

Programme

Sunday 14 June

- 13:30-14:00 *Wilkins South Cloisters*
Registration and coffee
- 14:00-15:15 *Cruciform Lecture Theatre 1*
Joint Symposium: New imaging technologies for cartilage and bone
Chairs: Miep Helfrich (Aberdeen, UK) & Michael Sherratt (Manchester, UK)
- 14:00 IS01
Using μ CT to study bone architecture
Rob van't Hof (Edinburgh, UK)
- 14:25 IS02
Imaging of osteochondral tissues
Alan Boyde (London, UK)
- 14:50 IS03
Towards understanding of osteoarthritis and joint health by contrast-enhanced MRI of cartilage
Leif Dahlberg (Malmö, Sweden)
- 15:15-15:50 *Wilkins South Cloisters and Jeremy Bentham Room*
Coffee
- 15:50-16:40 *Cruciform Lecture Theatre 1*
Joint Symposium: Life in an extreme environment
Chairs: Alan Boyde (London UK) & Tim Hardingham (Manchester, UK)
- 15:50 IS04
Earth (Water), Wind (Oxygen) and Fire (Energy): A recipe for cell survival in a hostile environment
Irving Shapiro (Philadelphia, USA)
- 16:15 IS05
Osteocytes: birth, life and death in a mineralized tissue
Nigel Loveridge (Cambridge, UK)
- 16:40 Break
- 16:50-17:50 *Cruciform Lecture Theatre 1*
New Investigator/Trainee Session
Chairs: Emma Blain (Cardiff, UK) & Nick Harvey (Southampton, UK)
- John Williams** (London, UK): Wellcome Trust Clinical/Basic Fellowship Schemes
Karl Kadler (Manchester, UK): MRC training fellowships / Fellowship versus lecturer routes in academia
Keith Thompson (Aberdeen, UK): ARC Fellow
Vicky MacRae (Edinburgh, UK): BBSRC Fellow and 2008 Barbara Mawer Visiting Fellowship recipient
- 19:00-20:15 **'Meet-the-Professor-in-the-Pub!'**
- This novel concept will enable you to discuss your research with key experts in an informal, convivial setting. See information board next to registration desk for full details and locations. Please sign in for the session you would like to attend. Places are limited and will be allocated on a first-come first-served basis.

Charlie Archer & Bruce Caterson: Cartilage zonation

Jill Cornish & Chantal Chenu: Bone, brain and fat

Jim Gallagher & Alison Gartland: Nucleotides and bone

Tim Hardingham & Jerry Saklatvala: Can we fix articular cartilage?

Ken Poole & Nigel Loveridge: Sclerostin

Graham Riley & Roger Smith: Trouble with tendons

Tim Skerry & Brendon Noble: Bone responses to mechanical loading

David Abraham & Tim Cawston: Matrix repair

Monday 15 June

Parallel sessions: BRS Clinical Day/Basic Science Programme

Basic Science Programme (in parallel with BRS Clinical Day)

09:00-09:15 *Wilkins South Cloisters and Jeremy Bentham Room*
Registration and coffee

09:15-10:30 *Cruciform Lecture Theatre 1*
Basic Science Symposium: New frontiers
Chairs: Bruce Caterson (Cardiff, UK) Peter Croucher (Sheffield, UK)

09:15 IS06
Micro RNAs and the skeleton
Ian Clark (Norwich, UK)

09:40 IS07
Zebrafish as a tool for skeletal biology
Henry Roehl (Sheffield, UK)

10:05 IS08
Ex-vivo and *in-vivo* gene delivery strategies using matrix pathology as target
Yuti Chernajovsky (London, UK)

10:30-11:20 *Wilkins South Cloisters and Jeremy Bentham Room*
Coffee and commercial exhibition

11:20-12:10 *Cruciform Lecture Theatre 1*
Joint Symposium: The control of angiogenesis in bone and cartilage
Chairs: Jerry Saklatvala (London, UK) & Claire Clarkin (London, UK)

11:20 IS09
Vascularisation and bone remodeling
Marie-Hélène Lafage-Proust (St Etienne, France)

11:45 IS10
Targeting the HIF-1 pathway for bone repair
Tom Clemens (Birmingham, USA)

