Canadian Biomaterials Society
Société Canadienne des Biomatériaux

# Quarterly Newsletter

Fall 2014

## Letter from the President: Isabelle Catelas

Dear Colleagues,

Time is flying, and as we are now already well into the fall, it is time to update everyone about what is happening in our Society! I would like to take the opportunity to welcome our President-Elect Dr. Lauren Flynn, as well as our re-elected and new Board Members: Dr. Brian Amsden, Dr. Todd Hoare, Dr. Eli Sone and Dr. Malcolm Xing. Dr. Flynn served the Society as Secretary and Board Member in the past six years. She is therefore very familiar and very engaged with our Society, and I look forward to working with her in her new role. It is a pleasure to see Dr. Amsden and Dr. Hoare continuing to serve our Society as Board Members, and I am delighted to have Dr. Sone and Dr. Xing joining us this year. I am also very pleased to welcome Caroline Loy as the student representative to the Board of Directors. Caroline has already shown her commitment to our Society, being a member of our new Quebec City Student Chapter.

It is truly my great pleasure to work with all these individuals, along with the other Board Members and our student chapters. Our Board of Directors has already had two meetings this fall and I am pleased to announce that two new student chapters (the Ottawa Student Chapter and the Quebec City Student Chapter) have been officially approved by the Board earlier this fall. In the coming year, the Board will continue focusing on promoting student engagement through our student chapters, reinforcing industry relations, expanding our Society through increased memberships, and promoting the representation and active participation of clinicians in the activities of the Society.

I wish everyone a wonderful 2014-2015 academic year and look forward to working with all of you towards the success of our Society!

Isabelle

## Introducing our President-Elect: Lauren Flynn

Dr. Lauren Flynn is an Associate Professor in the Faculty of Engineering and the Schulich School of Medicine & Dentistry at Western University. Her research interests focus on cell-based tissue engineering approaches with adipose-derived stromal cells (ASCs) and naturally-derived bioscaffolds for applications in soft connective tissue regeneration and wound healing. She is very pleased to be able to continue her involvement in the CBS board and is looking forward to playing an active role in the leadership of the Society, helping to foster communications, collaborations and a sense of community as we head towards the upcoming World Biomaterials Congress in Montreal.

## Introducing our re-elected Board Member: Brian Amsden

Dr. Brian Amsden is a Professor in the Department of Chemical Engineering, Queen's University. His research includes the development of biodegradable elastomers, hydrogels, and low viscosity hydrophobic polymers for the local delivery of drugs and stem cells, and as scaffolds for soft connective tissue regeneration. He has been active in the CBS Board as both a member and as a Past-President, and is looking forward to continuing to serve the CBS Membership over the next two years.

## Introducing our re-elected Board Member: Todd Hoare

Dr. Todd Hoare is an Associate Professor and Distinguished Engineering Fellow in the Department of Chemical Engineering at McMaster University. Dr. Hoare specializes in engineering hydrogels and microgels with targeted “smart” properties for drug delivery and tissue engineering applications. His work has been profiled by *Popular Science*, *Wired*, and *BBC* for its potential in solving clinical challenges through innovative biomaterials design. This is Dr. Hoare’s third term on the CBS Board of Directors, the first two of which were focused on revitalizing the CBS website. Dr. Hoare is the Chair of the 2015 CBS Annual Meeting in Toronto and looks forward to seeing you all there in May!

## Introducing our new Board Member: Eli Sone

Dr. Eli Sone joined the University of Toronto in 2006 where he is currently an Associate Professor in the

Institute of Biomaterials & Biomedical Engineering, with cross appointments to Materials Science and Dentistry. His lab works in the area of composite biological materials, with a focus on protein-mineral interactions in biomineralization and bioadhesion. He is looking forward to serving for the first time on the CBS Board of Directors.

## Introducing our new Board Member: Malcolm Xing

Dr. Malcolm Xing is an Assistant Professor in the Faculty of Engineering and Medicine and PI in Manitoba Institute of Child Health. His research interests include biopolymer based nanoparticles for drug delivery, hydrogel and biosensors. It is his first time on the CBS Board of Directors and he is looking forward to servicing for the CBS.

## Introducing our new student representative to the Board: Caroline Loy

Caroline Loy is a PhD student in Laval University in Québec in collaboration with the University of British Columbia in Vancouver. She is a member of the new Quebec City Student chapter of the CBS. Her research focuses on the design, the development and the validation of a co-culture system that promote vascular tissue regeneration. It is expected to produce an engineered vascular tissue, providing a valid i*n vitro* model for further studies in vascular tissue engineering and regeneration.

