Australian New Zealand Bone & Mineral Society

Annual Scientific Meeting 2015

in conjunction with Molecular & Experimental Pathology Society of Australasia (MEPSA)
and Matrix Biology Society of Australia and New Zealand (MBSANZ)

Hotel Grand Chancellor Hobart, Tasmania 1-4 November 2015

Scientific Program
Scientific Program

Sunday 1st November 2015

13:30 Registration Opens

15:15 OFFICIAL OPENING Grand Ballroom 1-3

Markus Seibel, President ANZBMS
Tony Weiss, President MBSANZ
Terrence Piva, President MEPSA

15:30 – 17:30 PLENARY SESSION 1: Stem Cells & The Bone Marrow Niche
Chair: Markus Seibel and Peter Croucher Grand Ballroom 1-3

15:30 IS1 Marian Young: Regulation of bone stem cells by small proteoglycans

16:00 IS2 Mariusz Ratajczak: Novel view of stem cell hierarchy in adult bone marrow: An evidence for a presence of stem cells from embryonic development

16:30 IS3 Hank Kronenberg: Early cells of the osteoblast lineage in vivo

17:00 OR1 Amgen Outstanding Abstract
Allison Pettit: CD169+ osteal macrophages are required for optimal fracture repair

17:15 OR2 Amgen Outstanding Abstract
Audrey Chan: Sorting Nexin 27 Links PTHR signalling to the retromer trafficking complex during postnatal bone growth

17:30 – 19:00 Welcome Reception, Exhibition and Plenary Poster Session Federation Ballroom
Scientific Program

Monday 2nd November 2015

07:00 – 08:00  Breakfast - Meet the Professor Session 1
Lai Guan Ng: Seeing is Believing-Visualising Living Tissue by Two-Photon Microscopy

08:00 – 10:00  PLENARY SESSION 2: Frontiers in Musculoskeletal Disease and Therapy
Chair: Chris Little and Tuan Nguyen  Grand Ballroom 1-3
08:00  IS4  Mike Briggs: New therapeutic targets in genetic skeletal diseases
08:30 IS5  Johanne Martel-Pelletier: Are muscle area, muscle fat and adipokines risk factors for knee osteoarthritis?
09:00  IS6  David Ke: Inhibition of Wnt inhibitors: Sclerostin vs. Dickkopf-1
09:30 OR3  Amgen Outstanding Abstract
Ayano Nakayama: Evidence of effectiveness of a fracture liaison service to reduce the re-fracture rate
09:45 OR4  Amgen Outstanding Abstract
Le Phuong Thao Ho: Polygenic risk score improves fracture risk prediction: The Dubbo Osteoporosis Epidemiology Study

10:00 - 10:30  Morning Tea and Exhibition

10:30 – 12:30  PLENARY SESSION 3: Young Investigator Awards
Chair: Amanda Fosang and Nicole Walsh  Grand Ballroom 1-3
10:30 OR5  Sarah Kim: High-fat intake impairs cortical bone structure independent of high-caloric intake via glucocorticoid signalling in osteoblasts and osteocytes
10:45 OR6  Niloufar Ansari: Osteocyte-derived parathyroid hormone-related protein is necessary for normal osteocyte function, bone mass and strength
11:00 OR7  Weiwen Chen: Mortality risk associated with fractures in The 45 and Up Study
11:15 OR8  Hussain Ijaz Khan: Predictors and clinical factors associated with change in spinal-bone inflammation assessed on MRI over 2 years: data from Tasmanian Ankylosing Spondylitis Study
11:30 OR9  Rashi Minocha: Nicotinamide chemoprevention and Immunomodulation in melanoma and non-melanoma skin cancer
11:45 OR10  Artur Shariev: Novel targets for vitamin D in the inhibition of melanoma cell growth and metastasis
12:00 OR11  Brooke Farrugia: Mast cells produce a unique epitope associated with chondroitin sulphate
12:15 OR12  Chris Turner: Porous silicon nanoparticles loaded with flightless i neutralising antibodies improve healing of wounds in diabetic mice
### Scientific Program

