

# Connective Issues



## BSMB Newsletter

### Committee:

Prof John Couchman (Chairman), Prof Andrew Pitsillides (Secretary),  
Prof David Young (Treasurer), Prof Jo Adams, Dr Sophie Gilbert,  
Dr Qing-Jun Meng, Dr. Kim Midwood, Dr Andrew Hellewell  
(PD representative), Dr Simon Tew, Dr Linda Troeberg, & Dr Tom van Agtmael

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## Editorial

*Dear BSMB Member*

Welcome to the 86<sup>th</sup> Connective Issues. Welcome also to 2016; a New Year with more fresh and exciting developments for BSMB. First and foremost, **get those abstracts written**. They won't write themselves and they are vital as they often secure a first step in preparing articles for publication. The feedback, commentary and discussions that ensue when we share our research at meetings - either in oral or poster format - can often raise awareness regarding a novel 're-interpretation' or even give a brand new perspective. You may never know it may also raise impact. Second, **get registered**, most importantly for our Spring Meeting in Chester, as those abstracts won't present themselves and Simon Tew and his colleagues have put together an exciting programme of speakers (that you might yet join) that make for a great meeting.

Finally, **get involved**. We are seeking nominations from BSMB members for the vacant PhD student representative position and for full Committee membership. Please put your name forward (now) to help move your BSMB toward its 50-year celebration of 1<sup>st</sup> FECTS meeting at MBE2018 in Manchester and in shaping future meetings.

*By Andrew Pitsillides  
Honorary Secretary*

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## Chairman's Letter

Dear BSMB members:

First, I would like to wish everyone a happy and healthy 2016. Despite the challenging funding environment, I hope that success will accompany your research endeavours. This year will be a busy one for matrix biologists, with several meetings scheduled. First, in early April (4th and 5th) our own meeting will be held in the ancient Roman city of Chester. Organised by Simon Tew, the theme will be aging and the extracellular matrix. Full details are elsewhere in this newsletter and the programme looks excellent. In September, our venue will be Cardiff for the autumn BSMB meeting, organized by Sophie Gilbert. The dates are September 5th and 6th; please mark our meetings in your calendar.

Looking more widely across Europe, 2016 is a Matrix Biology Europe year (MBE or FECTS as it was). This year the meeting will be held in Athens, organised by the Hellenic Matrix Biology section of the Hellenic Society of Biochemistry and Molecular Biology, with Prof. Nikos Karamanos at the helm. The dates are June 11-14 and we hope for a strong attendance from the BSMB membership and bursaries for our more junior members will be available as usual. The website is [www.mbe2016.upatras.gr/](http://www.mbe2016.upatras.gr/) for full details. In 2018 it will be the turn of the BSMB to host MBE, and already some of the meeting arrangements have been made. This will be an occasion to celebrate 50 years of matrix biology in Europe, the first FECTS meeting being held in Cambridge in 1968. MBE2018 will be held on The University of Manchester site from July 21-25 and we are planning on this special occasion to display UK matrix biology at its best. Please make a note of the dates and plan on being there.

It's time to get involved! Once again we have two vacant positions on the committee to fill, at what will be an exciting period for the BSMB. We look for new blood to bring ideas and contribute to the growth of our society. Being on the committee is an enjoyable experience. The normal expectation is that committee members will organise a BSMB meeting in the course of their three year tenure. Therefore, if you have meeting theme that you would like to see come to fruition, this is your opportunity. It is optimal that committee members will attend most of the BSMB meetings, since this is when the committee convenes. We shall also be looking to appoint a new Treasurer in April, since David Young will finish his two terms of excellent stewardship at that time. For this position we shall be seeking someone with committee experience.

The BSMB enjoys a considerable reputation in the matrix biology field, and I am in no doubt that it will continue to thrive, not least since it is ever more clear how our field is a critical component of cell and tissue function and a key player in the pathogenesis of many diseases. I look forward to meeting you in Chester and Cardiff.

John Couchman, *Chairman BSMB*

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## BSMB News

### Registration open:

On-line registration is open for the:

BSMB 2016 Spring Meeting held in historic Chester on Monday 4<sup>th</sup> and Tuesday 5<sup>th</sup> April, 2016. The meeting will have a theme of ageing and its effects on and is organised by Simon Tew (with Mandy Peffers, Kevin Hamill and Eithne Comerford).

Deadlines for abstract submission & bursary applications is March 7<sup>th</sup> and for registration is March 30<sup>th</sup> 2016.

To register, submit your abstract and to apply for bursaries please visit the meeting website:

<http://www.bsmb.ac.uk/meetings-index/chester/>

*Please see below for more details.*

**Visit** our growing BSMB twitter site. Tweets will be highlighting the latest research from the upcoming speaker in the lead up to the spring meeting in Chester.



Useful reminders for important deadlines will also be shared. Feel free to tweet interesting research and conference highlights. To follow, search @BSMB1 to find us on twitter.