## Renew your CBS Membership!

It's that time of the year when you need to renew your membership. The whole process can be completed online by following this link:

http://www.biomaterials.ca/#!/membership/join

## Save the date! The next Annual Meeting of the Canadian Biomaterials Society will be held on the University of Toronto campus, May 27-30, 2015!

The meeting will include the following:

- *free* access to the May 27 program at the Canadian Society for Pharmaceutical Sciences/Canadian Chapter of the Controlled Release Society conference, focused on drug delivery applications of biomaterials.
- Lunch and learn sessions with leading Canadian and international scientists across all biomaterials fields.
- Internationally renowned keynote speakers, including Kinam Park, Todd McDevitt, and others to be announced.
- CME accreditation for clinician continuing education.

## Keep an eye on the Call for Abstracts next May for the World Biomaterials Congress (WBC2016) to be held in Montreal, May 17-22, 2016!

## Recap of the CBS 2014 Annual Meeting:

Dr. Mark Filiaggi and Dalhousie University hosted a wonderful Annual Meeting of the Canadian Biomaterials Society in Halifax this past June. Overall 120 people attended the meeting along with 4 industrial partners and 3 academic partners. Thanks to the Canadian Institutes of Health Research and all other sponsors for their support. Also, congratulations to the following student travel and presentation award winners!

***Travel Awards***

*Emilia Bakaic, McMaster University*
Modular and Injectable Poly(Oligoethylene Glycol methacrylate)-Based Hydrogels With Tunable Protein and Cell Interactions

*Kyle Battiston, University of Toronto*
Effect of Polar, Hydrophobic, and Ionic Polyurethane Character on Adsorbed IgG-Mediated Monocyte Activation

*Kathryne Brockman, University of Toronto*
Blood Compatibility of Degradable Polar Hydrophobic Ionic Polyurethane (D-PHI) Designed for Blood Contact Applications

*Jane Cheung, University of Toronto*
Conditions for the Co-culture of Human Gingival Fibroblasts and Vascular Endothelial Cells (HUVECs) in a Perfused Polyurethane (D-PHI) Scaffold

*Patricia Comeau, Dalhousie University*
Incorporating Strontium Improves Therapeutic Potential of Calcium Polyphosphate Delivery Matrices for Osteomyelitis Treatment

*Felipe Eltit, University of British Columbia*
Histological Analysis of Pseudotumors Associated with Metal-on-Metal Hip Implants

*Caroline Loy, Université Laval*
Tri-Culture of Vascular Cells Promotes Vascular Tissue Remodeling

*Juliana Valencia-Serna, University of Alberta*
Lipid Modified Polymers as BCR-ABL siRNA Carriers for Growth Arrest in Chronic Myeloid Leukemia Cells

*Meghan Wright, University of Toronto*
In Vitro Degradation and Physical Characterization of Antimicrobial Electrospun Scaffolds with Aligned Fibers

***Presentation awards (oral presentation and posters)***

*Alexander Baker, University of Toronto*
3D Hyaluronan Hydrogels as Matrices for Spheroid Formation

*Adam Brown, Dalhousie University*
Does Collagen Crosslinking in Ageing and Diabetes Modulate Overload Damage to Tendon Collagen?

*Gregor Doerdelmann, Univerity of Duisburg-Essen*
pH-Responsive Calcium Phosphate-Polymer Nanoparticles as a Drug Delivery System in Gene Therapy

*Nima Khadem Mohtaram, University of Victoria*
Melt Electrospun Microfiber Scaffolds with Novel Architecture for Neuronal Differentiation of Human Induced Pluripotent Stem Cells

*Arash Hanifi, University of Toronto*
Novel Adhesive Proteins from Freshwater Zebra Mussels

*Yan Mei, University of British Columbia*
Investigation on the Design and Development of Novel Antithrombotic and Anti-adhesion Coatings for Cardiovascular Applications

*Arash Momeni, Dalhousie University*
In Vitro Degradation of Polyphosphate Gels

*Hyunjin Park, Université Laval*
Electrical Stimulation Through Conductive PPy-PLLA Material Promoted Fibroblast Interacting with Keratinocytes Generating Better Organized Human Skin Equivalent

*Tim Tian Han, Queen's University*
Adipose-Derived Stem Cells Enhance the Angiogenic and Adipogenic Potential of Decellularized Adipose Tissue *In Vivo*

*Yinan Wang, University of Alberta*
Probing Bacterium-Substratum interactions by Quartz Crystal Microbalance with Dissipation (QCM-D)