12:10-12:15 Developmental biology at UCL
Lewis Wolpert (London, UK)

- 12:15-14:00 *Wilkins South Cloisters and Jeremy Bentham Room*
Lunch, commercial exhibition, posters
- 13:15-14:00 *Wilkins South Cloisters and Jeremy Bentham Room*
Posters – odd numbers
- 14:00-14:25 *Cruciform Lecture Theatre 1*
Joint Symposium: The control of angiogenesis in bone and cartilage (continued)
- 14:00 IS11
Molecular regulation of vascular calcification
Ann Canfield (Manchester, UK)
- 14:25 Break
- 14:30-16:00 *Cruciform Lecture Theatre 1*
Joint Oral Communications (basic science)
Chairs: Colin Farquharson (Edinburgh, UK) & John Couchman (Copenhagen, Denmark)
- 14:30 OC1
Matrix mineralisation: A driver for osteocytogenesis?
M Prideaux, AA Pitsillides, C Farquharson
(Edinburgh, UK)
- 14:40 P031
The Wiskott-Aldrich syndrome protein verprolin homologous (WAVE) 1 is essential to localize MT1-MMP at the leading edge of migrating cells
BK Wolters, K Sato-Kusubata, N Ito, S Suetsugu, T Takenawa, Y Itoh
(London, UK)
- 14:50 OC2
Two populations of endochondral osteoblasts with differential sensitivity to Hedgehog signalling
CL Hammond, S Schulte-Merker
(Utrecht, The Netherlands)
- 15:00 P019
Chondroitin sulphation motifs identify putative chondroprogenitor cells in human osteoarthritic cartilage for use in ACT technologies.
S Mukhopadhyay, S Li, AJ Hayes, CE Hughes, MA Nowell, B Caterson
(Cardiff, UK)
- 15:10 OC3
Enhanced osteogenesis of foetal and adult human bone marrow stromal cells cocultured with human umbilical vein endothelial cells
JM Kanczler, ROC Oreffo
(Southampton, UK)
- 15:20 P020
Fracture healing in GDF-5 deficient mice
CM Coleman, BH Scheremeta, A Boyce, RL Mauck, RS Tuan
(Galway City, Eire)
- 15:30 OC4
Phenotypic effects of hypoxia and hypoxia-inducible factor in Ewing's sarcoma
HJ Knowles, L Schaefer, NA Athanasou
(Oxford, UK)

- 15:40 P033
CTGF plays a pivotal role in lung fibrosis through the MAPK dependent activation of collagen type I
M Ponticos, X Shi-wen, K Khan, P Leoni, GE Lindah, DJ Abraham
(London, UK)
- 15:50-16:30 *Wilkins South Cloisters and Jeremy Bentham Room*
Tea and commercial exhibition
- 16:30-17:30 *Cruciform Lecture Theatre 1*
BRS Oral Communications (basic)
Chairs: Jackie Berry (Manchester, UK) & Kay Colston (London, UK)
- Cruciform Lecture Theatre 2*
BSMB Oral Communications
Chairs: Graham Riley (Norwich, UK) & Chris Watson (Manchester, UK)
- 16:30 OC5
Locally generated glucocorticoids, rather than pro-inflammatory cytokines, directly regulate synovial DKK-1 expression in inflammatory arthritis
RS Hardy, M Ahasan, P Patel, A Ahmed, A Filer, K Raza, CD Buckley, PM Stewart, MS Cooper
(Birmingham, UK)
- P074
Molecular interactions of ADAMTS-4 in the VEGFR2 signalling complex
YP Hsu¹, CA Stator², DJ Buttle¹
(Sheffield, UK)
- 16:40 OC6
Blockade of the ALK1 receptor reduces tumour microvessel density and prevents the development of osteolytic bone disease in the 5T2MM murine model of myeloma
AD Chantry, L Coulton, O Gallagher, H Evans, J Seehra, S Pearsall, H De Raeve, K Vanderkerken, PI Croucher
(Sheffield, UK)
- P086
Histone deacetylase inhibitors as chondroprotective agents
KL Culley, S Fenwick, IM Clark
(Norwich, UK)
- 16:50 OC7
Osteocytes as you've never seen them before
GM Warnock, JS Gregory, KS Mackenzie, JG Greenhorn, AD McKinnon, MH Helfrich
(Aberdeen, UK)
- P091
Mir-675 regulates collagen II levels in human articular chondrocytes
K Dudek, JE Lafont, CL Murphy
(London, UK)
- 17:00 OC8
APRIL, BAFF and NGF: Novel RANKL substitutes
F Jones, R Taylor, HJ Knowles, NA Athanasou
(Oxford, UK)
- P082
Knockout of P58^{IPK}, a known inhibitor of PKR, in mice results in a degenerative phenotype in the knee joint
SJ Gilbert, M Patel, H Toumi, VC Duance, DJ Mason
(Cardiff, UK)
- 17:10 OC9
Novel use of digital image correlation to measure surface strains in loaded mouse tibiae discloses direct evidence of functional adaptation to limit peak strains
SJ Shefelbine, P Sztrefek, M Vanleene¹, R Olsson, RC Collinson, AA Pitsillides
- P081
Apoptosis in anteromedial gonarthrosis - evidence for the role of reactive oxygen species
R Rout, S Mcdonnell, S Snelling, X Dao, AJ Price, PA Hulley
(Oxford, UK)