...please use BSMB on Facebook too! Spread the word and invite visits.

<https://www.facebook.com/BritishSociety>

Sharing buttons are installed at the bottom of every BSMB web page for Facebook, Twitter, Linked-in, Google+ page, or even via email. Conferences related to matrix biology will also be promoted through the twitter feed and comments and suggestions are welcome.

*Andrew Hellewell and Graham Riley*

### Welcome to New Members!

New/returning members are welcomed:

#### *Full Members*

Ayoola Aiyegbusi (Lagos), Dieter Bromme (Vancouver), Richa Garva (Manchester), Hamish Gilbert (Manchester), Javier Redondo Muñoz (Manchester), Yvette Norton (Sao Paulo), Dharmesh Patel (London, QMUL), Elena Rainero (Sheffield), Merlin Walter (London, Northwick Park) and Danae Zamboulis (Liverpool); and

#### *Student members*

Idonnya Aghoghogbe (London, UCL), James Anderson (Liverpool), Lin Cui-Lin (Edinburgh), Lauren Fleming (Glasgow), Jake Mills (Manchester), Thais de las Heras-Ruiz (Newcastle), Daniel Rowson (London, QMUL), Karen Sanders (Liverpool), Jessica Sykes (Oswestry, Keele), Abbey Thorpe (Sheffield), Chineye Udeze-jyambere (London, QMUL), Roisin Wardle (Liverpool) and Bradley Whitehead (Cardiff).

### Announcement of BSMB's 2016 Dick Heinegård European Young Investigator Award nominee



This Award was set up in 2013 by the European national Matrix Biology Societies to commemorate the life and work of the great matrix biologist, Dick Heinegård. BSMB is delighted to announce Edward Horton (Wellcome Trust Centre, University of Manchester) as our UK nominee for the 2016 competition. Ed has researched the proteomics of integrin adhesion complexes, with an emphasis on comparison of complex composition in invasive cancer cell models.

Ed's candidature will now be presented to the MBE 2016 Dick Heinegård European Young Investigator Award Selection Committee. This committee will select from all the national nominees six finalists who will present their research in a special Young Investigators session at MBE/FECTS in Athens in June. After this session, a Selection committee will vote for an overall winner of the 2016 Dick Heinegård European Young Investigator Award. We wish Ed all the best on reaching the second, international stage of this competition and for representing BSMB at MBE 2016.

*Jo Adams, BSMB*

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## Mark your diary

### BSMB Spring 2016 Meeting

4-5<sup>th</sup> April 2016

Chester University City Campus,  
Chester

### Joint Annual Meeting of German and French

#### Societies for Matrix Biology

3<sup>d</sup>-5<sup>th</sup> March, 2016

University of Freiburg, Germany

### 2016 TERMIS-Europe conference

28<sup>th</sup> June - July 1<sup>st</sup> 2016

Uppsala Konsert & Kongress

### Bone Research Society

29 June – 1 July 2016

University of Liverpool

Organised by Jim Gallagher

### 2nd MBE, Athens Greece

11<sup>th</sup> – 14<sup>th</sup> June 2016.

Organised by Nikos Karamanos\_

### Matricellular Proteins in Development,

#### Health, and Disease

July 17-22, 2016

West Palm Beach, Florida

### BSMB Autumn 2016 Meeting

Cardiff, Sept 5th-6th 2016

“The Art of Communication - Signalling  
Cascades in Mechanotransduction”

Organised by Sophie Gilbert

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## Request for Nominations

### BSMB Treasurer

Our current Treasurer, Professor David Young, completes his term of office at the BSMB's March 2016 meeting. Therefore, we are seeking his successor.

The Honorary Treasurer is one of 3 Officers of the BSMB (with Chairman and Honorary Secretary). The incumbent is responsible for BSMB finances, which includes assembling financial statements, arranging oversight by professional accountants and reporting to the BSMB membership as well as The Charity Commission. Together with the Committee, the treasurer assists with formulating policy, and has important roles in liaising with BSMB meeting organisers.

The Honorary Treasurer shall not normally hold that office for a term of more than three years. In any case, she/he shall not hold that office for more than six consecutive years, but they shall be eligible for election to any other office in the Society. The term of office will begin at the April 2016 BSMB meeting. It is an expectation that the Treasurer will be available to attend a very high proportion of BSMB Committee meetings and conferences through his/her term of office. It is anticipated that the new Treasurer will attend the March 2016 meeting to take office.

Nominations (direct or otherwise) supported by 2 current BSMB members, can be made by any full member, in good standing, together with the written consent of the proposed nominee. These should be forwarded by email to Professor Andy Pitsillides (Hon. Sec) by Mon 15<sup>th</sup> Feb, 2016.

In the event of more than one nomination, a ballot of the membership by e-mail will be held. To this end, it would be helpful if nominees can send a brief (one page) CV together with a short statement outlining their aspirations for the Society should they be elected. In the event of no nominations, the Committee may elect to nominate and appoint a person to the treasurer position.

