## WEDNESDAY 27 JUNE

**Talks in Stripe Auditorium**  
Catering breaks and coffee and dessert at lunchtime, exhibition and poster viewing in Stripe Lecture Room, Stripe Studio 1 and 2

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Details</th>
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<tbody>
<tr>
<td>12:00</td>
<td><strong>Foyer, The Stripe Building</strong></td>
<td>Registration desk opens, coffee available</td>
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<tr>
<td>13:00–14:45</td>
<td><strong>BRS-IOF Symposium: Global burden of osteoporosis and sarcopenia</strong></td>
<td>Chairs: Cyrus Cooper (Southampton, UK) and Elizabeth Curtis (Southampton, UK)</td>
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<tr>
<td>13:05–13:30</td>
<td>Osteoporotic fracture risk: A lifecourse perspective</td>
<td>Nick Harvey (Southampton, UK)</td>
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<td>13:55–14:20</td>
<td>Advances in clinical risk assessment</td>
<td>Eugene McCloskey (Sheffield, UK)</td>
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<td>14:20–14:45</td>
<td>Anabolic therapies</td>
<td>Serge Ferrari (Geneva, Switzerland)</td>
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<td>14:45–14:55</td>
<td><strong>Industry presentation supported by Internis</strong></td>
<td>Chairs: Cyrus Cooper (Southampton, UK) and Elizabeth Curtis (Southampton, UK)</td>
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<td>Alendronate 70 mg effervescent buffered solution: Are You Experienced?</td>
<td>Three years of improved adherence in Italy</td>
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<td>Andrea Giusti (Milan, Italy)</td>
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<td>15:00–15:30</td>
<td><strong>Refreshment break and exhibition</strong></td>
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<tr>
<td>15:30–16:50</td>
<td><strong>Muscle and bone workshop</strong></td>
<td>Organisers: Alex Ireland (Manchester, UK) and Kate Ward (Southampton, UK)</td>
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<td>15:30–15:55</td>
<td>Physiological and structural changes in skeletal muscle and nerve-muscle interactions: the effects of nutrition and ageing</td>
<td>Aphrodite Vasilaki (Liverpool, UK)</td>
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<td>15:55–16:20</td>
<td>Exercise, nutrition and sarcopenia</td>
<td>Elaine Dennison (Southampton, UK)</td>
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<td>16:20–16:45</td>
<td>Discussions re future muscle-bone initiatives (All)</td>
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<td>17:00–18:30</td>
<td><strong>Terrace Bar and Lounge</strong></td>
<td>New Investigator Session – Meet the Professor – Mentorship</td>
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<td>Organisers: Elizabeth Curtis (Southampton, UK) and Katherine Staines (Edinburgh, UK)</td>
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<td>19:00–22:00</td>
<td><strong>Winchester Cathedral – Wessex Suite</strong></td>
<td>Rare Bone Diseases Workshop and Supper</td>
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<td><strong>Rare Bone Diseases Workshop and Supper</strong></td>
<td>Organisers: Nick Bishop (Sheffield, UK) and Kassim Javaid (Oxford, UK)</td>
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<td>In association with International Conference on Children’s Bone Health (ICCBH)</td>
<td>We are grateful to Kyowa Kirin and Mereo BioPharma for their support</td>
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<tr>
<td>19:00–19:30</td>
<td><strong>Registration and networking</strong></td>
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**WEDNESDAY 27 JUNE continued**

19:30–19:55  What has genetics taught us about bringing basic scientists and clinicians together?
**Matt Warman** (Boston, USA)

19:55–20:15  100,000 Genomes and rare bone disorders: impacts for patients, clinicians and scientists
**Richard Scott** (Cambridge/London, UK)

20:15–20:25  P1 X-linked hypophosphataemia: burden of disease using United Kingdom primary care data
**Kassim Javaid** (Oxford, UK)

20:25–20:35  P2 Localisation and partial deletion of the HGD gene in a new targeted model of alkaptonuria
**Juliette Hughes** (Liverpool, UK)

