committees. There is no way I can name you all personally but you collectively have demonstrated extremely high congeniality and professionalism. I'd like to reiterate again that there is a personal cost, in terms of time and energy, for our members that take roles on Council or ANZBMS committees. At some times of the year this can be considerable. I am keen that we don't end up burning out, or otherwise disadvantaging, our members that volunteer for these critical positions. As such, I would ask you as members to also recognise these contributions where you can. Due to legal advice, I request you refrain from hugging every Committee member you meet (at least not without their consent) but the odd expression of thanks or constructive positive feedback would be very much appreciated and would help our society run.

I have the honour and pleasure to hand on the President's role and responsibilities to Michelle McDonald and hope she finds the role as rewarding as I have.

Mark Cooper
BMBCh PhD FRCP (London) FRACP, GAICD

ANZBMS President
Head of Clinical School,
Concord Clinical School
Faculty of Medicine and Health
Patyegarang Precinct

Bone | ANZBMS Special Issue:

We are pleased to announce the collaborative special issue between the journal Bone and the ANZBMS is still open and taking submissions until 30 April 2026.

This special issue aims to highlight the best clinical and fundamental research recently undertaken by ANZBMS members, including that featured at the 2025 and 2024 Annual Scientific Meetings.

For all submissions, at least 1 author on the submitted manuscript must be a member of ANZBMS. Earlier submissions are strongly encouraged. Please submit your manuscript through the Bone journal's editorial manager and select "VSI: Bone and ANZBMS special issue." All submissions will go through the standard peer-review process.

If you would like to see accepted manuscripts to-date, please visit this link.

Regards,

Drs Marc Sim, Kylie Alexander, Shejil Kumar, Kara Kew, Kai Chen and Eugenie MacFarlane

ANZBMS Researchers:
We want to share & celebrate your wins!

We are on the lookout for members who have celebrated success (awards and publications) to be highlighted in the Spotlight or Publication sections for the upcoming editions of the newsletter. If you know of someone or want to self-nominate, please email us at **newsletter@anzbms.org.au**

The ANZBMS Newsletter Editorial Board is searching for new members!

Open to all ANZBMS members at any stage in their career. For more information and to apply, please e-mail **newsletter@anzbms.org.au** with up to 150 words explaining why you would be a good addition to the newsletter team.

Program Organising Commitee: Annual Scientific Meeting

The 2025 ANZBMS Programme Organising Committee (POC) comprised: Agnes Arthur (Basic Science Co-Chair, SA), Kirtan Ganda (Clinical Co-Chair, NSW), Santosh Chaubey (LOC, Clinical, Qld), Michelle McDonald (President Elect, NSW), Kara Anderson (ECIC, Vic), Cassandra Smith (ECIC, WA), Dina Abdelmoneim (NZ), Ryan Chai (NSW), Kai Chen (WA), Natalie Hyde (Vic) and Albert Kim (NSW).

Together with ASN Events, the POC developed a rich and diverse program that balances basic, clinical, and translational science, maintaining a strong emphasis on inclusion and scientific excellence. The 2025 ASM had 254 registrants and tried to foster collaboration across disciplines, bringing together leading researchers, clinicians, and allied health professionals in the bone and mineral field.

The POC has received positive feedback on the themes, speakers, and debate. The meeting started with a lively and entertaining debate "Nutritional therapy is better than pharmacotherapy as first line prevention of bone loss in the older adult", chaired by Prof Craig Munns. Although the affirmative managed to convince the audience, the team against the motion did any outstanding job.

Highlights of the meeting included the **Clinical Plenary Speaker, Prof Morten Frost** (University of Southern Denmark), who discussed the relationship between diabetes and bone health. The **Science Plenary Speaker** was **Prof Geert Carmeliet** (KU Leuven, Belgium), a global leader in the field of metabolic regulation in bone cells and bone regeneration.

A/Prof Marc Wein (Massachusetts General Hospital, USA) presented on the osteocyte mechano-responses, which covered both basic science and clinical research. Thanks to **Prof Emma Duncan** for her contributions throughout the meeting.