Andy Pitsillides, BSMB. (1<sup>st</sup> March, 2016).  
(apitsillides@rvc.ac.uk).

## Two BSMB Committee members

Any current member in good standing is eligible. Committee members formulate policy and have a major responsibility for organising BSMB meetings. It is expected that each Committee member will take a major part in planning and organising one BSMB meeting during their tenure, be available to attend most Committee meetings, but also to attend occasional further meetings. Should more nominations than vacancies be received, an election may be held. Nominees should send a CV and supporting statement to the BSMB Secretary, Andy Pitsillides. Appointees become BSMB Trustees. It is recommended that those interested read BSMB Constitution and trustee status ([www.bsmb.ac.uk](http://www.bsmb.ac.uk)).

Closing date: 15<sup>th</sup> August, 2016. Enquiries to Honorary Secretary (apitsillides@rvc.ac.uk or 207 468 5245).

## BSMB Committee PhD student representative

The BSMB Committee includes PhD student representation. Past student representatives have made very valuable contributions. As our current representative prepares to move to the next stage of their career, we now seek their replacement. Any PhD student member of BSMB is eligible for a one-two year term, from April 2016. The successful applicant will normally attend BSMB committee meetings. Nominees should send a short statement and CV to the Secretary together with a statement from their supervisor agreeing to their participation on the Committee. To avoid an election, the first appropriately qualified nominees to e-mail the required information will likely be appointed.

**Closing date: March 1<sup>st</sup> 2016.** Informal enquiries to Andy Pitsillides by phone (0207 468 5245) or e-mail ([apitsill@rvc.ac.uk](mailto:apitsill@rvc.ac.uk)).

## Young Investigator Award 2016

*This is the 1st announcement of the 2016 BSMB Young Investigator Award with deadline of the 31<sup>st</sup> July, 2016. Interested parties will find details about the application process on: <http://www.bsmb.ac.uk/awards-index/young-investigator-award/>*

The generous gift from the late Prof John Scott's estate has established a prize fund to support the YIA. Applications from any BSMB member aged 36 or under at the time of application will be considered.

*Graham Riley, BSMB*

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## 'Good news'

**BSMB bursaries** are available to graduate student and post-doctoral researchers to participate in 2016 meetings (please contact Tom Van Agtmael for details).

**Article:** International Journal of Experimental Pathology. British Society for Matrix Biology - Autumn 2014 Meeting Report is published.

**Impact Factor** of Matrix Biology, affiliated with the American Society for Matrix Biology and International Society for Matrix Biology (Chief Editor: Renato Iozzo) is now above 5.

To share good news contact *Kim Midwood*.

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## Upcoming BSMB Meetings

### BSMB Spring 2016 (April 4th-5th)

**Chester University**  
**"The Grey Area – Age and the Extracellular Matrix"**

**Organised by Simon Tew,  
Mandy Peffers, Kevin Hamill and  
Eithne Comerford**

BSMB's Spring 2016 Meeting will allow us to gather for the first time in the historic city of Chester. It will be held over two days from lunch time on the 4<sup>th</sup> April until late afternoon on the 5<sup>th</sup>. The meeting has a theme of ageing and its effects on extracellular matrices both directly and via age-related pathology. The open BSMB session will cover all aspects of matrix biology. A highlight of the meeting will be the Fell-Muir award lecture, delivered this year by Professor Karl Kadler. For further information and to register please visit <http://www.bsmb.ac.uk/meetings-index/chester/>

#### Monday April 4<sup>th</sup> 2016

**Session: Systemic & cellular responses to ageing**

- **Gordon Lithgow** (California): 'tbc'
- **Richard Loeser** (Chapel Hill): Ageing & the chondrocyte response to extracellular signals'

**Session: Muscle & tendon response to age**

- **Charlotte Peterson** (Kentucky): Satellite cell regulation of muscle fibroblast ECM production: implications for sarcopenia
- **Helen Birch** (London): 'tbc'

*Fell-Muir Award* (Chair: John Couchman)

- **Karl Kadler** (Manchester): 'tbc'

#### Tuesday April 5<sup>th</sup> 2016

**Session: Ageing's influence on ECMs**

- **Sara Wickström** (Cologne): Biomechanics of epidermal homeostasis
- **Michael Sherratt** (Manchester): ECM proteins as sacrificial sunscreens and antioxidants

**Session: Molecular mechanisms contributing to age-related disease**

- **Elizabeth Laird** (Liverpool): Collagen (I) isoforms & progenitor cells in fibrosis & tendon ageing
- **Amanda Fosang** (Melbourne): Role of type II collagen fragments in angiogenesis during endochondral bone formation

**Bursaries and Prizes:** A number of BSMB presenter & reporter bursaries are available, as well as poster & oral presentations prizes.

**Social Events**

**Reception & Poster Viewing:** Monday 4<sup>th</sup> April. Wine, beer & nibbles (5pm-6:30pm) with exhibitors and posters.