**Monday 2nd November 2015 continued…**

<table>
<thead>
<tr>
<th>Time</th>
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<tbody>
<tr>
<td>12:30 - 14:00</td>
<td>Lunch</td>
<td>Federation Ballroom</td>
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<tr>
<td>13:00 – 14:00</td>
<td>Poster Session 1 (Posters 1-50)</td>
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<tr>
<td>14:00 – 15:30</td>
<td><strong>CONCURRENT SESSIONS</strong></td>
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<tr>
<td><strong>14:00 – 15:30 CONCURRENT SESSION 1A: Osteoporosis Therapy</strong></td>
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<tr>
<td>Chair: Terry Diamond and Ian Reid</td>
<td>Grand Ballroom 1</td>
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<tr>
<td>14:00 IS7</td>
<td><strong>Kerrie Sanders:</strong> Cost and quality of life burden of osteoporosis and fractures in Australia: Today and over the next 10 years</td>
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<td>14:30 IS8</td>
<td><strong>Mark Kotowicz:</strong> Current therapeutic concepts</td>
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<td>15:00 IS9</td>
<td><strong>Ian Reid:</strong> Drugs in development</td>
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<td><strong>14:00 – 15:30 CONCURRENT SESSION 1B: Tissue Engineering &amp; Nanomedicine</strong></td>
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<td>Chair: David Musson and John Ramshaw</td>
<td>Grand Ballroom 2</td>
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<tr>
<td>14:00 IS10</td>
<td><strong>Hala Zreiqat:</strong> Development of unique ceramic scaffolds and nanoparticles with versatile modular platform for growth factor and drug delivery into bony environments</td>
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<td>14:30 IS11</td>
<td><strong>Tony Weiss:</strong> Enhanced tissue repair with multifunctional elastic protein biomaterials</td>
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<td>15:00 OR13</td>
<td>Sandra Camarero-Espinosa: Directed cell growth in multi-layer scaffolds for cartilage tissue engineering</td>
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<td>15:15 OR14</td>
<td>Margaret Smith: Human stromal cells isolated from subchondral bone vary between patients in multipotency and therapeutic potential to ameliorate tendon pathology</td>
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<td><strong>14:00 – 15:30 CONCURRENT SESSION 1C: Cancer (Basic Science)</strong></td>
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<td>Chair: Joseph Rothnagel and Felix Marsh-Wakefield</td>
<td>Grand Ballroom 3</td>
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<tr>
<td>14:00 IS12</td>
<td><strong>Katie Dixon:</strong> Melanoma: targeting novel tumour suppressors with vitamin D</td>
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<td>14:30 IS13</td>
<td><strong>Michelle McDonald:</strong> Interactions between tumour cells and the bone microenvironment</td>
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<td>15:00 OR15</td>
<td>Ryota Amachi: A vicious cycle between acid sensing and survival signalling while epigenetically repressing genes in myeloma cells in acidic conditions</td>
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<td>15:15 OR16</td>
<td>Guy Lyons: RELN: an extracellular suppressor of the epithelial-mesenchymal transition in head and neck squamous cell carcinomas</td>
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<td><strong>15:30 - 16:00 Poster Session 2 and Afternoon Tea (Posters 51-72)</strong></td>
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Monday 2nd November 2015 continued…

16:00 – 17:00 CONCURRENT SESSIONS

16:00 – 17:00 CONCURRENT SESSION 2A: Clinical Oral Presentations 1

Chair: Belinda Beck and Jackie Center
Grand Ballroom 1

16:00 OR17 Hanh Nguyen: Delay in oestrogen commencement is associated with lower spine and hip bone mineral density in Turner Syndrome

16:12 OR18 Ego Seeman: Bone microstructure identifies women without osteoporosis suffering fragility fractures: The prospective OFELY study

16:24 OR19 Jackie Center: Osteoporosis treatment is associated with better post-fracture survival: A 15-year prospective study from the Canadian Multicentre Osteoporosis Study (CaMOS)

16:36 OR20 Joshua Lewis: Circulating Lipocalin 2 levels predict fracture-related hospitalizations in elderly women: a prospective cohort study

16:48 OR21 Elaine Dennison: Bone health in female alcoholics

16:00 – 17:00 CONCURRENT SESSION 2B: Models of Bone & Cartilage Development & Disease 1

Chair: Eleanor Mackie and Megan Lord
Grand Ballroom 2

16:00 OR22 Amanda Fosang: Type II collagen fragments are essential mediators of angiogenesis during endochondral ossification

16:12 OR23 Atsushi Igarashi: Mammalian-type Brn-1/Pou3f3 with homopolymeric amino acid repeats is essential for stress-induced bone metabolic changes in mice

16:24 OR24 Agnieszka Arthur: The role of ephrinB1 reverse signalling during bone formation and osteoporosis