There were are series of excellent, high-quality research presented:

- ANZBMS Highest Rated Student Abstract Award: Julian Chu:
- Roger Melick Young Investigator Award: Mary Louise Fac
- Christopher & Margie Nordin Young Investigator Poster Award: Hayley Neilsen-Burke
- ANZBMS Outstanding Abstract Award winner – Clinical: Mike Lin
- Outstanding Abstract Award winner – Basic: Xiaojun X.C. Chen

Other notable speakers and topics included:

- Spine Imaging, Aortic Calcification and Bone health – **Dr John Schousboe** (HealthPartners Institute, USA)
- Exercise and Bone Health: **Dr Cassandra Smith** (Edith Cowan University, Perth, Australia).
- OMICS and Bone Health – **Dr John Kemp** (Mater Research, Brisbane)
- Transgender Bone Health and Hormone Therapy – **Professor Bronwyn Stuckey** AM (Sir Charles Gairdner Hospital, Australia) and **Prof Rachel Davey** (The University of Melbourne, Melbourne, Australia).

Program Organising Commitee: Annual Scientific Meeting

- Dental Tissue Regeneration and Bone Bioengineering – **A/Prof Dawn Coates** (University of Otago, NZ)
- Air Pollution and Bone Health: **Dr Lieke Scheepers** (Menzies Institute for Medical Research, Tasmania, Australia).
- Long-Term Denosumab Use: Translating Evidence into Everyday Care, by **A/Prof Cherie Chiang**.

The Early Career Investigator Committee (ECIC) continues to play a central role in fostering networking and development opportunities for emerging researchers. Activities included "Bones & Brews", mentoring lunches, and the Bridging Overseas Networking and Exchange (B.O.N.E.) Program, with exchange speakers from JSBMR (Generation of an osteocyte-specific Cre mouse model reveals distinct roles of osteocytes – **Dr Mikihito Hayashi, Institute of Science Tokyo, Japan)** and ASBMR (Bone Health in Microgravity: Tracking Bone Remodelling in Spaceflight and Recovery - **Dr Matthias Walle, University of Calgary, Canada)**.

The meeting concluded with the **Healthy Bones Australia session focused upon First Nations Health**. Speakers included **Dr Greg Lyubomirsky** (Healthy Bones Australia), **Dr Ayse Zengin** (Monash University, Australia), First Nations consumer **Agnes Mosby** (Queensland, Australia). The last session with Agnes, Laura (her mother) and her aunty was a brilliant way to end the meeting. It demonstrated a touching and raw insight into the patient journey, and illustrated strong resilience in the face of adversity and the benefits of a multi-pronged support structure from family, friends and medical community.

Based on feedback from 22 participants, areas of improvement for the next meeting include having the dinner function at a site close to the conference site. Furthermore, suggestions from clinical attendees included having dedicated clinical and science stream, as well as ensuring that there was more clinical content.

The ANZBMS POC extends sincere thanks to all members of the organising and research committees, session chairs, the ECIC, Ivone Johnson and the ASN Events team led by **Jim Fawcett and more recently Aileen Lozie** for their tireless work in bringing the 2025 ASM to fruition.

Special thanks are also due to all sponsors, exhibitors, and delegates whose contributions and enthusiasm made this meeting possible.

Program Organising Commitee: IFMRS Herbert Fleisch Workshop: Asia Pacific

The inaugural Asia Pacific Herbert Fleisch Workshop took place in Cairns, set against the tropical coastline of Northern Queensland, Australia, from 12–14 November 2025. Attendees enjoyed excellent food, great company, and the relaxed warmth of this coastal setting.

We welcomed 52 registrations, with nearly half joining us from Japan and South Korea. The classic workshop program format facilitated six faculty speakers presenting on preclinical bone biology, advances in clinical diagnostic imaging, and new epidemiological insights, featuring experts from the USA, Europe, Japan, Korea, and Australia—24 EMCR attendees from across the region and Europe delivered oral presentations. Fifteen of these EMCRs received travel grants to support their participation.

A new highlight of the program was a career development session dedicated to building networking skills. Attendees engaged in small-group discussions with faculty members to gain practical advice on developing professional networks. Held on the first evening, this session helped spark early connections that continued to strengthen throughout the workshop, supported by a social event immediately afterward.