(London, UK)

- 17:20 OC10 **Optimal bone mineralization and strength requires the type 2 iodothyronine deiodinase in osteoblasts**
JHD Bassett, A Boyde, PGT Howell, RH Bassett, TM Galliford, M Archanco, DL St. Germain, VA Galton, GR Williams
(London, UK)
- 17:20 P080 **Imaging early molecular alterations in articular cartilage degeneration by Raman spectroscopy:diagnostic applications**
J Dudhia, S Firth, PF McMillan, ERC Draper
(North Mymms, UK)
- 17:30 Break
- 17:40-18:30 *Cruciform Lecture Theatre 1*
Joint Plenary Lectures
Chairs: Tim Arnett (London, UK) & Andy Pitsillides (London, UK)
- 17:40 BRS Dent Lecture: Denting the image of bone
Alan Boyde (London, UK)
- 18:05 BSMB Fell-Muir Lecture: Articular cartilage: the known and the unknown unknowns
Tim Hardingham (Manchester, UK)
- 18:30-20:30 *Wilkins South Cloisters and Jeremy Bentham Room*
Extended Reception and poster viewing
- 18:45-19:15 Posters – even numbers
- 19:15-19:45 Posters – odd numbers

Monday 15 June

BRS Clinical Day (in parallel with Basic Science programme)

08:30-09:00 Registration and coffee

09:00-09:25 *Pearson Lecture Theatre*
IS12

Advances in bone biology relevant to clinicians

Jon Tobias (Bristol, UK)

Chairs: Cyrus Cooper (Oxford and Southampton, UK) & Ken Poole (Cambridge, UK)

09:25-10:40 *Pearson Lecture Theatre*
Bone Consults

Chairs: Juliet Compston (Cambridge, UK) & Sanjeev Patel (London, UK)

An opportunity to see how your clinical practice compares to academic clinical experts in the field

How should I use the FRAX tool in an osteoporosis clinic?

What do I do when a patient with OP treated with a bisphosphonate has a further fracture?

Should you ask for serum PTH when measuring serum 25OHD levels?

How do you use bone markers when treating patients with PTH?

When and how to treat an asymptomatic patient with Paget's disease of bone?

When do I refer a patient with an acute vertebral fracture for vertebroplasty?

