



**Spring meeting April 8<sup>th</sup>- 9<sup>th</sup> 2019**  
**University of Liverpool**  
**Joint meeting between BSMB and MBI**  
**“Stroma, Niche, and Repair”**



**Monday April 8<sup>th</sup>**

11.00-12.40	<b>REGISTRATION</b>	<b>Conference Office</b>
12.45-1.00	OPENING remarks	
	Welcome and Introduction	Dimitrios Zeugolis – Galway George Bou-Gharios- UoL
	Horizon Scanning in Extracellular Matrix Biology	Alan Holmes (UCL, London/ GlaxoSmithKline)

1.00-2.00	<b>SESSION 1 STROMA in Health and Disease</b>	
<b>Chairs</b>	<b>Tim Johnson (Sheffield/UCB Biopharma)</b>	
1.00-1.30	3D tissue and cell jamming transitions in collective cancer progression	Peter Friedl (The Netherlands)
1.30 -1.40	Unravelling how bi-directional cell-ECM interactions direct stem cell fate in 3D	Eileen Gentleman (King’s College London)
1.40-1.50	The regulation of DDR1 catalysis by its intracellular juxtamembrane region	Douglas Sammon (Imperial College London)
1.50-2.00	Integrin $\alpha\beta 6$ -EGFR crosstalk regulates bidirectional force transmission and controls breast cancer invasion	Mark Morgan (Liverpool)
2.00-2.30	Regulation of liver fibrosis by macrophages	Michael Schmid (Liverpool)
2.30-4.00	<b>Tea and Coffee (Poster and Supporter stand viewing)</b>	
4.00-4.30	<b>SESSION 2 NICHE- Microenvironmental regulator of cell behaviour</b>	
<b>Chairs</b>	<b>Kim Midwood (Oxford)</b>	
4.00-4.30	Generation and maintenance of the cancer-associated fibroblasts	Erik Sahai (The Crick, London)
4.30-4.40	Intracellular trafficking of the invasion promoting cell surface proteinase MT1-MMP	Valentina Gifford (Kennedy Institute, Oxford)
4.40-4.50	A novel role for Syndecan-4 in Neovascular Eye Diseases	James Whiteford (Queen Mary, London)
4.50-5.00	LaNt $\alpha 31$ influences cell adhesion and migration through modulation of laminin organisation and hemidesmosome maturation	Lee D Troughton (Liverpool)
5.00-5.30	Cellular heterogeneity in mammalian skin	Fiona Watt (KCL, London)

<b>BSMB Medal Lecture</b>		<b>Chair: John Couchman</b>
5.30-6.15	Extracellular Matrix Dynamics in Cell Migration, Invasion, and Tissue Morphogenesis	Kenneth Yamada (NIH, USA)
6.15-7.15	<b>Drinks Reception (Poster and Supporter stand viewing)</b>	
Get to the Coach!	<b>Conference Dinner</b> <b>Venue: Pullman Hotel, Kings Dock</b> <b>Liverpool L3 4FP</b>	

