



This is a draft program only and is subject to change

Sunday 4 August 2019	
9:00am	Registration Opens Room Three Sixty, Y Block, QUT Gardens Point Campus
10:30am - 10:45am	Welcome Dietmar W Huttmacher, Molly Stevens, Amos Matsiko, Katharine Barnes & Christine Horejs <i>Queensland University of Technology, Imperial College London, Nature Protocols, Nature Materials, and Nature Reviews Materials</i>
10:45am - 11:45am	An Editor's perspective to publishing in Nature journals Katharine Barnes, Amos Matsiko & Christine Horejs
11:45am - 12:15pm	Perspectives on the field Dietmar W Huttmacher, & Molly Stevens
12:15pm - 1:15pm	Lunch
1:15pm - 3:15pm	Session 1: Bioinspiration for tissue engineering and regenerative medicine I Chair: Dietmar W Huttmacher & Christine Horejs
1:15pm - 2:00pm	Understanding Osteoblast Bioenergetics: Lessons for Engineering Bone Biomimetics Dr Thomas Clemens, Johns Hopkins Medicine, United States of America
2:00pm - 2:15pm	Bioinspired hydrogels to deconstruct morphogenetic processes Kristopher Kilian, University of New South Wales, Australia
2:15pm - 2:30pm	Biomimetic vascular silk materials in regenerative medicine Jelena Rnjak-Kovacina, University of New South Wales, Australia
2:30pm - 2:45pm	Developing biomimetic heparan sulphate for growth factor interactions Brooke Farrugia, University of Melbourne, Australia
2:45pm - 3:00pm	Biomimetic curvature supports in vitro podocyte differentiation Anastasia Korolj, University of Toronto, Canada
3:00pm - 3:15pm	Bioengineering proteoglycans to control vascular cell behaviour John Whitelock, University of New South Wales, Australia
3:15pm - 3:45pm	Afternoon Tea
3:45pm - 6:00pm	Session 2: Bioinspiration for tissue engineering and regenerative medicine II Chairs: Dietmar W Huttmacher & Katharine Barnes
3:45pm - 4:30pm	Advancing the applications of human pluripotent stem cell-derived kidney organoids Professor Melissa Little, Murdoch Children's Research Institute, Australia
4:30pm - 4:45pm	PRESENTATION TITLE COMING SOON Anastasia Korolj, University of Toronto, Canada <i>Presenting work on behalf of Professor Milica Radisic, University of Toronto, Canada</i>
4:45pm - 5:00pm	PRESENTATION TITLE COMING SOON Locke Davenport Huyer, University of Toronto, Canada <i>Presenting work on behalf of Professor Milica Radisic, University of Toronto, Canada</i>
5:00pm - 5:15pm	Polymer Electronic Materials for Biomedical Applications Jadranka Travas-Sejdic, University of Auckland, New Zealand
5:15pm - 5:30pm	A bioengineered prostate microenvironment reduces prostate cancer metastasis to tissue-engineered human bone Jacqui McGovern, Queensland University of Technology, Australia
5:30pm - 5:45pm	Engineering the "bio" in biomimetic biinks for 3D Bioprinting and Bioassembly Tim Woodfield, University of Otago, New Zealand
5:45pm - 6:00pm	Development of a robotic 3D bioprinting system for printing of tissues and organs Charlotte A. Hauser, King Abdullah University of Science & Technology, Saudi Arabia
6:00pm	End of Day One
6:00pm - 8:00pm	Welcome Reception & Interactive Poster Presentations The Cube, P Block, QUT Gardens Point Campus
	POSTER SESSION 1
	Biopolymer substrates for freeze-drying of human red blood cells Francisca Diana Alves De Sousa, Monash University, Australia
	Efficient drug delivery for pancreatic cancer treatment utilizing supramolecular reversible pegylated bromelain Taishi Higashi, Kumamoto University, Japan
	In vitro and in vivo assessment of strontium-substituted bioactive glass and polycaprolactone composite scaffolds produced via melt-electrowriting Jiongyu Ren, Queensland University of Technology, Australia
	Robust super-hydrophobic coatings: countering the rise of the superbug Deepu Ashok, Australian National University, Australia
	Development of artificial garlic cell aimed for superficial applications Ondrej Kaspar, UCT Prague, Czech Republic
	Bio-inspired silica-polymer hybrid: a novel platform to achieve general or specific bacterial detection Mingyue Cui, Nanyang Technological University, Singapore
	Tissue engineering of an orthotopic humanised bone-organ as a platform for preclinical multiple myeloma research Alvaro Sanchez, Queensland University of Technology, Australia
