ANZBMS Newsletter



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ANZBMS ECI Report and Spotlight
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Welcome to the ANZBMS Newsletter

Welcome to the March 2024 issue of the ANZBMS newsletter!

We are saying goodbye to Emma Cheney who will be leaving the editorial board and welcome Jacob Harland, Dr Mícheál Ó Breasail, Dr Haniyeh Hemmatian and Dr Pholpat Durongbhan into the team (page 4-6).

In this issue we present a Comment from ANZBMS president Professor Mark Cooper (page 3) and updates from the Program Organising Committee (page 7) and Clinical Practice Committee (page 8). The ECIC co-chairs present plans for this year and announced a new round of the ECI Engagment Seminar (page 9 and 10). We congratulate all grant and award recipients on their achievements (page 13 and 14) and ANZBMS members on their publications highlighted in this issue (page 15-19). Don't forget to check out future events highlighted on page 20-24 and add them to your calendar.

We are recruiting editorial board members! Email us with a short biography, at newsletter@anzbms.org.au if you'd like to join our fantastic team!

All the best and happy reading from the ANZBMS Newsletter Editorial Board!

ANZBMS Newsletter Editorial Board



Dr Martha Blank



Dr Pholpat Durongbhan



Dr Haniyeh Hemmatian



Dr Mícheál Ó Breasail



Next Issue: June 2024

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Jacob Harland



Dr Michelle Maugham-Macan



Dr Jakub Mesinovic



Dr Lucy Collins



Dr Shejil Kumar



President's Comments



Professor Mark Cooper

BMBCh PhD FRCP (London) FRACP, GAICD

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

In my report I would like to highlight this year's Annual Scientific Meeting, efforts to build on the successful zoom seminar series from last year and some changes to ANZBMS Committee roles.

Planning for this year's Annual Scientific Meeting is continuing apace. The dates are the 10th-13th November and we will be in Adelaide. The meeting will be in association with the Endocrine Society of Australia and the Society for Reproductive Biology. Our sessions will be in parallel to the other societies but we are also developing some joint sessions where we share common themes. Details of the invited speakers and the all-important abstract submission dates will be made available shortly. My thanks go to Agnes Arthur and Kirtan Ganda, our Program Organising Committee leads and to Michelle McDonald for her oversight.

As a new venture aimed at adding value for our clinical members, the Clinical Practice Committee developed and hosted 3 early evening seminars last year. Hopefully those that joined found them clinically useful and intellectually stimulating. They are now planning additional educational offerings in a way that gives best value in a sustainable fashion. If you have ideas or suggestions for themes or formats please let Christian Girgis or other members of the Clinical Practice Committee know.

There have been some recent changes in Committee roles within ANZBMS. Richard Prince recently stepped down from Chair role for the Therapeutics Committee. He enthusiastically served as Chair for several years and oversaw many significant projects, not least his work developing resources in relation to hypophosphataemia. I welcome Rory Clifton-Bligh as the next Chair. Peter Croucher recently stepped down as the ANZBMS representative on the Council of the International Federation of Musculoskeletal Research Societies (IFMRS). He had been in this role for 4 years, made a range of significant contributions during this time and both ANZBMS and IFMRS thank him for her service. He will be replaced on the IFMRS Council by Mark Forwood following the traditional of the Past President undertaking this role. Lastly (and as always), I stress that we are here for our members. If you have suggestions for how we might better fulfill the various objectives of the Society please let me know and I look forward to meeting you all at our webinars and in person meetings.



The ANZBMS Newsletter Editorial Board is changing!

Welcome to our new members.....



Dr Pholpat Durongbhan

Postdoctoral Researcher, The University of Melbourne

It is my pleasure to be welcomed as a part of the ANZBMS Newsletter editorial board. As a member of the society for several years, this feels like a meaningful opportunity for me to contribute whatever I can to this important community.

I am excited about the prospect of working with a dynamic and enthusiastic editorial team, and communicating exciting news and development to the ANZBMS community!