Our final evening brought everyone together again for a lively social event featuring table tennis, darts, and plenty of friendly competition. It created a fun atmosphere and forged memorable interactions that will stay with participants for years.

The workshop was a resounding success, and planning is already underway for the next Asia Pacific Herbert Fleisch Workshop.

On behalf of JSBMR, KSBMR, ANZBMS and our attendees, we would like to extend our thanks to IFMRS for providing the opportunity and support for this workshop to take place in the Asia Pacific region.

ECIC Co-Chairs Report

We're wrapping up a very busy year for the ANZBMS ECIC and are excited to share the ECIC-led initiatives at the recent ASM in Cairns! Every year, these sessions are fantastic opportunities to meet your peers, as well as network with more senior researchers and clinicians.

The **Science at Speed Networking Session** brought together clinicians and scientists across all career stages. We ended several conversations early as we rapidly rotated our attendees on a 5-minute basis, and hope many of these conversations filtered into the rest of the ASM and beyond.

We invited two international early-to-mid career researchers (EMCRs) as part of the **B.O.N.E Symposium**, a reciprocal exchange with other leading bone societies. **Dr Matthias Walle (ASBMR)** discussed the use of HR-pQCT in astronauts to uncover compartment-specific bone adaptations to unloading and re-loading. **Dr Mikihito Hayashi (JSBMR)** shared his work on developing an osteocyte-specific mouse model allowing for enhanced insights into the roles of osteocytes. From ANZBMS, **Dr Kai Chen** and **Dr Melissa Cantley** were selected to present at ASBMR and JSBMR conferences earlier this year. We look forward to strengthening these inter-society collaborations next year (ASBMR, JSBMR, ECTS) and continuing to promote invited speaker opportunities for our EMCRs.

During the **ECIC Lunchtime Symposium**, invited speakers **Prof Geert Carmeliet** and **Prof Morten Frost**, and local speakers **Dr Sandra Iuliano** and **Dr Albert Kim**, shared their career journeys. We learnt that success in research doesn't always follow a straight trajectory, and gained insights into benefits and challenges of bridging scientific discovery with clinical practice, and how to leverage your research to bring about change in policy.

We ran social dinner events including the **Bones & Brews** trivia night (winner: Pelvis Presley) and the **Clinical Cases Seminar** which were highly attended and a great opportunity to network with colleagues and learn all things science and non-science.

During morning and afternoon tea we held **"Meet the Expert"** sessions to provide ECIs an opportunity to talk with invited speakers **Prof Morten Frost, Prof Emma Duncan, Prof John Schousboe and A/Prof Marc Wein.**

We have also wrapped up the **2025 ANZBMS/RACP Webinar Series** which featured six insightful presentations between June to November on various bone health topics. We are deeply grateful to our speakers and all the attendees for their engagement and support.

ECIC Co-Chairs Report

Finally, we would like to congratulate and acknowledge our outgoing ECIC members: **Dr Angela Sheu, Dr Micheal O'Breasail, Dr Micaela Quinn, and Dr Abadi Gebre.**

We would like to warmly welcome our new members: **Dr Sarah Brennan, Dr Mawson Wang, Dr Kaitlyn Flynn, Dr Marion Mundt, Dr Owen Taylor-Williams, and Dr Brenda Ta.**

The ANZBMS ECIC is run by ECIs, for ECIs! We would love to hear from you if you have any suggestions for how we can better support you. We would also love to share your news and successes through our various communication channels; feel free to share through our LinkedIn page, Facebook Group or contact us at ecic@anzbms.org.au.

Yours Sincerely,

Dr Shejil Kumar

ANZBMS ECIC Co-Chair 2025

Yours Sincerely,

Dr Eugenie Macfarlane

ANZBMS ECIC Co-Chairs 2025

ANZBMS Member Achievements

Professor Minghao Zheng

Elected Fellow of Australia Academy of Health and Medical Sciences for orthopaedic and regenerative medicine

Professor Zheng is a global leader in orthopaedic and regenerative medicine whose discoveries have led to new medical devices and cell-based products to repair cartilage, bone, and nerve injuries. His research has transformed understanding of musculoskeletal disease by revealing that giant cells in bone tumours are non-tumour cells (enabling non-surgical treatment), identifying obesity-linked pathological changes in osteoarthritis, and uncovering mitochondrial transfer as a key process for tissue homeostasis. His innovations have improved treatment outcomes for patients in Australia, the United States, and Europe.

