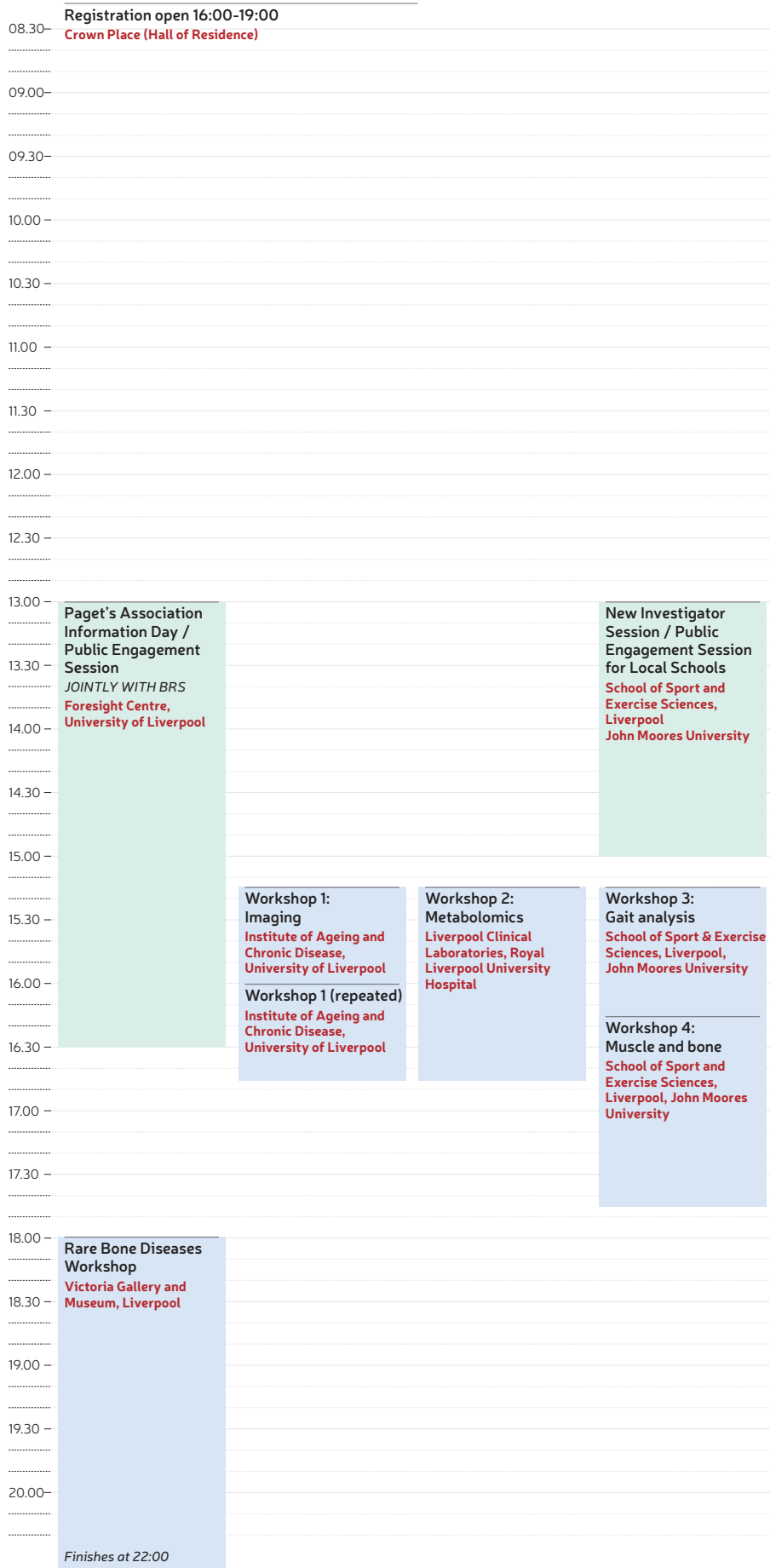


WEDNESDAY 29 JUNE



THURSDAY 30 JUNE

FRIDAY 1 JULY

All talks are in Lecture Theatre B, Central Teaching Hub (CTH) unless otherwise stated
Catering breaks, posters, exhibition and registration are in Mountford Hall (MH)

08.30-	Registration open 09:15-17:30	MH
09.00-		
09.30-		
10.00-	Welcome & Opening Remarks	CTH
10.30-	Symposium 1: Endocrinology of bone	CTH
11.00-	Poster Pitching	CTH
11.30-	Industry Presentation	CTH
12.00-	Coffee & Posters <i>Odd number posters manned</i>	MH
12.30-		
13.00-	AGM Lunch	CTH MH
13.30-	Oral Communications	CTH
14.00-		
14.30-	Oral Posters	CTH
15.00-		
15.30-	Coffee & Posters	MH
16.00-	Symposium 2: Cartilage – bone interactions <i>Lecture Theatre B (CTH)</i>	
16.30-	Clinical Cases <i>Lecture Theatre D (CTH)</i>	
17.00-	Plenary Lecture: Cartilage and bone biomarkers in osteoarthritis	CTH
17.30-	Break Charles Dent Lecture: Follow that dream: FOP: Past, present and future	Victoria Gallery & Museum
18.00-		
18.30-	Debate In the absence of osteoporosis ... “The drugs don't work”	Victoria Gallery & Museum
19.00-		
19.30-	Reception	Victoria Gallery & Museum
20.00-		
	Dinner	Pen Factory

08.30-	Registration open 08:00-17:00	MH
09.00-	Symposium 3: Muscle – bone interactions	CTH
09.30-		
10.00-	Poster Pitching	CTH
10.30-	Coffee & Posters <i>Even number posters manned</i>	MH
11.00-		
11.30-		
12.00-	Oral Communications	CTH
12.30-		
13.00-	Lunch	MH
13.30-	Symposium 4: Cancer and bone	CTH
14.00-		
14.30-	Plenary Lecture: Modeling the skeletal maladies in neurofibromatosis type 1	CTH
15.00-	Oral Communications <i>including late breakers</i>	CTH
15.30-		
16.00-	Break Plenary Lecture: Cell therapies and regenerative medicine - the dawn of a new age or more hype than hope?	CTH
16.30-	Awards	CTH
17.00-	Close	CTH
17.30-		
18.00-	Public Lecture: What really moves you?	CTH
18.30-		
19.00-		
19.30-		
20.00-		

PROGRAMME – WEDNESDAY 29 JUNE

13:00-15:00 NEW INVESTIGATOR SESSION / PUBLIC ENGAGEMENT SESSION FOR LOCAL SCHOOLS

VENUE: School of Sport and Exercise Sciences, Liverpool
John Moores University

13:00 New Investigator Session
Public Engagement: Why and how do we do it?
Zoe Knowles (Liverpool, UK)

BRS Schools sessions – how can we get involved?

Brainstorming new ideas for public engagement activities

Mark Edwards (Southampton, UK), Katherine Staines (Edinburgh, UK), Zoe Knowles (Liverpool, UK)

14:00 Schools lectures
The Science of Bones Workshop

The Science of Bones workshop involves four workstations that are designed to allow pupils from invited schools to learn about the gross anatomy, structure and composition of bones and introduce them to the cells of bone in a fun, 'hands on' practical way.

Anatomy of the skeleton
Alistair Bond (Liverpool, UK) & Mark Edwards (Southampton, UK)

What is bone made of?
Alison Gartland (Sheffield, UK) & Katherine Staines (Edinburgh, UK)

Motion capture of skeletal movement
Gabor Barton (Liverpool, UK) & Jonathan Jarvis (Liverpool, UK)

Neil Mackenzie Public Engagement Award:
Fatty bones
Emma Morris (Oxford, UK)

13:00-16:30 PAGET'S ASSOCIATION INFORMATION DAY / PUBLIC ENGAGEMENT SESSION JOINTLY WITH BRS

VENUE: Foresight Centre, University of Liverpool
CHAIR: Anna Daroszewska (Liverpool, UK)

Welcome
Graham Russell (Oxford and Sheffield, UK)
Paget's Association Honorary President

What is Paget's disease of bone?
Anna Daroszewska (Liverpool, UK)

Paget's disease in the medieval population at the Norton Priory
Lynn Smith (The Norton Priory Museum and Gardens, UK)

Osteoarchaeology of Paget's disease
Carla Burrell (Liverpool, UK)

Management of Paget's disease
Bill Fraser (Norwich, UK)

Basic research into Paget's disease
Rob Layfield (Nottingham, UK)

Case studies
Stephen Tuck (Middlesbrough, UK)

The Paget's Association - making a difference together
Diana Wilkinson (The Paget's Association, UK)

15:15 onwards CONCURRENT PRE-MEETING WORKSHOPS

15:15-16:00 & 16:00-16:45 WORKSHOP 1

VENUE: Institute of Ageing and Chronic Disease,
University of Liverpool

Imaging (microCT)
Rob Van 't Hof (Liverpool, UK)
SUPPORTED BY BRUKER

15:15-16:45 WORKSHOP 2

VENUE: Liverpool Clinical Laboratories,
Royal Liverpool University Hospital

Metabolomics of cartilage and bone
Anna Milan, Andy Hughes, Andrew Davison (Liverpool, UK)