Dr Haniyeh Hemmatian

Postdoctoral Researcher, St. Vincent's Institute of Medical Research

I'm excited to join the ANZBMS Newsletter editorial board! As a postdoctoral researcher coming from Europe, this is a fantastic chance for me to connect with bone researchers in Australia and expand my network. I've been dedicated to bone health research, and I'm eager to contribute my expertise while learning from others. Being part of this board will not only enhance my professional journey but also allow me to collaborate and share knowledge with fellow enthusiasts. I look forward to this enriching experience and the opportunity to contribute to advancing bone research in Australia.





The ANZBMS Newsletter Editorial Board is changing!



Jacob Harland

PhD Candidate, Deakin University

I am in the third year of my PhD candidature at Deakin studying diabetes subgroups. I have a sub-focus on bone health and how diabetes changes bone density and turnover.

I recently joined the society, and I am looking forward to building relationships with members in the future. I am excited to join the editorial board and look forward to highlighting the amazing work and opportunities available in ANZBMS.

Mícheál Ó Breasail

Postdoctoral Researcher, Monash University

I am delighted to join the ANZBMS Newsletter editorial board. Having recently moved to Australia from the UK, I'm excited for this opportunity to become further involved with the society.

I sit on the Newsletter editorial board as the ECIC liaison.





The ANZBMS Newsletter Editorial Board is changing!

.... and a big thank you to our outgoing members

Emma Cheney

PhD Candidate, The University of Adelaide & South Australian Health an Medical Research Institute (SAHMRI)

Being a part of the editorial board and serving as the copy editor for this newsletter has been an immensely enjoyable and fulfilling experience. I deeply value the fact that this role has not only enabled me to enhance my editorial skills but also presented a valuable opportunity for me to engage with other exceptional bone researchers. I wish the best of luck to the team and look forward to reading future additions!





ANZBMS Committee Updates

Program Organising Committee

We are looking forward to the November ANZBMS ASM to be held in Adelaide combined with the ESA and SRB. The POC have been collaborating with the ESA and SRB organising committees to develop a program which not only strengthens ties between societies but also strengthens links between basic science researchers and clinicians. This is reflected by several joint sessions and our currently confirmed international speakers. We are also collaborating with the Quantitative Musculoskeletal Imaging (QMSKI) Society who are running their Biennial meeting in the Barossa Valley prior to the ANZBMS/ESA/SRB meeting (https://www.esa-srb-anzbms.org.au) to provide complimentary content across both programs.

We have confirmed the following speakers:

Combined ESA-SRB-ANZMBS plenary speaker, Prof Irina Larina from Baylor College of Medicine, USA who will present about the application of an emerging imaging modality, Optical Coherence Tomography (OCT), which will be of interest to both clinicians and basic scientists across all three societies.

ESA Taft Plenary lecture, A/Prof Joy Wu from Stanford, USA. Her work in stem cell therapy and osteoporosis will appeal to both ESA and ANZBMS members.

ANZBMS plenary basic science speaker, A/Prof Matthew Greenblatt, Cornell Medical School, USA. He will speak to his work on novel skeletal stem cell types and their pre-clinical applications.

We will update you as other program items, such as ANZBMS clinical plenary speaker and national invited speakers, are confirmed. You will be pleased to know we are working with the ESA on a topic and speakers for a combined ESA/ANZBMS debate and the ECIC are working with the ESA ECR committee on ECR focused networking sessions.

We are grateful to all POC members and in particular A/Prof Michelle McDonald and Dr Ayse Zengin for their support and guidance.



ANZBMS Committee Updates

Clinical Practice Committee

On the weekend of 9th and 10th December 2023, the Clinical Practice Committee hosted its annual Clinical Postgraduate Seminar. This was the third time the seminar was held entirely online, and we had more than 80 participants including advanced physician trainees and senior clinicians.

Held over two half-day sessions, the seminar covered broad themes with case-based discussions on genetic causes of low bone density, tricks and challenges in DXA interpretation, the utility of bone turnover markers in everyday practice, assessment of skeletal fragility in men and premenopausal women, secondary osteoporosis, and new modalities in bone assessment.

The committee sincerely thank the contributors including speakers and chairs who generously gave up their time over the weekend, quite late in the year. The recordings have been made available to registrants and we welcome any feedback. We're planning to hold the next Clinical Postgraduate Seminar in early 2025 (and not in 2024, as the last seminar was held late in 2023).

