Joint TCES//CDT Conference Programme

Monday 13th June 2022 to Wednesday 15th June 2022

Day 1

Monday 13th June 2022

09:15	**Arrival and Admittance to Conference**
09:30	**Welcome: Prof. Matthew Dalby,** University of Glasgow/ **Professor Alicia El Haj,** University of Birmingham
09:40	**Chairs: Elaine Ma and Maria Laura Vieri** **Keynote Speaker: Dr Melanie Jimenez**, University of Strathclyde *Engineering New Approaches for Label-free Cell Phenotyping for Medical Applications Using Microfluidics*
10:20 – 12:00	**Organ-on-a-chip models and Bioengineered Models** 10:20 **Paige Walczak**, Aston University *Tuneable Biomaterials for Neural Modelling* 10:35 **Luis Felipe Marcos**, Loughborough University *Effects of Surface Chemistry Interaction on Neural Stem Cell Derived Retinal Organoids* 10:50 **Abigail Wright**, University of Birmingham *Magnetic Nanoparticle-Mediated Orientation of Collagen Hydrogels for Engineering of Tendon-Mimetic Constructs* 11:05 **Coffee break** 11:30 **Dan Merryweather**, Loughborough University *Microfabrication of Brain on Chip Devices for Human Neural Progenitor Cell Culture and Defined Circuit Generation*
	Poster flashes: 11:45 **Louise Hopkinson**, University of Manchester *Kidney Organoids as an in Vitro System to Investigate Alport Syndrome*
12:00	**Lunch Break and Poster Viewing** TCES Committee Meeting - Rm 211 Posters – Rm 118/119
13:30	**Dr Elizabeth Laird**, University of Liverpool, BBSRC Network in Healthy Ageing/ECM
13:35	**Chairs: Seb Doherty-Boyd and Joseph Barnes** **Keynote Speaker: Prof Rachelle D'Sa**, University of Liverpool *Tackling Biomedical Infections in the Era of the Superbug*
14:15 – 16:25	**Healthy Ageing and Enabling Technologies** 14:15 **Graeme Pitt**, University of Liverpool *Antifouling Coatings for the Prevention of Catheter-Associated Urinary Tract Infections (CAUTIís)*

	14:30 **Elliot Croft**, University of Liverpool *Dissolving Microneedle Arrays as Alternative Drug Delivery System for the Treatment of Glaucoma* 14:45 **Naomi Northage**, University of Liverpool *Plasma Activated Liquids for Disinfection of Flexible Endoscopes* 15:00 **Tea break** 15:20 **Sandra Graóana Castillo**, University of Liverpool *Physiologically Based Pharmacokinetic (Pbpk) Modelling of Drug-Drug Interactions Between Long-Acting Cabotegravir and Rilpivirine with Oral Rifabutin* 15:35 **Nishant Joglekar**, Loughborough University *Early Detection of Delayed Apoptosis Post-Thaw for MSC's Using Gas Chromatography/Mass Spectrometry (Gc/Ms)* 15:50 **Amy Byrne**, Keele University *Tenocyte Isolated Extra Cellular Vesicles and Their Immunomodulatory Potential*
	Poster flashes: 16:05 **Edward Contreras**, Aston University *Novel Bioreactor Technologies for Expansion of Keratinocytes for Wound Healing* 16:10 **William Sebastian Doherty-Boyd**, University of Glasgow *Developing a Synthetic Bone Marrow Niche for Hematopoietic Stem C Cell Maintenance* 16:15 **Sophia Read**, University of Manchester *Bioprintable Alginate/Cellulose Nanocrystal Hydrogels for Articular Cartilage Repair*
16:20-16:35	**Industry Presentations – Short Talks** 16:20 - Sphere Fluidics 16:25 - Jellagen 16:30 - Cell Guidance Systems 16:35 - Biogel
16:40 – 17:45	**Poster Session with Presenters** **Rm 118/119**

Day 2

Tuesday 14th June 2022

<table>
<tr><td>09:00</td><td colspan="2">Arrival and Admittance to Conference</td></tr>
<tr><td>09:15</td><td colspan="2">Welcome: Professor Sarah Cartmell, TCES President /Professor Alicia El Haj, TCES Conference Chair</td></tr>
<tr><td rowspan="3">09:15 - 12:15</td><td>ImagingBioPro Workshop
 
</td><td>Enabling Technologies and Biomaterials</td></tr>
<tr><td>Chair and introduction: Prof Sarah Cartmell
Keynote Speakers:
9:20 Prof. Yalin Zheng, University of Liverpool
Potential, Challenges and Future Directions for Artificial Intelligence in Healthcare Applications