15:15-16:15 WORKSHOP 3

VENUE: School of Sport and Exercise Sciences,
Liverpool John Moores University

Clinical gait analysis
Gabor Barton (Liverpool, UK)
SUPPORTED BY VICON MOTION SYSTEMS

16:00 onwards ACCOMMODATION CHECK-IN

VENUE: Crown Court Hall of Residence
Registration desk open in Crown Court Hall of Residence from 16:00-19:00

16:15-17:30 WORKSHOP 4

Follows on from Clinical Gait Analysis workshop
VENUE: School of Sport and Exercise Sciences,
Liverpool John Moores University

Muscle and bone
Alex Ireland (Manchester, UK), Jonathan Jarvis (Liverpool, UK), Kate Ward (Cambridge, UK)

Implantable muscle pacemakers to generate programmed patterns of loading in rodents
Jonathan Jarvis (Liverpool, UK)

How to measure changes in size shape and quality of bone in experimental models of loading
Lee Meakin (Bristol, UK)

P018 Musculoskeletal and performance characteristics of exceptionally active older people: comparison between life-long runners, those taking up competitive running at a later age and a recreationally active control group
Jessica Coulson¹, Mathew Piasecki¹, Alex Ireland¹, Kevin Deere², Kimberley Hannam², Jon Tobias², Jamie McPhee¹

¹Manchester Metropolitan University, Manchester, UK, ²University of Bristol, Musculoskeletal Research Unit, Bristol, UK

P020 Weight is associated with hip shapes known to predispose to osteoarthritis: a cross-sectional study in peri-menopausal women
Benjamin Faber¹, Denis Baird¹, Jenny Gregory², Rebecca Barr², Richard Aspden², Debbie Lawlor¹, Celia Gregson¹, Jonathan Tobias¹

¹University of Bristol, Bristol, UK, ²University of Aberdeen, Aberdeen, UK

PROGRAMME – WEDNESDAY 29 JUNE

P026	Differences in bone density and geometry in adolescent male athletes engaged in UK popular sports: 1 PRO-BONE study <i>Dimitris Vlachopoulos¹, Alan R. Barker¹, Craig A. Williams¹, Sigurbjörn A. Arngrimsson³, Karen M. Knapp⁵, Brad S. Metcalf¹, Ioannis G. Fatouros⁴, Luis A. Moreno², Luis Gracia-Marco²</i> ¹ University of Exeter, Exeter, UK, ² University of Zaragoza, Zaragoza, Spain, ³ University of Iceland, Reykjavik, Iceland, ⁴ University of Thessaly, Trikala, Greece, ⁵ University of Exeter Medical School, Exeter, UK	19:45 20:00	BREAK The Bone Cancer Research Trust National Biobank Project - overcoming the barriers to primary bone cancer sample collection and use in research <i>Zoe Davison (Bone Cancer Research Trust)</i>
P043	Increases in proximal femur bone strength estimated using finite element models from computed tomography scans following brief, high impact exercise in older men <i>Daniel Blackwell^{1,2}, Lang Yang², Katherine Brooke-Wavell¹, Muhammad Qasim², Sarah Allison^{1,3}, Winston Rennie⁴, Greg Summers⁵, Richard Eastell²</i> ¹ Loughborough University, Loughborough, UK, ² Sheffield University, Sheffield, UK, ³ University of Surrey, Surrey, UK, ⁴ University Hospitals Leicester, Leicester, UK, ⁵ Derby Teaching Hospitals, Derby, UK	20:05 20:10	P070 Tissue distribution of mRNA expression of enzymes involved in the tyrosine metabolic pathway in Hgd ^{-/-} mice with the osteoarthopathy of alkaptonuria <i>P Wilson¹, L Ghezzi², J Dillon¹, A Santucci², L Ranganath³, J Gallagher¹</i> ¹ University of Liverpool, Liverpool, Merseyside, UK, ² Università degli Studi di Siena, Siena, Italy, ³ Royal Liverpool University Hospital, Liverpool, Merseyside, UK
18:00-22:00	RARE BONE DISEASES WORKSHOP includes buffet supper – pre-booking required VENUE: Victoria Gallery and Museum, Liverpool Chairs: <i>Fadil Hannan (Liverpool, UK) & Kassim Javaid (Oxford, UK)</i>	20:15	P061 An audit of the recognition and management of low alkaline phosphatase levels in children <i>Alexander Moylan¹, MZ Mughal^{1,2}, Benjamin Jacobs¹</i> ¹ Royal National Orthopaedic Hospital, London, UK, ² Central Manchester NHS Foundation Trust, Manchester, UK
18:15	Why study rare bone diseases? <i>Matt Warman (Boston, USA)</i>	20:15	CC2 The treatment of Camurati-Englemann disease with losartan; a single case report <i>Alexander Moylan¹, MZ Mughal^{1,2}, Rosalind Mensah¹, Benjamin Jacobs¹</i> ¹ Royal National Orthopaedic Hospital, London, UK, ² Central Manchester NHS Foundation Trust, Manchester, UK
18:45	BREAK	20:45	Paediatric hypophosphatasia <i>Maira Cheung (London, UK)</i>
19:00	P019 Knees and Teeth Syndrome (KaTS) in cats - patella fractures in felines with persistent deciduous teeth <i>Sorrel Langley-Hobbs¹</i> ¹ University of Bristol, Bristol, UK	21:15	Networking
19:05	OP4 Using the RUDY study platform to capture quality of life of adults with rare diseases of the bone <i>Lydia Forestier-Zhang¹, Laura Watts¹, Alison Turner¹, Harriet Teare², Joseph Barrett¹, Jane Kaye², M Kassim Javaid¹, Rafael Pinedo-Villanueva¹</i> ¹ Nuffield Department of Orthopaedics, Rheumatology and Musculoskeletal Sciences, University of Oxford, Oxford, UK, ² Centre for Health, Law and Emerging Technologies, University of Oxford, Oxford, UK	22:00	Close
19:10	P042 Investigating phosphatidylserine metabolism in Lenz-Majewski syndrome <i>Charalambos Demetriou¹, Emma Peskett¹, Alexander Kapustin², Dagan Jenkins¹, Frédéric M Vaz³, Osamu Kuge⁴, Peter Clayton¹, Kevin Mills¹, Angela Barnicoat⁵, Maria Bitner-Glindzicz^{1,5}, Duangrudee Wattanasirichaigoon⁶, Krystyna Chrzanoska⁷, Martina Simandlová⁸, Lionel Maldergem⁹, Professor Catherine Shanahan², Sérgio B Sousa¹⁰, Gudrun E Moore¹, Philip Stanier¹</i> ¹ Genetics and Genomic Medicine, UCL Institute of Child Health, London, UK, ² Cardiovascular Division, James Black Centre, King's College London, London, UK, ³ Laboratory of Genetic Metabolic Disorders, Academic Medical Center, Amsterdam, The Netherlands, ⁴ Department of Chemistry, Faculty of Sciences, Kyushu University, Fukuoka, Japan, ⁵ Clinical Genetics Department, Great Ormond Street Hospital, London, UK, ⁶ Department of Pediatrics, Faculty of Medicine, Ramathibodi Hospital, Mahidol University, Bangkok, Thailand, ⁷ Department of Medical Genetics, Children's Memorial Health Institute, Warsaw, Poland, ⁸ Department of Biology and Medical Genetics, University Hospital Motol and Second Faculty of Medicine, Prague, Czech Republic, ⁹ Centre de Génétique Humaine, Université de Franche-Comté, Besançon, France, ¹⁰ Serviço de Genética Médica, Hospital Pediátrico de Coimbra, Coimbra, Portugal		
19:15	Therapy of alkaptonuria (black bone disease) <i>Lakshminarayan Ranganath (Liverpool, UK)</i>		

PROGRAMME – THURSDAY 30 JUNE

All talks are in Lecture Theatre B, Central Teaching Hub (CTH) unless otherwise stated

Catering breaks, posters, exhibition and registration are in Mountford Hall (MH)