**Tuesday April 9<sup>th</sup>**

9.00-10.30	<b>SESSION 3 MBI Sponsored Session innovative material science to regenerate, reconstruct and interface with tissues</b>	
<b>Chairs</b>	<b>Dimitrios Zeugolis (Galway)</b>	
9:00-9.20	Neuroelectrode Functionalisation Through Heparan Sulphate Mimetics	Catalina Vallejo (NUI, Galway)
9:20-9.30	Biomimetic modelling of the lamina cribrosa region using tissue engineered scaffolds – a novel 3D model for glaucoma research	Deirdre Brennan (UCD, Dublin)
9:30-9.50	Engineering extracellular matrix analogues to model the epithelial Interface in 3D: prospects for developing novel in vitro models and tissue regenerative medical devices	Cian O'Leary (Dublin)
9:50-10.00	Self-assembled supramolecular tissue-like constructs for tendon enthesis repair	Stefanie Korntner (NUI, Galway)
10:00-10.20	Reconstruction of Metastatic Tumour Microenvironment Using Collagen-Based Scaffolds	Olga Piskareva (Dublin)
10:30-11.00	<b>Tea and Coffee (Poster and Sponsors stand viewing)</b>	
11.00-1.00	<b>SESSION 4 Repair, regeneration, and the cytoskeleton organization</b>	
<b>Chairs</b>	<b>Kevin Hamill (Liverpool)</b>	
11:00-11.30	Therapeutic tissue engineering Lessons from developmental biology	Colin Jahoda (Durham)
11:30-11.40	The role of WWP2 in cartilage	Marta Radwan (Newcastle)
11.40-11.50	Proresolving mediators counter inflammation in stromal cells from patients with Achilles tendon disease	Stephanie G Dakin (Botnar Institute Oxford)
11.50-12:00	In vivo SILAC labeling uncovers age and type dependent incorporation of extracellular matrix proteins in collagen rich tissues	Yoanna Ariosa-Morejón (Kennedy Institute, Oxford)
12.00-12:30	Understanding the role of MEGF10 in skeletal muscle stem cells	Michelle Peckham (Leeds)
1.00 – 2.00	<b>Lunch – Venue: University of Liverpool – Teaching Hub.</b>	
2.00-3.30	<b>SESSION 5 Tissue development, homeostasis, remodeling and fibrosis</b>	
<b>Chairs</b>	<b>David Abraham (UCL, London)</b>	
2:00-2.30	Metalloprotease inhibitors regulate stem cell niches	Rama Khokha (Toronto, Canada)
2:30-2.40	Matrix adhesion site function in polarised invasive migration	Tobias Zech (Liverpool)
2.40-2.50	Raman spectroscopy and second harmonic generation imaging reveal sexually dimorphic influence of osteoblast-derived VEGF on bone mineral and matrix composition	Aikta Sharma (Southampton)
2.50-3.00	Small non-coding RNA transcriptome signatures of chondrocyte ageing	Mandy Peffers (Liverpool)
3.00-3.30	Transglutaminases in tissue scarring and fibrosis	Tim Johnson (Sheffield/UCB Biopharma)
3.30-4.00	<b>Presentation of Prizes Close of Meeting</b>	
4.00-7.00	<b>BSMB Committee Meeting (Crown Place Meeting room 1)</b>	