	Nanocellulose hydrogel for organoids culture Rodrigo Curvello, Monash University, Australia
	The application of venom-activated biomimetic hydrogel to control bleeding Amanda Kijas, University of Queensland, Australia

6:00pm - 6:30pm	Brain extracellular-matrix mimicking hydrogels for long-term support of primary neurons Adam Martin, Macquarie University, Australia
	The future of biomimetics based on insects - medical, military and commercial applications Gregory Watson, University of The Sunshine Coast, Australia
	The processing of hydroxyapatite from naturally occurring chloroapatite for orthopedic applications in the field of biomaterial engineering Rajitha Gunaratne, University of Sri Jayewardenepura, Sri Lanka
	Prostate cancer cells preferentially metastasize to a humanized tissue-engineered bone construct in NSG mice but are not susceptible to the human-specific antibody denosumab Marietta Landgraf, Queensland University of Technology, Australia
	Complex coacervation of gelatin methacryloyl and alginate facilitates toughness and ductility of bioactive double-network hydrogels for functional cartilage tissue engineering Christoph Meinert, Queensland University of Technology, Australia
	The impact of 3D bioprinting on in vitro cemenogenic differentiation of periodontal ligament cells Nimal Thattaruparambil Raveendran, University of Queensland, Australia
	OCT-based 3D patient-specific coronary reconstruction and FSI simulation based on ansys workbench Jiaqiu Wang, Queensland University of Technology, Australia
	ZnO as an Enzyme Mimic to Achieve Localized Nitric Oxide Delivery Tao Yang, University of New South Wales, Australia
	Biomimetic Rect-resilin based hybrid materials for biomedical applications Rajkamal Balu, RMIT University, Australia
	Two-photon polymerization of photo-click recombinant collagen-based hydrogels for tissue engineering applications Liesbeth Tytgat, Vrije Universiteit, Belgium
	Structure-behaviour relationships of the shells from two genetically closely related snail species: lessons from nature on building optimal structures Hortense Le Ferrand, Nanyang Technological University, Singapore
	Reconstruction of full thickness skin using co-electrocompacted collagen/ elastin/ hyaluronic acid and co-cultured human dermal fibroblast and keratinocyte Lingzhi Kang, University of Wollongong, Australia
	POSTER SESSION 2
	Insect-wing mimetic bactericidal nanomaterials for healthcare applications Jafar Hasan, Queensland University of Technology, Australia
	A novel transdermal delivery method for nano and macro molecules via temporal pressure technology inspired by traditional Chinese Medicine's Tui Na Daniel Lio, Nanyang Technological University, Singapore
6:30pm - 7:00pm	Fabrication of dual micro-nano dental implants towards tailored bioactivity Karan Gulati, University of Queensland, Australia
	Soft Network Composites: from nature to advanced soft engineering materials Onur Bas, Queensland University of Technology, Australia
	Beyond RGD; nanoclusters of syndecan- and integrin-binding ligands synergistically enhance cell/material interactions Daniel Heath, University of Melbourne, Australia
	Microfluidic approach for nanoparticle synthesis and site-specific targeting Viola Tokarova, UCT Prague, Czech Republic
	Engineering of long-term culturable ex vivo vascularized tissues using biologically derived matrices Michael Hu, University of California San Diego, United States of America
	Cancer cell osteomimicry revealed using bioengineering and patient-derived xenografts Nathalie Bock, Queensland University of Technology, Australia
	Controlled local drug delivery of an anticancer drug and an antibiotic using a biomimetic hydrogel Margaux Vigata, Queensland University of Technology, Australia
	A bioengineered microenvironment model of prostate cancer to study cancer angiogenesis Anna Jaeschke, Queensland University of Technology, Australia
	The construction of custom-shaped nanometer-scale by scaffolded DNA origami object with multiple AIPs molecules and its interaction with the Agrc protein receptors Heba Khateb, Aarhus University, Denmark