16:36 OR25 Julian Quinn: Mice deficient in spinster homologue-2 (Spns2), a Sphingosine-1-Phosphate transporter, have increased bone mass

16:48 OR26 Hsu-Wen Tseng:- Early intervention ameliorates axial disease progression in the PGIISp mouse model of AS

16:00 – 17:00 CONCURRENT SESSION 2C: Disorders of the Bone-Joint Interface

Chair: Tania Crotti and Margaret Smith
Grand Ballroom 3

16:00 OR27 Ashvin Thambyah: Multiscale structural investigation of the cartilage-bone interface in early degeneration of the bovine patella

16:12 OR28 Nicole Walsh: Developing a novel assay for the localization of a biologically active 32 amino-acid aggrecan fragment in joint tissues

16:24 OR29 Richard Wilson: Novel elements of the chondrocyte stress response identified using an in vitro model of mouse cartilage degradation

16:36 OR30 Sue McGlashan: The effect of diet-induced obesity and exercise on joint inflammation in young adult rats

16:48 OR31 Cindy Shu: Bone marrow derived mesenchymal stem cells alleviate pain and modify the inflammatory response in surgically induced osteoarthritis in mice
# Scientific Program

## Monday 2\textsuperscript{nd} November 2015 continued…

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<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>17:00 – 17:15</td>
<td>Short Break / Stretch</td>
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<tr>
<td>17:15 – 18:15</td>
<td><strong>PLENARY SESSION 4: Society Tributes &amp; Orations</strong></td>
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<td>Chair: John Eisman and Donald Gutteridge  Grand Ballroom 1-3</td>
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<tr>
<td>17:15</td>
<td><strong>IS14: Lights Under the Southern Cross Oration</strong></td>
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<td>Howard Morris: The legacy of Chris Nordin</td>
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<td>17:45</td>
<td><strong>IS15: Preston Oration</strong></td>
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<td></td>
<td>John Whitelock: Structural and functional relationships of</td>
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<td>glycosaminoglycans; specific or not?</td>
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<td>18:15</td>
<td>Session concludes</td>
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<tr>
<td>18:30 – 19:30</td>
<td>Presidents’ Cocktail Reception (BY INVITATION ONLY)</td>
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<td>Jones &amp; Co Room, Henry Jones Art Hotel</td>
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<tr>
<td>19:00</td>
<td>Young Scientists and Student Networking Function</td>
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<td></td>
<td>Vue Function &amp; Lounge Bar, Customs House, 1 Murray St, Hobart</td>
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### Scientific Program

**Tuesday 3rd November 2015**

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<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
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<tbody>
<tr>
<td><strong>07:00 – 08:00</strong></td>
<td><strong>HOLOGIC SYMPOSIUM:</strong> DXA and Advanced Applications for Bone Health Assessment</td>
<td>Grand Ballroom 1-3</td>
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</tbody>
</table>
| **08:00 – 09:45** | **PLENARY SESSION 5: The Bone Marrow Interface**
**Chair:** Scott Byrne and Terry Piva | Grand Ballroom 1-3 |
| 08:00 | IS16 | Mariusz Ratacjak: Novel view on hematopoietic stem cell mobilization and homing – an emerging role of innate immunity, bioactive lipids and extracellular nucleotides |
| 08:30 | IS17 | Lai Guan Ng: Lights, microscope and action: secret life of leukocytes revealed by 2-photon imaging |
| 09:00 | OR32 | Amgen Outstanding Abstract
Michelle McDonald: Anti-sclerostin treatment prevents multiple myeloma bone disease and reduces tumour burden |
| 09:15 | IS18 | SPECIALIST LECTURE: Therapeutics In-Focus
Socrates Papapoulos: From rare bone diseases to treatments of osteoporosis: The sclerostin paradigm |
| **09:45 – 10:15** | **Poster Session 3** *with Morning tea* (Posters 73-94) | Fed Ballroom |
| **10:15 – 11:55** | **CONCURRENT SESSIONS** |
| **10:15 – 11:55** | **CONCURRENT SESSION 3A: Clinical Grand Rounds**
**Chair:** Mark Kotowicz | Grand Ballroom 1 |
| 10:15 | Shonakshi Sharma, Tim Cundy: A young man with Type 1 osteogenesis imperfecta and vertebral fractures |
| 10:35 | TBA, Emma Duncan: Heterotrophic ossification: a novel use for denosumab |
| 10:55 | Balvinder Kalra, Shannon McCarthy, Mark Kotowicz: A case of severe symptomatic hypercalcaemia following discontinuation of denosumab |
| 11:15 | Jasmine Zhu, Melissa Lee, Jas-mine Seah, Ego Seeman, Spiros Fourlanos, Suresh Varadarajan, Lachlan Hayes, Richard McIsaac: Post-parturition osteoporosis due to systemic mastocytosis: 2 cases |
| 11:35 | Hahn Nguyen: Does anabolic therapy cause atypical fractures? |
| **10:15 – 11:55** | **CONCURRENT SESSION 3B: Comparative Immunology**
**Chair:** Shelley Gorman and Konrad Muller | Grand Ballroom 2 |
| 10:45 | IS20 | Scott Carver: Interactions of Feline Immunodeficiency virus with the immune system of domestic cats |
| 11:15 | OR33 | Andrew Flies: Ecological correlates of immune function in spotted hyenas (Crocuta crocuta) |
| 11:27 | OR34 | Amanda Patchett: Effects of the TLR7 agonist imiquimod in Devil facial tumour disease (DFTD) |
| 11:39 | OR35 | Sultan Alamri: A TRPV4 mutation causes osteochondrodysplasia in Scottish Fold cats |
**Scientific Program**