Professor Richard Prince, AO

FGF-23 testing is now available on the PBS.

We are pleased to announce FGF-23 testing is now available on the Pharmaceutical Benefits Scheme (PBS) as of 1st November 2025. Hearty thank you to Professor Richard Prince for advocating for our patients and orchestrating the lengthy submission process, and to Associate Professor Cherie Chiang for her assistance.

Associate Professor Cherie Chiang

About FGF-23 testing

Medicare Benefits Schedule item number: 66520

Fibroblast growth factor 23 quantification in serum or plasma, requested by a specialist or consultant physician to determine eligibility for a relevant treatment listed on the Pharmaceutical Benefits Scheme.

Grant Recipients

Dr Marion Mundt

Raine Priming Grant

Dr Marion Mundt, from the Nutrition & Health Innovation Research Institute at the School of Medical and Health Sciences has been awarded a Raine Priming Grant ($238,076.12), an esteemed funding opportunity offered by the Raine Medical Research Foundation to support early-career medical researchers and clinicians in Western Australia, for her research *Harnessing the power of AI on DXA images for predicting physical ability and its decline*. Marion is investigating the use of DXA images to estimate the physical ability trajectory of patients in order to promote lifestyle change and improve the quality of life.

ANZBMS Member Awards

Eugenie McFarlane
University of Sydney
Christine and T. Jack Martin Travel Grant

Kara Anderson
Deakin University
Philip Sambrook Young Investigator Travel Award

Mary Louise Fac
St. Vincent's Institute of Medical Research
Roger Melick Young Investigator Award

Hayley Neilsen Burke
James Cook University
Christopher and Margie Nordin Young Investigator Poster Award

Dr Kathleen Pak
Western Health, Sydney
Clinical Cases in Metabolic Bone Disease Seminar

Jiao Jiao Li
University of Technology Sydney
Kaye Ibbertson Award

ANZBMS Member Awards

Xiaojun X.C. Chen
University of Western Australia
ANZBMS Outstanding Abstract Award - Basic

Julian Chu
University of Sydney
ANZBMS Highest Rated Student Abstract

Mike Lin
University of New South Wales
ANZBMS Outstanding Abstract Award - Clinical

Yinghong Zhou
University of Queensland
ANZBMS Bone Health Foundation Grant In Aid

Albert Kim
Westmead Hospital
ANZBMS Bone Health Foundation
Health Innovation grant

Susan Millard
Mater Research Institute
ANZBMS Bone Health Foundation
Health Innovation grant

Professor Peter Ebeling
Monash University

ANZBMS Life Membership

Lewis's Research Group

Back row (left to right): Ms Ayesha Kiran (PhD student), Mr Haftom Abraha (PhD student), Dr Cassandra Smith (Postdoctoral research fellow), Associate Professor Marc Sim (Deputy Lead), Professor Josh Lewis (Group Lead), Dr Carlos Toro-Huamanchumo (PhD student), Mr Solomon Asgedom (PhD student), and Dr Michelle Leal (visiting scholar)

Front row (left to right): Dr Nick Larkins (Senior Research Fellow), Dr Afsah Saleem (Postdoctoral research fellow), Dr Abadi Gebre (Postdoctoral research fellow), Ms Arooba Maqsood (PhD student), Professor John Schousboe (Distinguished visiting fellow), Dr Caroline Hill (Postdoctoral research fellow), and Dr Simone Radavelli-Bagatini (Postdoctoral research fellow)

Disorders of Mineralisation Research Group, Nutrition & Health Innovation Research Institute, School of Medical and Health Sciences, Edith Cowan University

Featuring: Professor Josh Lewis (Group Lead), Associate Professor Marc Sim (Deputy Lead), Dr Cassandra Smith (Postdoctoral Research Fellow), Dr Afsah Saleem (Postdoctoral Research Fellow), Dr Abadi Gebre (Postdoctoral Research Fellow), and Dr Marion Mundt (Research Fellow)

Professor Josh Lewis, Group Leader

How long have you been in this lab/group? I came back to Western Australia to start the Disorders of Mineralisation group at Edith Cowan University in late 2017.

