POSTERS

P1 X-linked Hypophosphataemia: burden of disease using United Kingdom primary care data

Muhammad Javaid[1], Antonella Delmestri[1], Nick Shaw[2], Daniel Prieto-Alhambra[2], Cyrus Cooper[1], Rafael Pinedo-Villanueva[1]

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P2 Localisation and partial deletion of the HGD gene in a new targeted model of Alkaptonuria

Juliette Hughes[1], Peter Wilson[1], Ke Liu[1], Andrew Hughes[1,2], Lakshminarayan Ranganath[1,2], James Gallagher[1], George Bou-Gharios[1]

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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[1], Jessica Padley[2], Ken Poole[1]

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P4 Self-perception of fracture risk is associated with radial bone microarchitecture in the GLOW Study

Leo Westbury, Anna Litwic, Kate Ward, Cyrus Cooper, Elaine Dennison

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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, Leo Westbury, Cyrus Cooper, Elaine Dennison, Kate Ward

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P6 Severe lumbar spinal stenosis on MRI scans is related with heavy manual work: The Wakayama Spine Study

Yuyu Ishimoto[1], Cyrus Cooper[1,2], Georgia Ntani[1,2], Hiroshi Yamada[3], Hiroshi Hashizume[3], Shigeyuki Muraki[4], Sakae Tanaka[5], Munehito Yoshida[3], Noriko Yoshimura[6], Karen Walker-Bone[1,2]

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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[1], Kenneth Poole[2]

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P8 Osteoclasts are multinucleated cells that degrade cartilage, as well as bone

Quitterie Larrouture, Helen Knowles, Sarah Snelling, Nick Athanasou

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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 A Al-sari, Jon H Tobias, Emma M Clark

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P10 Limb bones scale similarly despite forelimb-hindlimb load asymmetry in bipedal hopping

Michael Doube[1,2], Alessandro A Felder[2], Melissa Y Chua[1], Kalyani Lodhia[2], Michał M Kłosowski[1], John R Hutchinson[3], Sandra J Shefelbine[1,4]

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POSTERS

P11 A tale of two phosphatases: dissecting the roles of PHOSPHO1 and TNAP during skeletal biomineralisation

Scott Dillon[1], Fabio Nudelman[2], Colin Farquharson[1]

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P12 Human decellularised blood vessel matrices promote bone repair in an *ex vivo* bone defect model

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P13 *Slc38a10* is a novel genetic determinant of osteoblast proliferation and bone mineral density

Andrea S Pollard[1], Apostolos Gogakos[1], John G Logan[1], Davide Komla Ebri[1], Penny C Sparkes[1], Natalie C Butterfield[1], Victoria D Leitch[1], Sanger Mouse Pipelines[2], Peter I Croucher[3], JH Duncan Bassett[1], Graham R Williams[1]

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P14 *In vivo* skeletal regeneration using a nanocomposite silicate-based bioink

Gianluca Cidonio[1,2], Tilman Ahlfeld[3], Michael Glinka[1], Yang-Hee Kim[1], Stuart Lanham[1], Janos Kanczler[1], Shoufeng Yang[2], Jonathan Dawson[1], Michael Gelinsky[3], Richard Oreffo[1]

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P15 Bone induction in a murine subcutaneous model using nanoclay gel and bone morphogenic protein: an optimisation study

Josephine McEwan, Janos Kanczler, Stuart Lanham, Julia Wells, Jonathan Dawson, Richard Oreffo

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P16 Osteoporosis as a risk factor for the occurrence of frailty: a four-year follow-up of the ROAD study

Noriko Yoshimura[1], Shigeyuki Muraki[1], Hiroyuki Oka[2], Toshiko Iidaka[1], Rie Kodama[3], Chiaki Horii[3], Hiroshi Kawaguchi[4], Kozo Nakamura[5], Toru Akune[5], Sakae Tanaka[3]