## Posters

#	Title	Author
<b>1</b>	Designing in vitro skin fibrosis model for testing the biological effects of anti-fibrotic molecules	<b>A Abdo</b>
<b>2</b>	Prognostic Significance of Soluble and ECM associated VEGFA isoforms in High-Grade Serous Ovarian Cancer	<b>BL Agüero</b>
<b>3</b>	Patient-specific extracellular matrix-based 3-dimensional cultures are superior to 2-dimensional cultures conditions to model colorectal cancer and liver metastasis	<b>E D'Angelo</b>
<b>4</b>	In vivo SILAC labeling uncovers age and type dependent incorporation of extracellular matrix proteins in collagen rich tissues.	<b>Y Ariosa-Morejon</b>
<b>5</b>	Defining the Role and Mechanism of microRNAs in Osteoarthritis	<b>P Balaskas</b>
<b>6</b>	The effect of nerve growth factor on chondrocyte mechanosensing	<b>JJ Bara</b>
<b>7</b>	Preserved Neural Extracellular Matrix in Decellularised Human Femoral Nerve: Towards Developing a New Allograft for Peripheral Nerve Injury in the UK	<b>V Barrera</b>
<b>8*</b>	Biomimetic modelling of the lamina cribrosa region using tissue engineered scaffolds – a novel 3D model for glaucoma research.	<b>D Brennan</b>
<b>9</b>	Quasi-static loading inhibits endochondral ossification in ex vivo murine metatarsal culture	<b>S Caetano-Silva</b>
<b>10</b>	VPS33b is essential for collagen homeostasis	<b>J Chang</b>
<b>11</b>	Novel target discovery of miR140 targets in human articular chondrocytes	<b>N Chaudhry</b>
<b>12</b>	Simulating and modulating skin fibrosis in vitro: Multi-compartment collagen devices as multi drug delivery vehicles for fibrosis	<b>J Coentro</b>
<b>13</b>	Creating bespoke functionalised peptide gels to model the brain tumour microenvironment	<b>J Curd</b>
<b>14*</b>	Proresolving mediators counter inflammation in stromal cells from patients with Achilles tendon disease	<b>SG Dakin</b>
<b>15</b>	Transglutaminase-2 mediates stromal biomechanics in colorectal cancer	<b>NJ Peake</b>
<b>16</b>	Investigating glycosaminoglycan developmental diseases using fully defined 3D cell culture environments and human pluripotent stem cells	<b>K Dowding</b>
<b>17</b>	Interactions of silver nanoparticles with 2D and 3D human skin models	<b>R Deller<sup>1</sup></b>
<b>18</b>	Maintenance of cartilage extracellular matrix in osteochondral allografts stored at physiological temperature	<b>MJ Eagle</b>
<b>19</b>	Mechanoregulation of adipogenesis in orbital fibroblasts through Src family kinases	<b>V Eglitis</b>
<b>20</b>	CEMIP is induced by Proteinase-activated receptor (PAR)2 activation in human chondrocytes	<b>AMD Falconer</b>
<b>21*</b>	Unravelling how bi-directional cell-ECM interactions direct stem cell fate in 3D	<b>E Gentleman</b>
<b>22</b>	The cartilage age-CpG cg23500537 represses target gene expression of PCDHB1 and shows changes with ageing in a tissue specific manner	<b>RC Fulea</b>
<b>23</b>	Macromolecular crowding and animal component free culture for stem cell phenotype maintenance	<b>D Gaspar</b>
<b>24*</b>	Intracellular trafficking of the invasion promoting cell surface proteinase MT1-MMP	<b>V Gifford</b>
<b>25</b>	Nuclear decoupling and chaperone regulation is part of a rapid protein-level cellular response to high-intensity mechanical loading	<b>HTJ Gilbert</b>
<b>26</b>	Laser capture microscopy – proteomics of the fibrogenic niche in Idiopathic Pulmonary Fibrosis	<b>J Herrera</b>
<b>27</b>	Mechanical stimulation for tissue engineering: characterising load-induced changes by the 'collagen barcode'	<b>AJ Janvier</b>
<b>28</b>	Effects of Fibrillin-1 mutation (Tight skin mouse) in joint health.	<b>P Blandine</b>
<b>29</b>	Tissue sodium controls the release of heparin-binding growth factors, including hepatoma-derived growth factor (HDGF), from cartilage upon injury	<b>SJ Keppie</b>
<b>30</b>	Comparison of RNA Extraction Methods in Equine Synovial Fluid in the determination of the expression of Small Non-Coding RNAs	<b>YA Kharaz</b>
<b>31</b>	Extracellular LaNt ·31 influences laminin deposition and cell-to-matrix adhesion	<b>OA Kingston</b>
<b>32</b>	Self-assembled supramolecular tissue-like constructs for tendon enthesis repair	<b>S Korntner</b>
<b>33</b>	A Col9a3 Exon 3 Skipping Mouse as a Novel Model for Multiple Epiphyseal Dysplasia	<b>S Lecci</b>
<b>34</b>	Differences in VEGFA isoform expression regulate modes of migration and their sensitivity to anti-VEGFA therapy.	<b>YC Lee</b>
<b>35</b>	Combinatorial effects of matrix stiffness and ECM proteins on cell behaviour and morphology	<b>S. Malijauskaitė</b>
<b>36</b>	The Natural Repair of Articular Cartilage in Humans: An Immunohistological Study	<b>HS McCarthy</b>