**Conference Dinner:** Monday 4<sup>th</sup> April. After dinner the bar will be open for those who need refreshments.

**Important Deadlines**

**Abstract/bursary deadline:** March 7<sup>th</sup> 2016

**Registration closes:** March 30<sup>th</sup> 2016

**Registration Fees**

Member £180

Non-member £230

Student £120

Non-Member Student £150

Registration fee includes refreshments, drinks reception, lunch (Tues 5<sup>th</sup>), conference dinner and en-suite accommodation/breakfast on site. *Note that these are early bird fees and they will increase after March 14<sup>th</sup>. See website for details.*

If you require accommodation on Sunday 3<sup>rd</sup> or Tuesday 5<sup>th</sup> April please ask the meeting organiser ([tew@liverpool.ac.uk](mailto:tew@liverpool.ac.uk)).

For more information on any of the above and to register and submit an abstract please visit: [www.bsmb.ac.uk/forthcoming-meetings/](http://www.bsmb.ac.uk/forthcoming-meetings/)

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**BSMB Autumn 2016 Meeting  
Cardiff, Sept 5th-6th 2016  
“The Art of Communication -  
Signalling Cascades in  
Mechanotransduction”**

**Organised by Sophie Gilbert**

The BSMB Autumn 2016 meeting ‘The Art of Communication - Signalling Cascades in Mechanotransduction’ will be held at Cardiff University on Monday 5<sup>th</sup> & Tuesday 6<sup>th</sup> April 2016 and is organised by Dr Sophie Gilbert and Dr Emma Blain.

The meeting will bring together scientists from across the matrix biology and signalling fields and will provide a platform for multidisciplinary discussion on how cells interact with each other and the surrounding environment and how cell behaviour contributes to pathological states with a focus on mechanotransduction. The conference dinner will be held at the Millennium Stadium. Registration has yet to open but details will appear in the coming months at [www.bsmb.ac.uk/forthcoming-meetings](http://www.bsmb.ac.uk/forthcoming-meetings)

**Confirmed speakers and preliminary programme:**

**Session 1: Coupling mechanical signals across the cell membrane**

**Martin Schwartz** (Yale): Integrin signalling in vascular biology

**Martin Knight** (QMUL): Role of primary cilia in how cells ‘sense and respond’ to mechanical forces.

**Session 2: Subcellular signal transduction**

**J Lammerding** (Cornell): Subcellular mechanics & the cell signalling response to mechanical stimulation

**Sarah Cartmell** (University of Manchester): Signal cascades in stem cell biology.

**Session 3: Tools for studying cellular communication**

**Chrissy Hammond** (University of Bristol): Using transgenic reporters to visualize bone and cartilage signalling during development in vivo.

**Kristian Franze** (University of Cambridge): Tools to investigate how cellular forces, local cell and tissue compliance and cellular mechanosensitivity contribute to CNS development and disease.

**Session 4: Open session (Junior Investigators and Postdocs)**

Short talks will be selected from submitted abstracts and will feature hot topics from any area of matrix biology.

## Session 5: Mechanotransduction in pathology

**Laoise McNamara** (NUI Galway):  
Mechanobiology during bone disease.

**Paul Evans** (University of Sheffield):  
Mechanotransduction in vascular pathology.

The meeting will include a presentation from the recipient of the 2016 Young Investigator award – the John Scott Lecture.



BSMB members will benefit from reduced registration fee, and presenter bursaries are available for eligible BSMB members.

**Bursaries and Prizes:** Presenter and reporter bursaries are available, as well as prizes for poster and oral presentations.

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## BSMB Conference Bursaries Awarded (Feb 2015-Jan 2016)

### BSMB Spring 2015

Reporter: Michal Dudek, Simone Scilabra, Olkesandr Nychyk; Silvia Rosini;  
Presenter: Lorna Mullan

### BSMB Autumn 2015

Reporter: Andrea Pollard, Taiwo Oguntona

### Other Bursaries

Rhiannon Morgan, Mandy Peffers & Stephen Thorpe (Orthopaedic Research Society Meeting), Vivien Coulson (Proteoglycan Gordon), Ian LI (Cartilage Gordon) & Alan Godwin (Elastin Gordon); Sumaya Allaith (Liverpool, Proteoglycans & 10th Pan-Pacific Connective Tissue Societies) & Wipawee Saengsoi (Liverpool, Tendon Meeting)

*Dr Tom Van Agtmael, BSMB*  
[tom.vanagtmael@glasgow.ac.uk](mailto:tom.vanagtmael@glasgow.ac.uk)

## Meeting reports

### Autumn 2015 BSMB

### 3rd Joint meeting with Bone Research Society: Edinburgh, 1-3 September

**Organised by Tom Van Agtmael, Vicky MacRae and Stuart Ralston at The John McIntyre Conference Centre, University of Edinburgh**

**Report written by: Andrea Pollard (Royal Veterinary College) and Peter Bell (Newcastle University)**

The joint autumn meeting of the BSMB and Bone Research Society (BRS) was held from the 1st-3rd September 2015, at the John McIntyre Conference Centre, University of Edinburgh. The meeting was well attended with a total of 211 participants, and was organised by a committee that comprised: Tom Van Agtmael, Vicky MacRae and Stuart Ralston (co-chairs), as well as Faisal Ahmed, David Hamilton, Hamish Simpson and Katherine Staines.

