

TECHNICAL PROGRAM

Thursday, May 17th – Morning

S1. Hydrogels		SUB
Chair: Todd Hoare Co-Chair: Felipe Eltit Guersetti		
10:30 am	114344	Injectable Anisotropic Hydrogels <i>De France, Kevin J. (McMaster University), Yager, Kevin G. (Brookhaven National Laboratory), Chan, Katelyn J.W. (McMaster University), Corbett, Brandon (McMaster University), Cranston, Emily D. (McMaster University), Hoare, Todd (McMaster University)</i>
10:45 am	114310	Phosphonium Containing Hydrogels for Controlled Drug Delivery <i>Harrison, Tristan D. (Western University), Ragogna, Paul J. (Western University), Gillies, Elizabeth R. (Western University)</i>
11:00 am	114387	Enzyme-Degradable Biohybrid Networks <i>Taqhavi, Shadi (Chemical Engineering Department, Queen's University), Amsden, Brian G. (Chemical Engineering Department, Queen's University)</i>
11:15 am	114432	Preparation of chitin-amphipathic anion / quaternary ammonium salt eco-friendly dressing and its effect on wound healing in mice <i>Yang Ruijia (Author), Zhou Daijun (co-Author), Xing Malcolm (corresponding-author)</i>
11:30 am	114407	A 3D Bioprinted Hydrogel Mesh Loaded with All-Trans Retinoic Acid for Treatment of Glioblastoma <i>Mirani, Bahram (University of Victoria, Department of Mechanical Engineering), Pagan, Erik (University of Victoria, Department of Mechanical Engineering), Akbari, Mohsen (University of Victoria, Department of Mechanical Engineering), Ghavami, Saeid (University of Manitoba, Department of Human Anatomy and Cell Sciences)</i>

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S2. Cardiovascular Biomaterials		ECS660
Chair: Christian Kastrup Co-Chair: Morgane Laurent		
10:30 am	114368	Growth restrictive micropatterning enhances potential endothelial colony forming cell performance on cardiovascular biomaterials by lowering immunogenicity <i>Hagen, Matthew W. (Oregon Health), Hinds, Monica T. (Oregon Health),</i>
10:45 am	114339	Enhancing the Re-endothelialization of Vascular Substitutes via a Biomimetic Approach <i>Elkhodiry, Mohamed A. (Department of Chemical Engineering, McGill University), Boulanger, Mariève (Department of Chemical Engineering, McGill University), Tanguay, Jean-François (Montreal Heart Institute), Laroche, Gaétan (Centre de Recherche du CHU de Québec), Hoesli, Corinne A. (Department of Chemical Engineering, McGill)</i>
11:00 am	114353	Lanthanide-based nanoparticles as vascular contrast agents for micro-computed tomography <i>Charmainne Cruje (Western University), Joy Dunmore-Buyze (Robarts Research Institute), David W. Holdsworth (Robarts Research Institute), Maria Drangova (Robarts Research Institute), Elizabeth R. Gillies (Western University)</i>
11:15 am	114331	Plasma modification of polyvinyl alcohol vascular conduit for cell interaction enhancement <i>Grace Pohan (Department of Chemical Engineering, University of Waterloo), Pascale Chevallier (Department of Mining, Metallurgical and Materials Engineering, Laboratory for Biomaterials and Bioengineering, CRC-I, CHU de Québec Research Center, Laval University, and CHU Research Center of Quebec), Diego Mantovani (Department of Mining, Metallurgical and Materials Engineering, Laboratory for Biomaterials and Bioengineering, CRC-I, CHU de Québec Research Center, Laval University, and CHU Research Center of Quebec), Monica Hinds (Department of Biomedical Engineering, Oregon Health and Science University, Portland), Deirdre Anderson (Department of Biomedical Engineering, Oregon Health and Science University, Portland), Evelyn K.F. Yim (Department of Chemical Engineering, University of Waterloo)</i>
11:30 am	114383	Soft Robotics in the Design of Prosthetic Heart Valves <i>Ohlmann, Luke E. (The Heart Valve Performance Laboratory, The University of British Columbia Okanagan), Katul, Ramsey (The Heart Valve Performance Laboratory, The University of British Columbia Okanagan), Mohammadi, Hadi (The Heart Valve Performance Laboratory, The University of British Columbia Okanagan)</i>