09:15		REGISTRATION & COFFEE	MH	13:40	OC3	Longitudinal changes in bone structure as assessed by peripheral quantitative computed tomography and relationships with muscle health in older men and women <i>Mark Edwards¹, Kate Ward^{1,2}, Karen Jameson¹, Elaine Dennison¹, Cyrus Cooper¹</i> ¹ MRC Lifecourse Epidemiology Unit, Southampton, UK, ² MRC Human Nutrition Research, Cambridge, UK
		Poster hanging				
09:50		WELCOME & OPENING REMARKS	CTH			
		Jim Gallagher (<i>Liverpool, UK</i>)				
10:00		SYMPOSIUM 1	CTH	13:50	OC4	Osteocyte-derived microvesicles (MVs) stimulate adipocyte and osteoclast differentiation in vitro: a role for MVs in cell-cell communication in bone? <i>Nicole Scully^{1,5}, Georgios Kremastiotis^{1,4}, Rob Young², Mike Stone³, Bronwen Evans^{1,5}</i> ¹ Division of Cancer and Genetics, School of Medicine, Cardiff University, Cardiff, UK, ² School of Optometry and Vision Sciences, Cardiff University, Cardiff, UK, ³ Bone Research Unit, University Hospital Llandough, Cardiff, UK, ⁴ Faculty of Pharmacy, National and Kapodistrian University of Athens, Athens, Greece, ⁵ Arthritis Research UK Biomechanics and Bioengineering Centre Cardiff University, Cardiff, UK
		Endocrinology of bone				
	CHAIRS:	<i>Miep Helfrich (Aberdeen, UK) & Rob Van 't Hof (Liverpool, UK)</i>				
10:00	IS1	Identifying and tracking early cells of the osteoblast lineage in vivo <i>Hank Kronenberg (Boston, USA)</i>				
10:30	IS2	Discovery and clinical development of abaloparatide for the treatment of postmenopausal osteoporosis <i>Gary Hattersley (Radius Health Inc, Waltham, USA)</i>		14:00	OC5	How does hypoxia-inducible factor (HIF) regulate osteoclastogenesis and bone erosion? <i>Helen Knowles¹, Tammie Bishop², Chris Pugh²</i> ¹ Nuffield Department of Orthopaedics Rheumatology & Musculoskeletal Sciences, University of Oxford, UK, ² Centre for Cellular & Molecular Physiology, University of Oxford, UK
11:00		POSTER PITCHING	CTH	14:10	OC6	Bone blood flow in diabetic mice and skeletal effects of Glucagon-like peptide-1 receptor agonists <i>Marie Pereira¹, Stephanie Gohin¹, Amy Fisher², Graham Wadsworth², Mark Cleasby¹, Chantal Chenu¹</i> ¹ Royal Veterinary College, London, UK, ² Transpharmation, London, UK
	CHAIRS:	<i>Miep Helfrich (Aberdeen, UK) & Rob Van 't Hof (Liverpool, UK)</i>				
		P007, P015, P017, P023, P025, P031, P033, P035, P039, P043, P045, P047, P051, P059, P062, P063, P067, P071				
11:30		INDUSTRY PRESENTATION	CTH	14:20		ORAL POSTERS
		Laser microtomy for advanced histology in bone research				CTH
11:40		COFFEE & POSTERS	MH		CHAIRS:	<i>Anna Daroszewska (Liverpool, UK) & Nick Harvey (Southampton, UK)</i>
		Odd number posters manned		14:20	OP1	The pharmacological profile of a novel highly potent bisphosphonate, OX14 (1-fluoro-2-(imidazo-[1,2 alpha]pyridin-3-yl)ethyl-bisphosphonate), with reduced bone affinity, which is as effective as zoledronate in the treatment of myeloma bone disease in JN3-NOD/SCID-γ mice <i>Michelle Lawson^{1,2}, Andrew Chantry^{1,2}, Julia Paton-Hough^{1,2}, Holly Evans^{1,2}, Darren Lath^{1,2}, Maria Tsoumpra^{1,2}, Mark Lundy³, Roy Dobson⁴, Michael Quijano⁴, Aaron Kwaasi⁵, James Dunford⁵, Xu Chen Duan⁵, James Triffitt⁵, Adam Mazur⁵, Gwyn Jeans⁴, Graham Russell^{2,5}, Hal Eetino⁶</i> ¹ Department of Oncology and Metabolism, Medical School, University of Sheffield, Sheffield, UK, ² Mellanby Centre for Bone Research, Medical School, University of Sheffield, Sheffield, UK, ³ Indiana University, Purdue, Indianapolis, IN, USA, ⁴ Procter & Gamble, Mason, Ohio, USA, ⁵ Nuffield Department of Orthopaedics, Rheumatology & Musculoskeletal Sciences, The Oxford University Institute of Musculoskeletal Sciences, The Botnar Research Centre, Nuffield Orthopaedic Centre, Oxford, UK, ⁶ University of Rochester, Rochester, NY, USA
12:40		AGM LUNCH	CTH MH			
13:20		ORAL COMMUNICATIONS	CTH			
	CHAIRS:	<i>Duncan Bassett (London, UK) & Blandine Poulet (Liverpool, UK)</i>				
13:20	OC1	Does PHOSPHO1 modulate bone's response to intermittent PTH? <i>Dean Houston¹, Katherine Myers¹, Vicky MacRae¹, Anish Amin², Andrew Pitsillides³, Jose-Luis Millan⁴, Katherine Staines¹, Colin Farquharson¹</i> ¹ The Roslin Institute, R(D)SVS, The University of Edinburgh, Edinburgh, UK, ² Department of Orthopaedic and Trauma Surgery, The University of Edinburgh, Edinburgh, UK, ³ Royal Veterinary College, London, UK, ⁴ Sanford Burnham Prebys Medical Discovery Institute, La Jolla, USA		14:25	OP2	A fragility fracture increases the risk of incident cardiovascular events in men: Findings from UK Biobank <i>Julien Paccou¹, Stefania D'Angelo¹, Mark Edwards¹, Cyrus Cooper^{1,2}, Steffen Petersen³, Nicholas Harvey^{1,2}</i> ¹ MRC Lifecourse Epidemiology Unit, University of Southampton, Southampton, UK, ² NIHR Southampton Nutrition Biomedical Research Centre, University of Southampton and University Hospital Southampton NHS Foundation Trust, Southampton, UK, ³ NIHR Cardiovascular Biomedical Research Unit at Barts, William Harvey Research Institute, Queen Mary University of London, London, UK
13:30	OC2	Effect of investigational treatment abaloparatide for prevention of major osteoporotic fracture or any fracture is independent of baseline fracture probability <i>Eugene McCloskey¹, Helena Johansson¹, Nicholas Harvey², Anders Oden¹, Hai Jiang³, Sarah Modin³, Lorraine Fitzpatrick³, John Kanis¹</i> ¹ Centre for Metabolic Bone Diseases, University of Sheffield, Sheffield, UK, ² MRC Lifecourse Epidemiology Unit, University of Southampton, Southampton, UK, ³ Radius Health, Inc, Waltham, MA 02451, USA				

PROGRAMME – THURSDAY 30 JUNE

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Catering breaks, posters, exhibition and registration are in Mountford Hall (MH)