9:40 Dr. Michael Monaghan, Trinity College Dublin
Engineering Non-invasive Tools to Profile Cell Metabolism in Differentiation and Disease

10:00 Dr Marissa Martin-Fernandez, STFC Central Laser Facility, Octopus Group
Fluorescence Microscopy for Cellular Structural Biology Across the Scales with EGFR Signal Transduction as Witness

10:30 Coffee</td><td>Chairs: Aleksandar Atanasov and Lauren Hope

9:20 Karen Marshall, University of Southampton
Bone Tissue Engineering Using Biomimetic Materials – In Vitro and In Vivo Assessment

9:35 Akhil Jain, University of Nottingham
Bifunctionalised Electric Field Responsive Conductive Nanoactuators for Glioblastoma Multiforme

9:50 Lydia Marinou, University of Glasgow
Advanced Bio-active Coating for the Bio-Integration of Synthetic Vascular Grafts

10:05 Hannah Williamson, University of Birmingham
Development of an On-demand Biosensor for Monitoring Cell Therapy Biomanufacture

10:20 Leona Ogene, University of Manchester
Graphene Oxide as a Chondroinductive Biomaterial for Articular Cartilage Regeneration

10:35 Coffee

10:50 Lynsey Steele, University of Manchester
Development of Graphene-containing 3D-Printed Scaffolds for Orthopaedic Applications

11:05 Lorna Westwood, University of Edinburgh (
Tissue Engineered Scaffolds for Use in the Restoration of Salivary Glands Post-Radiation Therapy</td></tr>
<tr><td>10:50 Devon Crouch, University of Liverpool
High Resolution 3D Imaging Reveals Architectural Changes in Human Glaucomatous Trabecular Meshwork

11:05 Yasmin Osmani, University of Manchester
Using Short Chain Siloxanes to Alter the Longitudinal and Transverse Relaxation of a 3D Printed PDMS MRI Phantom</td><td></td></tr>
</table>

	11:20 **Ryan Dimmock**, Keele University *Characterisation of Limbal Mechanical Properties/Morphology and Replication of Limbal Crypt Anatomy* 11:35 **Oliver Pattinson**, University of Southampton *Ultra-High Speed Quantification of Microbubble-Induced Cell Strain for Bone Repair* 11:50 **Joseph Barnes**, University of Southampton *Design, Manufacture and Characterisation of a Dual Antimicrobial-Osteoinductive ëBone Wrap* 12:05 **Kerime Okur,** University of Birmingham, Mechascan *Imaging Mechanical Properties of Tissues for Tissue Engineering Applications*	**Poster flashes:** 11:20 **Esra Mutlu**, University of Birmingham *Using machine learning to Demonstrate the Potential of Exosomes as a Prognostic and Diagnostic Disease Tool* 11:25 **Ellen Slay**, University of Leeds *Bioinspired Mineralisation of Topographically Textured Microparticles for The Creation of an Invitro Cell-Instructive 3d Bone Microenvironment* 11:30 **Alaa Elnima**, University of Nottingham *Developing Non-viral Gene Delivery System for Intestinal Mucosal Tissue* 11:35 **Yunxi Gao**, University of Edinburgh *Incorporation of Decellularized Human Liver Extracellular Matrix into Topographically Tailored Polycaprolactone Electrospun Scaffolds for Liver Tissue Engineering* 11:40 **Emmanouela Mitta**, University of Manchester *Towards a Physiologically Relevant Lung In Vitro Model for Early Cancer Biomarkers* 11:45 **Busra Baskapan**, University of Edinburgh *Hybrid Electrospun Scaffolds for Kidney Tissue Engineering* 11:50 **Saqer Alarifi**, University of Nottingham *Development of Regulated Gene Vector to Restore MeCP2 Activity to Treat Rett Syndrome* 11:55 **Megan Boseley**, Aston University *Scalable Cell Culture for production of Extracellular Vesicles for Regenerative Medicine Applications*
		Robert Brown Awards: 12:00 **Melissa Rayner**, UCL *Engineering Therapies to Target Two Key Clinical Issues Associated with Peripheral Nerve Injury* 12:15 **Aishah Nasir**, University of Nottingham *Chemo-topography Heart-in-a-dish Platform for Human Cardiac Modelling*