20:35–20:45  P3 A review of clinical, radiological and treatment features from 18 patients with SAPHO (synovitis, acne, pustulosis, hyperosteosis and osteitis) syndrome and CRMO (chronic recurrent multifocal osteomyelitis) at Addenbrooke’s Hospital
**Jagtar Singh Nijjar** (Cambridge, UK)

20:45–21:00  Short break

21:00–21:20  Burosumab in paediatric bone diseases: what have we learnt?
**Anya Rothenbuhler** (Paris, France)

21:20–21:40  Asfotase alfa therapy in perinatal and infantile hypophosphatasia
**Wolfgang Högler** (Birmingham, UK)

21:40–22:00  Repurposing in rare bone disease therapies
**Mike Briggs** (Newcastle upon Tyne, UK)

22:00  Close

**THURSDAY 28 JUNE**

Talks in Stripe Auditorium
Catering breaks and coffee and dessert at lunchtime, exhibition and poster viewing in Stripe Lecture Room, Stripe Studio 1 and 2

09:30  Registration and coffee

09:40–10:00  **Welcome and opening remarks**
**Miep Helfrich** (Aberdeen, UK) and **Kate Ward** (Southampton, UK)
**Cyrus Cooper** (Southampton, UK) and **Richard Oreffo** (Southampton, UK)
**Mark Spearing** (University of Southampton)

10:00–11:00  **Symposium 1: Tissue engineering and regenerative medicine bench to clinic**
Chairs: **Miep Helfrich** (Aberdeen, UK) and **Richard Oreffo** (Southampton, UK)

10:00–10:20  IS1 Polymers for controlling and manipulating cells
**Mark Bradley** (Edinburgh, UK)

10:20–10:40  IS2 Re-engineering developmental processes for tissue regeneration
**Ivan Martin** (Basel, Switzerland)
THURSDAY 28 JUNE continued

10:40–11:00 IS3 Mesenchymal stromal cell lineages in the joint in health, injury and arthritis
Anke Roelofs (Aberdeen, UK)

11:00–11:40 Oral communications
Chairs: Duncan Bassett (London, UK) and Fjola Johannesdottir (Boston, USA)

11:00–11:10 OC1 Social deprivation predicts adverse health outcomes after hospital admission with hip fracture in England
Arti Bhimjiyani (Bristol, UK)

11:10–11:20 OC2 Tram2 is a novel genetic determinant of bone mass and strength
Victoria D. Leitch (London, UK)

11:20–11:30 OC3 Novel combination therapy with zoledronic acid and anti-TGFβ repairs established osteolytic lesions in preclinical models of multiple myeloma
Andrew Chantry (Sheffield, UK)

11:30–11:40 OC4 Systematic fracture risk screening using FRAX results in greater use of, and adherence to, anti-osteoporosis medications: The UK SCOOP Trial
Camille Parsons (Southampton, UK)

11:40–12:00 Poster Pitching
Chairs: Duncan Bassett (London, UK) and Fjola Johannesdottir (Boston, USA)

P5 Cluster analysis of high resolution peripheral quantitative computed tomography parameters including finite element analysis identifies bone phenotypes associated with higher rates of prevalent fracture
Mark Edwards (Southampton, UK)

P7 Spontaneous atypical tibial and femoral fractures associated with alendronate then denosumab therapy in an adult patient with juvenile idiopathic arthritis: a case report
Juan Tan (Edinburgh, UK)

P9 Impact of mild and moderate/severe vertebral fractures on physical activity: A five-year prospective study based on a cohort of older women in the UK
Usama Al-Sari (Bristol, UK)

P11 A tale of two phosphatases: dissecting the roles of PHOSPHO1 and TNAP during skeletal biomineralisation
Scott Dillon (Edinburgh, UK)

P13 Slc38a10 is a novel genetic determinant of osteoblast proliferation and bone mineral density
Andrea Pollard (London, UK)

P15 Bone induction in a murine subcutaneous model using nanoclay gel and bone morphogenic protein: an optimisation study
Josephine McEwan (Southampton, UK)

P17 TGFβ inhibition in combination with chemotherapy repairs existing lytic bone lesions in a novel plateau phase model of multiple myeloma
Michelle Lawson (Sheffield, UK)