**Tuesday 3rd November 2015 continued…**

**10:15 – 11:55 CONCURRENT SESSION 3C: Biochemistry & Cell Biology**

Chair: Allison Pettit and Sharon Byers  
Grand Ballroom 3

10:15  
**IS21**
Joy Rathjen: Amino acids and the regulation of pluripotent stem cells

10:45  
**IS22**
Jiake Xu: Furin regulates bone homeostasis via the cleavage of Ac45 and mesothelin in mice

11:15  
**OR36**
Noriki Takegahara: RANKL-induced incomplete cytokinesis constitutes osteoclast polypliodization in addition to cell fusion

11:27  
**OR37**
Jian-ming Lin: Adiponectin regulates the action of PPAR-gamma on osteoclastogenesis and FIAF expression in mouse bone marrow culture

11:39  
**OR38**
Marcia Munoz: A highly sensitive prenylation assay reveals in vivo effects of bisphosphonate drug on the Rab prenylome of macrophages outside the skeleton

11:55 – 13:25  
**Lunch and Trade Exhibition**

**12:15 – 13:15 AMGEN SYMPOSIUM – Platinum Sponsor**  
Grand Ballroom 1-3

Managing Long-Term Osteoporosis: New Insights  
Presenters: Socrates Papapoulos & Ego Seeman

**13:30 – 14:45 CONCURRENT SESSIONS**

**13:30 – 14:45 CONCURRENT SESSION 4A: Clinical Oral Presentations 2**

Chair: Michael Hooper and John Wark  
Grand Ballroom 1

13:30  
**OR39**
Roger Zebaze: Bone’s material composition and microstructure are compromised in women sustaining atypical femoral fractures during antiresorptive therapy

13:42  
**OR40**
Thinn Thinn Khine: Recognition of Atypical Femoral Fractures (AFF) in the tertiary setting: The importance of clinical audits

14:54  
**OR41**
Timo Rantalainen: The fracturing phenotype: What can we learn from examining cross-sectional geometry with pQCT?

14:06  
**OR42**
Saliu Balogun: Does muscle strength mediates the association between 10-year falls risk and vitamin-D, physical activity, pain and dysfunction? Findings from the Tasmanian older adults

14:18  
**OR43**
Tania Winzenberg: Abnormalities in knee structure Australian Rules football players: the AFL TAS Knee Study

14:30  
**OR44**
Kun Zhu: Hypothalamic ‘pituitary’ adrenal axis function and peak bone mass at 20 years of age in a birth cohort
### Scientific Program