BSMB presented the Young Investigator Award to Vivien Coulson-Thomas. Reporter bursaries were awarded to Peter Bell and Andrea Pollard. Scott Reynolds and Michael Dudek were awarded Poster Prizes. A prize for the best oral presentation was awarded to Peter Bell.



The meeting was generously sponsored by the American Society for Bone and Mineral Research, the Company of Biologists, the International Osteoporosis Foundation, Alexion, Synageva BioPharma, Consilient Health Ltd and Internis.



The varied scientific programme opened with the first plenary session: Genetics of musculoskeletal disease. Wim Van Hul's talk illustrated how investigation of rare diseases can also inform common disease research and basic science, when he described how common genetic variants within many of the genes associated with sclerosing bone dysplasias influence bone mineral density in the general population. Joyce van Meurs then outlined how the reduction of osteoarthritis phenotype heterogeneity (by examination of specific endo-phenotypes), has been utilised to increase genetic association study power and identify novel OA loci. Omar Albagha presented evidence that RIN3 is a predisposing gene for Paget's disease of Bone, while Robert Jackson outlined molecular insights into genotype-phenotype correlations in type II collagenopathies caused by mutations within the C-propeptide.

The plenary talks were concluded with the BRS Dent Lecture by Judith Adams, who gave a comprehensive overview of advances in imaging and application to musculoskeletal disease. The BRS Rare Bone Diseases and BRS Muscle and Bone satellite workshops were held for registered attendees, following a reception and poster session.

The second day of the meeting featured parallel sessions focused upon stem cell and regenerative medicine and muscle and bone. In the former, Antonella Forlino discussed the merits of combined gene-cell therapy approaches for the treatment of osteogenesis imperfecta. Nicholas Evans gave a talk on potential for drug-associated nanoparticles to stimulate fracture repair by targeting the Wnt signalling pathway, while Sophie McHaffie presented evidence for the role of Wnt1 in skeletal development and the hypoxia response. In the parallel symposium, Cyrus

Cooper outlined recently established methods for the assessment of sarcopenia, while Marco Narici provided mechanistic insights into the neuromuscular basis of sarcopenia. Finally, Estelle Trifilieff described a novel anti-ActRII antibody with the potential to be used for treatment of multiple conditions associated with muscle wasting.

In the following parallel session (Intracellular pathways for matrix diseases), Mike Briggs discussed how a shared cellular response such as ER stress might represent a therapeutic target to be influenced in a range of genetic skeletal diseases, while Liliana Schaefer presented data that revealed biglycan's role in pro-inflammatory signalling of macrophages and the kidney. Anjali Kusumbe described a high resolution IHC-based protocol for imaging blood vessels in bone, that provided evidence for the coupling of angiogenesis and osteogenesis, and Siobhan Webb concluded the session by outlining results showing that metformin is able to reduce tumour burden and osteolytic bone disease in a multiple myeloma model. Consilient Health Ltd sponsored the clinical update symposium which featured a review of worldwide policies on vitamin D for musculoskeletal health by Terry Aspray, identifying our knowledge gaps and the clinical benefits and risks of vitamin D supplementation. This was followed by a talk by Jenny Gregory on the potential for shape modelling as a biomarker for musculoskeletal diseases such as osteoarthritis and hip and vertebral fractures. Celia Gregson discussed the association between high bone mass and osteoarthritis in non-weight bearing joints, and the session finished with the presentation of a case study demonstrating the successful use of Denosumab for the treatment of a patient with severe anorexia nervosa.

Molly Stevens opened the Scaffolds symposium with a talk on materials-based approaches for engineering and study of mineralised tissue, highlighting exciting possibilities for stimulating regeneration. Manuel Salmeron-Sanchez followed this with a talk on the potential for engineered extracellular matrices to produce advanced microenvironments, to tune stem cell differentiation in vitro and tissue repair in vivo. Katherine Staines discussed the role of the transmembrane glycoprotein E11 in



osteocytogenesis and osteoarthritic subchondral bone thickening and this session finished with a talk by Richard Farndale on Collagen Toolkit peptides for developing scaffolds for regenerative medicine. The parallel New horizons in osteoporosis therapies symposium featured three invited speakers (Serge Ferrari, Bente Langdahl and Socrates Papapoulos), who described recent advances in use of combination/sequential therapies, cathepsin K inhibitor (odanacatib) and a sclerostin inhibitor (romosozumab), respectively, to treat osteoporosis.