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P17 TGFβ inhibition in combination with chemotherapy repairs existing lytic bone lesions in a novel plateau phase model of multiple myeloma

Alanna Green[1], Katie Hudson[1], Jenny Down[1], Darren Lath[1], Holly Evans[1], Julia Paton-Hough[1], Simon Tazzyman[1], Matt Fisher[1], John Snowden[2], Andrew Chantry[1], **Michelle Lawson**[1]

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P18 Photoperiod-induced central actions of thyroid hormone are essential for medullary bone formation in Japanese quail

Natalie Butterfield[1], Justyna Miszkiewicz[1], Anne-Tounsia Adoum[1], John Logan[1], Victoria Leitch[1], Takashi Yoshimura[2], Duncan Bassett[1], Graham Williams[1]

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POSTERS

P19 Gpc6: a novel determinant of bone mineral density in osteoporosis

Naila S Mannan[1], Victoria D Leitch[1], John G Logan[1], Anne-Tounsia Adoum[1], Hannah F Dewhurst[1], Andrea S Pollard[1], Penny C Sparkes[1], Elena J Ghirardello[1], Rebecca Allen[1], Natalie C Butterfield[1], Sangar Mouse Pipelines[2], David Komla-Ebri[1], Katharine F Curry[1], Peter I Croucher[3], Graham R Williams[1], JH Duncan Bassett[1]

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P20 Age related changes in native human bone marrow mesenchymal stem cells

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P21 Fam73b is essential for skeletal growth and the maintenance of bone mass and strength

Davide Komla-Ebri[1], Apostolos Gogakos[1], Penny Sparkes[1], John G Logan[1], Sanger Institute Mouse Pipelines[2], Peter I Croucher[3], JH Duncan Bassett[1], Graham R Williams[1]

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P22 Independent skeletal phenotyping of Creb3l1 knockout mice confirms validity of signature in human GWAS

Elena J Ghirardello[1], John G Logan[1], Penny C Sparkes[1], Katherine F Curry[1], Justyna J Miszkiewicz[1], Victoria D Leitch[1], Natalie C Butterfield[1], Peter I Croucher[3], Graham R Williams[1], JH Duncan Bassett[1], Sanger Mouse Pipelines[2]

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P23 Osteocalcin regulates arterial calcification via altered Wnt signalling and glucose metabolism

Nabil Rashdan[1], Alisia Sim[2], Peter Hohenstein[1], John Hung[3], Jakub Kaczynski[3], David Newby[3], Andrew Baker[3], Gerard Karsenty[4], Vicky MacRae1

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P24 The regulation of bone mineralisation *in vitro* and *in vivo* models of chronic kidney disease

Shun-Neng Hsu[1], Vicky MacRae[1], Amanda Novak[1], Katherine Staines[2], Colin Farquharson[1]

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P25 All that fractures is not bone: microscopic anatomy of vertebral bodies

Alan Boyde, David Mills

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P26 Inhibition of the Protein Kinase R signaling pathway *in vivo* reduces bone remodeling in post-traumatic osteoarthritis

Sophie Gilbert, Cleo Bonnet, Menna Ihenacho, Rose-Marie Cronin, Emma Blain, Debbie Mason

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P27 Bone geometry is correlated with oscillometric arterial stiffness in overweight older adults with low vitamin D

Alexander Rodriguez[1], Cecilia Xu[1], Lachlan McMillan[1], Velandai Srikanth[2], David Scott[1], Peter Ebeling[1]

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POSTERS

P28 VEGF exerts sexually dimorphic effects on bone mass and architecture

Alice Goring[1], **Behzâd Javaheri**[2], Napoleone Ferrara[3], Bjorn Olsen[4], Philipp Schneider[5], Richard Oreffo[6], Andrew Pitsillides[2], Claire Clarkin[1]

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P29 Demonstrating Fracture Liaison Service effectiveness – use of fracture incidence and prescribing data to demonstrate clinical and cost effectiveness in a small population