What topics are researched in your lab? Whilst we initially were really targeted on developing better ways to identify and prevent disorders of mineralisation (bones and blood vessels) before the onset of clinical symptoms such as heart attacks, strokes or fractures, we have now diversified into many areas related to the disorders. Some of these include the

association between cardiovascular disease with muscle and bone outcomes, sarcopenia, falls, 3D food printing and nutritionally enriched foods, sex specific differences, clinical trialling, plant bioactives e.g., vitamin K, blood vessel-brain links, artificial intelligence and machine learning. More recently we have started commercialising several of the research outcomes which is challenging but very exciting.

What was your career trajectory leading to this moment? I joined Professor Richard Prince's Bone and Mineral Research Group as my first postdoctoral position in late 2009 where I was recruited to get approval for and develop the linked health records for the Perth Longitudinal Study of Ageing women. Richard was an amazing mentor and really changed the way I viewed research, instilling in me a curiosity for why we do what we do and how we interpret and report research results. It was this curiosity that led me to ask, "why are we letting so many women undergoing bone density testing to walk out the door without letting them know they have very high levels of calcium in the abdominal aorta" or what they could do about it. This "aha" moment led me to getting a grant to buy out my administrative roles to investigate this topic which then led to me joining University of Sydney Centre for Kidney Research under Professors' Jonathan Craig and Germaine Wong, an NHMRC Career Development and now two Heart foundation Future Leader Fellowships back in Western Australia as the group leader.

What's your mentorship style? I am most comfortable having informal chats and discussions over a coffee. I like to listen to new ideas and bounce around the pros and cons of the ideas with the team. I am ultimately most happy when everyone feels safe enough to disagree with me and tell me why they disagree with me in a convincing manner. I see my role as a sounding board to help them focus their big WHY (what their research is ultimately trying to address) which is essential for future fellowships and career success.

What is a fun fact about your group? I do the cooking when we get together.

Associate Professor Marc Sim, Deputy Lead

How long have you been in this lab? I joined the Disorders of Mineralisation group as a post-doc in 2017 under the mentorship of Richard Prince and Joshua Lewis. I currently lead the Falls Free Future team at ECU.

What inspired you to choose the lab? I was fascinated in the role nutrition has on fall and fracture risk, as well as the nexus between cardiovascular and musculoskeletal health. The opportunity to work on the Perth Longitudinal Study of Ageing Women under the guidance of Richard and Josh was too good to pass!

What was your career trajectory leading to this moment? I was a Sport Physiologist with the WA Institute of Sport and Hockey Australia after completing my PhD. After returning to academia to pursue my falls research, I have been supported by Fellowships from the Royal Perth Hospital Research Foundation and the Future Health Research and Innovation Fund.

What are you excited to do? I was fortunate enough to receive the 2024 ANZBMS/BHF Innovation Grant where I am now developing a Gelato containing ingredients (e.g., calcium, vitamin D, protein, specific vegetable and fruit

powders) linked with better musculoskeletal health. In addition to nutrition, I am very excited by our work applying AI to DXA images for fall and fracture risk prediction.

What's a fun fact about your lab? No one from our lab was born in Perth!

Dr Cassandra Smith, Post-doctoral Research Fellow

How long have you been in this lab? I moved from Melbourne to Perth in 2022 just before submitting my PhD to join the team.

What topics are researched in your lab? Improving screening and treatment (lifestyle approaches) for CVD in women to close the sex disparity gap. This includes exploring osteoporosis as a novel women-predominant risk factor and how it influences CVD risk.

What was your career trajectory leading to this moment? Leveraging clinical insights as an Accredited Exercise Physiologist of 14 years, I identified a real unmet clinical need with a lack of awareness for osteoporosis and CVD risk in postmenopausal women. Importantly, many women experiencing menopause felt unheard, and lacked support when they sought help often reporting that their care teams downplayed their symptoms.