**Tuesday 3rd November 2015 continued…**

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<th>Time</th>
<th>Session</th>
<th>Title</th>
<th>Chair</th>
<th>Venue</th>
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<tbody>
<tr>
<td>13:30</td>
<td>4B</td>
<td>Concurrent Session 4B: Hormonal Regulation of Bone Mass</td>
<td>Hong Zhou and Carmela Ricciardelli</td>
<td>Grand Ballroom 2</td>
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<tr>
<td>13:30</td>
<td>OR45</td>
<td>Paul Baldock: Osteocalcin transgenic mice reveal neural aspects of the bone/glucose axis, as well as powerful suppression of ectopic osteocalcin production.</td>
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<td>13:42</td>
<td>OR46</td>
<td>Rachel Davey: A role for the calcitonin receptor to limit bone loss during lactation in mice by inhibiting osteocytic osteolysis.</td>
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<td>13:54</td>
<td>OR47</td>
<td>Christina Vrahnas: Anabolic PTH treatment does not alter bone mineral deposition during primary and secondary mineralisation</td>
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<td>14:06</td>
<td>OR48</td>
<td>Rishikesh Kulkarni: Serum sclerostin: a paracrine rather than an endocrine modulator of bone mass</td>
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<td>14:18</td>
<td>OR49</td>
<td>Dae-Chul Cho: Osteocytic JAK/STAT signalling controls corticalisation by estradiol and testosterone-dependent mechanisms</td>
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<td>13:30</td>
<td>4C</td>
<td>Concurrent Session 4C: DNA Repair &amp; Malignant Disease</td>
<td>Guy Lyons and Amanda Patchett</td>
<td>Grand Ballroom 3</td>
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<tr>
<td>13:30</td>
<td>OR51</td>
<td>W. G. Manori De Silva: Increased expression of early proteins in nucleotide excision repair are critical to the protective effect of 1,25(OH)2D₃ on UV-induced DNA damage</td>
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<td>13:42</td>
<td>OR52</td>
<td>Joseph Rothnagel: The tumour suppressor PTPRJ is a potential new player in keratinocyte-mediated wound healing</td>
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<td>13:54</td>
<td>OR53</td>
<td>Terrence Piva: Overcoming the inhibition of BRAFV600E in melanoma cells, are all growth factors the same?</td>
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<td>14:06</td>
<td>OR54</td>
<td>Konstantin Horas: Loss of the vitamin D receptor promotes the metastatic potential of human breast cancer cells to bone via down-regulation of e-cadherin</td>
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<td>14:18</td>
<td>OR55</td>
<td>Blake Ferguson: The Tgfb2/Rrp15 locus is an innate modifier of UVR-induced melanoma development</td>
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<td>14:30</td>
<td>OR56</td>
<td>Andy Wu: Bone marrow macrophages modulate prostate cancer induced woven bone formation</td>
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<td>14:45</td>
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<td>Poster Session 4 with Afternoon tea (Posters 94-146)</td>
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<td>Fed Ballroom</td>
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#### Tuesday 3rd November 2015 continued...

**15:30 – 17:00 CONCURRENT SESSIONS**

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<tr>
<th>Time</th>
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<th>Title</th>
<th>Speaker(s)</th>
<th>Location</th>
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<tr>
<td>15:30</td>
<td>5A</td>
<td>CONCURRENT SESSION 5A: The Bone Endocrine Interface</td>
<td>Chair: Tara Brennan-Speranza and Paul Baldock</td>
<td>Grand Ballroom 1</td>
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<tr>
<td>15:30</td>
<td>IS23</td>
<td><strong>Paul Lee:</strong> A bony affair with brown fat in humans</td>
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<td>16:00</td>
<td>IS24</td>
<td><strong>Holger Henneicke:</strong> Glucocorticoids, bone and adipose tissue</td>
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<td>16:30</td>
<td>IS25</td>
<td><strong>Itamar Levinger:</strong> Osteocalcin-muscle interaction</td>
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<tr>
<td>15:30</td>
<td>5B</td>
<td>CONCURRENT SESSION 5B: Vitamin D Basic Aspects</td>
<td>Chair: Gerald Atkins and Katie Dixon</td>
<td>Grand Ballroom 2</td>
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<tr>
<td>15:30</td>
<td>IS26</td>
<td><strong>Rebecca Mason:</strong> Mechanisms of protection from UV-induced DNA damage by vitamin D compounds</td>
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<td>16:00</td>
<td>IS27</td>
<td><strong>Paul Anderson:</strong> The intrinsic role of vitamin D metabolism and activity in bone remodelling</td>
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<td>16:00</td>
<td>IS28</td>
<td><strong>Shelley Gorman:</strong> Could sun exposure be used to control obesity? Identifying vitamin D-dependent and –independent effects</td>
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<td>15:30</td>
<td>5C</td>
<td>CONCURRENT SESSION 5C: Cell Matrix Interactions</td>
<td>Chair: Mike Rogers and Albert Mellick</td>
<td>Grand Ballroom 3</td>
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<tr>
<td>15:30</td>
<td>IS29</td>
<td><strong>Johanne Martel-Pelletier:</strong> The ephrin-B2/EphB4 system in musculoskeletal development and osteoarthritis</td>
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<td>16:00</td>
<td>IS30</td>
<td><strong>Paul Timpson:</strong> Advanced intravital imaging of a CDK1 FRET biosensor reveals targeting of tumour-ECM feedback via rock inhibition improves chemotherapy in pancreatic cancer</td>
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<td>16:30</td>
<td>IS31</td>
<td><strong>Shireen Lamande:</strong> A new collagen I phenotype with a novel recessive COL1A1 mutation identified by next generation sequencing.</td>
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**17:00 – 18:00 Concurrent Annual General Meetings of the Societies**