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S3. Electrospinning		SUB
Chair: Nima Khadem Mohtaram Co-Chair: Bahram Mirani		
3:00 pm	114402	<p>“On-Demand” Cell-loaded Nanofibrous Hydrogel Scaffolds via Direct Cell Reactive Electrospinning (CRE)</p> <p><i>Fei Xu (McMaster University), Megan Dodd (McMaster University), Heather Sheardown (McMaster University), Todd Hoare (McMaster University)</i></p>
3:15 pm	114422	<p>The development of DNA oligomer-crosslinked hydrogels for sustained release applications</p> <p><i>Wells, Laura A (Queen's University), Turner, D'Arcy T (Queen's University), Baldwin, Emily T (Queen's University)</i></p>
3:30 pm	114299	<p>Investigation of an electrospun, degradable polar hydrophobic ionic polyurethane patch for cardiac tissue regeneration</p> <p><i>Santerre, J Paul (Institute of Biomaterials and Biomedical Engineering; Faculty of Dentistry, University of Toronto), Chan, Jennifer PY (Institute of Biomaterials and Biomedical Engineering, University of Toronto)</i></p>
3:45 pm	114341	<p>Electrospun fiber reinforced conductive polypyrrole membrane for biomedical and energy storage applications</p> <p><i>Cui, Shujun (Universite Laval), Mao, Jifu (Universite Laval), Rouabhia, Mahmoud (Universite Laval), Zhang, Ze (Universite Laval)</i></p>

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S4. Drug Delivery		ECS660
Chair: Paul Santerre Co-Chair: Gad Sabbatier		
3:00 pm	114409	Competitive Affinity Release for Long Term Delivery of Antibodies from Hydrogels* <i>Ryan Wylie (McMaster University), Vincent Huynh (McMaster University)</i> *Featured talk by a junior P.I.
3:15 pm	114309	Emerging Biomaterials for Drug Resistant Disorders* <i>Marya Ahmed (University of Prince Edward Island)</i> *Featured talk by a junior P.I.
3:30 pm	114343	Local Delivery of Chondroitinase ABC Promotes Neuronal Differentiation of Human Induced Pluripotent Stem Cell-Derived Neural Grafts in a Spinal Cord Injury Model <i>Führmann, Tobias (Institute of Biomaterials and Biomedical Engineering, University of Toronto), Anandakumaran, Priya N (Institute of Biomaterials and Biomedical Engineering, University of Toronto), Payne Samantha L (Institute of Biomaterials and Biomedical Engineering, University of Toronto), Pakulska, Malgosia (Institute of Biomaterials and Biomedical Engineering, University of Toronto), Varga, Balazs (Lunenfeld-Tanenbaum Research Institute, Mount Sinai Hospital,), Nagy, Andras (Lunenfeld-Tanenbaum Research Institute, Mount Sinai Hospital,), Tator, Charles (Krembil Neuroscience Centre, University Health Network; Toronto, Canada), Shoichet, Molly S (Institute of Biomaterials and Biomedical Engineering, University of Toronto)</i>
3:45 pm	114296	Magnetically Activated Glass Transition (T_g) Switch Nanocomposites for On-demand Drug Delivery <i>Scott Campbell (Department of Chemical Engineering, McMaster University, Hamilton, Ontario, Canada), Somiraa Said (Department of Chemical Engineering, McMaster University), Angus Lam (Department of Chemical Engineering, McMaster University), Nahiel Preciado (Department of Chemical Engineering, McMaster University), Niels Smeets (Department of Chemical Engineering, McMaster University), Todd Hoare (Department of Chemical Engineering, McMaster University)</i>