The committee has recently published a list of infusion providers to improve access to zoledronic acid administration across Australia. This emerged as a significant issue over the last year due to the closure of a national infusion provider in late 2022. The list can be found on the ANZBMS website: https://www.anzbms.org.au/infusion-centres-for-zoledronic-acid.asp

Finally, we're planning a number of online educational events for 2024 in response to the continued demand for medical education in bone and mineral medicine. We're always happy to hear your suggestions on how we can better engage with clinicians. If you'd like to hear more or have ideas around clinician engagement/education, please feel free to email Christian on christian.girgis@sydney.edu.au.



ANZBMS ECIC Report

ECIC Co-Chairs Report

The ANZBMS ECIC has had an exciting start to 2024, and hope that all of you have also had a productive start to the year after a refreshing break.

Meet our new Co-chair Madhuni Herath and committee members at the ECIC page on the ANZBMS website. Our time is currently dedicated towards planning initiatives for you throughout the year and for the upcoming annual meeting.

Our events committee are busy planning another invaluable list of speakers for our 'ECI Engage' series, with the next webinar planned for 22nd March a session not to be missed, watch for updates over the coming weeks! The career development team have kickstarted the year by organising the 'Fellowship Coaching Program' for 2024. We look forward to announcing the successful candidates and are confident that they will gain invaluable feedback and insights from their MCR coaches and senior researchers. This is a fantastic and invaluable program for mentees to receive feedback and learn from MCR coaches as well as senior researchers. Our clinical subcommittee are putting together an exciting programme for our clinicians for the RACP webinar series. We are also in discussion with the Endocrine Society of Australia early career committee for the planning of the clinical early career investigator/clinician events.

International speaking opportunities are an excellent platform for sharing our research, and the ECIC are committed to securing initiatives which enhance and empower our ECIs. To this end, we will again engage with our overseas colleagues to ensure that the B.O.N.E program delivers these opportunities for our ECIs.

The ANZBMS ECIC is focused on empowering you, the ECIs. We would love to share your news and successes through our various communication channels; please contact us at ecic@anzbms.org.au

Best wishes.





Cassandra Smith and Madhuni Herath ANZBMS ECIC Co-Chairs 2024



ECIC Seminar Series: ECI Engage

The ECI Engage Seminar Series is back!

After a successful launch of the series in 2023 the much-anticipated ECI Engage Seminar Series for connecting and advancing ECI potential is back in 2024. Focusing on early career development, this series aims to empower ECIs with the necessary tools and research skills to be successful.

The ANZBMS ECIC is pleased to announce the next session of ECI Engage. Our invited speakers will be providing their experiences of working overseas and sharing their insights on how to find/apply for these opportunities. Details below.



Dr Jason Talevski *ECIC Events lead*

Title: Research Without Borders: Why ECIs Should Explore International Opportunities

Date: Friday April 12th 2024, 12-1 pm AEDT

Speakers:

- Dr Ahmed Al Saedi, Harvard University
- · Dr Lena Batoon, Mayo Clinic
- Dr Ayse Zengin, Monash University

The ECIC will be sending details for the session soon, so keep this date free!



ANZBMS ECI Spotlight



Dr Haniyeh Hemmantin MSc PhD

Postdoctoral Researcher, St Vincent's Institute of Medical Research, Melbourne, Victoria

Can you briefly describe what your research is about / what are your research interests?

I am a Biomedical Engineer at the forefront of research in bone biomechanics in the field of microstructural imaging and mechanobiology, and have built my research profile through research training, opportunities, and collaborations in several international research groups.

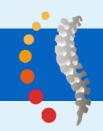
My research is focused on advancing our understanding of bone biomechanics and mechanobiology, with a particular focus on bone microstructure and its implications for health and disease. Central to my work is the investigation of bone's hierarchical structure across various scales, aiming to decipher its mechanical properties and resistance to fractures. I'm especially intrigued by how aging, disease processes, and therapeutic interventions influence the complex structural features of bone tissue, with a special emphasis on the osteocyte networks.