P19 Gpc6: a novel determinant of bone mineral density in osteoporosis
Naila Mannan (London, UK)

P21 Fam73b is essential for skeletal growth and the maintenance of bone mass and strength
David Komia-Ebri (London, UK)
11:40–12:00
P23 Osteocalcin regulates arterial calcification via altered Wnt signalling and glucose metabolism
Nabil Rashdan (Edinburgh, UK)
P25 All that fractures is not bone: microscopic anatomy of vertebral bodies
Alan Boyde (London, UK)

12:00–13:00
Coffee and poster viewing (odd numbered posters)

13:00–14:00
Lunch – Food Hall
Annual General Meeting – Stripe Auditorium

14:00–14:40
UCB sponsored Lecture
Chair: Duncan Bassett (London, UK)
Targeting and tracking Wnt-related signalling mechanisms in mesenchymal stem cells
Paul Genever (York, UK)

14:40–15:10
Plenary Lecture
Chairs: Cyrus Cooper (Southampton, UK) and Bronwen Evans (Cardiff, UK)
IS4 Targeting cellular senescence: A new therapeutic approach for age-related osteoporosis
Sundeep Khosla (Rochester, USA)

15:10–15:30
Coffee and poster viewing

15:30–16:30
Symposium 2: The Judith Adams Imaging Symposium: From Mice to Men
Chairs: Ken Poole (Cambridge, UK) and Katherine Staines (Edinburgh, UK)

15:30–15:50
IS5 Label-free techniques and multimodal imaging in skeletal repair and regeneration
Sumeet Mahajan (Southampton, UK)

15:50–16:10
IS6 Models for mechanobiology
Markus Heller (Southampton, UK)

16:10–16:30
IS7 High-resolution imaging of soft and hard tissues at once and in 3D, please!
Phillipp Schneider (Southampton, UK)

16:30–16:40
Industry presentations
Chairs: Ken Poole (Cambridge, UK) and Katherine Staines (Edinburgh, UK)
Imaging and analysis for bone research – from nanometre to micrometre scale
Katherine Lau (Carl Zeiss Ltd, Cambridge, UK)
An update on high-resolution peripheral quantitative computed tomography
Vincent Stadelmann (Scanco Medical, Bruettisellen, Switzerland)

16:45–17:15
Plenary Lecture
Chairs: Alex Ireland (Manchester, UK) and Richard Oreffo (Southampton, UK)
IS8 The functions of the osteocyte change with age
Lynda Bonewald (Indianapolis, USA)

17:20–17:50
Charles Dent Lecture
Chair: Miep Helfrich (Aberdeen, UK)
Prevention of osteoporotic fracture throughout the lifecourse
Cyrus Cooper (Southampton, UK)
THURSDAY 28 JUNE continued

17:55–18:40 Debate
Chair: Kate Ward (Southampton, UK)
Fracture is the only endpoint for osteoporosis trials
For the motion: Celia Gregson (Bristol, UK)
Against the motion: Ken Poole (Cambridge, UK)

19:15–23:00 Conference Dinner (River Cottage, Winchester)

FRIDAY 29 JUNE

Talks in Stripe Auditorium (and Tom Atkinson Building)
Catering breaks and coffee and dessert at lunchtime, exhibition and poster viewing in Stripe Lecture Room, Stripe Studio 1 and 2, Lunch in Food Hall

08:30–09:30 Symposium 3: Early life origins of disease
Chairs: Elizabeth Curtis (Southampton, UK) and Kassim Javaid (Oxford, UK)

08:30–09:00 IS9 Epigenetics of early life origins of disease
Karen Lillycrop (Southampton, UK)

09:00–09:30 IS10 Global perspective on early life determinants of non-communicable disease
Mark Hanson (Southampton, UK)

09:30–10:00 Poster Pitching
Chairs: Elizabeth Curtis (Southampton, UK) and Kassim Javaid (Oxford, UK)

PP4 Self-perception of fracture risk is associated with radial bone microarchitecture in the GLOW Study
Leo Westbury (Southampton, UK)

PP6 Severe lumbar spinal stenosis on MRI scans is related with heavy manual work: The Wakayama Spine Study
Yuyu Ishimoto (Southampton, UK)