14:30	OP3	<p>Baseline osteoprotegerin antibody levels are associated with reduced spine bone density in coeliac disease, but not subsequent change in bone density</p> <p><i>Iain Savage¹, Tamara Gilchrist¹, Micaela Rios-Petrakis¹, Alan Shand², Helen Gillett², Peter Gillett², Clive Goddard², William D Fraser³, Jack Satsangi^{1,2}, Stuart H Ralston¹, Philip L Riches¹</i></p> <p>¹Centre for Genomics and Experimental Medicine, IGMM, Edinburgh, UK, ²Gastroenterology Department, Lothian University Hospitals NHS Trust, Edinburgh, UK, ³University of East Anglia, Norwich, UK</p>	
14:35	OP4	<p>Using the RUDY study platform to capture quality of life of adults with rare diseases of the bone</p> <p><i>Lydia Forestier-Zhang¹, Laura Watts¹, Alison Turner¹, Harriet Teare², Joseph Barrett¹, Jane Kaye², M Kassim Javadi¹, Rafael Pinedo-Villanueva¹</i></p> <p>¹Nuffield Department of Orthopaedics, Rheumatology and Musculoskeletal Sciences, University of Oxford, Oxford, UK, ²Centre for Health, Law and Emerging Technologies, University of Oxford, Oxford, UK</p>	
14:40	OP5	<p>Col2a1-driven TIMP3 disrupts endochondral growth and compromises bone structure and integrity: persistent transgene function in the chondrocyte-to-osteoblast lineage</p> <p><i>Blandine Poulet¹, Ke Liu¹, Darren Plumb¹, Phoung Vo², Mittal Shah³, Katherine Staines⁶, Alexandra Sampson³, Hiroyuki Nakamura², Hideaki Nagase², Alessandra Carriero⁴, Sandra Shefelbine⁵, Andrew Pitsillides³, George Bou-Gharios¹</i></p> <p>¹University of Liverpool, Liverpool, UK, ²University of Oxford, Oxford, UK, ³Royal Veterinary College, London, UK, ⁴Florida Institute of Technology, Melbourne, USA, ⁵Northeastern University, Boston, USA, ⁶University of Edinburgh, Edinburgh, UK</p>	
14:45	OP6	<p>Ubiquitin-protein ligase UBR5 is a potent regulator of murine articular cartilage homeostasis and suppressor of osteoarthritis</p> <p><i>David Mellis¹, Natalie Dora¹, Michela Grillo¹, Malgorzata Kubiak¹, Antonia Sophocleous¹, Stuart Ralston¹, Donald Salter¹, Robert Hill¹, Mark Ditzel¹</i></p> <p>¹University of Edinburgh, IGMM, Edinburgh, UK</p>	
14:50	OP7	<p>Ingestion of carbohydrate and protein immediately after an exhaustive run suppresses bone resorption and increases bone formation in trained male endurance runners</p> <p><i>Rebecca Townsend^{1,2}, Kirsty Elliott-Sale¹, Kevin Currell², William Fraser^{3,4}, Craig Sale¹</i></p> <p>¹Nottingham Trent University, Nottingham, UK, ²English Institute of Sport, Loughborough, UK, ³University of East Anglia, Norwich, UK, ⁴Norfolk and Norwich University Hospital, Norfolk, UK</p>	
14:55	OP8	<p>Comparison of bone loss and muscle loss in ageing mice using iodine enhanced micro-computed tomography</p> <p><i>Mohd Azuraidi Osman^{1,2}, Kasia Goljanek-Whysall¹, Nathan Jeffery¹, Rob van 't Hof¹, Peter J Wilson¹, Nick P Rhodes¹, James A Gallagher¹</i></p> <p>¹Institute of Ageing and Chronic Disease, Liverpool, UK, ²Faculty of Biotechnology and Biomolecular Sciences, UPM Serdang, Malaysia</p>	
15:00	OP9	<p>Does the adipokine, adiponectin, play a role in the coupling between fat and bone?</p> <p><i>Jillian Cornish¹, Dorit Naot¹</i></p> <p>¹University of Auckland, Auckland, New Zealand</p>	
15:05	OP10	<p>The high bone volume phenotype of female nNOS KO mice is not maintained with ageing</p> <p><i>Rob van 't Hof¹, Lorraine Rose², Gemma Charlesworth¹, Amanda Prior¹, Anna Daroszewska¹</i></p> <p>¹University of Liverpool, Liverpool, UK, ²University of Edinburgh, Edinburgh, UK</p>	
15:50			<p>PARALLEL SESSION 15:50 SYMPOSIUM 2 Lecture Theatre B (CTH)</p> <p>Cartilage – bone interactions</p> <p>CHAIRS: <i>George Bou Gharios (Liverpool, UK) & Jill Cornish (Auckland, New Zealand)</i></p> <p>15:50 IS3 Mineralisation <i>Melinda Duer (Cambridge, UK)</i></p> <p>16:20 IS4 Tidal dynamics in the structure of the bone cartilage interface <i>Alan Boyde (London, UK)</i></p>
15:50			<p>PARALLEL SESSION 15:50 CLINICAL CASES Lecture Theatre D (CTH)</p> <p>CHAIRS: <i>Mark Edwards (Southampton UK) & Vinita Mishra (Liverpool, UK)</i></p> <p>15:50 CC1 Atypical femoral fracture in a patient with Paget's disease <i>Vinita Mishra¹, Anna Daroszewska^{1,2}</i> ¹The Royal Liverpool and Broadgreen University Hospitals Trust, Liverpool, UK, ²University of Liverpool, Liverpool, UK</p> <p>16:05 CC2 The treatment of Camurati-Englemann disease with losartan; a single case report <i>Alexander Moylan¹, MZ Mughal^{1,2}, Rosalind Mensah¹, Benjamin Jacobs¹</i> ¹Royal National Orthopaedic Hospital, London, UK, ²Central Manchester NHS Foundation Trust, Manchester, UK</p> <p>16:20 CC3 Atypical femoral fracture; single centre 10 year experience <i>Mark Garton¹, Kirsty Levasseur¹, Robin Butler¹, Clare Matthews¹, Diane Powell¹, Bernard Tins¹, Steve White¹</i> ¹Robert Jones & Agnes Hunt Orthopaedic Hospital, Oswestry, UK</p> <p>16:35 CC4 A case of stiff muscles <i>Jon Tobias¹</i> ¹University of Bristol, Bristol, UK</p>
16:50			<p>16:50 PLENARY LECTURE CTH</p> <p>CHAIRS: <i>Jill Cornish (Auckland, New Zealand) & Lakshminarayan Ranganath (Liverpool, UK)</i></p> <p>IS5 Cartilage and bone biomarkers in osteoarthritis <i>Virginia Kraus (Durham, USA)</i></p>
17:20			<p>17:20 BREAK</p>
17:30			<p>17:30 CHARLES DENT LECTURE Victoria Gallery & Museum</p> <p>CHAIRS: <i>Jim Gallagher (Liverpool, UK) & Eugene McCloskey (Sheffield, UK)</i></p> <p>17:30 Follow that dream: FOP: Past, present and future <i>Jim Triffitt (Oxford, UK)</i></p>