Tim Jones

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P30 Falls risk is increased and bone mineral density reduced in individuals with rheumatoid arthritis: findings from UK biobank

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P31 Identification of vertebral fractures in Fracture Liaison Services (FLS) in the UK

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P32 IRF5 is required for macrophage-driven bone formation

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P33 Abstract withdrawn

P34 Relationships between muscle size, strength and function and the risk of falls and fractures

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P35 Does modeling-based bone formation continue on trabecular surfaces throughout life? A histological analysis of forming minimodeling structures in the human femoral head

Hiroshige Sano[1,2,3], Naoki Kondo[1], Taketoshi Shimakura[2], Junichi Fujisawa[1], Yasufumi Kijima[1], Linda Skingle[3], Kenneth Poole[3], Noriaki Yamamoto[2,4], Hideaki Takahashi[2,4], Naoto Endo[1]

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P36 An investigation of polymethylmethacrylate bone cement loaded with amoxicillin encapsulated in liposomes

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P37 Abstract withdrawn

P38 Azathioprine protects against poor bone health in mice with DSS induced inflammatory bowel disease

Stephanie Morgan[1], Kirsty Hooper[1], Katherine Halewood[1], Elspeth Milne[2], Colin Farquharson[2], Craig Stevens[1], Katherine Staines[1]

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P39 Quality of bone formed by osteogenic stem/progenitor cell cultures

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P40 Effects of *in vitro* glycation on bone collagen structure and order

Gurjit S Mandair[1], Matthew Karabetsos[1], Gloria G Vanrenterghem[1], Ramamoorthy Ayyalusamy[2], Michael D Morris[2], David H Kohn[1]

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P41 A study of the relationships between fracture risk and ethnicity

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P42 Using ante-mortem consented bone samples as age matched controls in hip fracture research

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P43 Reliable change index in the evaluation of joint space loss: a novel method for assessing osteoarthritis progression

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P44 Bone formation and vascular calcification are differentially affected by N-acetylcysteine

Lucie E Bourne[1], Jessal J Patel[1,2], Ellen Neven[3], Patrick D'Haese[3], Caroline Wheeler-Jones[1], Isabel R Orriss[1]

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P45 Age at initiation of Antiretroviral Therapy predicts low bone density in Zimbabwean children with vertically-acquired HIV infection

April Hartley[1,2], Ruramayi Rukuni[3,4], Nicola Crabtree[5], Cynthia Mukwasi[6], Edith Majonga[3,4], Grace McHugh[3], Hilda Mujuru[7], Rashida Ferrand[3,4], Celia L Gregson[1]

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P46 Inspecting multiscale damage in human bone using an X-ray image algorithm

Jiye Chen[1], Jin Luo[2]

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P47 Harnessing clay nanoparticles to stabilise and enhance bioactive extracellular matrix for bone regeneration application

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P48 Stimulation of bone cell function using osteogenic factor-loaded poly-lactic-co-glycolic (PLGA) nanoparticles in light-curable scaffolds

Michael Glinka[1], Gianluca Cidonio[1], Jin Geng[2], Ewa Czekańska[1], Yang-Hee Kim[1], Jonathan I Dawson[1], Shoufeng Yang[1], Khoon Lim[3], Tim Woodfield[3], Mark Bradley[2], Richard Oreffo[1]

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P49 Methods for determination of carbonate position in hydroxyapatite lattice

Emily Arnold, Charlene Greenwood, Keith Rogers

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POSTERS

P50 Getting to the bare bones of the age-related changes to the mechanical and structural properties of the clavicle

Hannah McGivern, Charlene Greenwood, Nicholas Marquez-Grant, Peter Zioupos

Cranfield Forensic Institute, Cranfield University, Shrivenham, UK

P51 NaQuinate treatment increases bone strength in ovariectomized rats

Stephanie Gohin[1], Robin Soper[2], Behzad Javaheri[1], Lars Marius Ytrebø[3], Mark Hopkinson[1], Richard Meeson[4], David Howat[2], Andrew Pitsillides[1], Stephen Hodges[1,2,3]

