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TCES

UK Society for Biomaterials

UKSB

TCES-UKSB 2019 11-13 June

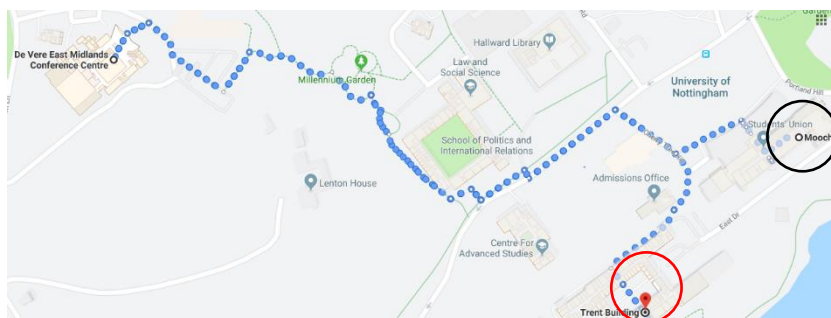
East Midlands Conference Centre
University of Nottingham, UK



TCES-UKSB 2019 Programme & Abstracts



<https://bit.ly/TCES-UKSB2019>



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Tuesday 11th June 2019: Development of New Models, Tools and Technologies

08:00 – 10:00 TCES-UKSB 2019 Registration and Poster Set-up

10:00 – 10:15 **Welcome and Introduction to TCES-UKSB 2019**

Dr Lisa White, University of Nottingham

10:15 – 11:15 **SESSION 1: IMAGING IN TERM**

Chair: A/Prof Colin Scotchford, University of Nottingham

10:15 – 10:45 **Keynote - Professor Chris Sammon**, Sheffield Hallam University
'Using infrared imaging and spectroscopy to support the development of regenerative therapies'

10:45 – 11:00 Mr Dan Merryweather, Loughborough University
Influence of sample preparation methods on the organizational presentation of collagen fibrils in hydrogel electron microscopy

11:00 – 11:15 Prof Elisa Budyn, ENS Paris-Saclay
Reforming the Haversian network in a bone-on-chip

11:15 – 12:15 **SESSION 2: Turbo Talks I**

1. Ms Lydia Beeken, University of Nottingham (Poster No. 144)
Development of a topical cell therapy for ocular surface disorders
2. Ms Charlotte Lee-Reeves, Imperial College London (Poster No. 264)
Improving stem cell therapies for traumatic brain injury using bioactive ECM scaffolds to attenuate inflammation
3. Mr David Hiram Ramos Rodriguez, University of Sheffield (Poster No. 136)
Development of topographically controlled electrospun scaffolds to deliver proangiogenic agents for wound healing
4. Ms Man Li, University of Liverpool (Poster No. 54)
Nitric oxide releasing electrospun nanofibers for antimicrobial bone tissue engineering
5. Ms Kathryn Thomas, University of Nottingham (Poster No. 240)
Phosphate based glass coatings for rapid Ga3+ release: the challenges of balancing cytocompatibility with antimicrobial effects
6. Mrs Shirin Hanaei, Nottingham Trent University (Poster No. 109)
Modelling and emulating 3D multi-tissue interactions by microfluidic chip technology
7. Ms Flavia Bonalumi, University of Brighton (Poster No. 104)
Development of a multi-layered cryogel bioreactor with optimised fluid dynamics for bioartificial liver application
8. Mrs Alison Wilson, University of York (Poster No. 73)
Clinical translation of regenerative medicines: a regulatory primer
9. Mr Paul Mardling, Sheffield Hallam University (Poster No. 194)
Auxetic and composite scaffolds show potential for use in tissue engineering
10. Ms Thunyaporn Srisubin, University of Manchester (Poster No. 80)
Phosphonate-modified graphene-laponite composites for bone repair

12:15 – 13:30	Lunch and UKSB Annual General Meeting
13:30 – 15:15	SESSION 3: NEXT GENERATION BIOMATERIALS DISCOVERY <i>Chair: Prof Morgan Alexander, University of Nottingham</i>
13:30 – 14:00	Keynote - Professor Jan de Boer , Eindhoven University of Technology <i>'Life at the cell-material interface'</i>
14:00 – 14:15	Dr Mahetab Amer, University of Nottingham <i>Differentiation by design: Varying surface topographical features of polymeric microparticles influences mesenchymal stem cell fate</i>
14:15 – 14:30	Mr Chinnawich Phamornnak, University of Manchester <i>Non-woven mats of electroactive composites of silk-PEDOT:PSS for peripheral nerve regeneration</i>
14:30 – 14:45	Dr Jenny Aveyard, University of Liverpool <i>Nitric oxide releasing contact lens bandages</i>
14:45 – 15:00	Mr David Richards, University of Manchester <i>Utilising a novel photoresponsive hydrogel with defined surface topography and photoswitchable stiffness to analyse the biophysical regulation of mesenchymal stem cells</i>
15:00 – 15:15	Dr Laura Ruiz, University of Nottingham. <i>Rapid screening of inks for 3D printing personalised drug delivery implants</i>
15:15 – 16:15	Coffee Break and Posters
16:15 – 18:00	SESSION 4: INNOVATIVE BIOMATERIALS <i>Chair: Dr Jude Curran, University of Liverpool</i>
16:15 – 16:30	Platinum Exhibitor: Jellagen
16:30 – 17:00	Keynote - Professor Sandra Van Vlierberghe , University of Ghent <i>'Versatile hydrogel platform for 3D printing applications'</i>
17:00 – 17:15	Dr Maxine Chan, Imperial College London <i>Fabrication and characterisation of endometrial extracellular matrix hydrogel for endometrial regeneration</i>
17:15 – 17:30	Mr George Fleming, University of Liverpool. <i>Dual-action nitric oxide-releasing micropatterned antibacterial PDMS surfaces</i>
17:30 – 17:45	Dr Richard Balint, University of Manchester. <i>Graphene-polymer composites for the engineering of cardiac tissue</i>
17:45 – 18:00	Prof Bikramjit Basu, Indian Institute of Science <i>3D inkjet printing of biomaterials with strength reliability and cytocompatibility: Quantitative process strategy for Ti-6Al-4V</i>
18:00 – 20:00	TCES-UKSB Welcome Reception
20:00 onwards	TCES-UKSB Early Career Researchers Social, Mooch, Students Union