Leveraging cutting-edge high-resolution 3D imaging techniques such as high-resolution microcomputed tomography and electron microscopy, along with classical bone biology approaches and computational modeling, during my PhD and postdoctoral research in Europe, I have made significant advances in uncovering the intricate mechanisms underlying bone loss, particularly in conditions such as osteoporosis and bone metastases.

What motivates your research / what are your goals for the future?

What drives my research is the potential to contribute to the development of innovative treatment strategies and materials for bone repair and regeneration. By deepening our understanding of the hierarchical structure of bone and its responses to various stimuli, I aim to pave the way for novel interventions that enhance the quality of life for those affected by musculoskeletal conditions.

In the future, my aspirations involve pushing the boundaries of knowledge in bone biomechanics and mechanobiology, fostering interdisciplinary collaborations, and mentoring the next generation of researchers. Driven by a passion for discovery and a commitment to advancing musculoskeletal health, I am determined to make meaningful contributions to the field.



ECI Funding Opportunities

Grant/Fellowship Scheme*	Application Period
MRFF 2024 Earlt to Mid-Career Researchers Grant	Deadline: 24 July 2024
Children's Research Foundation (Channel 7) Annual Research Grant	Expression of interest for Grant Opportunities Close March 2024
Al & Val Rosenstrauss Fellowship	Applications open: 1 April 2024
<u>Australian Museum Eureka Prizes</u>	Entries Close: 12 April 2024
Rebecca Cooper Fellowship	Applications open: 1 August 2024
The MJA Award for Excellence in Medical Research	Deadline: 31 December 2024
Christine and T.Jack Martin Research Travel Grant	TBC
ANZBMS Travel Grant	TBC
ANZBMS Bone Health Foundation Grant	TBC
NHMRC Investigator Grants	TBC

^{*}Clicking on the scheme name will redirect you to the grant/fellowship website.



ANZBMS Member Awards & Achievements



Ayse Zengin

Monash University
2023 MRFF Grant Recipient



Natalie Sims
University of Melbourne
2023 NHMRC Investigator Grant Recipient



Nathan Pavlos
University of Western Australia
2023 NHMRC Ideas Grant Recipient



Jiake Xu
University of Western Australia
Australia's top 250 researchers in 2024



Edith Cowan University

2023 Heart Foundation Future Leader Fellowship



John Kemp
University of Queensland
2023 NHMRC Investigator Grant Recipient



ANZBMS Member Awards & Achievements



Sandra Iuliano
University of Melbourne
2023 NHMRC Investigator Grant Recipient



Hong Zhou
University of Sydney
2023 NHMRC Ideas Grant Recipient



Jessica Bindra
University of Sydney
2023 NHMRC PhD Scholarship



Aaron Schindeler
Edith Cowan University
2023 NHMRC Ideas Grant Recipient



Mawson Wang
University of Sydney
2023 NHMRC PhD Scholarship



Tomasz Block
Monash University
2023 NHMRC PhD Scholarship



Jessica Sandy
University of Sydney
2023 NHMRC PhD Scholarship



Holloway-Kew KL, Anderson KB, Rufus-Membere P, Tembo MC, Sui SX, Hyde NK, Kotowicz MA, Gwini SM, Yang J, Diez-Perez A, Henneberg M, Liao W, Pasco JA. Associations between aldosterone-renin ratio and bone parameters derived from peripheral quantitative computed tomography and impact microindentation in men. Calcif Tissue Int. Nov 2023;113(5):496-510.

Featured author:

Kara Holloway-Kew

Senior Research Fellow, Deakin University, Geelong, VIC E: k.holloway@deakin.edu.au

What is the background of the study?

Components of the renin-angiotensin-aldosterone pathway, which controls blood pressure, are also present on bone cells. The aldosterone-renin-ratio (ARR) is used to screen patients for primary aldosteronism (aldosterone excess) which is a common cause of secondary hypertension. Previous studies examining associations between ARR and bone mineral density have shown conflicting results. Therefore, this study investigated associations between ARR and alternative bone measures.

What did you find?