18:15			<p>18:15 DEBATE Victoria Gallery & Museum</p> <p>In the absence of osteoporosis ... “The drugs don’t work”</p> <p>CHAIRS: <i>Jim Gallagher (Liverpool, UK) & Eugene McCloskey (Sheffield, UK)</i></p> <p>For the motion: <i>Bill Fraser (Norwich, UK)</i> Against the motion: <i>Mike Stone (Cardiff, UK)</i></p>
19:15			<p>19:15 RECEPTION Victoria Gallery & Museum</p>
20:15			<p>20:15 DINNER Pen Factory, 13 Hope Street, L1 9BQ</p>
15:20		COFFEE & POSTERS	MH

PROGRAMME – FRIDAY 1 JULY

All talks are in Lecture Theatre B, Central Teaching Hub (CTH) unless otherwise stated
Catering breaks, posters, exhibition and registration are in Mountford Hall (MH)

08:30	SYMPOSIUM 3	CTH	13:30	SYMPOSIUM 4	CTH
	Muscle – bone interactions			Cancer and bone	
CHAIRS:	<i>Jonathan Jarvis (Liverpool, UK) & Kate Ward (Cambridge, UK)</i>		CHAIRS:	<i>James Edwards (Oxford, UK) & Bronwen Evans (Cardiff, UK)</i>	
08:30	IS6	Challenges of imaging muscle and bone – an evolutionary and biomechanical perspective <i>Nathan Jeffery (Liverpool, UK)</i>	13:30	IS9	Breast cancer bone metastasis: Biomarkers and beyond <i>Steven Wood (Sheffield, UK)</i>
09:00	IS7	Bone muscle interactions and vitamin D <i>Paul Lips (Amsterdam, Netherlands)</i>	14:00	IS10	Role of LOX in bone metastasis <i>Alison Gartland (Sheffield, UK)</i>
09:30	IS8	Muscle stem cells (CIMA-sponsored lecture) <i>Charlotte Peterson (Lexington, USA)</i>			
10:00	POSTER PITCHING	CTH	14:30	PLENARY LECTURE	CTH
CHAIRS:	<i>Jonathan Jarvis (Liverpool, UK) & Kate Ward (Cambridge, UK)</i>		CHAIRS:	<i>James Edwards (Oxford, UK) & Bronwen Evans (Cardiff, UK)</i>	
	P006, P010, P016, P018, P020, P024, P026, P030, P036, P040, P042, P046, P050, P054, P056, P060, P064, P066, P068		IS11	Modeling the skeletal maladies in Neurofibromatosis type 1 <i>Florent Elefteriou (Houston, USA)</i>	
10:30	COFFEE AND POSTERS	MH			
	Even number posters manned				
12:00	ORAL COMMUNICATIONS	CTH	15:00	ORAL COMMUNICATIONS	CTH
CHAIRS:	<i>Nathan Jeffery (Liverpool, UK) & Gudrun Stenbeck (London, UK)</i>		CHAIRS:	<i>Kassim Javaid (Oxford, UK) & Katherine Staines (Edinburgh, UK)</i>	
12:00	OC7	Do alterations in hip shape explain the increased risk of hip osteoarthritis in individuals with High Bone Mass? <i>Anjali Patel¹, Denis Baird¹, Sarah Hardcastle¹, Jenny Gregory², Richard Aspden², Ben Faber¹, George Smith¹, Jon Tobias¹, Celia Gregson¹</i> ¹ University of Bristol, Bristol, UK, ² University of Aberdeen, Aberdeen, UK	15:00	OC11	Inhibition of BMP signalling reduces bone destruction in Multiple Myeloma <i>Sarah Gooding^{1,3}, Siobhan Webb², Sam Olechnowicz³, Seint Lwin², Andrew Armitage¹, Karthik Ramasamy⁴, Hal Drakesmith¹, Claire Edwards²</i> ¹ Human Immunology Unit, Weatherall Institute of Molecular Medicine, Oxford University, Oxford, UK, ² Nuffield Department of Surgery, Oxford University, Oxford, UK, ³ Nuffield Department of Orthopaedics, Rheumatology and Musculoskeletal Sciences, Oxford University, Oxford, UK, ⁴ Oxford University Hospitals NHS Trust, Oxford, UK
12:10	OC8	Hypomineralisation drives joint instability and osteoarthritis in mice <i>Katherine Staines¹, Fiona Brain¹, Behzad Javaheri², Dean Houston¹, Jose Luis Millan³, David Buttle⁴, Andrew Pitsillides², Colin Farquharson¹</i> ¹ Roslin Institute and R(D)SVS, University of Edinburgh, Edinburgh, UK, ² Royal Veterinary College, London, UK, ³ Sanford Children's Health Research Center, La Jolla, USA, ⁴ University of Sheffield, Sheffield, UK	15:10	OC12	Leukaemia inhibitory factor is increased in human bone-metastatic prostate cancer; a novel mediator of prostate cancer induced bone disease? <i>C. J. Turner¹, X. Cheng¹, F. C. Hamdy¹, C. M. Edwards¹</i> ¹ University of Oxford, Oxford, UK
12:20	OC9	Pharmacological activation of autophagy by the polyamine Spermidine protects against osteoarthritis in vivo <i>Pradeep Kumar Sacitharan^{1,2}, George Bou-Gharios³, Tonia Vincent¹, James Edwards^{1,2}</i> ¹ The Kennedy Institute of Rheumatology, Oxford, UK, ² The Botnar Research Centre, Oxford, UK, ³ The Institute of Ageing and Chronic Disease, Liverpool, UK	15:20	OC13	NBQX, an AMPA-kainate glutamate receptor antagonist, alleviates inflammation and pain related behaviour in two models of osteoarthritis <i>Cleo Bonnet¹, Sophie Gilbert¹, Anwen Williams¹, David Walsh², Emma Blain¹, Deborah Mason¹</i> ¹ Cardiff University, Cardiff, UK, ² Nottingham University, Nottingham, UK
12:30	OC10	The cellular mechanosensory structure primary cilia, activate autophagy in chondrocytes and are dysregulated in arthritic cartilage <i>Seint Lwin¹, Dayna Betote¹, James Edwards¹</i> ¹ University of Oxford, Oxford, UK	15:30	OC14	Vascular smooth muscle cells and osteoblasts mineralise via distinct mechanisms <i>Jessal J. Patel¹, Dongxing Zhu², Caroline Wheeler-Jones¹, Timothy R. Arnett³, Vicky E. MacRae², Isabel R. Orriss¹</i> ¹ Department of Comparative Biomedical Sciences, Royal Veterinary College, London, UK, ² The Roslin Institute and Royal (Dick) School of Veterinary Studies, University of Edinburgh, Edinburgh, UK, ³ Department of Cell and Developmental Biology, University College London, London, UK
12:40	LUNCH	MH	15:40	LB1	Evidence that genetic variants within a regulatory region of chromosome 1p13 predispose to Paget's disease of bone by regulating production of macrophage-colony stimulating factor <i>Muhammad F. Abdullah^{1,3}, Huijin Jin¹, Jonathan Tang², Isabelle Piec², William D. Fraser², Omar M. E. Albagha¹, Stuart H. Ralston¹</i> ¹ University of Edinburgh, Edinburgh, Scotland, UK, ² University of East Anglia, Norwich, England, UK, ³ Universiti Sains Malaysia, Pulau Pinang, Malaysia