PP8 Osteoclasts are multinucleated cells that degrade cartilage, as well as bone
Quitterie Larrouture (Oxford, UK)

PP10 Limb bones scale similarly despite forelimb-hindlimb load asymmetry in bipedal hopping
Michael Doube (London, UK)

PP12 Human decellularised blood vessel matrices promote bone repair in an ex vivo bone defect model
Janos Kanczler (Southampton, UK)

PP14 In vivo skeletal regeneration using a nanocomposite silicate-based bioink
Gianluca Cidonio (Southampton, UK)

PP16 Osteoporosis as a risk factor for the occurrence of frailty: a four-year follow-up of the ROAD study
Noriko Yoshimura (Tokyo, Japan)
**FRIDAY 29 JUNE** continued

| 09:30–10:00 | PP18 | Photoperiod-induced central actions of thyroid hormone are essential for medullary bone formation in Japanese quail  
**Natalie Butterfield** (London, UK) |
| 09:30–10:00 | PP20 | Age related changes in native human bone marrow mesenchymal stem cells  
**Payal Ganguly** (Leeds, UK) |
| 09:30–10:00 | PP22 | Independent skeletal phenotyping of Creb3l1 knockout mice confirms validity of signature in human GWAS  
**Elena J Ghirardello** (London, UK) |
| 09:30–10:00 | PP24 | The regulation of bone mineralisation in vitro and in vivo models of chronic kidney disease  
**Shun-Neng Hsu** (Edinburgh, UK) |
| 09:30–10:00 | PP26 | Inhibition of the Protein Kinase R signaling pathway in vivo reduces bone remodeling in post-traumatic osteoarthritis  
**Sophie Gilbert** (Cardiff, UK) |
| 09:30–10:00 | PP28 | VEGF exerts sexually dimorphic effects on bone mass and architecture  
**Behzād Javaheri** (London, UK) |
| 09:30–10:00 | PP30 | Falls risk is increased and bone mineral density reduced in individuals with rheumatoid arthritis: findings from UK biobank  
**Michael Clynes** (Southampton, UK) |
| 09:30–10:00 | PP32 | IRF5 is required for macrophage-driven bone formation  
**Nicole Horwood** (London, UK) |

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**Nicole Horwood** (London, UK) |

| 11:00–12:00 | Clinical (Tom Atkinson Building)  
Chairs: Celia Gregson (Bristol, UK) and Mark Edwards (Portsmouth, UK) | Basic/Translational (Stripe Auditorium)  
Chairs: Shelly Lawson (Sheffield, UK) and Christa Maes (Leuven, Belgium) |
| 11:00–11:10 | OC5 | Age at onset of walking in infancy is associated with hip shape in early old age  
**Alex Ireland** (Manchester, UK) |
| 11:00–11:10 | OC9 | Repurposing glutamate receptor antagonists for the prevention of post-traumatic osteoarthritis  
**Sophie Gilbert** (Cardiff, UK) |
| 11:10–11:20 | OC6 | A 9-month jumping intervention to improve bone acquisition in adolescent male athletes: The PRO-BONE randomized controlled trial  
**Dimitris Viachopoulos** (Exeter, UK) |
| 11:10–11:20 | OC10 | MMnet, a Macrophage Multinucleation Network enriched in genes controlling osteoclast function  
**Marie Pereira** (London, UK) |
| 11:20–11:30 | OC7 | Plasma β-C-terminal telopeptide of type I collagen (CTX) in pregnancy is influenced by cholecalciferol supplementation and is associated with maternal bone health: findings from the MAVIDOS trial  
**Elizabeth Curtis** (Southampton, UK) |
| 11:20–11:30 | OC11 | Bromodomain inhibitors are potent epigenetic regulators of catabolic gene expression in human osteoarthritic chondrocytes  
**Maria de Andrés** (Southampton, UK) |
### FRIDAY 29 JUNE continued