Speakers to include:

Bill Fraser (Liverpool, UK)

Eugene McCloskey (Sheffield, UK)

Peter Selby (Manchester, UK)

10:40-11:20 *Wilkins South Cloisters and Jeremy Bentham Room*
Coffee and commercial exhibition

11:20-12:10 *Cruciform Lecture Theatre 1*
Joint Symposium: The control of angiogenesis in bone and cartilage

11:20 IS09
Vascularisation and bone remodeling
Marie-Hélène Lafage-Proust (St Etienne, France)

11:45 IS10
Targeting the HIF-1 pathway for bone repair
Tom Clemens (Birmingham, USA)

12:10-12:15 *Cruciform Lecture Theatre 1*
Developmental biology at UCL
Lewis Wolpert (London, UK)

12:15-14:00 *Wilkins South Cloisters and Jeremy Bentham Room*
Lunch, commercial exhibition, posters

13:15-14:00 *Wilkins South Cloisters and Jeremy Bentham Room*
Posters – odd numbers

14:00-14:25 *Cruciform Lecture Theatre 1*
Joint Symposium: The control of angiogenesis in bone and cartilage (continued)

- 14:00 IS11
Molecular regulation of vascular calcification
Ann Canfield (Manchester, UK)
- 14:25 Break
- 14:30 *Pearson Lecture Theatre*
IS13
Developmental mechanisms in the pathogenesis of osteoporosis
Cyrus Cooper (Oxford and Southampton, UK)
- Chairs: Eugene McCloskey (Sheffield, UK) & Cajé Moniz (London, UK)**
- 14:50-15:50 *Pearson Lecture Theatre*
Clinical cases
- 14:50 CC1
Clinical and radiological features of Melorheostosis
M Chan, Y Zhang, P Wordsworth
(Oxford, UK)
- 15:05 CC2
Chronic hypomagnesaemia – a novel cause of tertiary hyperparathyroidism?
B Lopez, JH Tobias, Chris Probert, A Day
(Bristol, UK)
- 15:20 CC3
Bilateral atypical femoral stress fractures in patients receiving bisphosphonates
Thinn Hlaing, Juliet Compston
(Cambridge UK)
- 15:35 CC4
A case of male osteoporosis and indolent systemic mastocytosis
P Manghat, D Radia, M Moonim, C Grattan, G Hampson
(London, UK)
- 15:50-16:30 *Wilkins South Cloisters and Jeremy Bentham Room*
Tea and commercial exhibition
- 16:30-17:30 *Pearson Lecture Theatre*
Satellite Symposium
The role of RANK ligand inhibition in osteoporosis and rheumatoid arthritis:
Clinical trial update
Organised by Amgen
- Chairs: Sanjeev Patel (London, UK) & Jon Tobias (Bristol, UK)**
- Treatment of postmenopausal bone loss with RANKL inhibition; the STAND and DECIDE study
Juliet Compston (Cambridge, UK)
- Rank ligand Inhibition: Phase 2 data in rheumatoid arthritis
David Reid (Aberdeen, UK)
- 17:30 Break
- 17:40-18:30 *Cruciform Lecture Theatre 1*
Joint Plenary Lectures

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19:15-19:45 Posters – even numbers

Tuesday 16 June

08:00-08:30 Coffee / croissants / fruit

08:30-09:45 *Cruciform Lecture Theatre 1*
Joint Symposium: Skeletal development
Chairs: Irving Shapiro (Philadelphia, USA) & Charlie Archer (Cardiff, UK)

08:30 IS14
Molecular mechanisms of skeletal morphogenesis
Bjorn Olsen (Boston, USA)

08:55 IS15
Bone development and dysplasias
Stefan Mundlos (Berlin, Germany)

09:20 IS16
Osteoblast differentiation is regulated by multiple signalling pathways in the zebrafish embryo
Henry Roehl (Sheffield, UK)

09:45-10:30 *Wilkins South Cloisters and Jeremy Bentham Room*
Coffee and commercial exhibition

10:30-11:50 *Cruciform Lecture Theatre 1*
BRS Oral Communications
Chairs: Marie-Hélène Lafage-Proust (St. Etienne, France) & Nick Harvey (Southampton, UK)

Cruciform Lecture Theatre 2
BSMB Open Session
Chairs: Tonia Vincent (London, UK) & Bjorn Olsen (Boston, USA)

10:30 OC11
Gender differences in hip structure in peripubertal children
A Sayers, JH Tobias
(Bristol, UK)

P064
FGF receptor-dependent, integrin-independent phosphorylation of p38, JNK and ERK MAPKs following mechanical stimulation of human articular chondrocytes in primary monolayer cell culture
Y Zhou, C Beadle, DM Salter, G Nuki
(Edinburgh, UK)