PROGRAMME – FRIDAY 1 JULY

All talks are in Lecture Theatre B, Central Teaching Hub (CTH) unless otherwise stated
Catering breaks, posters, exhibition and registration are in Mountford Hall (MH)

15:50 BREAK

16:00 PLENARY LECTURE CTH

CHAIRS: *Nick Rhodes (Liverpool, UK) & Katherine Staines (Edinburgh, UK)*

IS12 **Cell therapies and regenerative medicine - the dawn of a new age or more hype than hope?**
Anthony Hollander (Liverpool, UK)

16:30 AWARDS CTH

CHAIRS: *Miep Helfrich (Aberdeen, UK) & Eugene McCloskey (Sheffield, UK)*

16:45 CLOSE

17.45-19:15 PUBLIC LECTURE CTH

What really moves you?

CHAIR: *Jim Gallagher (Liverpool, UK)*

A public lecture on the wonders of your musculoskeletal system

What do Bruce Willis and Samuel L Jackson have to do with bone health?

Eugene McCloskey (Sheffield, UK)

Exercise and muscle health

Jonathan Jarvis (Liverpool, UK)

Osteoarthritis and cartilage

Virginia Kraus (Durham, USA)

SUPPORTED BY DAISYBECK STUDIOS

POSTERS

- P001 Optimising the investigation and management of vitamin D deficiency at North Bristol NHS Trust**
James Kennedy¹, Andrea Joughin¹, Rosie Marchant², Karen Harding²
¹Gloucestershire Hospitals NHS Trust, Gloucestershire, UK, ²North Bristol NHS Trust, Bristol, UK
- P002 Predicting acute post-operative outcomes following hip fractures**
Eilis Fitzgerald¹, Jude Ryan², Dermot O Farrell²
¹GEMS, University of Limerick, Limerick, Ireland, ²University Hospitals Limerick, Limerick, Ireland
- P003 Abstract withdrawn**
- P004 Abstract withdrawn**
- P005 Generation of conditional knock out mouse for Alkaptonuria**
Ke Liu¹, Antonius Plagge¹, Ranganath Lakshminarayan¹, James Gallagher¹, George Bou-Gharios¹
¹University of Liverpool, Liverpool, UK
- P006 Aggrecan gene expression in chondrocytes is controlled by multiple regulatory elements**
Ian M Li¹, Ke Liu¹, Alice Neal², Peter D Clegg¹, Sarah De Val², George Bou-Gharios¹
¹University of Liverpool, Liverpool, UK, ²University of Oxford, Oxford, UK
- P007 Reduction of frontal plane knee moment caused by lateral trunk lean depends on step width**
Jennifer Anderson^{1,2}, Stephanie King³, Andrzej Przybyla⁴, Lakshminarayan Ranganath⁵, Gabor Barton⁴
¹University of Salford, Salford, UK, ²Toffeln, Bristol, UK, ³University of Hull, Hull, UK, ⁴Liverpool John Moores University, Liverpool, UK, ⁵National Alkaptonuria Centre, Liverpool, UK
- P008 Is a lack of structural integration at the intervertebral disc-vertebra interface a factor in human lumbar spine degeneration?**
Sharon Owen¹, Samantha Rodrigues², Christopher Sharp³, Kelly Wade², Neil Broom², Iain McCall¹, Sally Roberts¹
¹RJAH Orthopaedic Hospital Foundation Trust & ISTM (Keele University), Oswestry, Shropshire, UK, ²University of Auckland, Auckland, New Zealand, ³University Centre Shrewsbury, University of Chester, Shrewsbury, Shropshire, UK
- P009 Abstract withdrawn**
- P010 Small organic molecules in octacalcium phosphate**
Yang Li¹, David Reid¹, Rui Li¹, Christian Bonhomme², Danielle Laurencin³, Karin Muller¹, Melinda Duer¹
¹University of Cambridge, Cambridge, UK, ²UPMC, Paris, France, ³CNRS Montpellier, Montpellier, France
- P011 Location, Location, Location: conserved differences in regional canine osteoblast behaviour**
Ines Pedro Perpétuo¹, Kevin Parsons², Mittal Shah¹, Isabel Orriss¹, Michael Doube¹, Andrew Pitsillides¹, Richard Meeson³
¹Comparative Biomedical Sciences, Royal Veterinary College, London, UK, ²Langford Veterinary Services, Bristol, UK, ³Queen Mother Hospital for Animals, Royal Veterinary College, London, UK
- P012 Primary osteoblast culture from Canis lupus familiaris (domestic dog)**
Ines Pedro Perpétuo¹, Richard Meeson², Andrew Pitsillides¹, Michael Doube¹, Isabel Orriss¹
¹Comparative Biomedical Sciences, Royal Veterinary College, London, UK, ²Queen Mother Hospital for Animals, London, UK
- P013 Primary osteoblast culture from Vulpes vulpes (red fox)**
Ines Pedro Perpétuo¹, Alessandro Felder¹, Andrew Pitsillides¹, Michael Doube¹, Isabel Orriss¹
¹Comparative Biomedical Sciences, Royal Veterinary College, London, UK
- P014 Abstract withdrawn**
- P015 Micromechanical properties of articular cartilage and subchondral bone of the human knee joint**
Abby Peters^{1,2}, Eithne Comerford^{2,3}, Karl Bates¹, Riaz Akhtar²
¹IACD, University of Liverpool, Liverpool, UK, ²School of Engineering, University of Liverpool, Liverpool, UK, ³School of Veterinary Science, University of Liverpool, Liverpool, UK
- P016 FGF-2 promotes osteocyte differentiation through increased E11 expression in vitro**
Ekele Ikegbu¹, Dylan Clements¹, Lena Basta¹, David Buttle², Andrew Pitsillides³, Katherine Staines¹, Colin Farquason¹
¹Roslin Institute and R(D)SVS, The University of Edinburgh, Edinburgh, UK, ²Department of Infection and Immunity, The University of Sheffield, Sheffield, UK, ³Comparative Biomedical Sciences, Royal Veterinary College, London, UK
- P017 The response of fibroblast growth factor-23 (FGF-23) to teriparatide in postmenopausal osteoporosis.**
Fatma Gossiel¹, Eugene McCloskey¹, Kim Naylor¹, Jennifer Walsh¹, Nicola Peel¹, Rchard Eastell¹
¹University of Sheffield, Sheffield, UK
- P018 Musculoskeletal and performance characteristics of exceptionally active older people: comparison between life-long runners, those taking up competitive running at a later age and a recreationally active control group.**
Jessica Coulson¹, Mathew Piasecki¹, Alex Ireland¹, Kevin Deere², Kimberley Hannam², Jon Tobias², Jamie McPhee¹
¹Manchester Metropolitan University, Manchester, UK, ²University of Bristol, Musculoskeletal Research Unit, Bristol, UK
- P019 Knees and Teeth Syndrome (KaTS) in cats - patella fractures in felines with persistent deciduous teeth**
Sorrel Langley-Hobbs¹
¹University of Bristol, Bristol, UK
- P020 Weight is associated with hip shapes known to predispose to osteoarthritis: a cross-sectional study in peri-menopausal women**
Benjamin Faber¹, Denis Baird¹, Jenny Gregory², Rebecca Barr², Richard Aspden², Debbie Lawlor¹, Celia Gregson¹, Jonathan Tobias¹
¹University of Bristol, Bristol, UK, ²University of Aberdeen, Aberdeen, UK
- P021 Withaferin A is a potent stimulator of chondrogenesis and longitudinal bone growth in rats**
Dharmendra Choudhary¹, Ritu Trivedi¹
¹Endocrinology Division, CSIR-Central Drug Research Institute, Jankipuram Extension, Sitapur Road, Lucknow, ²²⁶⁶³, India
- P022 Development of assays to assess the clinical utility of tenascin-C**
James Ozanne¹, David Pritchard³, Gerry McLachlan¹, Kim Midwood², Colin Farquarson¹
¹Roslin Institute & R(D)SVS University of Edinburgh, Edinburgh, UK, ²The Kennedy Institute of Rheumatology University of Oxford, Oxford, UK, ³Axis-Shield Diagnostics Ltd., Dundee, UK
- P023 Inhibition of CTX-II release by cathepsin K inhibition in vivo but not in vitro suggests that anti-resorptive therapy protects cartilage.**
Erik Lindstrom³, Urszula Grabowska³, Nick Athanasou², Karen Fuller¹, Tim Chambers¹
¹St George's, University of London, London, UK, ²Botnar Research Centre, Oxford, UK, ³Medivir AB, Stockholm, Sweden
- P024 What is in the Osteoarthritic bone marrow lesion?**
Nidhi Sofat¹, Maureen Arora², Alan Boyde²
¹St George's, University of London, London, UK, ²Dental Physical Sciences, Queen Mary University of London, London, UK
- P025 The Rare and Undiagnosed Diseases Study (RUDY) Platform – a novel approach to patient-driven research in rare musculoskeletal diseases.**
Lydia Forestier-Zhang¹, Laura Watts¹, Alison Turner¹, Cristina Ponte¹, Harriet Teare², David Gray¹, Nathanael Gray¹, Rory Popert¹, Joanna Hogg¹, Joseph Barrett¹, Raashid Luqmani¹, Paul Wordsworth¹, Jane Kaye², M Kassim Javaid¹
¹Nuffield Department of Orthopaedics, Rheumatology and Musculoskeletal Sciences, University of Oxford, Oxford, UK, ²Centre for Health, Law and Emerging Technologies, University of Oxford, Oxford, UK
- P026 Differences in bone density and geometry in adolescent male athletes engaged in UK popular sports: The PRO-BONE study.**
Dimitris Vlachopoulos¹, Alan R. Barker¹, Craig A. Williams¹, Sigurbjörn A. Arngrimsson³, Karen M. Knapp⁵, Brad S. Metcalf¹, Ioannis G. Fatouros⁴, Luis A. Moreno², Luis Gracia-Marco²
¹University of Exeter, Exeter, UK, ²University of Zaragoza, Zaragoza, Spain, ³University of Iceland, Reykjavik, Iceland, ⁴University of Thessaly, Trikala, Greece, ⁵University of Exeter Medical School, Exeter, UK