What's a fun fact about your lab? I met Richard Prince, Josh Lewis and Marc Sim for the first time at the 2019 ANZBMS meeting in Darwin as a PhD student. Soon thereafter, I joined Josh' team, 6 months before finishing my PhD and have been with the team since – great example of what ANZBMS and conferencing is all about!

Dr Afsah Saleem, Post-doctoral Research Fellow

How long have you been in this lab? I joined this lab as a computer scientist in January 2025, right after submitting my PhD thesis.

What inspired you to choose the lab? With my research background in automated diagnosis of early indicators of chronic diseases using routine imaging scans, such as abdominal aortic calcification from DXA scans, and having Josh as my associate supervisor during my PhD, I was inspired by his mentorship. Joining this lab as an early career researcher offers me the opportunity to contribute my expertise and explore new directions in applying AI to medical imaging.

What are you excited to do? I'm excited to contribute to impactful projects and explore innovative AI approaches that enhance diagnostic accuracy, improve interpretability, and enable early intervention, ultimately delivering meaningful clinical impact by improving patient outcomes and quality of life.

What's a fun fact about your lab? Knowing the impact of nutrition on health and AI in our lives, our lab is a vibrant mix of medical scientists, nutrition experts, and AI enthusiasts, where brainstorming sessions can jump from fine-tuning algorithms to debating the best superfoods.

Dr Abadi Gebre, Postdoctoral Research Fellow

How long have you been in this lab? I joined the Disorders of Mineralisation group as a PhD student in December 2019 just a few months before Australia's border closure in response to the COVID-19 pandemic.

What inspired you to choose the lab? I first came across the term "abdominal aortic calcification" in 2019 and was surprised to learn how understudied it was, despite affecting a major blood and nutrients highway. I was eager to understand how it might be related with musculoskeletal health. I was lucky to find Prof Josh Lewis's articles and was inspired to join his lab.

What are you excited to do? So far, I am fortunate to have established the links between abdominal aortic calcification, muscle health, falls and fracture. I am now excited to unravel whether these associations are causal using Mendelian randomisation. This could help identify potential drug targets to prevent falls and fracture in people with cardiovascular disease.

What's a fun fact about your lab? Josh is a qualified chef, Marc is registered nutritionist, Cass is an exercise physiologist, Afsah is a computer scientist, and I am a pharmacist! We have such interesting ideas and meetings working together!

Dr Marion Mundt, Research Fellow

How long have you been in this lab? I joined the Nutrition and Health Innovation Research Institute in October 2024 to bridge the gap between computer science and clinical application.

What inspired you to choose the lab? I have always been working in multidisciplinary teams. I have a BSc in Sports Science, an MSc in Sports Technology, and a PhD focussing on machine learning applications in biomechanics. Leveraging this knowledge to advance clinical research by analysing large, multidimensional datasets is a new challenge that is right up my alley. Having Marc and Josh as my mentors and working across disciplines allows me to extend my skillset while contributing to the growing field of machine learning applications in health research.

What are you excited to do? I enjoy working on projects that find real-world application outside the lab. It is exciting to create screening tools that are available to everyone. This information will allow people to make changes to their lives to prolong their ability to be an active part of society and improve their overall quality of life.

What's a fun fact about your lab? The lab is a great example on how researchers from different disciplines can work together, learn from each other, and create meaningful output. We are a good bunch of people that at a first glance may not fit well together, but the complementary expertise is incredible.

Dr Myra Poon

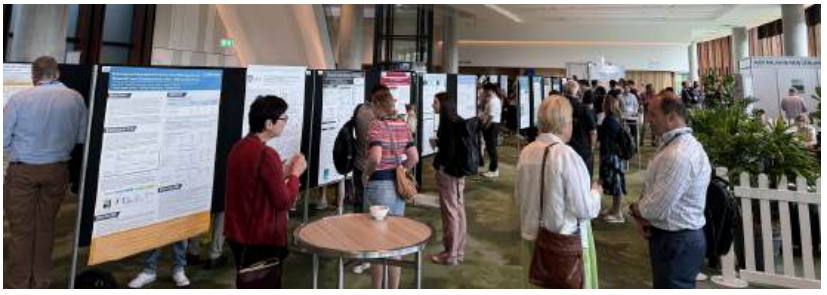
Senior Staff Specialist Paediatric Endocrinologist, Clinical Lead for Bone and Mineral Medicine, Institute of Endocrinology and Diabetes, The Children's Hospital at Westmead.