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<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Title</th>
<th>Speaker In Institution</th>
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<tr>
<td>11:30–11:40</td>
<td>OC8</td>
<td>Relationships between the hypothalamic-pituitary-adrenal axis and bone microarchitecture: findings from the Hertfordshire Cohort Study</td>
<td>Nicholas Fuggle (Southampton, UK)</td>
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<td>11:40–11:50</td>
<td>LB1</td>
<td>Pregnancy induced changes in bone microarchitecture and density at the tibia as determined by single-slice and high-resolution peripheral quantitative computed tomography</td>
<td>Micheál O Breasail (Cambridge, UK)</td>
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<td>11:50–12:00</td>
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<td>12:00–12:30</td>
<td>Satellite</td>
<td>Satellite symposium</td>
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<td>Symposium</td>
<td>Lilly sponsored Lecture</td>
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<td>Chair: Cyrus Cooper (Southampton, UK)</td>
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<td>Teriparatide: a key building block in osteoporosis research and treatment, the past and present</td>
<td>Fernando Marin (Lilly Research Centre, Windlesham, UK)</td>
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<td>12:40–13:30</td>
<td>Lunch and poster viewing</td>
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<td>13:30–14:30</td>
<td>Symposium 4: Ageing</td>
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<td>IS11</td>
<td>Inflammation and musculoskeletal ageing</td>
<td>Janet Lord (Birmingham, UK)</td>
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<td>IS12</td>
<td>Neglected patients at high risk of hip fractures</td>
<td>Steve Cummings (San Francisco, USA)</td>
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<td>14:30–15:00</td>
<td>Plenary Lecture</td>
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<td>IS13</td>
<td>Osteo-angiogenic coupling in skeletal development, bone homeostasis and fracture repair</td>
<td>Christa Maes (Leuven, Brussels)</td>
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<td>15:00–16:00</td>
<td>Oral communications</td>
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<td>LB2</td>
<td>Zoledronate every 18 months for 6 years in osteopenic postmenopausal women: effects on fractures and non-skeletal endpoints</td>
<td>Ian Reid (Auckland, New Zealand)</td>
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<td>OC12</td>
<td>Application of 3D printed patient specific skeletal implants augmented with autologous skeletal stem cells</td>
<td>Josephine McEwan (Southampton, UK)</td>
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<td>OC13</td>
<td>Bovine Lactoferrin Promotes Bone Regeneration</td>
<td>Jillian Cornish (Auckland, New Zealand)</td>
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<td>OC14</td>
<td>Increased sclerostin expression following OB-derived VEGF deletion</td>
<td>Alice Goring (Southampton, UK)</td>
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**OC12 Application of 3D printed patient specific skeletal implants augmented with autologous skeletal stem cells**

**OC13 Bovine Lactoferrin Promotes Bone Regeneration**

**OC14 Increased sclerostin expression following OB-derived VEGF deletion**
FRIDAY 29 JUNE  continued

15:10–15:20  OC15 Serum citrate: a novel biomarker of bone resorption?
  April Hartley (Bristol, UK)

15:20–15:30  OC16 Women at high risk of hip fracture based on FRAX respond to appropriate osteoporosis management: analysis from the SCOOP study of population screening
  Eugene McCloskey (Sheffield, UK)

15:30–15:40  OC17 Osteoblast-specific Enpp1 deficiency engenders increased bone mass and insulin resistance
  Fiona Roberts (Edinburgh, UK)

15:40–15:50  OC18 A new dual injury osteoarthritis model that combines cartilage damage and destabilisation of the medial meniscus leads to accelerated osteophytogenesis
  Carl Goodyear (Glasgow, UK)

15:50–16:00  OC19 Longitudinal survey of high density mineralised protrusions: a potential novel imaging biomarker of osteoarthritis
  Neil Thomas (Liverpool, UK)

16:00–16:15  Awards and closing remarks
  Jim Gallagher (Liverpool, UK) and Miep Helfrich (Aberdeen, UK)

The Scientific Programme has been developed independently by the Organising Committee under no influence from any supporting organisation or their employees.

All parties will make reasonable efforts to present educational subject matter in a scientific, balanced and unbiased way. However, participants must always use their own judgment and professional opinion when considering future application of this information, particularly as it may relate to patient diagnostic or treatment decisions.

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