* ANZBMS, Grand Ballroom 1
* MBSANZ, Harbour View Room 1
* MEPSA, Chancellor Room 4

**19:00 for 19:30 Conference Dinner**

* Grand Ballroom
Scientific Program

Wednesday 4th November 2015

09:00 – 10:30 PLENARY SESSION 6: The Bone Cartilage Interface
Chair: Emma Duncan and Matthew Gillespie
Grand Ballroom 1-3

09:00 IS32 Jerry Turnbull: Proteoglycans: Towards diverse therapeutic applications
09:30 IS33 Chris Little: New insights into osteoarthritis using animal models
10:00 IS34 Jean-Pierre Pelletier: What has studying bone taught us about osteoarthritis in humans?

10:30 – 11:00 Morning Tea Federation Ballroom

11:00-13:00 PLENARY SESSION 7: Developmental Biology
Chair: Natalie Sims and Rebecca Mason
Grand Ballroom 1-3

11:00 IS35 Peter Farlie: An olfactory receptor with a broad role in embryonic development
11:30 IS36 Marian Young: Regulation of bone turnover
12:00 IS37 Hank Kronenberg: How PTH/PTHrP use class II HDACs in osteocytes and chondrocytes
12:30 IS38 John Bateman: The unfolded protein response in skeletal development and disease

13:00 Meeting concludes

Poster Sessions

Plenary Poster Session Sunday 1 November Plenary Posters 1-20
Poster Session 1 (13:00-14:00) Monday 2 November Poster 1-50
Poster Session 2 (15:30-16:00) Monday 2 November Posters 51-72
Poster Session 3 (09:45-10:15) Tuesday 3 November Posters 73-94
Poster Session 4 (14:45-15:30) Tuesday 3 November Posters 95-146

Presenters are to stand by their posters for first 20 minutes of each poster session.
Scientific Program

Plenary Posters

P1 GENETIC EFFECTS ON TRABECULAR AND CORTICAL VOLUMETRIC BONE MINERAL DENSITIES AND BONE MICROSTRUCTURE
Pan F, Squibb K, Thomson R, Winzenberg T, Zebaze R, Jones G

P2 LOW RELATIVE MUSCLE MASS IS ASSOCIATED WITH INCREASED PRESENCE AND SEVERITY OF AORTIC CALCIFICATION

P3 CORRELATES OF BONE MASS IN YOUNG ADULTS: THE ROLE OF CHOLESTEROL OVER 20 YEARS FROM CHILDHOOD TO EARLY ADULTHOOD
Eathakkattu ABS, Ding C, Venn A, Dwyer T, Jones G

P4 PTH LEVELS IN MEN ARE ASSOCIATED WITH BLOOD PRESSURE, LIPIDS AND CORONARY ARTERY CALCIUM, BUT NOT BONE MINERAL DENSITY: IMPLICATIONS FOR THE DIAGNOSIS OF NORMOCALCEMIC HYPERPARATHYROIDISM
Billington E, Gamble G, Reid I

P5 MODERATE-TO-VIGOROUS PHYSICAL ACTIVITY IS ASSOCIATED WITH BONE MINERAL DENSITY, MUSCLE STRENGTH AND BALANCE IN MIDDLE-AGED WOMEN
Wu F, Willis K, Laslett L, Oldenburg B, Jones G, Winzenberg T

P6 KNEE OSTEOARTHRITIS: BONE MARROW LESIONS DETECTED BY SPECIFIC MRI SEQUENCES ASSOCIATE WITH SEVERITY OF OSTEOCHONDRAI DEGENERATION

P7 DELETION OF PROTEASE ACTIVATED-RECEPTOR 2 (PAR2) IMPROVES BONE AND MUSCLE PATHOLOGY IN THE MDX MOUSE
Taghaviesfandouni N, Sanaei R, Samuel CS, Pagel CN, Mackie EJ

P8 EXPLORING THE OSTEOCYTE TRANSCRIPTOME
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