Research category: Clinical

Interests: Children's bone health, with interests spanning primary and secondary osteoporosis, genetic bone conditions, bone tumours, and novel treatments for traumatic osteonecrosis. My clinical practice focuses on delivering comprehensive care for complex paediatric bone and mineral disorders.

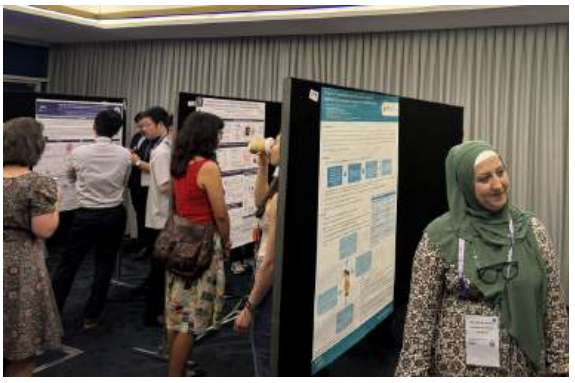
What I hope to gain from joining ANZBMS: I look forward to collaborating with fellow clinicians and researchers to advance evidence-based management strategies for children's bone conditions and contribute to improved outcomes for young patients with metabolic bone disease.

Snapshots from the 35th ANZBMS Annual Scientific Meeting



Snapshots from the 35th ANZBMS Annual Scientific Meeting

Snapshots from the IFMRS Herbert Fleisch Workshop: Asia Pacific



Dufrançais O, Plozza M, Juzans M, Métais A, Monard SC, Bordignon PJ, Verdys P, Sanchez T, Bergert M, Halper J, Panebianco CJ, Mascarau R, Gence R, Arnaud G, Ben Neji M, Maridonneau-Parini I, Le Cabec V, Boerckel JD, Pavlos NJ, Diz-Muñoz A, Lagarrigue F, Blin-Wakkach C, Carréno S, Poincloux R, Burkhardt JK, Raynaud-Messina B, Vérollet C. Moesin controls cell-cell fusion and osteoclast function. J Cell Biol. doi: 10.1083/jcb.202409169.

Featured author: Ophélie Dufrançais **Corresponding author : Christel Vérollet**

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What is the background of the study?

Bone remodeling is a complex process involving cooperation between cells such as osteoblasts, which build bone, and osteoclasts, which degrade the bone matrix, maintaining a delicate balance between formation and degradation. When this balance is disrupted, diseases arise. With age, osteoclasts become overactivated, leading to bone loss typical of osteoporosis. This excessive activity also occurs in bone cancers and metastases that destroy the bone tissue. A French research team within the Institute of Pharmacology and Structural Biology (CNRS/University of Toulouse, France) investigate the cause of this osteoclast overactivity. Their new study focuses on **moesin**, a multifunctional protein that regulates cell cytoskeleton, and reveals its key role in osteoclast formation and activity.

The study was conducted in collaboration with other French researchers, but also researchers from the European Molecular Biology Laboratory (EMBL, Germany), the University of Philadelphia (US), and the University of Perth (Australia), as well as other international partners.

What did you find?

The researchers found that during early differentiation, osteoclasts form **tunneling nanotubes (TNTs)** - actin-rich bridges that link cells. These structures promote the fusion of osteoclast precursors into multinucleated cells, which are more effective at breaking down bone. **Moesin** functions as a regulator of this process: when it is absent, TNT formation rises, resulting in greater cell fusion and the development of larger, more active osteoclasts.

Moesin also plays a key role in regulating how osteoclasts adhere to bone. This protein regulates actin-based adhesion structures (called the "sealing zone"), which become larger and more abundant, exacerbating bone degradation.