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S5. Biomaterials with novel topographies		SUB
Chair: Kathryn Grandfield Co-Chair: Kevin De France		
10:30 am	114358	<p>A novel bioprinted cardiac tissue-on-a-chip with a gelatin and fibrin based bioink laden with human induced pluripotent stem cell derived-cardiomyocytes</p> <p><i>Shweta Anil Kumar (1.Department of Metallurgical, Materials and Biomedical Engineering, University of Texas at El Paso.), Laila Abelseh (2.Biomedical Engineering Program, University of Victoria, Victoria, BC, Canada), Stephanie Willerth (3.Department of Mechanical Engineering, University of Victoria, Victoria, BC, Canada 4.Division of M), Binata Joddar (1.Department of Metallurgical, Materials and Biomedical Engineering, University of Texas at El Paso,)</i></p>
10:45 am	114285	<p>Characterization of macrophage response to surface chemistry using functionalized polystyrene substrates</p> <p><i>Buck, Emily C. (Materials Engineering, McGill University, Montreal, Canada), Lee, Seunghwan (Faculty of Dentistry and Alan Edwards Centre for Research on Pain, McGill University, Montreal, Canada), Cerruti, Marta (Materials Engineering, McGill University, Montreal, Canada), Stone, Laura S (Faculty of Dentistry and Alan Edwards Centre for Research on Pain, McGill University, Montreal, Canada)</i></p>
11:00 am	114345	<p>Effect of Polystyrene and Fluoropolymer Culture Surfaces on Protein Adsorption and Monocyte Cell Fate</p> <p><i>Natalie Fekete (Saint-Gobain Ceramics and Plastics Inc.), Gad Sabbatier (Department of chemical engineering, McGill University), Andreas Wargenau (Department of chemical engineering, McGill University), Sheng Xu (Department of chemical engineering, McGill University), Ariane Beland (Department of chemical engineering, McGill University), Nathalie Tufenkij (Department of chemical engineering, McGill University), Corinne A. Hoesli (Department of chemical engineering, McGill University), Sarah Clark (Saint-Gobain Ceramics and Plastics Inc.)</i></p>
11:15 am	114317	<p>Bioprinting Scaffolds for Tissue Engineering Applications</p> <p><i>Daniel Chen (University of Saskatchewan)</i></p>
11:30 am	114276	<p>Temozolomide-Loaded PLGA Microspheres for Management of Glioblastoma Multiforme</p> <p><i>Hosseinzadeh, Reihaneh (Department of Mechanical Engineering, University of Victoria), Mirani, Bahram (Department of Mechanical Engineering, University of Victoria), Pagan, Erik (Department of Mechanical Engineering, University of Victoria), Pipaon Fernandez, Nahiane (Department of Mechanical Engineering, University of Victoria), Akbari, Mohsen (Department of Mechanical Engineering, University of Victoria)</i></p>

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S6. Wound Healing		ECS660
Chair: Mohsen Akbari Co-Chair: Shadi Taghavi		
10:30 am	114444	Self-propelled particles loaded with tranexamic acid stop bleeding following trauma <i>Baylis, James R (University of British Columbia), Lee, Michael M (University of British Columbia), St. John, Alexander E (University of Washington), Wang, Xu (University of Washington), Simonson, Eric (Centre for Drug Research and Development), Cau, Massimo (University of British Columbia), Kazerooni, Amir (University of British Columbia), Gusti, Viona (Centre for Drug Research and Development), Yoon, Jeff S J (University of British Columbia), Liggins, Richard T (Centre for Drug Research and Development), White, Nathan J (University of Washington), Kastrup, Christian J (University of British Columbia)</i>
10:45 am	114351	FXIIIa-Crosslinkable Synthetic Macromers Improve Stiffness and Adhesion of Hemophilia B Blood Clots under Fibrinolytic Conditions <i>Chan, Karen Y. T. (Michael Smith Laboratories, University of British Columbia), Yong, Alyssa S. M. (Michael Smith Laboratories, University of British Columbia), Kastrup, Christian J. (Michael Smith Laboratories, University of British Columbia)</i>
11:00 am	114389	Promoting Localized Immunosuppression in Organ Transplantation through Polymer-Mediated Cell Surface Engineering <i>Erika Siren (University of British Columbia), Lan Zhou (University of British Columbia), Qiunong Quan (University of British Columbia) Lyann Sim (University of British Columbia), Stephen Withers (University of British Columbia), Caigan Du (University of British Columbia), Jayachandran Kizhakkedathu (University of British Columbia)</i>
11:15 am	114315	Clinically relevant concentration of cobalt can trigger the secretion of pro-inflammatory cytokines by synovial fibroblasts <i>Felipe Y Eltit (University of British Columbia), Manju Sharma (University of British Columbia), Michael E Cox (University of British Columbia), Rizhi Wang (University of British Columbia)</i>
11:30 am	114417	IL-10 Gene Therapy in Primary Endothelial Cells Attenuates Inflammation in Macrophages: Implications for Atherosclerosis <i>DiStasio, Nicholas (McGill University), Arts, Marloes (McGill University), Lehoux, Stéphanie (Lady Davis Institute), Tabrizian, Maryam (McGill University)</i>