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P52 Harnessing high-resolution virtual histology in three dimensions for understanding bone development in birds

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P53 'Stories from Bones' – the potential of 3D scanning and biomechanical modelling in the archaeological study of human skeletons

Stephanie Evelyn-Wright[1], Martin Browne[2], Christopher Woods[2], Mark Mavrogordato[3], Kathryn Rankin[3], Oliver Stocks[2], **Alex Dickinson**[2], Sonia Zakrzewski[1]

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P54 The feasibility of a unilateral high impact exercise intervention to increase bone mineral density in post-menopausal women

Chris Hartley[1], Jonathan Folland[1], Robert Kerslake[2], Katherine Brooke-Wavell[1]

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P55 Enhancement of a sustained release of bone morphogenetic protein-2 from hyaluronan-bisphosphonate hydrogel by addition of laponite clay nanoparticles

Yang-Hee Kim[1], Dmitri Ossipov[2], Richard OC Oreffo[1], Jonathan I Dawson[1]

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P56 Osseointegrated implants for lower limb amputees: evaluation of bone mineral density

Seamus Thomson, **William Lu**, Munjed Al Muderis

Clinical Research, The Osseointegration Group of Australia, Sydney, Australia

P57 Osseointegrated implants for trans femoral amputees: radiographic evaluation of bone remodeling

Seamus Thomson, **William Lu**, Munjed Al Muderis

Clinical Research, The Osseointegration Group of Australia, Sydney, Australia

P58 Serum adiponectin concentrations are inversely associated with bone mineral density in a community-based cohort of middle-aged women

Nigel Arden[1], James R Edwards[1], Stefan Kluzek[1], **Aneka Sowman**[1], Maria T. Sanchez-Santos[1], Deborah Hart[2], Tim D. Spector[3]

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P59 Urocortin: A novel inhibitor of the differentiation of human osteoclasts

Omar Ismail, **Joshua Coxon**, Paul Townsend, Rebecca Jones, Kevin Lawrence

Division of Cancer Sciences, University of Manchester, Manchester, UK

P60 *In vivo* correlation of single-slice peripheral Quantitative Computed Tomography (pQCT) and high resolution pQCT measures at the tibia

Mícheál Ó Breasail[1], Ann Prentice[1], Kate Ward[1,2]

[1]Elsie Widdowson Laboratory, MRC, Cambridge, UK; [2]Lifecourse Epidemiology Unit, MRC, Southampton, UK

POSTERS

P61 **µDeveloping and testing novel delivery systems for glutamate receptor antagonists for the treatment of joint pain and disease**

Ben Egan[1,2], James Birchall[2], Charles Heard[2], Deborah Mason[1]

[1]School of Bioscience, Cardiff University, Cardiff, UK; [2]School of Pharmacy and Pharmaceutical Sciences, Cardiff University, Cardiff, UK

P62 **Bone Research Society Barbara Mawer Travelling Fellowship update: Investigating extracellular ATP in the tumour microenvironment of osteosarcoma using the plasma membrane-targeted luciferase (pmeLUC) probe**

Luke Tattersall[1], Elena De Marchi[2], Francesco Di Virgilio[2], **Michelle Lawson**[1], Elena Adinolfi[2], Alison Gartland[1]

[1]The Mellanby Centre for Bone Research, The University of Sheffield, Sheffield, UK; [2]Department of Morphology, Surgery and Experimental Medicine, University of Ferrara, Ferrara, Italy

LATE BREAKING POSTERS

LBP1 **Temporal investigation of tissue-engineered cartilage from human fetal skeletal progenitor cells using multimodal label-free imaging**

Catarina Costa Moura[1,2], Rahul S Tare[2,3], Richard Oreffo[2], Sumeet Mahajan[1]