		12:30 **Samuel Moxon**, University of Manchester *A 3D Bioprinted Model of the Human Intervertebral Disc for Disease Modelling Applications*
12:45	**AGM Tissue and Cell Engineering Society – Voting for New committee - Lecture Hall 1** **Lunch Break and poster session - Rm 118/119**	
13:30 – 17:00	**Bioengineered models**	**Clinical Advances & Patient Benefits of Applications**
	Chairs: Adam Efrat and Antonia Molloy **Keynote Speaker: Prof. Che Connon**, Newcastle University *Benefits of Spinning Out Academic Research*	**Chairs: Dr Nikhil Jain and Ryan Weller** **Keynote Speaker: Prof. Liam Grover**, University of Birmingham *Developing Soft Materials to Participate in the Tissue Regeneration Process*
	14:15 **Fabrizio Mancini**, University of Manchester *A Retinoic Acid Analog and Timing of BMP2 Improves the Differentiation of Human Pluripotent Stem Cells into Articular Cartilage* 14:30 **Amy Harding**, University of Sheffield *Understanding c-Src Activation as a Potential Marker of Chemical-induced Skin Irritation Using Tissue-engineered Skin Equivalents* 14:45 **Poppy Smith**, UCL School of Pharmacy *Novel Technique for Stabilising Endothelial Cell Collagen Hydrogels for Peripheral Nerve Regeneration* 15:00 **Melissa Vieira**, University of Birmingham *Stem Cell Therapy for Liver Disease: An Experimental Flow Model to Optimise Cell Delivery* 15:15 **Vinothini Prabhakaran**, University of Edinburgh *Development of Sacrificial Scaffolds for Constructing Biomimetic 3D Mini-tissues In-vitro* 15:30 **Tea** 15:50 **Omar Matar**, UCL *Controlled Release of Tracolimus From Microparticles Encapsulated within Engineering Neural Tissue for*	14:15 **Derek Hardie**, University of Nottingham *Next Generation Phage Display for Brain Cancer Specific Non-Viral Gene Delivery* 14:30 **Angela Imere**, University of Birmingham *A Regenerative Cartilage Model for Drug Screening Applications* 14:45 **Karina Wright**, Keele University *Chondrocytes from two Juvenile Donor Sources (Polydactyly Digits and Iliac Apophysis) can be Up-Scale Expanded In the Quantumæ Bioreactor* 15:00 **Ramyar Chavoshinejad**, University of Nottingham *Treating Obesity by Enhancing Fat Thermogenesis with Non-viral Gene Delivery of VEGF* 15:15 **Rebecca Davies**, Keele University *Umbilical Cord Mesenchymal Stromal Cell Derived Extracellular Vesicles Match, and Perhaps Surpass, their Parental Cell's Ability to Treat Inflammatory Arthritis* 15:30 **Tea** 15:50 **Davide Verdolino**, University of Manchester *Understanding the Mechanisms of Action of Collagen-Based Wound Dressings to Promote Healing*

	Local Immunosuppression in Peripheral Nerve Repair 16:05 **Craig Murdoch**, University of Sheffield *Incorporation of Polarised T-Cells Into Tissue-Engineered Oral Mucosa to Investigate the Pathogenesis of Oral Lichen Planus* 16:20 **Lauren Hope**, University of Glasgow *Developing a 3D Bone Marrow Model for Drug Screening in MLL Rearranged Acute Myeloid Leukaemia*	16:05 **Trisha Vikranth**, Keele University *Decellularised Pleural Membranes in Pulmonary Regenerative Medicine* 16:20 **Gillian Higgins**, University of Glasgow *Increasing Translatability of Cell Therapy for Peripheral Nerve Injury; Investigating SPIONs and HPL in vitro*
	Poster flashes: 16:35 **Anna Dimitra Kataki**, UCL *On the Optimisation and Tailoring of the ECM Complexity to the Cancer Cellular Compartment of a Biomaterial-Based Novel 3D Model of Pancreatic Cancer Tissue* 16:40 **Elaine Ma**, University of Glasgow *Liver Metastasis in a Dish* 16:45 **Emily Atkinson**, UCL *A Hepatocyte Growth Factor Mimetic for the Treatment of Traumatic Brain Injury* 16:50 **Ting Chen,** University of Liverpool, *Electrospun Poly(vinyl) Alcohol Nanofibers for Antimicrobial Wound Dressings*	**Poster flashes:** 16:35 **Chara Dimitriadi Evgenidi**, University of Glasgow *Small Molecule Signalling in Osteosarcoma Differentiation* 16:40 **David Phillips**, University of Bath *Design and Optimisation of a Novel Fluidised Bed Bioreactor for the Expansion of Erythroid Progenitor Cells*
16:50 17:00	**Industry Presentations – Short Talks** 16:50 - OP11 16:55 - Zimmer Peacock 17:00 - Swift Analytical	
17:05- 18:00	**Poster Session with Presenters** **Rm 118/119**	