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S7. Stem Cells		SUB
Chair: Stephanie Willerth Co-Chair: Erika Siren		
2:45	114395	<p>The Co-Delivery of Syngeneic Adipose-derived Stem/Stromal Cells and Macrophages on Decellularized Adipose Tissue Bioscaffolds for In Vivo Adipose Tissue Regeneration</p> <p><i>Kamoun, Hisham (Department of Biomedical Engineering, The University of Western Ontario, London, Ontario, Canada), Juignet, Laura (Department of Anatomy and Cell Biology, Schulich School of Medicine and Dentistry, The University of), Barreira, Christy (Molecular Medicine Research Laboratories, Robarts Research Institute), Dekaban, Gregory (Department of Microbiology and Immunology, The University of Western Ontario, London, Ontario, Canada), Flynn, Lauren (Department of Chemical and Biochemical Engineering, The University of Western Ontario, London, Ontario)</i></p>
3:00	114377	<p>Integrating Morphogen releasing Microspheres into Human Induced Pluripotent Stem Cell Aggregates with Hydrogel Scaffolds to Induce Neuronal Differentiation</p> <p><i>Styan, Tara C (University of Victoria), Willerth, Stephanie M (University of Victoria), de la Vega, Laura (University of Victoria)</i></p>
3:15	114300	<p>Analysis of the effects of tissue-specific extracellular matrix on the adipogenic differentiation of human adipose-derived stromal cells in culture</p> <p><i>Gillies, Elizabeth R (Chemistry/Chemical and Biochemical Engineering, University of Western Ontario), Flynn, Lauren E (Chemical and Biochemical Engineering/Anatomy and Cell Biology, University of Western Ontario), Shridhar, Arthi (Chemical and Biochemical Engineering, University of Western Ontario)</i></p>
3:30	114378	<p>Influence of micro- and nano-sized topographies on cellular behaviors of human umbilical vein endothelial cells</p> <p><i>Yao, Yuan (Department of Chemical Engineering, University of Waterloo, Waterloo, Ontario, Canada), Goh, Seok Hong (Institute of Materials Research and Engineering, Agency for Science, Technology and Research, Singapore), Kukumberg, Marek (Mechanobiology Institute, National University of Singapore, Singapore), Yim, Evelyn (Department of Chemical Engineering, University of Waterloo, Waterloo, Ontario, Canada)</i></p>
3:45	114349	<p>Engineering Neural Tissue from Human Pluripotent Stem Cells Using Small Molecule Releasing Microspheres</p> <p><i>Laura de la Vega (Department of Mechanical Engineering, University of Victoria, Victoria, BC, Canada), Stephanie M Willerth (Department of Mechanical Engineering, Division of Medical Sciences, University of Victoria, Victoria), Karina Karmirian (Biomedical Sciences Institute, Federal University of Rio de Janeiro, Rio de Janeiro, Brazil)</i></p>

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S8. Biomaterials for Treating Cancer		ECS660
Chair: Vikramaditya G. Yadav Co-Chair: Houman Savoji		
2:45	114373	3D-Printed Based Microwell Arrays for High-Throughput Tumour Spheroid Formation <i>Godau, Brent D (MAsc Student, University of Victoria), Seyfoori, Amir (Visiting PhD Student, University of Victoria; Motamed Cancer Institute), Akbari, Mohsen (Assistant Professor, University of Victoria), Samiei, Ehsan (Post-Doctoral Researcher, University of Victoria), Toyota, Brian (Director, BrainCare BC, BC Cancer Foundation)</i>
3:00	114379	Chemotherapeutic-Loaded Polyphosphate Glass Microspheres for Application in Transarterial Chemoembolization <i>Nix, Hayden P. (Dalhousie University), Momeni, Arash (Dalhousie University), Chevrier, Daniel M. (Dalhousie University), Filiaggi, Mark J. (Dalhousie University)</i>
3:15	114332	Biodistribution of EGFR targeted polymeric micelles in orthotopic colorectal cancer xenografts in mice <i>Soleimani, Amir (Faculty of Pharmacy and Pharmaceutical Sciences, University of Alberta, Canada.), Sadat, Sams (Faculty of Pharmacy and Pharmaceutical Sciences, University of Alberta, Canada.), Vakili, Mohammad (Faculty of Pharmacy and Pharmaceutical Sciences, University of Alberta, Canada.), Lavasanifar, Afsaneh (Faculty of Pharmacy and Pharmaceutical Sciences, University of Alberta, Canada.), Jirik, Frank (Department of Biochemistry and Molecular Biology, University of Calgary, Canada), Shrine, Zahra (Faculty of Medicine and Dentistry, University of Alberta, Canada), Weinfeld, Michael (Faculty of Medicine and Dentistry, University of Alberta, Canada), Martin, Gary (Department of Biochemistry and Molecular Biology, University of Calgary, Canada), Paiva, Igor M (Faculty of Pharmacy and Pharmaceutical Sciences, University of Alberta, Canada.)</i>
3:30	114391	Microfluidic Generation of Core Shell Multicellular Cancer Spheroids <i>Gevorkian, Albert (University of Toronto), Seo, Minseok (University of Toronto), Kumacheva, Eugenia (University of Toronto)</i>
3:45	114413	On the Formation and Morphology of Lipid Nanoparticles Containing Ionizable Cationic Lipids and siRNA <i>Kulkarni, Jayesh (University of British Columbia)</i>