[1]Institute for Life Sciences and Department of Chemistry, University of Southampton, Southampton, UK; [2]Centre for Human Development, Stem Cells and and Regeneration, Institute of Developmental Science, University of Southampton, Southampton, UK; [3]Mechanical Engineering Department, Faculty of Engineering and the Environment, University of Southampton, Southampton, UK

LBP2 Abstract withdrawn

LBP3 **Enrichment of bone progenitor populations from human bone marrow using label-free microfluidic techniques**

Miguel Xavier[1], Stefan Holm[2], Jason Beech[2], Daniel Spencer[1], Jonas Tegenfeldt[2], Richard OC Oreffo[3], Hywel Morgan[1]

[1]Institute for Life Sciences, University of Southampton, Southampton, UK; [2]Solid State Physics, Lund University, Lund, Sweden; [3]Centre for Human Development, Stem Cells and Regeneration, University of Southampton, Southampton, UK

LBP4 **Does a hysterectomy predispose women to developing osteoarthritis?**

Jenny Martin, Caitlin Murphy, Jenny Gregory, Richard Aspden, Anna Riemen, Fiona Saunders

Arthritis and Musculoskeletal Research, University of Aberdeen, Aberdeen, UK

LBP5 **Surgical menopause, hip shape and OA: Are they related?**

Caitlin Murphy, Jenny Martin, Jenny Gregory, Richard Aspden, Anna Riemen, Fiona Saunders

Arthritis and Musculoskeletal Research, University of Aberdeen, Aberdeen, UK

LBP6 **A novel MRI method for non-destructive vertebral strength quantification**

Amanda Davies[1], Faizan Ahmad[2], Peter Theobald[2], Richard Hugtenburg[3], Richard Johnston[4]

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LBP7 **The ΔE50-MD dog model of Duchenne muscular dystrophy has a skeletal phenotype**

Emma Wintsch, Richard Piercy, Michael Doube

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LBP8 **Undercarboxylated osteocalcin, but not the carboxylated form, may increase human aortic smooth muscle cell calcification**

Sophie Millar, Susan Anderson, Saoirse O'Sullivan

Graduate Entry Medicine and Medical Sciences, University of Nottingham, Derby, UK

LBP9 **Correlation between serum 25 hydroxyvitamin D, parathyroid hormone (PTH) and high resolution peripheral quantitative computed tomography (HR-pQCT) parameters of the distal tibia**

Hassan A Alshamrani[1,2], Margaret A Paggiosi[1], Nick Bishop[1,2], Amaka C Offiah[1,2]

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POSTERS

LBP10 **Effect of vitamin D and whole body vibration on high resolution peripheral quantitative computed tomography (HR-pQCT) parameters of the distal tibia (VibeD study)**

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LBP11 **Probing the skeletal stem cell niche through functional investigation of Prx1 expressing cells**

Sarah Pretorius[1], Scott Roberts[2], Malcolm Logan[1]

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LBP12 **Computed tomography-based texture analysis improves the prediction of incident vertebral fracture**

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LBP13 **A rare case of neck of femur fracture in a female adolescent associated with minor trauma and impaired bone metabolism**

Olamide Olatokun, Thomas Nash, Hani B Abdul-Jabar

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LBP14 **The role of canonical and non-canonical autophagy in bone resorption by osteoclasts**

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LBP15 **Pleckstrin homology domain containing protein family member 1 (PLEKHM1) regulates bone resorption through sealing zone dynamics and lysosomal targeting in osteoclasts**

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LBP16 Abstract withdrawn

LBP17 **Specific analysis of osteoclast-mediated bone resorption by differentiation of primary human osteoclasts in 3D**

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LBP18 **Altered expression of A3 and P2X6 receptors in osteocytes and chondrocytes following mechanical loading – novel mechanically regulated pathways**

Amelia Redman[1], Sophie Gilbert[2,4], Carole Elford[1,2,4], Ayesha Al-Sabah[3], Emma Blain[2,4], Bronwen Evans[1,4]

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