This study examined associations between ARR and measures derived from peripheral quantitative computed tomography (pQCT) or impact microindentation for men from the Geelong Osteoporosis Study. There were no associations observed between ARR and impact microindentation values. There were also no associations observed between ARR and pQCT measures when ARR was considered as a continuous variable.

However, when ARR was categorised as a dichotomous variable, using a cut point of ARR greater than or equal to 70 pmol/mIU to indicate "likely" primary aldosteronism, it was observed that men with "likely" primary aldosteronism had lower bone area at the radial 66% site than those without the condition.

What is the application of these findings?

Men with "likely" primary aldosteronism had lower bone area at the radius, suggesting ARR levels above the physiological range may have a negative impact on bone health. This indicates that individuals with clinically elevated ARR levels may need to be monitored for changes in bone health to help prevent future fracture events.

To further understand these observed findings, future work should include longitudinal studies examining fractures as an end point. Similar associations should also be investigated in women.



<u>Li S</u>, Teguh D, Wu D, Liu L, Hu C, Yuan J, Inderjeeth CA, Xu J. Antidementia medication acetylcholinesterase inhibitors have therapeutic benefits on osteoporotic bone by attenuating osteoclastogenesis and bone. J Cell Physiol. Aug 2023;238(8):1823-1835.

Featured author:

Shangfu Li

Sun Yan-sen University, Guangzhou, CHINA E: lishangfu@mail.sysu.edu.cn

What is the background of the study?

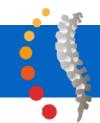
The mechanisms underlying the connections of Alzheimer's disease and osteoporosis remain enigmatic. This study was designed to determine whether the use of acetylcholinesterase inhibitors (AChEIs), a group of medications that stimulate acetylcholine receptors and are used to treat Alzheimer's disease, is associated with osteoporosis protection and inhibition of osteoclast differentiation and function.

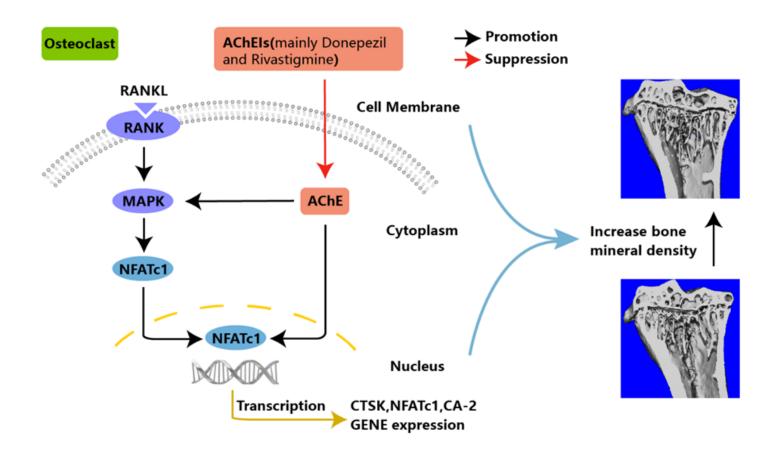
What did you find?

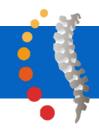
In C57BL/6 mice, we found that Donepezil and Rivastigmine (AChEIs) inhibited RANKL-induced osteoclastogenesis and impaired osteoclastic bone resorption. Moreover, AChEIs reduced the RANKL-induced transcription of NFATc1, and expression of osteoclast marker genes to varying degrees (mainly Donepezil and Rivastigmine but not Galantamine). Furthermore, AChEIs variably inhibited RANKL-induced MAPK signaling accompanied by downregulation of AChE transcription. Finally, AChEIs protected against ovariectomy-induced bone loss mainly by inhibiting osteoclast activity. Taken together, AChEIs (mainly Donepezil and Rivastigmine) exerted a positive effect on bone protection by inhibiting osteoclast function through MAPK and NFATc1 signaling pathways through downregulating AChE.

What is the application of your findings?

Our findings have important clinical implications that elderly patients with dementia who are at risk of developing osteoporosis may potentially derive skeletal benefist from therapy with AChEIs. Further confirmation of our results may influence drug choice in those patients with both Alzheimer's disease and osteoporosis. AChEIs that have the dual benefit to both ageing bone and ageing brain are useful for the future therapeutic strategy in aging populations.