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S9. Biomaterials as grafts		SUB
Chair: Jianyu Li Co-Chair: Tobias Fuehrmann		
10:30 am	114326	Optimal Biomaterials for Tracheal Epithelial Grafts: A Systematic Comparative Analysis <i>Varma, Ratna (Institute of Biomaterials and Biomedical Engineering (IBBME), University of Toronto), Aoki, Fabio G (Latner Thoracic Surgery Research Laboratories, University Health Network (UHN)), Soon, Kayla (Latner Thoracic Surgery Research Laboratories, UHN), Karoubi, Golnaz (IBBME, University of Toronto; Latner Thoracic Surgery Research Laboratories, UHN), Waddell, Thomas K (IBBME, University of Toronto; Latner Thoracic Surgery Research Laboratories, UHN)</i>
10:45 am	114295	Multi-Biofunctional Surface Constructed by Flexible and Conductive Polypyrrole Membranes and Functional Particles <i>Mao Jifu (Université Laval), Zhang Ze (Université Laval), Rouabhia Mahmoud (Université Laval)</i>
11:00 am	114364	Intravital longitudinal imaging of peri-implant endosseous wound healing reveals the role of nanosurfaces in regulating neovascular morphogenesis in vivo <i>Khosravi, Niloufar (Faculty of Dentistry, University of Toronto), Maeda, Azusa (University Health Network, Toronto, ON), DaCosta, Ralph S (University Health Network, Toronto, ON), Davies, John E (Faculty of Dentistry, University of Toronto)</i>
11:15 am	114280	Toll-like receptor 2-mediated NF- κ B activation by damage-associated molecular patterns on biomaterial surfaces <i>McKiel, Laura A. (Department of Chemical Engineering, Queen's University, Kingston, Canada), Fitzpatrick, Lindsay E. (Department of Chemical Engineering, Queen's University, Kingston, Canada)</i>

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S10. Biomaterials for bone regeneration		ECS660
Chair: Rizhi Wong Co-Chair: Patricia Comeau		
10:30 am	114298	Laser-Induced Periodicity to Improve Osseointegration of Titanium <i>Lee, Bryan E.J. (McMaster University), Exir, Hourieh (University of Ottawa), Weck, Arnaud (University of Ottawa), Grandfield, Kathryn (McMaster University)</i>
10:45 am	114376	Ammonia-induced calcium phosphate on culture inserts: A novel assay to study functions of osteoclasts <i>Christina Chen (Department of Materials Engineering, University of British Columbia), Rizhi Wang (Department of Materials Engineering, University of British Columbia)</i>
11:00 am	114414	Evaluating the Effect of Implant Topography and Threads on the Rate and Strength of Osseointegration <i>Liddell, Robert S. (University of Toronto), Ajami, Elnaz (University of Toronto), Li, Yunqing (University of Toronto), Bajenova, Elena (University of Toronto), Yang, Yuan (University of Toronto), Davies, John E. (University of Toronto)</i>
11:15 am	114314	Tribocorrosion and metal release in retrieved Metal-on-Polyethylene total hip implants <i>Wang, Qiong (University of British Columbia), Wang, Rizhi (University of British Columbia)</i>