Wednesday 12th June 2019:
Translational Research: Barriers and Breakthroughs

08:00 – 09:00	Meet the Mentor 1
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09:00 – 10:45

SESSION 5: BIOMATERIALS AND TERM

Chair: Dr Araida Hidalgo-Bastida, Manchester Metropolitan University

09:00 – 09:15

Platinum Exhibitor: **TA Electroforce**

09:15 – 09:45

Keynote - Professor Stephen Badylak, University of Pittsburgh
'Clinical Translation of an acellular therapy for Barrett's Oesophagus'

09:45 – 10:00

Dr Victoria Robertson, University College London
Local suppression of the T cell response to peripheral nerve allografts using drug-eluting PCL fibres

10:00 – 10:15

Mr James Reid, University of Edinburgh
Biofunctionalizing tailored electrospun scaffolds for influencing vascular cellular performance

10:15 – 10:30

Ms Azadeh Rezaei, University College London
Role of silicate and silicate-bioactive glasses in bone nodule formation

10:30 – 10:45

Ms Roxanna Ramnarine, University of Southampton
Self-assembling structured laponite hydrogels with spontaneous 3D micropatterning of bioactive factors for tissue regeneration

10:45 – 11:15

Coffee break

11:15 – 12:45

SESSION 6: ADVANCES IN TERM

Chair: Dr James Phillips, University College London

11:15 – 11:30

Platinum Exhibitor: **Cell and Gene Therapy Catapult**

11:30 – 12:00

Keynote - Professor Alicia El Haj, University of Birmingham
'Translation of cell therapy control platforms to the clinic'

12:00 – 12:15

Dr Lucy Bosworth, University of Liverpool
Electrospun scaffolds containing decellularised tissue matrix support conjunctival epithelial and goblet cells

12:15 – 12:30

Dr Emily Britchford, University of Nottingham/NuVision Biotherapies
Validation and assessment of an antibiotic decontamination manufacturing protocol for vacuum-dried human amniotic membrane

12:30 – 12:45

Mr Jonathan May, University of Southampton
Study of the effects of microbubbles on bone formation using micro-CT

12:45 – 14:00

Lunch and TCES Annual General Meeting

14:00 – 15:30

SESSION 7: DEVELOPMENT OF TRANSLATIONAL & 3D MODELS

Chair: Dr Paul Roach, Loughborough University

14:00 – 14:15

Platinum Exhibitor: **BioTek**

14:15 – 14:45

Keynote - Professor Katja Schenke-Layland, University of Tübingen
'Non-invasive high content analysis of 3D in vitro test systems'

14:45 – 15:00

Ms Bethany Ollington, University of Sheffield
Generation of an immuno-responsive tissue engineered oral mucosal equivalent containing primary human macrophages

15:00 – 15:15

Dr Laura Macri-Pellizzeri, University of Nottingham
Porous glass microspheres show biocompatibility, tissue ingrowth and osteogenic onset in vivo.

15:15 – 15:30	Mr Jeremy Mortimer, University of Edinburgh <i>Investigations of human tendon width for the anatomical design of an in vitro flexor digitorum profundus enthesis model</i>
15:30 – 16:30	Coffee and Posters
16:30 – 18:00	SESSION 8: ROBERT BROWN EARLY STAGE INVESTIGATOR AND UKSB PRIZES <i>Chair: Dr Nick Evans, University of Southampton</i>
16:30 – 16:45	Dr Jennifer Ashworth, University of Nottingham <i>Peptide gels of fully-defined composition and mechanics for modelling cell-matrix interactions in breast cancer</i>
16:45 – 17:00	Dr Nazia Mehrban, University College London <i>In vivo response to injectable hydrogels: from decellularised ECM to de novo peptides</i>
17:00 – 17:30	Alan Wilson Memorial Lecture – Professor David Wood , University of Leeds <i>'The Minimata convention: challenges and opportunities for aesthetic dental materials'</i>
17:30 – 18:00	UKSB President's Prize – Professor Kevin Shakesheff , University of Nottingham <i>'Minimally invasive delivery of temperature sensitive biomaterials</i>
19:00 – 23:00	TCES-UKSB Conference Gala Dinner <i>Drinks reception in Council Room (A21); dinner in the Senate Chamber at 20:00, Trent Building.</i>