<u>Macfarlane E</u>, Cavanagh L, Fong-Yee C, Tuckermann J, Chen D, Little CB, Seibel MJ, Zhou H. Deletion of the chronodrocyte glucocorticoid receptor attenuates cartilage degradation through suppression of early synovial activation in murine posttraumatic osteoarthritis.

Osteoarthritis Cartilage. Apr 2023;31(9):1189-1201.

Featured author:

Eugenie Macfarlane

Bone Research Program, ANZAC Research Institute, University of Sydney E: eugenie.macfarlane@sydney.edu.au

What is the background of the study?

Disruption of endogenous glucocorticoid signalling in bone cells attenuates osteoarthritis in aged mice, however, the role of endogenous glucocorticoids in chondrocytes is unknown. Since chondrocytes are major regulators of cartilage integrity, we investigated whether deletion of the glucocorticoid receptor, specifically in chondrocytes (chGRKO), also alters osteoarthritis progression.

What did you find?

Cartilage damage was significantly attenuated in chGRKO compared to wild-type mice. In early stages of osteoarthritis, wild-type mice exhibited increased chondrocyte and synoviocyte hypoxia inducible factor (HIF)- 2α expression resulting in extensive synovial inflammation characterised by synovial thickening and increased interleukin-1 beta expression. Wild-type mice displayed pronounced chondrocyte senescence and elevated catabolic signalling (reduced Yes-associated protein 1 (YAP1) and increased matrix metalloprotease [MMP]-13 expression). Contrastingly, HIF- 2α expression and synovial inflammation were much less pronounced in chGRKO than in WT mice. Furthermore, chondrocyte YAP1 and MMP-13 expression, as well as chondrocyte senescence were similar in chGRKO mice and control animals without osteoarthritis.

What is the application of your findings?

Our findings indicate that deletion of endogenous glucocorticoid signalling in chondrocytes significantly mitigates early synovial inflammation, articular chondrocyte senescence and cartilage degradation through regulation of HIF-2 α , IL-1 β and cartilage catabolic enzymes in murine posttraumatic osteoarthritis. This novel finding indicates that glucocorticoid signalling in chondrocytes promotes disease progression, suggesting that early inhibition of local endogenous glucocorticoid actions (or IL-1 β) after injury may present a promising way to slow cartilage damage in posttraumatic osteoarthritis. This is especially needed since there is currently no disease modifying drug available for patients with osteoarthritis.



ANZBMS Inquiries

ANZBMS Membership Survey

The Council and Committee Members of ANZBMS are keen to ensure that we have an accurate understanding of the needs and aspirations of our Society members. As such we undertake a survey of members views every few years. Our last survey was back in 2019 so it is timely to get an update from the people we strive to represent and support.

Participate in the survey and win 1 of 5 \$100 gift vouchers!

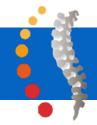
Click on this link to start the survey! https://forms.gle/WAxycXgkqWbozkpJ9

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



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.



Please register your attendance on Google forms:

Click here!





Wednesday 20 March 2024

18:30 - 20:15 St. Vincent's Institute, 9 Princes Street, Fitzroy

Light refreshments from 17:50 sponsored by

GYOWA KIRIN

Please join us for drinks afterwards at The Workers Club (Gertrude St, Fitzroy)



Rural-urban differences in bone

Dr Mícheál Ó Breasail

Bone and Muscle Research Group Department of Medicine, School of Clinical Sciences Faculty of Medicine, Monash Medical Centre, Nursing and Health Sciences, Monash University



Repurposing bone drugs for muscle atrophy: A proposal

Dr Ben Kirk

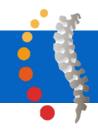
Department of Medicine, Melbourne Medical School The University of Melbourne



How to heal a broken jaw

Dr Olga Panagiotopoulou

Honorary Research Fellow Bionics Institute, Australia







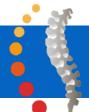
















WORLD CONGRESS ON OSTEOPOROSIS, OSTEOARTHRITIS AND MUSCULOSKELETAL DISEASES