Wednesday's plenary lecture by Tracy Briggs focused on the ACP5 gene, autoimmunity and the skeleton, exploring the role of ACP5 mutations in spondyloenchondrodysplasia, which results in an immune and skeletal phenotype. This was followed by an oral poster session and the BSMB John Scott lecture by the winner of this year's Young Investigator award, Vivien Coulson-Thomas, who talked about glycosaminoglycans and proteoglycans in inflammation, development, injury and regeneration.

Thursday's BSMB open session saw a diverse range of talks. Paulo Bonaldo presented data from collagen VI null mice, indicating that collagen VI contributes to the structural integrity and is critical for the proper function of peripheral nerves. Aileen Crawford showed how low level fluid flow is essential for hypertrophic chondrocyte differentiation, while three other talks also highlighted the importance of mechanical forces in development.

Andrea Pollard also focused on chondrocyte development in the growth plate, outlining the role that embryo movement has upon limb development; while Angela Tam described the identification of a role for MRTF-A in stress-associated monocyte/macrophage activation and Nan Yang proposed that age-related alterations to the mechanical environment of cells might contribute to age-related dampening of clock oscillation. Audrey McAlinden discussed the role that DNA methylation profiles may play in the regulation of cartilage homeostasis, showing that DNA methyltransferase 3b loss is associated with an osteoarthritis phenotype. Blandine Poulet examined the effect of follistatin-like 3 deficiency on skeletal tissue development, and showed age-dependent on bone parameters such as length and bone mineral density. Two talks followed with a common theme of glycosylation: Melinda Duer used nuclear magnetic resonance spectroscopy fingerprinting to follow glycation reactions, and showed that disruption to collagen backbone structure occurs as a result of glycation; while Peter Bell described the importance that glycosylation has on ER-associated degradation of misfolded matrilin proteins. The open session concluded with talks from Dieter Bromme; who respectively discussed how mechanistic knowledge of esoteric protease inhibitors may allow the therapeutic inhibition of specific activities of enzymes; followed by Helen Troilo, who presented data showing that LTBP1 can form oligomeric structures in the absence of other matrix components.

The Mineralisation symposium began with a talk on the initiation and regulation of skeletal mineralisation by Colin Farquharson, which focused on the function of PHOSPHO1. This was followed by Catherine Shanahan's talk on the processes which underpin vascular

smooth muscle cell calcification and their association with ageing. Karla Oldknow presented work on the role of Phospho1 in energy metabolism, obesity and diabetes. Isabel Orriss finished the session with a talk on the potential for extracellular nucleotides to inhibit vascular calcification.



The meeting closed with the late breaking abstract submitted by Nerea Alonso, who presented data showing that GWAS is able to predict therapeutic response to teraparotide in severe osteoporosis.



## ***Advances in Tendon Research: From Bench to Bedside***

***by Wipawee Saengsoi***

The BSMB satellite meeting 'Advances in Tendon Research: From Bench to Bedside' was held at Queen Mary, University of London on 7-8<sup>th</sup> September 2015, organised by Hazel Screen and assisted by Dylan Morrissey, Helen Birch, Peter Clegg, Graham Riley and Chavaunne Thorpe. This special meeting focused on the 'story of tendon'. It aimed to encourage multidisciplinary science, to explore the most effective ways to work with industry. Some 100 attendees from UK, EU and worldwide were provided with ample opportunities for networking. The meeting was well organised, smooth-running with a relaxed atmosphere.

There were two meeting days, comprising 4 keynote sessions, 4 open sessions, 1 clinical speaker's session, 3 workshops, and posters & a networking session.

Keynote talks were delivered by international experts. First, Michael Kjaer (University of Copenhagen) gave a talk on tendon rupture and tendinopathy: suture vs non-suture treatment encompassing issues as diverse as: what is optimum immobilisation? and when to return to full activity? Jess Snedeker (ETH Zurich) discussed tendon models for multiscale study of connective tissue disease in ageing and diabetes. Helen Birch (UCL, London) focused on tendon biology - from molecules to locomotion, and Jeff Weiss (University of Utah) shared models on the mechanical role of elastin in tendons and ligaments.

Open sessions included short talks selected from submitted abstracts. This included a vast variety of studies on different tendon types, with the science covering a range of topics including molecular aspects, advanced mechanistic studies (e.g. examining links with metabolic diseases and nutrition), use of high-frequency ultrasound, elastography in diagnostic tendinopathy, and rotator cuff tendon surgery. In addition to 16 short talks, every submitted abstract was also presented as posters in exhibition hall.

Informative workshop sessions were led by renowned international academics, and offered an accessible introduction to a range of techniques for tendon research. These included: 'Mathematical modelling in tendon research' led by Jeff Weiss (Utah); 'Developing a model for strain measurement and modelling strategies for tendon and ligament research' led by Sam Evans (Cardiff) which incorporated techniques for whole body/extremity, joint/tissue and molecular level modelling; 'Experimental engineering approaches to tendon research' by Alex Scott (British Columbia), Manny Azizi (California) and Himadri Gupta (London); 'Clinical approaches to tendon research' by Dylan Morrissey and Dawn Carnes (London); 'Biological approaches to tendon research', which dealt with animal models for biological analysis, use of mass spectrometry for proteomics and different methods for biomaterial testing led by Tonia Vincent (Oxford), Mandy Peffers (Liverpool) and Johnna Temenoff (Georgia) respectively.