To validate these results, the researchers examined moesin KO mice. These animals showed lower bone density and heightened osteoclast activity, consistent with *in vitro* findings. This allows to propose that moesin is crucial for preserving bone integrity.

What is the application of these findings?

Unfortunately, moesin is not specific to osteoclasts. It has multiple functions throughout the body and in various cell types, making it unsuitable as a therapeutic target. However, identifying osteoclast-specific regulators of moesin could lead to the desired therapeutic applications. Further studies are still needed. A deeper understanding of this protein's role and its interactions - at the crossroads of cell fusion, intercellular communication, and bone homeostasis - will be key to propose novel therapeutic approaches based on this discovery.

ANZBMS Member Publications

Xiao Li, Warwick Duncan, Joanne Choi, Dawn Coates. Channel-pillars scaffold for bone regeneration: structure design, manufacturing, and physicochemical properties. https://doi.org/10.1016/j.jmbbm.2025.107256 .

Featured and Corresponding author: Xiao Li

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What is the background of the study?

Porous scaffolds have been extensively studied for over a decade; however, their performance in clinical applications remains suboptimal. The aim of these studies is to develop scaffolds that achieve a balance between mechanical strength and biological functionality for the treatment of bone defects. In this study, we present a novel channel-pillared scaffold characterized by integrated channels, pillars, and bilateral zigzag infill, fabricated using polycaprolactone via 3D printing. Following fabrication, the triangular hollow pillars are subsequently filled with calcium phosphate cement manually. Additional architectural variants were fabricated for comparison to optimize mechanical strength and structural performance.

What did you find?

We found that the channel-pillared scaffold design enhances both pore interconnectivity and structural strength. Scaffolds with the same number of pillars showed similar mechanical performance even when their porosity differed. Increasing channel and pillar numbers at a fixed diameter caused non-linear shifts in porosity and strength. Although PCL is not inherently ideal for cell proliferation, MSCs attached and grew well on our scaffolds, likely due to multiscale surface features.

What is the application of these findings?

These results indicate that with further material optimization, the scaffold design could more effectively support bone repair, guiding new tissue formation through its channel and window structures in a manner similar to native bone healing. Given its relatively large dimensions (10.5 × 6 mm), the scaffold also appears well suited for repairing critical-sized bone defects.

Chan AS, Zare N, Blank MA, Broatch JR, Bishop DJ, Sims NA, Lynch GS, Levinger I. Short-term moderate-intensity treadmill running may confer a greater benefit to bone strength than high-intensity treadmill running in 12-month-old C57BL/6 mice. Bone. doi: 10.1016/j.bone.2025.117615.

Featured author: Audrey S. Chan **Corresponding author :** Itamar Levinger

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What is the background of the study?

As we age, our bones gradually lose mass and strength, increasing the risk of osteoporosis and fractures. Exercise is widely recommended to help maintain healthy bones, but the best type and intensity of exercise for bone strength are still unclear. High-intensity training is often promoted for fitness and heart health, yet its effects on the skeleton, especially in older adults, are less well understood. This study aimed to compare how moderate- and high-intensity treadmill running affect bone structure and strength in middle-aged mice.

What did you find?

Using 12-month-old male mice, we compared six weeks of moderate-intensity continuous training (MICT) and high-intensity interval training (HIIT) with age-matched sedentary controls. Both exercise protocols did not significantly alter trabecular or cortical bone mass or structure compared with sedentary mice, although the HIIT group showed slightly reduced trabecular separation. Mechanical testing revealed that bones from the HIIT group had lower ultimate stress, yield stress, and elastic modulus than the MICT group after accounting for bone size. These findings indicate that short-term, moderate-intensity running may better preserve bone mechanical properties than high-intensity running in middle-aged mice.

What is the application of these findings?

This study suggests that, in the context of ageing, moderate-intensity exercise may provide relatively greater mechanical protection to bone than high-intensity exercise over a short duration. While neither training mode significantly increased bone mass or structure, moderate-intensity running appeared to maintain bone strength more effectively. These results highlight the importance of considering exercise intensity when designing interventions to protect skeletal health in ageing populations. Future studies should examine whether longer-term or combined exercise approaches, such as adding resistance training, can further enhance bone strength in older individuals.


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