*Meghan Wright, University of Toronto*
In Vitro Degradation and Physical Characterization of Antimicrobial Electrospun Scaffolds with Aligned Fibers

## In Memoriam of Dr. Dennis Smith

**MSc PhD DSc DSc (h.c.) DSc (h.c.) DSc (h.c.) LL.D (h.c.) F.R.S.Can.**

**F.I.C.D. , F.R.C.D.C. , F.R.S.C.(U.K.) F.B.S.E. C.Chem.**

## Written by Dr. Robert Pillar

**Institute of Biomaterials and Biomedical Engineering and Faculty of Dentistry, University of Toronto**

Dr. Dennis Smith passed away this year. He was honoured with many distinctions through his years in academia as attested to by the impressive honours and degrees associated with his name as noted above. The present account is but a brief summary of the outstanding contribution that Dennis made in the formation and growth of our Canadian Biomaterials Society.

That story had its beginning c.a. 1969 when Dr Smith immigrated to Canada from his native England and took up the position of Head of Biomaterials in the Faculty of Dentistry at the University of Toronto. By that time, he had established his reputation as a leader in developing and characterizing dental biomaterials, specifically polycarboxylate dental restoratives through his research at London and Manchester Universities. A fortuitous association with Dr John Charnley, an orthopaedic surgeon in the Manchester environs, resulted in Dennis's foray into the

orthopaedic biomaterials world through his introducing Charnley, (later to become Sir John Charnley for his contributions to hip replacement surgery), to the use of in situ setting acrylics (bone cement - polymethylmethacrylate) for hip implant fixation. This interaction with others (in this instance, an orthopaedic surgeon) was typical of Dr Smith's approach to research and, not surprisingly, resulted in his close association with others involved in biomaterials research after arriving in the Toronto area. Within a short period after taking up his new position, Dennis along with five others established a local (Toronto) biomaterials interest group that met roughly on a monthly basis to share research experiences in addition to an enjoyable social outing. One memorable evening's presentation was by Dr Smith with a slide show on his Around the World in 80 (roughly) Days travels; (nothing to do with biomaterials but attracting a large audience for the anticipated entertainment of Dr Smith's presentation and the socializing to follow)! So it was not all business but rather a means for us all to get to know each other - as well as to expand our biomaterials knowledge base. They were enjoyable times very much due to Dennis's leadership and bonhomie. The memory of Dr Smith sitting and seemingly nodding off in the first row during a guest speaker's presentation, only to open up the questioning with some deeply perceptive question is forever engraved in the minds of many of us who attended those early meetings. Those early get-togethers quickly attracted researchers from McMaster and Queen's Universities where biomaterials-related research was ongoing. The activity grew to include researchers from Montreal (Ecole Polytechnique and McGill), and Ottawa so that by the early 1970s a 'national' meeting and founding of the Canadian Biomaterials Society with Dr Smith as its First President came to be.

As its First President and a recognized world leader in the biomaterials community, the CBS/SBC rapidly gained a reputation for members undertaking high quality research. Dr Smith continued his support of and contributions to the society with undeniably the high point being the hosting under his Presidency of the Fifth World Biomaterials Congress in Toronto in 1996. This was a mammoth undertaking requiring all those individuals involved in biomaterials research primarily within the Southern Ontario region to chip in. It all came together magnificently with Dennis being the designated biomaterials statesman to lead the undertaking. Of particular note, due to the contribution made by many but held together ('adhesively-bonded' so to say in reference to his early research activities) through Dr Smith's leadership, was the fact that our relatively small (in numbers) society had pulled it off! Not only did this cement our standing in the eyes of the biomaterials world community as a leading area for biomaterials research activity but it resulted in establishing a financially sound base for present and future CBS undertakings.

It is obvious that the achievements of the Canadian Biomaterials Society are the result of many contributing time and effort to its success. However, it had to have a beginning and Dr Dennis Smith's leadership to this end is undeniable. We, as a society owe him much. His passing away this past year is a sad event. Those who knew him at a personal level (myself included) lost not only a leading member of the biomaterials community but also a true friend. And that perhaps is the legacy that Dennis would like to have left with the Canadian Biomaterials Society. Continue to make contributions through our research efforts to the benefit of society as a whole but do so with a strong sense of camaraderie and good fellowship.

***CBS Newsletter editorial board***

Isabelle Catelas

Lauren Flynn

Stephanie Willerth

Please contact willerth@uvic.ca if you want to contribute to our next CBS Newsletter.

***www.biomaterials.ca***