	Targeted camptothecin-loaded nanoparticles for breast cancer therapy in a bioengineered mouse model Marietta Landgraf, Queensland University of Technology, Australia
	Concept of an automated biomanufacturing and high-content analysis platform for hydrogel-embedded 3D tumour models Melanie Kahl, Queensland University of Technology, Australia
	Tissue engineered replacement for corneal endothelial donor tissue Karl David Brown, Centre for Eye Research Australia, Australia
	Self-assembling block copolymer for signalling molecules delivery by collagen layer degradation Isabela Monteiro, University of Auckland, New Zealand
	Biomimetic engineering of soft and hard nanomaterials for drug delivery Chun-Xia (Rosie) Zhao, University of Queensland, Australia
	Development of in situ 3D bio-printer for wound healing Wan Doo Kim, Korea Institute of Machinery and Materials, South Korea
7:00pm - 7:15pm	Novel 3D in vitro models for translational breast cancer research Maria Koch, Queensland University of Technology, Australia
	Mussel-inspired comb-like copolymer coated polypropylene and its application as anti-adhesive mesh Tianzhu Zhang, Southeast University, China
7:15pm - 7:45pm	3D Bioprinted Scaffolds with a Spatially Defined Release System for Osteogenic Differentiation Factors Silvia Cometta, Technische Universität Dresden, Germany
	Conference Welcome Dietmar W. Hutmacher, Queensland University of Technology
	POSTER SESSION 3
	Understanding the biophysical properties of gelatin-derived biopolymer systems using molecular dynamics simulations Nicolas Tardiota, Queensland University of Technology, Australia
	Osmosis-powered hydrogel microneedles for extracting microliters of skin interstitial fluid within minutes Mengjia Zheng, Nanyang Technological University, Singapore
	Resilin-mimetic protein polymers: multi-responsiveness in intrinsic disorder Naba Dutta, RMIT University, Australia
	Bio-inspired design of hybrid metamaterials for tissue-engineered composites with high elongation and toughness Mina Mohseni, Queensland University of Technology, Australia
	The role of fibronectin nanopattern in limiting staphylococcus aureus adhesion to biomaterial surfaces Heba Khateb, Aarhus University, Denmark
	Transdermal drug delivery with nucleic acid-based nanoparticles Chenjie Xu, Nanyang Technological University, Singapore
	Leveraging automation and high-throughput approaches to manufacture and screen biomimetic extracellular matrices for 3D cell culture and tissue engineering applications Sebastian Eggert, Queensland University of Technology, Australia
	Biomimetics multiscale porous scaffolds for bone tissue regeneration Hoang Phuc Dang, Queensland University of Technology, Australia
	Design principles for transition metal oxides-based peroxidase mimics Hui Wei, Nanjing University, China
	Biomimetic phosphatase of nanozyme and its application Yingqiu Xie, Nazarbayev University, Kazakhstan
	Bactericidal effect on the nanostructural surface: mimicking the cicada wing Takeshi Ito, Kansai University, Japan
	Reinforcement scaffolds of biofabricated articular human cartilage Stephanie Doyle, RMIT University, Australia
	Bioinspired peptide nanowires Armin Solemanifar, University of Queensland, Australia
	A self-adhesive microneedle for controlled drug loading and release Wan Ting Sharon Chew, Nanyang Technological University, Singapore
	Polypeptide-affined tough hydrogels with tunable physicochemical properties similar to soft tissues Farshad Oveis, University of Sydney, Australia
	In vivo modelling of a fibrotic component of tissue reaction to implantation of biomaterials Alexey Fayzullin, Sechenov University, Russia
	Biomimetic photonics for in situ cell monitoring Yi Pei, University of New South Wales, Australia
	Organ-specific tissue engineering constructs as pre-clinical alternative models of normal and diseased tissues for experimental biomedicine Anna Guller, University of New South Wales, Australia

	Bioinspired antibacterial surfaces for sustainable drug-free applications Ondrej Kaspar, UCT Prague, Czech Republic
	Biomimicry in cell culture of tissue scaffolds for large bone defects David Forrestal, Queensland University of Technology, Australia