Day 3

15th June 2022

9:15	**Arrival and Admittance to Conference**
9:30	**Chair: Dr Anita Ghag** **Keynote Speaker: Prof. Delphine Gourdon**, University of Glasgow *3D tunable tumour-mimicking scaffolds for control of cell adhesion and matrix deposition*
10:00	**Keynote Speaker: Dr. David Hoey**, Trinity College Dublin *Mechano-biologically Inspired Therapeutics and Materials for Bone Repair*
10:30-12:25	**Mechanobiology and Bioengineered Models** (Selected Talks and Poster Flash Talks) 10:30 **Joseph Clarke**, University of Birmingham *Force Application to the T Cell Receptor Controls T Cell Activation* 10:45 **Wenhuan Bu**, University of Nottingham *Progressively Self-strengthening Hydrogel for Cell Mechanotransduction Study* 11:00 **Kirsten O'Brien**, University of Southampton *The Effect of Perfluoropentane Nanodroplets on MC3T3E1 Pre-osteoblast Viability* 11:15 **Coffee** 11:35 **Jaqueline Solis**, University of Leeds *Characterisation Of Native And Decellularised Porcine Tendon Under Tension And Compression: A Closer Look At Glycosaminoglycan Contribution To Tendon Mechanics*
	Poster Flashes: 11:50 **Patricia Medesan**, University of Edinburgh *Investigating the Suitability of Jellyfish Collagen Sponges for In Vitro Bone Tissue Engineering* 11:55 **Afeesh Rajan Unnithan**, University of Birmingham *Magnetic Graphene Nanocarpet based Non-Invasive Modulation of Mechanosensitive Ion-channels for Enhanced Osteogenesis* 12:00 **Helen Colley**, University of Sheffield *Electrospun Patch Delivery of Anti-TNFα F(ab) Antibody Fragments the Treatment of Oral Mucosal Inflammatory Diseases.* 12:05 **Holly Gregory**, UCL School of Pharmacy *Engineering An Aligned Sandwich-Structured Peripheral Nerve Repair Construct with Encapsulated Tacrolimus* 12:10 **Ami Nash**, University of Nottingham *Use of pectin for the spray delivery of cells* 12:15 **Rebecca Powell**, UCL *Human Ipsc-Derived Schwann Cells in a Tissue Engineered Nerve Construct to Improve Efficacy of Peripheral Nerve Regeneration*

	12:20 **Priyanka Gupta**, UCL *A Comparative Assessment of the Response of Ovarian Cancer Cells to Cisplatin in 3D Models of Various Structural and Biochemical Configurations*
12:25	**Lunch Break with Poster Viewing – UK /Ireland Forum meeting** **Rm 118/119**
13:30 – 14:15	**Chairs: Dr Pranav Vasanthi Bathrinarayanan and Dr Hadi Hajiali** **Keynote speaker: Prof. Daniel Kelly**, Trinity College Dublin
14:30 – 15:25	**Enabling Technologies and Biomaterials** (Selected Talks and Poster Flash Talks)
	14:45 **Clara Baldari**, University of Salento *Biomimetic Nanoparticles for Tumor Self-Targeting in Cancer Immunotherapy* 15:00 **Alexander Sturtivant**, University of Edinburgh *An In Silico Investigation into the Response of Chondrocytes to Common Tissue Engineering Materials for Cartilage Regeneration* 15:15 **Joe Forth**, UCL *A 3D-Printed Blood-Brain Barrier-on-a-Chip with Complex Vasculature* 15:30 **Mattia Vitale**, University of Manchester *Hydroxyapatite-decorated Fmoc-Hydrogel as a Bone-mimicking Substrate for Osteoclast Differentiation and Culture*
	Poster Flashes: 15:45 **Ella-Louise Handley**, University of Edinburgh *Reactive Oxygen Species-Scavenging Electrospun Scaffolds for the Treatment of Myocardial Infarction* 15:50 **Alfred Kyambadde**, Keele University *The Use of Nanofibers as 3D Scaffolds for Expansion and Modulation of Human Mesenchymal Stem Cells: A Comparison Study to 2D Culture*
16:00	**Prizes**
16:10	**Close – Farewell remarks - Professor Sarah Cartmell, TCES President**