<b>37</b>	Evidence for alternative polyadenylation of the ADAMTS5 mRNA creating a heterogenous pool of transcripts that differ in their response to post-transcriptional cues	<b>BT McDermott</b>
<b>38</b>	A peptide gel-based method for fully-defined, adaptable studies of cell-matrix interactions in 3D culture.	<b>J Ashworth</b>
<b>39</b>	FGF2 promotes regeneration of cartilage in vivo by promoting MSC chemokinesis	<b>H Muhammad</b>
<b>40*</b>	Matrix adhesion site function in polarised invasive migration	<b>T Zech</b>
<b>41</b>	Untargeted extracellular chemical profiling by LC-QTOF-MS identifies novel markers of bone collagen degradation	<b>BP Norman</b>
<b>42</b>	Tenascin-C: A Driver of Inflammatory Bowel Disease?	<b>J Ozanne</b>
<b>43</b>	Small non-coding RNA transcriptome signatures of chondrocyte ageing	<b>MJ Peffers</b>
<b>44</b>	Design and characterization of a three-layer collagen-based scaffold to modulate BMSC behaviour for enthesis regeneration	<b>E Pugliese</b>
<b>45*</b>	The role of WWP2 in cartilage	<b>M Radwan</b>
<b>46</b>	Targeting Retinoic Acid Metabolism as an Anti-inflammatory Treatment for Hand Osteoarthritis	<b>L Zhu</b>
<b>47</b>	Biomarkers and mechanics of murine anterior cruciate ligament during osteoarthritis development	<b>L Ramos-Mucci</b>
<b>48</b>	Utilising a Novel Photoresponsive Hydrogel with Defined Surface Topography to Probe Primary and Immortalised Mesenchymal Stem Cell Morphology Response to Extracellular Stiffening	<b>D Richards</b>
<b>49*</b>	The regulation of DDR1 catalysis by its intracellular juxtamembrane region	<b>D Sammon</b>
<b>50</b>	The miRNA miR-21a-5p targets SMAD7, and its inhibition decreases lung fibrosis in the mouse.	<b>M. Scotto di Mase</b>
<b>51*</b>	Raman spectroscopy and second harmonic generation imaging reveal sexually dimorphic influence of osteoblast-derived VEGF on bone mineral and matrix composition.	<b>A Sharma</b>
<b>52</b>	Utilising self-assembling peptide hydrogels for MSC mechanobiology research	<b>JE Shaw</b>
<b>53</b>	Laminin $\beta$ 1 with C-terminal Dendra2 fluorescent protein tag is inefficiently secreted from lung adenocarcinoma cells in culture	<b>L Shaw</b>
<b>54</b>	The articular cartilage proteome is dependent on zone, age and disease state	<b>A Smagul</b>
<b>55</b>	Development and validation of an inducible LaNt $\alpha$ 31 overexpressing mouse model	<b>CJ Sugden</b>
<b>56</b>	Differential impact of matrix stiffness on adhesion, proliferation and differentiation potential of osteogenic and myogenic progenitor cells	<b>B Świerczek- Lasek</b>
<b>57</b>	The extracellular matrix critically influences tumor-fibroblast interactions in lung cancer	<b>M Szczygiel</b>
<b>58*</b>	A novel role for Syndecan-4 in Neovascular Eye Diseases	<b>G De Rossi</b>
<b>59*</b>	LaNt $\alpha$ 31 influences cell adhesion and migration through modulation of laminin organisation and hemidesmosome maturation	<b>LD Troughton</b>
<b>60*</b>	Integrin $\alpha$ V $\beta$ 6-EGFR crosstalk regulates bidirectional force transmission and controls breast cancer invasion	<b>JR Thomas</b>
<b>61</b>	Lithium chloride triggers primary cilia elongation and inhibits hedgehog signalling in articular chondrocytes	<b>CL Thompson</b>
<b>62</b>	Biophysical and biological microenvironmental cues for tenogenic phenotype maintenance	<b>D Tsiapalis</b>
<b>63</b>	Insulin-like growth factor binding protein 6 (Igfbp6) as a gene expression marker of normal tendon phenotype in native tissue and cell culture systems	<b>AJ Turlo</b>
<b>64</b>	VEGFA isoform switching in soft tissue sarcoma is associated with decreased survival	<b>WR English</b>
<b>65</b>	The role of the serine proteinase inhibitor SERPINA3 in chondrogenic differentiation	<b>D Wilkinson</b>
<b>66</b>	Small GTPases Rap1b and Rab8a regulate integrin trafficking and activation of fibronectin binding integrins ( $\alpha$ 5 $\beta$ 1 and $\alpha$ v $\beta$ 3) to control angiogenic process	<b>KI Wolanska</b>
<b>67</b>	Engineered recombinant collagens as substrates for cell adhesion	<b>M Vitale</b>
<b>68</b>	Can Raman Spectroscopy Detect Age-related Changes in Tendon Matrix?	<b>NH Yin</b>
<b>69</b>	Macrophages stimulate a pro-fibrotic phenotype in orbital fibroblasts	<b>IH Yang</b>
<b>70</b>	Micromotion-induced neuroinflammation as a model of peri-electrode gliosis	<b>A Trotier</b>
<b>71</b>	Membrane tension orchestrates rear retraction in matrix directed cell migration	<b>PT Caswell</b>
<b>72</b>	The role of Cryptochrome1/2 proteins in the regulation of TGF- $\beta$ 1 signalling pathway and their implication in tissue fibrosis	<b>Sarumi D</b>

\*denotes podium presentation