	Buckling of Parallel Melt Electrowritten Filaments Under Compression Thomas Robinson, University Clinic Würzburg, Germany
	Fabricating hybrid hydrogel containing peptide and collagen Karrar Al Taief, University of New South Wales, Australia
8:00pm	End of Welcome Reception

	Monday 5 August 2019
7:30am	Registration Opens Room Three Sixty, Y Block, QUT Gardens Point Campus
8:30am - 10:00am	Session 3: Structure and function in adaptive biomimetics and tissue engineering I Chairs: Molly Stevens & Christine Horejs
8:30am - 9:15am	Skin repair regeneration and integration – the role of bio mimetics? Winthrop Professor Fiona Wood, University of Western Australia, Australia
9:15am - 9:30am	Engineering freestanding hierarchical vascular structures using ice templates Richard Wang, University of Sydney, Australia
9:30am - 9:45am	Eyelid tarsus tissue mechanics as a guide to tissue engineering scaffold design Andrea O'Connor, University of Melbourne, Australia
9:45am - 10:00am	Oxygen tolerant polymerisations for the design of biomaterials Robert Chapman, University of New South Wales, Australia
10:00am - 10:30am	Morning Tea
10:30am - 12:30pm	Session 4: Structure and function in adaptive biomimetics and tissue engineering II Chairs: Molly Stevens & Christine Horejs
10:30am - 11:15am	Supramolecular Materials from Metal-Phenolic Networks Professor Frank Caruso, University of Melbourne, Australia
11:15am - 11:30am	Biomimetic tough hydrogel for biomedical applications Namita Roy Choudhury, RMIT University, Australia
11:30am - 11:45am	Enzyme mimic containing artificial organelles to counteract oxidative stress Edit Brodskij, Aarhus University, Denmark
11:45am - 12:00pm	Polysaccharides and proteins as versatile biopolymers for active nanomaterials Peter Wich, University of New South Wales, Australia
12:00pm - 12:15pm	Body-in-a-Cube: A Human Body Mimic With Physiologic Amounts of Blood Surrogate Mandy Esch, National Institute of Standards and Technology, United States of America
12:15pm - 12:30pm	Molecular hydrogels to support human embryonic stem cell grafts David Nisbet, Australian National University, Australia
12:30pm - 1:30pm	Lunch
1:30pm - 4:00pm	Session 5: Self-organising biomaterials Chair: Dietmar W Hutmacher & Amos Matsiko
1:30pm - 2:15pm	PRESENTATION TITLE TO BE CONFIRMED Professor Liam Palmer, Northwestern University, United States of America <i>Presenting work on behalf of Professor Samuel Stupp from Northwestern University</i>
2:15pm - 3:00pm	Biomimicry in Blood-Contacting Medical Devices Dr Anna Waterhouse, University of Sydney, Australia
3:00pm - 3:15pm	Time-resolved observations of liquid-liquid phase separation at the nanoscale using in situ liquid transmission electron microscopy Hortense Le Ferrand, Nanyang Technological University, Singapore
3:15pm - 3:30pm	Fabrication of bacteria-propelled microparticles (bacteriabots) and their use in biomedical applications such as drug delivery Oliver Schauer, Max Planck Institute For Terrestrial Microbiology & Loewe Research Center For Synthetic Microbiology, Germany
3:30pm - 3:45pm	Shape-controlled synthesis and enzyme-mimicking activities of zinc oxide Rona Chandrawati, University of New South Wales, Australia
3:45pm - 4:00pm	Polymer-guided biomineralization methods to mimic the native bone 3D microenvironment on the nanoscale - engineering cell-laden, vascularized and innervated bone-like tissue constructs in-vitro Luiz Bertassoni, Oregon Health & Science University, United States of America
4:15pm - 5:15pm	Afternoon Tea & Poster Session The Cube, P Block, QUT Gardens Point Campus
	POSTER SESSION 4
	Engineering and Testing Novel Fibrinogen Paper Diagnostics for Blood Analysis Marek Bialkower, Biopria, Australia
	Learning from mesocarp of Brazil Nut (Bertholletia Excelsa): microstructure and mechanical behavior in c-ring tests Marilia Sonogo, Universidade Federal De São Carlos, Brazil
	Validation of a microfluidic human microvasculature model for radiobiological studies Zhaobin Guo, University of South Australia, Australia
	Comparing histomorphometric image analysis systems using a critical-sized bone defect image data set Flavia Medeiros Savi, Queensland University of Technology, Australia