10:40 OC12
A pilot trial of the effects of vitamin D₂ supplementation upon bone in post-pubertal girls
KA Ward, G Das, SA Roberts, JL Berry, JE Adams, MZ Mughal
(Cambridge, UK)

P034
Structural and regulatory components of the pericellular matrix of young and mature articular cartilage
C McLean, J Saklatvala, T Vincent
(London, UK)

10:50 OC13
Abnormalities in the distribution of sclerostin positive and negative osteocytes in the cortical osteon in a hip fracture model of osteoporosis
J Reeve, J Power, M Doube, R van Bezooijen, KES Poole, N Loveridge
(Cambridge, UK)

P021
Expansion on a hyaluronan coated surface enhances the chondrogenic potential of human mesenchymal stem cells
C Ryan, C Coleman, M Murphy, F Barry
(Galway, Eire)

11:00 OC14
Relationship between different domains

P066
Molecular response of articular cartilage to

of physical activity and fractures: Results from the EPIC-Norfolk study

A Moayyeri, R Luben, S Bingham, N Wareham, KT Khaw
(Cambridge, UK)

injury: Wnt signaling in an in vivo model of joint surface injury

N Eltawil, C Pitzalis, F Dell'Accio
(London, UK)

11:10

OC15

Effect of intermittent hPTH (1-34) on 1,25 (OH)₂ vitamin D, bone formation and Fibroblast Growth Factor-23 (FGF-23) in post-menopausal osteoporosis

M Sridharan, P Manghat, I Fogelman, WD Fraser, G Hampson
(London, UK)

P088

Involvement of NMDAR in chondrocyte cell death and matrix degeneration

L Ramage, GE Hardingham, DM Salter
(Edinburgh, UK)

11:20

OC16

Inactivating mutations in RANK result in diseases with opposite phenotypes

DJ Mellis, A Duthie, M Guerrini, A Villa, MH Helfrich, MJ Rogers, JC Crockett
(Aberdeen, UK)

P022

Clonal mesenchymal stem cell populations derived from the synovial fat pad exhibit a similar cell surface characterisation profile but variable osteogenic and chondrogenic differentiation potential

WS Khan, SR Tew, A Adesida, JG Andrew, TE Hardingham
(Manchester, UK)

11:30

OC17

Inhibiting glycogen synthase kinase-3 (GSK-3) prevents the development of myeloma bone disease

NG Abdul¹, W Stoop², W Koopman³, M Djerbi³, AD Chantry¹, H Evans¹, K Vanderkerken², PI Croucher¹
(Sheffield, UK)

P060

Mechanical strain modulation of Matrix Metalloproteinases in human tenocytes

ER Jones, GC Jones, GP Riley
(Norwich, UK)

11:40

OC18

Metabolomic studies identify true responders from non-responders to vitamin D supplementation in postmenopausal women

C Moniz, R Chandra, TJ Ong, C Meredith, C Muggleston
(London, UK)

P065

Mechanical loading of murine knee joints: determining the interplay between genetics and mechanical loading in the development of OA

B Poulet, AA Pitsillides
(London, UK)

11:50

Break

12:00-12:50

Parallel Symposia

Cruciform Lecture Theatre 1

BRS - Cancer and bone

Chairs: Tim Chambers (London, UK) & Tom Clemens (Alabama, USA)

Cruciform Lecture Theatre 2

BSMB - Matricellular proteins in health and disease

Chairs: David Abraham (London, UK) & Hideaki Nagase (London, UK)

12:00

IS17

Cancers in bone: an overview

Nick Athanasou (Oxford, UK)

IS19

The roles of connective tissue growth factor and CYR61 in skeletal development

Karen Lyons (Los Angeles, USA)

12:25

IS18

IS20

Interactions between cancer cells and bone cells: unresolved issues

Peter Croucher (Sheffield, UK)

Roles of matrilins and COMP in cartilage matrix assembly and in the pathogenesis of chondrodysplasias

Mats Paulsson (Cologne, Germany)

12:50-13:10

Cruciform Lecture Theatre 2

BSMB Young Investigator Award

12:50-14:20

Wilkins South Cloisters and Jeremy Bentham Room

Lunch and commercial exhibition

13:15-14:00

Wilkins South Cloisters and Jeremy Bentham Room

Posters – even numbers

13:45

AGMs (concurrent)