Thursday 13th June 2019: Emerging Research and New Frontiers

08:00 – 09:00	Meet the Mentor 2
09:00 – 09:45	SESSION 9: SENSING & CONTROLLING CELL BEHAVIOUR I <i>Chair: Prof Sarah Cartmell, University of Manchester</i>
09:00 – 09:30	Keynote - Dr Roisin Owens , University of Cambridge <i>'A 3D bioelectronics model of the human gut'</i>
09:30 – 09:45	Dr Frankie Rawson, University of Nottingham <i>Stimulative 3D conducting architectures to modulate cellular phenotype</i>
09:45 – 10:45	SESSION 10: TURBO TALKS II
1. Ms Jazz Stening, University of Nottingham (Poster No. 243)	<i>Optimisation of microparticle formulations for cytokine delivery for macrophage modulation for potential application in spinal cord injury</i>
2. Ms Rina Maruta, Kyoto Institute of Technology (Poster No. 150)	<i>3D culture of epidermis by use of recombinant silk materials containing FGF-7 protein microcrystals</i>
3. Ms Eleanor Porges, University of Southampton (Poster No. 148)	<i>Stable encapsulation of rifampicin and doxycycline in polymersome nanoparticles for delivery to intracellular bacteria</i>
4. Mr George Bullock, University of Sheffield (Poster No. 159)	<i>Bisphosphonate toxicity to the oral mucosa is inhibited in vitro by hydroxyapatite granules</i>
5. Ms Jamie Thompson, University of Nottingham (Poster No. 161)	<i>Investigating glycosaminoglycans in development and disease using fully defined 3D cell culture environments and human pluripotent stem cells</i>

6. Mr Alexander Sturtivant, University of Edinburgh (Poster No. 182)
Use of antifreeze proteins to modify pores in directionally frozen alginate sponges for cartilage tissue engineering
7. Ms Anastasia Polydorou, University of Southampton (Poster No. 122)
Acoustically-stimulated drug carriers for bone fracture repair
8. Dr Valentina Barrera, NHS Blood and Transplant, Tissue and Eye Services R&D (Poster No. 236)
Decellularisation of human femoral nerves in a closed system: towards introducing a new nerve allograft in healthcare in the UK
9. Mr Jordan Roe, Loughborough University (Poster No. 197)
Magnetic hydrogels: tissue engineering constructs with switchable stiffness
10. Ms Michaela Petaroudi, University of Glasgow (Poster No. 149)
Bacterial engineering for the ex-vivo expansion of HSCs

10:45 – 11:45 Coffee and Posters

11:45 – 12:30 SESSION 11: SENSING & CONTROLLING CELL BEHAVIOUR II

Chair: Dr Adam Celiz, Imperial College London

- 11:45 – 12:00 Dr Nuria Oliva Jorge, Imperial College London
Bioinspired nanomaterials for cell-selective activation of growth factors
- 12:00 – 12:15 Mr Manohar Prasad Koduri, University of Liverpool
Cytotoxicity and functionality of nano oxy-ph sensors in HMSC environment
- 12:15 – 12:30 Mrs Eva Barcelona, University of Glasgow
Engineering ligand mobility in the adhesive crosstalk to control stem cell differentiation
- 12:30 – 13:30 Lunch and Meet the Mentor 3

13:30 – 14:45 SESSION 12: BIOMATERIALS CHEMISTRY AND CHARACTERISATION I

Chair: Dr Cheryl Miller, University of Sheffield

- 13:30 – 14:00 **Keynote - Professor Elizabeth Cosgriff-Hernandez**, University of Texas
'Integrin-targeting materials in regenerative medicine'
- 14:00 – 14:15 Dr Caroline Taylor, University of Sheffield
The potential of pressurised gyration to fabricate polyhydroxyalkanoate aligned fibre scaffolds for peripheral nerve repair
- 14:15 – 14:30 Mr Morgan Lowther, University of Birmingham
Formulation of an antimicrobial silver-doped magnesium oxychloride cement
- 14:30 – 14:45 Dr Rachel McCormick, University of Liverpool
Designing a novel bioengineered substrate as a treatment for AMD
- 14:45 – 15:15 Coffee break

15:15 – 16:00 SESSION 13: BIOMATERIALS CHEMISTRY AND CHARACTERISATION II

Chair: Prof Felicity Rose, University of Nottingham

- 15:15 – 15:45 **Larry Hench Young Investigators Prize – Dr Asha Patel**, Imperial College London
'Chemically diverse materials for cell and gene therapy applications'
- 15:45 – 16:00 Ms Maha Omran, University of Sheffield
Evaluating two powder-based 3d printing techniques for the manufacture of implants for orbital floor repair
- 16:00 – 17:00 **Prizes and Closing Address**