POSTERS

- P027** Effect of denosumab treatment in osteoporosis patients who had long term bisphosphonate therapy
S Nikolova¹, F Hannan¹, A Daroszewska¹, V Mishra¹
¹royal Liverpool and Broadgreen University Hospital Nhs Trust, Liverpool, UK
- P028** Effectiveness of measuring bone alkaline phosphatase in monitoring patients with chronic kidney disease with bone mineral disorders
A Tridimas¹, S Nikolova¹, V Mishra¹
¹royal Liverpool and Broadgreen University Hospital Nhs Trust, Liverpool, UK
- P029** An evaluation of pre and post-operative biochemical and haematological changes in patients with hip fracture
Emma Tension¹, Celia Gregson^{1,2}
¹Royal United Hospital NHS Foundation Trust, Bath, UK, ²Musculoskeletal Research Unit, University of Bristol, Bristol, UK
- P030** Icaritin anabolic function on human osteoblast via up-regulation of CXCR4.
Ryan Lim¹, Lei Li², Jun Li², Nicholas Chew², Eu-Leong Yong²
¹National University of Singapore, Singapore, Singapore, ²National University Hospital, Singapore, Singapore
- P031** Effects of sexual hormone deficiency and reposition associated to malnourishment (Cafeteria diet or protein restriction) on bone metabolism in adult female Wistar rats
Victoria Padula de Quadros¹, Maria Cristina Cintra Gomes-Marcondes¹
¹University of Campinas, Campinas, São Paulo, Brazil
- P032** Laser Microtomy for regular Histology and advanced Histochemistry in Bone Research
Heiko Richter¹, Anja Osterberg², Brigitte Müller-Hilke², Fabian Will¹, Birgitta Stolze¹
¹LLS ROWIAK LaserLabSolutions GmbH, Garbsener Landstr. 10, 30419 Hannover, Germany, ²Institute of Immunology, Schillingallee 70, 18055, Germany
- P033** Impact of fracture risk assessment tools on proportions of women without prior fracture identified at risk and treated - lessons from the SIGN guidance
Eugene McCloskey^{1,4}, Nicholas Harvey², Helena Johansson¹, Juliet Compston³, John Kanis¹
¹Centre for Metabolic Bone Diseases, University of Sheffield, Sheffield, UK, ²MRC Lifecourse Epidemiology Unit, University of Southampton, Southampton, UK, ³Department of Medicine, Cambridge Biomedical Campus, Cambridge, UK, ⁴Centre for Integrated research in Musculoskeletal Ageing, University of Sheffield, Sheffield, UK
- P034** The effects of parathyroid hormone peptides on the peripheral skeleton of postmenopausal women: A systematic review
Louis Metcalfe^{1,2}, Eugene McCloskey^{1,2}
¹MRC-Arthritis UK Centre for Integrated research into Musculoskeletal Ageing (CIMA), Department of Human Metabolism, University of Sheffield, Sheffield, UK, ²Mellanby Centre for Bone Research, Department of Oncology and Metabolism, University of Sheffield, Sheffield, UK
- P035** The adiponectin receptor agonist AdipoRon, activates osteoblast differentiation markers and promotes autophagy in vitro
Matilda Downs¹, Aneka Sowman¹, Seint Lwin¹, James Edwards¹
¹University of Oxford, Oxford, UK
- P036** Ex vivo model of human cancer-bone microenvironment
Srinivasa Rao¹, John Broomfield¹, Sion Glyn-Jones¹, James Edwards¹
¹University of Oxford, Oxford, UK
- P037** Predicting hip fracture risk from sideways falls using computer modelling techniques
David Collins^{1,2}, Richard Eastell², Lang Yang², Karl Bates¹, Robin Crompton¹
¹University of Liverpool, Liverpool, UK, ²University of Sheffield, Sheffield, UK
- P038** Abstract withdrawn
- P039** Relating Biological signals to Biomechanics in High Tibial Osteotomy
Deborah Mason¹, Gemma Whatling¹, Christopher Wilson², Cleo Bonnet¹, Carole Elford¹, Karen Brakspear¹, Paul Biggs¹, Cathy Holt¹
¹CARDIFF UNIVERSITY, CARDIFF, UK, ²University of Wales Hospital Llandough, CARDIFF, UK
- P040** Clinically available scanning techniques are a potential detection tool for high density mineralised protrusions (HDMP) in human knees joints
Neil Thomas¹, Nathan Jeffery¹, Briony Dillon¹, Valerie Adams¹, Lakshminarayan Ranganath¹, Rob van 't Hof¹, Alan Boyde², James Gallagher¹
¹University of Liverpool, Liverpool, UK, ²Queen Mary, University of London, London, UK
- P041** Pitfalls in assessment and management of osteoporosis in a secondary care centre
Brijesh Ayyaswamy¹, Anoop Anand¹, Seema Kalra¹, Pual Dunckow¹
¹Blackpool Victoria hospital, Blackpool, UK
- P042** Investigating phosphatidylserine metabolism in Lenz-Majewski syndrome
Charalambos Demetriou¹, Emma Peskett¹, Alexander Kapustin², Dagan Jenkins¹, Frédéric M Vaz³, Osamu Kuge⁴, Peter Clayton¹, Kevin Mills¹, Angela Barnicoat⁵, Maria Bitner-Glindzicz^{1,5}, Duangrudee Wattanasirichaigoon⁶, Krystyna Chrzanowska⁷, Martina Simandlová⁸, Lionel Maldergem⁹, Professor Catherine Shanahan², Sérgio B Sousa¹⁰, Gudrun E Moore¹, Philip Stanier¹
¹Genetics and Genomic Medicine, UCL Institute of Child Health, London, UK, ²Cardiovascular Division, James Black Centre, King's College London, London, UK, ³Laboratory of Genetic Metabolic Disorders, Academic Medical Center, Amsterdam, The Netherlands, ⁴Department of Chemistry, Faculty of Sciences, Kyushu University, Fukuoka, Japan, ⁵Clinical Genetics Department, Great Ormond Street Hospital, London, UK, ⁶Department of Pediatrics, Faculty of Medicine, Ramathibodi Hospital, Mahidol University, Bangkok, Thailand, ⁷Department of Medical Genetics, Children's Memorial Health Institute, Warsaw, Poland, ⁸Department of Biology and Medical Genetics, University Hospital Motol and Second Faculty of Medicine, Prague, Czech Republic, ⁹Centre de Génétique Humaine, Université de Franche-Comté, Besançon, France, ¹⁰Serviço de Genética Médica, Hospital Pediátrico de Coimbra, Coimbra, Portugal
- P043** Increases in proximal femur bone strength estimated using finite element models from computed tomography scans following brief, high impact exercise in older men
Daniel Blackwell^{1,2}, Lang Yang², Katherine Brooke-Wavell¹, Muhammad Qasim², Sarah Allison^{1,3}, Winston Rennie⁴, Greg Summers⁵, Richard Eastell²
¹Loughborough University, Loughborough, UK, ²Sheffield University, Sheffield, UK, ³University of Surrey, Surrey, UK, ⁴University Hospitals Leicester, Leicester, UK, ⁵Derby Teaching Hospitals, Derby, UK
- P044** Abstract withdrawn
- P045** Ubiquitin-protein ligase UBR5 suppresses heterotopic tendon/ligament ossification
David Mellis¹, Natalie Dora¹, Elaine Kinsella¹, Pavel Sharma¹, Malgorzata Kubiak¹, Antonia Sophocleous¹, Stuart Ralston¹, Donald Salter¹, Robert Hill¹, Mark Ditzel¹
¹University of Edinburgh, MRC IGMM, Edinburgh, UK, ²MRC Human Genetics Unit, Edinburgh, UK
- P046** Involvement of the PKR Signalling Pathway in the Development of Post-traumatic Osteoarthritis in the Mouse
Sophie Gilbert¹, Emma Blain¹, Cleo Bonnet¹, Victor Duanice¹, Deborah Mason¹
¹Cardiff University, Cardiff, UK
- P047** Free vitamin D concentrations reflect racial and geographic differences in total 25OHD
Carrie M. Nielson^{1,2}, Kerry S. Jones³, Rene F. Chun⁴, Jon Jacobs⁵, Yin Wang¹, Martin Hewison⁶, John Adams⁷, Christine M. Swanson⁸, Christine G. Lee⁹, Dirk Vanderschueren^{10,11}, Steven Pauwels^{12,13}, Ann Prentice^{3,14}, Richard D. Smith⁵, Tujin Shi¹, Yuqian Gao⁵, Joseph M. Zmuda¹⁵, Jodi Lapidus², Jane A. Cauley¹⁵, Roger Bouillon¹¹, Inez Schoenmakers², Eric S. Orwoll⁸
¹Bone & Mineral Unit, Oregon Health & Science University, Portland, USA, ²Public Health & Preventive Medicine, Oregon Health & Science University, Portland, USA, ³Medical Research Council Human Nutrition Research, Cambridge, UK, ⁴Department of Orthopedics, University of California, Los Angeles, USA, ⁵Pacific Northwest National Laboratory, Richland, Washington, USA, ⁶University of Birmingham, Birmingham, UK, ⁷University of California, Los Angeles, USA, ⁸School of Medicine, Oregon Health & Science University, Portland, USA, ⁹Portland Veterans Affairs Medical Center, Oregon, USA, ¹⁰Laboratory of Diagnostic Medicine, KU Leuven, Leuven, Belgium, ¹¹Laboratory of Clinical and Experimental Endocrinology, KU Leuven, Leuven, Belgium, ¹²Department of Cardiovascular Sciences, KU Leuven, Leuven, Belgium, ¹³Department of Laboratory Medicine, University Hospitals Leuven, Leuven, Belgium, ¹⁴Medical Research Council, Keneba, Keneba, Gambia, ¹⁵Department of Epidemiology, University of Pittsburgh, Pennsylvania, USA