These talks from scientists and clinicians were complimented by speakers from the veterinary discipline working on tendon, who discussed problems, limitations and questions raised by their investigations. This was followed by an industry-focused networking session, providing ring-fenced time for conference delegates to meet with the industrial conference attendees and find out about both resources available to support their research and opportunities for cross-talk and collaboration.

Overall, attendance of this meeting provided me with a great opportunity to learn about the breadth and wide variety of tendon-related research being undertaken in fields, very different from my own. Moreover, I think this meeting was successful in its goal of providing a forum for clinicians, engineers, modellers, industry and biomedical scientists from across the tendon and allied musculoskeletal research fields to interact. In my opinion, its desire to reduce the gap between industry and academia was achieved.

**London Matrix Group  
Autumn Symposium  
'Basement Membranes: Roles in  
Development and Disease'  
October 7<sup>th</sup>, 2015**

**by James Whiteford  
(on behalf of the London Matrix Group)**

Our Autumn Symposium 'Basement Membranes: Roles in Development and Disease' on October the 7th was a great success. We welcomed speakers and attendees not only from London but also Southampton and Oxford which shows that the London Matrix Group is reaching all over the South East of England. We had four really exceptional keynote talks from Dr Birgit Leitinger (ICL), Prof Edel O'Toole (QMUL), Dr Brian Stramer (KCL) and Dr Sue Brown (RVC) covering all aspects of Basement Membrane Biology. In addition there were also 5 exceptional short talks from younger members of the London Matrix Biology community. The standard and quality of all 5 talks was fantastic and special thanks must go to Roger Mason on having the hardest job of the day in having to award the best talk prize. After a titanic battle the prize went to Suzanne Eldridge from QMUL.



On behalf of the committee I would also like to thank Biolegend, Alfa Aesar and the BSMB for their support.



**9th International Conference on  
Proteoglycans/10th Pan Pacific  
Connective Tissue Societies  
Symposium**

**by Sumaya Allaith (Liverpool)**

The 9<sup>th</sup> International Proteoglycans/10th Pan Pacific Connective Tissue Societies Symposium was held at Ewha Womans University, Seoul, Korea from 23-27 August 2015 and organised by Eok-Soo Oh. The oral talks and posters were divided into 7 subject schemes; Proteoglycan and Glycobiology; Skeletal Tissue Development/ Disorders & Stem Cells; extracellular matrix (ECM) Biosynthesis & Turnover; ECM in Skin Aging & Skin Diseases; Epithelial mesenchymal transition (EMT) & Tissue Architecture; Cancer & metastasis; Integrin Activation Cell Adhesion & Inflammatory Disease.

**Proteoglycan and Glycobiology**

Sanford-Burnham Prebys, Medical Research Institute, U.S.A, started the session with presenting human glycosylation disorders. Other relevant topics to this scheme included the mechanism of versican in disease progression. The roles of: intracellular syndecan in disease and its overall structure, syndecan-2 in cleaving metalloproteinase-14,

GAGs in disease, and how heparan sulphate cross links cytokines and growth factors.

**Skeletal Tissue Development/ Disorders & Stem Cells**

Amanda Fosang, Murdoch Children's Research Institute, Australia, began with presenting the role of type II collagen fragments and their function as key mediators of angiogenesis in endochondral ossification. Additional themes were planarian collagens and how they regenerate skeletal tissue, role of small proteoglycans in control of skeletal ageing, role of transcription factors and glucuronosyltransferase-I in regulating skeletal tissue and human cardiac stem cell depletion and how it is mediated by doxorubicin.

**ECM Biosynthesis & Turnover**

Vincent Hascall presented "How Does Heparin Prevent Intracellular Synthesis of Hyaluronan in Hyperglycemic Dividing Cells?" This talk began by explaining how hyaluronic acid synthesis is different from other GAG synthesis, and went on to explain the role of heparin/heparansulphate effects on HA metabolism in hyperglycemic dividing cells. Further talks included reports on HA metabolism, the role of ECM molecules (elastin, collagen, decorin) in connective tissue, and of MMPs and ADAMTS in ECM turnover.

**ECM in Skin Aging & Skin Diseases**

This session was commenced by David Granville, British Columbia, Canada, who spoke about granzyme B and matrix remodelling and skin aging. Additional topics introduced translational research on skin basement membrane, human skin disorders, mechanism of skin pigmentation, and the effect of UV irradiation on ECM molecules.