	Gyroid structures for the additive manufacture of radiotherapy phantoms Rance Tino, RMIT University, Australia
	3D-printed microporous multifunctional scaffolds for tissue engineering applications Tara Shabab, Queensland University of Technology, Australia
	Novel breast implants with customized biomechanical and architectural features for large-volume regeneration Mina Mohseni, Queensland University of Technology, Australia
	Design and development of data-driven in-process control for melt electrowriting Pawel Mieszczonek, Queensland University of Technology, Australia
	The rapid biomineralisation of additively biomanufactured increases physical properties and in vitro osteogenicity Maria Natividad Gomez Cerezo, University of Queensland, Australia
	Computational modelling of strut defects in slm manufactured lattice structures Bill Lozanovski, RMIT University, Australia

4:45pm	Advanced manufacturing for burn injury treatment: an evaluation of methods and materials Sean Powell, Queensland University of Technology, Australia
	Control of osteocytes behaviour by designing the extracellular matrix Jung Un (Ally) Choi, University of Queensland, Australia
	Free-Standing 3D Micro-Fiber Scaffolds Through Melt-Electrowriting On Sacrificial Collectors Cathal O'Connell, BioFab3D, St Vincent's Hospital Melbourne, Australia
	Ph/enzyme responsive hsa fusion protein drug delivery system for targeted tumor therapy Juan Zhou, Jiangnan University, China
	Biomimetic cell culture system for early cancer diagnosis Sharda Yadav, Griffith University, Australia
	Templated 3D microwells for mimetic tumour modeling using 3D printing techniques Thomas Molloy, University of New South Wales, Australia
	Liquid tornado: spontaneous droplets gyrating after impacting on heterogeneous surfaces Huizeng Li, Chinese Academy of Sciences, China
	Adherent self-healing chitosan/dialdehyde starch coating for coral cells Liqin Ge, Southeast University, China
	Development of software for the quantitative analysis of cellular interactions within a 3d microarchitecture using ordered melt electrospun scaffolds Matthew Lanaro, Queensland University of Technology, Australia
	Effect of gelatin source and photoinitiator type on chondrocyte redifferentiation in gelatin methacryloyl-based tissue-engineered cartilage constructs Stephen Pahoff, Queensland University of Technology, Australia
	Functional polyester materials that harness antibacterial and immunoregulatory power of innate immunity Locke Davenport Huyer, University of Toronto, Canada
	Self-assembled peptide-based materials inspired by the Humboldt Squid's sucker ring teeth Shu Hui Hiew, Nanyang Technological University, Singapore
	Photosensitizing protein nanocages for photodynamic therapy Andrew Care, Macquarie University, Australia
4:45pm	End of Day Two

	Tuesday 6 August 2019
7:30am	Registration Opens Room Three Sixty, Y Block, QUT Gardens Point Campus
8:00am - 9:30am	Session 6: Building biomimetics into biomaterial synthesis and design Chair: Molly Stevens & Christine Horejs
8:00am - 8:45am	Biomimetic Materials Controlling Cellular Activity Professor Alan Rowan, University of Queensland, Australia
8:45am - 9:00am	Biomimetic approaches to changing sensory behaviour in sharks Shaun Collin, La Trobe University, Australia
9:00am - 9:15am	Early development of biomimetics to control of crown-of-thorns starfish outbreaks on the Great Barrier Reef Bernard Degnan, University of Queensland, Australia
9:15am - 9:30am	Combat marine biofouling with biomimetic surface morphologies Haimin Yao, The Hong Kong Polytechnic University, Hong Kong
9:30am - 10:00am	Session 7: Rapid Fire Presentations I Chair: Amos Matsiko & Katharine Barnes
	Novel breast implants with customized biomechanical and architectural features for large-volume regeneration Mina Mohseni, Queensland University of Technology, Australia
	In vivo modelling of a fibrotic component of tissue reaction to implantation of biomaterials Alexey Fayzullin, Sechenov University, Russia
	Nanocellulose hydrogel for organoids culture Rodrigo Curvello, Monash University, Australia
	Tissue engineered replacement for corneal endothelial donor tissue Karl David Brown, Centre for Eye Research Australia, Australia