POSTERS

- P048** A study of the role of ghrelin and ionic mechanisms in adipogenic differentiation of bone
Marine Bastien¹, James Downing¹, Andrew Evans¹, Neil Henney¹
¹Liverpool John Moores University, Liverpool, UK
- P049** PDGF: a more potent osteoinductive factor than BMP2 in a bioengineered model of pathological ossification
Owen Davies¹, Liam Grover², Mark Lewis¹, Yang Liu¹
¹Loughborough University, Loughborough, UK, ²University of Birmingham, Birmingham, UK
- P050** Identification and characterisation of extracellular vesicles and uptake events in resorbing osteoclasts using TEM tomography
David Sünderhau¹, Emma McDermott¹, Debbie Wilkinson¹, Kevin Mackenzie¹, Miep Helfrich¹
¹University of Aberdeen, Aberdeen, UK
- P051** Circulating microRNA in metabolic bone diseases- Osteoporosis
Abdullah Mandourah^{1,4}, Rob Van't Hof¹, Roger Barraclough², Lakshminarayan Ranganath³, Dong Barraclough¹
¹Department of Musculoskeletal Biology, Institute of Ageing and Chronic Disease, University of Liverpool, Daulby Street, Liverpool, UK, ²Institute of Integrative Biology, University of Liverpool, Crown Street, Liverpool, UK, ³Royal Liverpool Hospital, Prescot Street, Liverpool, UK, ⁴The Ministry of Defense Armed Forces Medical Services, Taif, Saudi Arabia
- P052** Hormone and Hormone Responsive Stress-Related Molecules Involved In Osteoporosis in Post-Menopausal Women
Ayed Dera^{1,2}, Roger Barraclough³, Ranganath Lakshminarayan⁴, Dong Barraclough¹
¹Department of Musculoskeletal Biology II (Medicine), Institute of Ageing and Chronic Diseases, UCD Building, University of Liverpool, Liverpool, UK, ²King Khalid University, Abha, UK, ³Institutes of Integrative Biology, University of Liverpool, Crown Street, University of Liverpool, UK, ⁴Department of Clinical Biochemistry and Metabolic Medicine, Royal Liverpool University Hospital, Prescot street, Liverpool, UK
- P053** Delivery of pro-angiogenic and osteogenic genes to human skeletal and endothelial populations to augment bone repair
RMH Rumney¹, S Lanham¹, L Thiagarajan², J Dixon², KM Shakesheff², ROC Oreffo¹
¹University of Southampton, Southampton, UK, ²University of Nottingham, Nottingham, UK
- P054** Spinal osteoarthropathy in alkaptonuria patients monitored by¹⁸F -NaF PET/CT
Leah Taylor¹, Mark Baker², Sobhan Vinjamuri², Lakshminarayan Ranganath², Nathan Jeffery¹, James Gallagher¹
¹University of Liverpool, Liverpool, UK, ²Royal Liverpool University Hospital, Liverpool, UK
- P055** The relationship between the Fine Structure Analysis magnetic resonance imaging (MRI) technique and trabecular number (Tb.N) measured by micro computed tomography (microCT) in cadaveric vertebrae
Kirk McGilvray¹, Samantha Telfer², James Rafferty², Amanda Cox², Lance Farr², Mario Mendoza³, Snehal Shetye¹, Christian Puttlitz¹
¹Orthopaedic Bioengineering Research Laboratory, Departments of Mechanical Engineering and School of Biomedical Engineering, Colorado State University, Fort Collins, Colorado, USA, ²Acuitas Medical Ltd, Swansea, Wales, UK, ³UCSB Brain Imaging Center, Department of Psychological & Brain Sciences, University of California Santa Barbara, Santa Barbara, California, USA
- P056** Differences in spine shape in adults entering old age: relationship with sex, body size and BMD
Anastasia Pavlova¹, Stella Muthuri², Fiona Saunders¹, Judith Adams³, Diana Kuh², Richard Aspden¹, Rebecca Barr¹, Jennifer Gregory¹
¹School of Medicine, Medical Sciences & Nutrition, University of Aberdeen, Aberdeen, UK, ²MRC Unit for Lifelong Health and Ageing, University College London, London, UK, ³Central Manchester University Hospitals NHS Foundation Trust, Manchester, UK
- P057** Novel Silane Surface Modification Increases Expression of Osteocyte Markers in Primary Human Osteoblast-Like Cells under Standard Culture Conditions
Sandra Fawcett¹, Judith Curran¹, Nicholas Rhodes¹, Lakshminarayan Ranganath¹, Jane Dillon¹, Peter Wilson¹, James Gallagher¹, John Hunt¹
¹University of Liverpool, Liverpool, UK
- P058** Investigation into the biomechanical properties of cancellous bone preserved using Thiel's fixation method
Claire M. Tierney¹, Nathan Jeffery¹
¹Human Anatomy Resource Centre, University of Liverpool, Liverpool, UK
- P059** Old bones, new structures - detection of adipocyte templated excrescences in aged human bone
Adam Taylor¹, Chris Platt², Peter Wilson², Lakshminarayan Ranganath², Jim Gallagher², Alan Boyde³
¹Lancaster Medical School, Lancaster University, Lancaster, UK, ²Bone and Joint Research Group Musculoskeletal Biology, University of Liverpool, Liverpool, UK, ³DPS, Queen Mary, University of London, London, UK
- P060** Analysis of osteocyte density in mice using μ CT
Rob van 't Hof¹, Alex Morgan¹, Haziq Mokhtar¹, Anna Daroszewska¹
¹University of Liverpool, Liverpool, UK
- P061** An audit of the recognition and management of low alkaline phosphatase levels in children
Alexander Moylan¹, MZ Mughal^{1,2}, Benjamin Jacobs¹
¹Royal National Orthopaedic Hospital, London, UK, ²Central Manchester NHS Foundation Trust, Manchester, UK
- P062** Fibula adaptation to regular exercise indicates new mechanoadaptive behaviours of bone
Gustavo Cointry¹, Laura Noccolino¹, Alex Ireland², José Ferretti¹, Jörn Rittweger³, Ricardo Capozza⁰
¹National University of Rosario, Rosario, Argentina, ²Manchester Metropolitan University, Manchester, UK, ³German Aerospace, Cologne, Germany
- P063** MicroRNA miR-1231 inhibits expression of sclerostin in TE85 and SaoS-2
Mohd Azuraidi Osman^{1,2}, Kasia Goljanek-Whysall¹, Peter J Wilson¹, James A Gallagher¹, Nick P Rhodes¹
¹Institute of Ageing and Chronic Disease, Liverpool, UK, ²Faculty of Biotechnology and Biomolecular Sciences, UPM Serdang, Malaysia
- P064** An anatomical investigation of a cadaver displaying characteristics of both enchondromas and osteochondromas
Rebecca Chilvers¹, Nathan Jeffery¹, Jim Gallagher¹, Alistair Bond¹
¹University of Liverpool, Liverpool, UK
- P065** BL-1249 is a K⁺ channel opener and inhibits induction of the intermediate early gene c-fos in the SaOS-2 osteosarcoma-derived cell line
Alistair Bond¹, Anne Gallagher¹, Jane Dillon¹, Tomoko Kamishima¹, Jim Gallagher¹, John Quayle¹
¹University of Liverpool, Liverpool, UK
- P066** Early Detection of Osteogenic Changes in Normal Human Osteoblasts by Raman Spectroscopy
Stephanie Marfy-Smith¹, Roger Emery³, Andrew Pitsilledes⁴, Sumeet Mahajan², Claire E. Clarkin¹
¹Centre for Biological Sciences, University of Southampton, SO¹⁷BJ, Southampton, UK, ²Institute for Life Sciences and Department of Chemistry, University of Southampton, SO¹⁷BJ, Southampton, UK, ³Department of Surgery and Cancer, Faculty of Medicine, Imperial College, SW⁷ 1AZ, London, UK, ⁴Department of Comparative Biomedical Sciences, Royal Veterinary College, NW¹ 9TU, London, UK
- P067** Identification of regional diversity in blood vessel structures within murine cortical bone
Juan Nunez¹, Philipp Thurner², Philipp Schneider¹, Claire Clarkin¹
¹University of Southampton, Southampton, UK, ²Vienna University of Technology, Vienna, Austria
- P068** Bone loading by programmed muscle activity in the rat
Jonathan Jarvis¹, Paula Vickerton³, James Gallagher², Riaz Akhtar², Hazel Sutherland^{1,2}, Nathan Jeffery², Martin Schmoll⁴, Manfred Bijak⁴, Hermann Lanmueller⁴
¹Liverpool John Moores University, Liverpool, Merseyside, UK, ²The University of Liverpool, Liverpool, Merseyside, UK, ³Keele University, Keele, UK, ⁴The Medical University of Vienna, Vienna, Austria

POSTERS

- P069** Developing a more representative model of physiological and pathophysiological osteochondral cyclic loading
Nidal Khatib¹, Deborah Mason¹, Andrew Metcalfe², Emma Blaine¹, Cathy Holt¹
¹Cardiff University, Cardiff, Glamorgan, UK, ²Warwick University, Warwick, UK
- P070** Tissue distribution of mRNA expression of enzymes involved in the tyrosine metabolic pathway in Hgd^{-/-} mice with the osteoarthopathy of alkaptonuria.
P Wilson¹, L Ghezzi², J Dillon¹, A Santucci², L Ranganath³, J Gallagher¹
¹University of Liverpool, Liverpool, Merseyside, UK, ²Università degli Studi di Siena, Siena, Italy, ³Royal Liverpool University Hospital, Liverpool, Merseyside, UK
- P071** A Metabolomics approach to changes associated with loss of cartilage in Alkaptonuria and Osteoarthritis: A Preliminary Study.
Gordon Ross¹, Anna Milan^{2,3}, Andrew Hughes^{2,3}, Andrew Davison^{2,3}, Sarah Curtis³, Brendan Norman³, Norman Roberts³, Hazel Sutherland⁴, Jonathan Jarvis⁴, James Gallagher³, Lakshminarayan Ranganath^{2,3}
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- P072** The effect of continuous and intermittent exercise on bone mineral density in postmenopausal women: a six-month randomised control trial
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- P073** Insertional anatomy of the Peroneus brevis tendon and its relevance in surgical management of the Jones Fracture
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- P074** Autosomal Dominant High Bone Mass Syndrome presenting before skeletal maturity
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- P075** Up the creek: truthful imaging in spinal osteoporosis?
Alan Boyde¹
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- P076** Abstract withdrawn
- P077** P2X7 Receptor status alters the osteoblast response to clinically relevant concentrations of metal ions following metal-on-metal hip replacement
Fay Ismail¹, Karan Shah¹, Mark Wilkinson¹, Alison Gartland¹
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- P078** P2X7RA or P2X7RB expression confers a growth advantage to Te85 osteosarcoma cells in vitro.
Luke Tattersall¹, Karan Shah¹, Fay Ismail¹, Michelle Lawson¹, Alison Gartland¹
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- P079** Collagen becomes ordered prior to mineral deposition
Jemma G. Kerns^{1,2}, Kevin Buckley^{4,3}, John Churchwell², Anthony W. Parker³, Pavel Matousek³, Allen E. Goodship²
¹Lancaster University, Lancaster, UK, ²University College London, London, UK, ³Central Laser Facility, Research Complex at Harwell, STFC Rutherford Appleton Laboratory, Oxford, UK, ⁴NUI Galway, Galway, Ireland
- P080** Osteoclast Function is Modulated by Circulating Metal Ions from Patients Following Hip Resurfacing.
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- P081** Is earlier walking onset associated with greater hip bone strength in older men and women?
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- P082** The emerging role of P2X7 receptor in mediating subchondral bone changes during mechanically induced osteoarthritis.
Magdalena Adamczyk^{1,2}, Daniel Aeschlimann¹, Bronwen Evans³, Alison Gartland²
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- P083** Syndecan-3 is important for maintaining bone mass
Francesca de Sousa Brito¹, Addolorata Pisconti¹, Rob van 't Hof¹, Anna Daroszewska¹
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- P084** Microstructural analysis of disuse-related osteoporosis in an animal model of spinal cord injury
J.A. Williams¹, J.F.C. Windmill², J.S. Riddell³, K.E. Tanner⁴, S. Coupaud¹
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- P085** The Fibrodysplasia Ossificans Progressiva (FOP) Connection Registry: patient reports of new bone growth
Neal Mantick¹, Betsy Bogard¹
¹The International FOP Association, Casselberry, FL, USA
- P086** Time trends in fracture incidence in the United Kingdom between 1990 and 2012: a CPRD Study
Robert van der Velde^{1,2}, Caroline Wyers^{1,2}, Elizabeth Curtis³, Piet Geusens^{4,5}, Joop van den Bergh^{1,2}, Frank de Vries⁶, Cyrus Cooper^{3,7}, Tjeerd van Staa⁹, Nicholas Harvey^{3,8}
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