BRS - *Cruciform Lecture Theatre 1*

BSMB - *Cruciform Lecture Theatre 2*

14 :10

Cruciform Lecture Theatre 1

Mark Pitman (MRC)

14:20-15:20

Cruciform Lecture Theatre 1

Joint Oral Posters

Chairs: Ray Boot-Handford (Manchester, UK) & **Nigel Loveridge** (Cambridge, UK)

14:20

P098

The elastic network in human articular cartilage: an immunohistochemical study of elastin fibres and microfibrils

J Yu, S Roberts, EH Evans, JP Urban

(Oxford, UK)

14:25

P071

eNOS null osteoblasts produce Nitric Oxide in response to fluid flow but do not translocate β -catenin

C Huesa¹, RM Aspden¹, MH Helfrich¹

(Aberdeen, UK)

14:30

P076

Anti-angiogenic properties of proteoglycan in cartilage explant cultures

JJ Bara, S Roberts, WEB Johnson

(Oswestry, UK)

14:35

P130

Increased fat mass and reduced serum osteocalcin in individuals with high bone mass: possible cross-talk between fat and bone metabolism

CL Gregson, S Steel, WD Fraser, JH Tobias

(Bristol, UK)

14:40

P023

Evaluation of bone marrow mesenchymal stem cell therapy for tendon regeneration in a large animal model

NJ Young, J Dudhia, AE Goodship, RK Smith

(North Mymms, UK)

14:45

P053

Calcium-induced secretion of DKK-1 in osteoblastic cells

HS McCarthy, JH Williams, MWJ Davie, MJ Marshall

(Gobowen, UK)

- 14:50 P029
The PPAR α agonist rosiglitazone reverses the persistent fibrotic phenotype of scleroderma fibroblasts
X Shi-wen, M Eastwood, CP Denton, A Leask, DJ Abraham
(London, UK)
- 14:55 P008
The inhibitory role of suppressor of cytokine signalling-2 on STAT signalling in the growth plate
C Pass, VE MacRae, SF Ahmed, C Farquharson
(Edinburgh, UK)
- 15:00 P061
Lovastatin upregulates chondrocyte marker expression in tenocytes
HR Cornell, AJ Carr, PA Hulley
(Oxford, UK)
- 15:05 P055
Mild hypothermia promotes osteoclastogenesis whilst retarding osteoblast differentiation and bone formation
JJ Patel, IR Orriss, ML Key, SEB Taylor, K Karnik, TR Arnett
(London, UK)
- 15:10 P079
***In Situ* ultrastructural imaging of native extracellular matrix macro-molecules**
HK Graham, CEM Griffiths, NW Hodson, JA Hoyland, J Millward-Sadler, AW Trafford, REB Watson, MJ Sherratt
(Manchester, UK)
- 15:15 P041
A role for TRPV1 and K⁺ channels in the regulation of osteoblast transdifferentiation to adipocytes
NC Henney, A Thomas, BAJ Evans, KT Wann
(Cardiff, UK)
- 15:20-15:45 *Wilkins South Cloisters and Jeremy Bentham Room*
Tea
- 15:45-17:00 *Cruciform Lecture Theatre 1*
Joint Symposium: Dynamic relationships with the extracellular matrix (ECM): lessons from dysplasias
Chairs: Stefan Mundlos (Berlin, Germany) & Bjorn Olsen (Boston, USA)
- 15:45 IS21
Intrinsic matrix properties direct stem cell fate: insights into anomalous bone formation
Adam Engler (San Diego, USA)
- 16:10 IS22
Fibrous dysplasia - models of disease, models of therapy
Paolo Bianco (Rome, Italy)
- 16:35 IS23

ER (endoplasmic reticulum) stress as a pathogenic factor in chondrodysplasia
Ray Boot-Handford (Manchester, UK)

17:00-17:15 *Cruciform Lecture Theatre 1*

Awards

Chairs: Bruce Caterson (Cardiff, UK) & Jon Tobias (Bristol, UK)

17:15 Close