	Cancer cell osteomimicry revealed using bioengineering and patient-derived xenografts Nathalie Bock, Queensland University of Technology, Australia
	Engineering of long-term culturable ex vivo vascularized tissues using biologically derived matrices Michael Hu, University of California San Diego, United States of America
	Biomimetic photonics for in situ cell monitoring Yi Pei, University of New South Wales, Australia
	Insect-wing mimetic bactericidal nanomaterials for healthcare applications Jafar Hasan, Queensland University of Technology, Australia
10:00am - 10:30am	Morning Tea
10:30am - 12:00pm	Session 8: Biophysics in Biomimetics Chair: Dietmar W Huttmacher & Amos Matsiko
10:30am - 11:15am	Biomimetic Tissues: How simple is complex enough? Professor Chris Chen, Boston University, United States of America
11:15am - 11:30am	Fungal growth in confining geometries follows optimal paths computed by intracellular algorithms Dan Nicolau, McGill University, Canada
11:30am - 11:45am	Probing intracellular trafficking of nanomedicines and nanosensors by super-resolution and quantitative microscopy Francesca Cavalleri, University of Melbourne, Australia
11:45am - 12:00pm	A New Approach for Dental Implantation and Socket Preservation Procedure Fariba Dehgham, University of Sydney, Australia
12:00pm - 1:00pm	Lunch
1:00pm - 2:00pm	Session 9: Rapid Fire Presentations II Chair: Christine Horejs & Katharine Barnes
	Two-photon polymerization of photo-click recombinant collagen-based hydrogels for tissue engineering applications Liesbeth Tytgat, Vrije Universiteit, Belgium
	Design principles for transition metal oxides-based peroxidase mimics Hui Wei, Nanjing University, China
	Beyond RGD; nanoclusters of syndecan- and integrin-binding ligands synergistically enhance cell/material interactions Daniel Heath, University of Melbourne, Australia
	The role of fibronectin nanopattern in limiting staphylococcus aureus adhesion to biomaterial surfaces Heba Khateb, Aarhus University, Denmark
	Self-assembling block copolymer for signalling molecules delivery by collagen layer degradation Isabela Monteiro, University of Auckland, New Zealand
	Photosensitizing protein nanocages for photodynamic therapy Andrew Care, Macquarie University, Australia
	Efficient drug delivery for pancreatic cancer treatment utilizing supramolecular reversible pegylated bromelain Taishi Higashi, Kumamoto University, Japan

	<p>Osmosis-powered hydrogel microneedles for extracting microliters of skin interstitial fluid within minutes Mengjia Zheng, Nanyang Technological University, Singapore</p> <p>Brain extracellular-matrix mimicking hydrogels for long-term support of primary neurons Adam Martin, Macquarie University, Australia</p> <p>Learning from mesocarp of brazil nut (bertholletia excelsa): microstructure and mechanical behavior in c-ring tests Marilia Sonogo, Universidade Federal De São Carlos, Brazil</p> <p>Resilin-mimetic protein polymers: multi-responsiveness in intrinsic disorder Naba Dutta, RMIT University, Australia</p> <p>Bio-inspired silica-polymer hybrid: a novel platform to achieve general or specific bacterial detection Mingyue Cui, Nanyang Technological University, Singapore</p>
2:00pm - 3:30pm	<p>Session 10: Bioinspiration for tissue engineering and regenerative medicine III Chair: Molly Stevens & Katharine Barnes</p>
2:00pm - 2:45pm	<p>A materials science perspective on bone growth and regeneration Professor Peter Fratzl, Max-Planck-Institut für Kolloid-und Grenzflächenforschung, Germany</p>
2:45pm - 3:30pm	<p>Protein Engineering of Multi-functional Biomaterials for Regenerative Medicine Associate Professor Sarah Heilshorn, Stanford University, United States of America</p>
3:30pm - 4:30pm	<p>Round Table session with invited speakers: Professor Chris Chen, Professor Peter Fratzl, Associate Professor Sarah Heilshorn & Professor Melissa Little Chair: Molly Stevens & Dietmar W. Huttmacher</p>
4:30pm - 4:45pm	<p>Conference Close Dietmar W Huttmacher, Molly Stevens, Amos Matsiko, Katharine Barnes & Christine Horejs Queensland University of Technology, Imperial College London, Nature Protocols, Nature Materials, and Nature Reviews Materials</p>
4:45pm	End of Day Three