**EMT & Tissue Architecture**

During this session, John Couchman, Copenhagen, Denmark, presented "Syndecans: Gatekeepers of the Cell Adhesion Phenotype". This talk discussed current research on syndecans and their roles in intracellular signalling. Other interesting talks were given by Wei Kong Peking University Health Science Centre, China, who spoke about Cartilage Oligomeric Matrix Protein (COMP) and its function in ECM, and by Michelle Tallquis, University of Hawaii,

U.S.A, who presented the topic of resident cardiac fibroblast and their contribution to heart homeostasis and remodelling. One of the useful notes of this talk was addressing the different methods to culture cardiac fibroblasts. Extra talks for this session comprised epithelial-mesenchymal transition and their role in mediating different pathways and their function in disease such as hepatocellular carcinoma.

### **Cancer & Metastasis**

One of the fascinating talks of this session was held by Renato Iozzo, Thomas Jefferson University, U.S.A, entitled "Proteoglycan Regulation of Autophagy and Tumor Angiogenesis". This talk focussed primarily on decorin and other small leucine rich proteoglycans in tumour progression. Nikos Karamanos, University of Patras, Greece presented work on syndecans and stated that they are key phenotype regulators for breast cancer cells. Other topics that followed this theme included heparanase and syndecan-1 and how their axis promotes chemoresistance and tumour relapse. Additional presentations incorporated were integrin beta 4 acting as a therapeutic target of basal-like breast cancer, and intracellular molecules and their function in progression/inhibition to tumour formation.

### **Integrin Activation Cell Adhesion & Inflammatory Disease**

Liliana Schaefer, Goethe University, Germany presented a talk entitled "A Distinct Role for the NADPH Oxidases for the Regulation of Biglycan-evoked Renal Inflammation". She identified biglycan as a key mediator of various renal disorders. Other speakers in this session investigated integrins, particularly how they function during tumour formation, for instance in their role as cellular receptors for laminin.

Overall, the ICP2015PCTSS was a very useful and interesting meeting to attend. The delegates were from a variety of backgrounds including medicine and intra/ extracellular biology. This allowed for interesting discussions from a number of points of view. I would encourage any academic individual to attend future international proteoglycan/connective tissue conferences.

## **Why would BSMB members benefit from joining the International Society for Matrix Biology (ISMB)?**

BSMB members support matrix biology at a national level - why should they also consider joining another Society? In addition to the interest and satisfaction of taking part in matrix biology, internationally, ISMB membership includes a number of practical benefits, especially for early career researchers.

ISMB has the goal to promote matrix biology on a global scale. By acting to promote matrix biology activities, events and researcher interactions between countries, ISMB also serves to increase the visibility of the field to funding bodies, journals and other bodies. ISMB supports major international matrix biology meetings, including the European MBE/FECTS meeting via funding for invited speakers, and gives awards for outstanding junior investigators (Rupert Timpl award associated with the MBE/FECTS meeting) and established investigators (Distinguished Investigator award is associated with the ASMB bi-annual conference). Joining ISMB brings other career-building benefits, especially for young researchers, in the form of discounted registration at these major meetings and eligibility for student and post-doctoral members to apply for generous bursaries for international travel to conferences in the area of matrix biology.

The regular ISMB newsletter provides updates on new developments and events in the field and the global ECM community. All of these activities supported by ISMB can assist or accelerate new collaborations or entry into new areas of matrix biology. ISMB also advances the matrix biology field by interactions with the journal Matrix Biology. Employment opportunities can be found in the ISMB newsletter and at the Society website [www.ismb.org](http://www.ismb.org). To join ISMB, visit the membership page of the website, [www.ismb.org](http://www.ismb.org). Early career membership is available to graduate students and post-doctoral researchers up to 5 years after Ph.D.

*Jo Adams, Ex-officio BSMB Committee  
ISMB Council Member.*

## Current BSMB Committee

Chairman, Prof. John Couchman (University of Copenhagen; [john.couchman@bric.ku.dk](mailto:john.couchman@bric.ku.dk))  
Honorary Secretary, Prof. Andrew Pitsillides (Royal Veterinary College, University of London; [apitsillides@rvc.ac.uk](mailto:apitsillides@rvc.ac.uk))  
Honorary Treasurer, Prof. David Young (Newcastle University; [d.a.young@ncl.ac.uk](mailto:d.a.young@ncl.ac.uk))

### Elected and Seconded Members:

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**REGISTER NOW**

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**SEE YOU IN CHESTER APRIL 2016!**

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BSMB Spring Meeting: 4-5<sup>th</sup> April 2016  
**THE GREY AREA:  
AGE AND THE EXTRACELLULAR  
MATRIX**

Organiser: Simon Tew (Liverpool)

Location: Chester University, Chester UK

Speakers: Helen Birch (London, UK), Amanda Fosang (Melbourne, Australia),  
Elizabeth Laird (Liverpool, UK), Gordon Lithgow (Buck Institute, USA),  
Richard Loeser (Chapel Hill, USA), Charlotte Peterson (Kentucky, USA),  
Michael Sherratt (Manchester, UK), Sara Wickström (Cologne, Germany)



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