

Welcome to the
Tenth International
Frontiers in biomedical Polymers Symposium
Vancouver Canada, June 3-5

LOCAL ORGANIZING COMMITTEE

Sasha Kabanov, Cochair
Ray Ottenbrite, Cochair
Donald Brooks, Univ. BC Liaison
Kathryn Ulrich, Academic Liaison
Art Coury, Industrial Liaison

FBPS INTERNATIONAL COMMITTEE

Ray Ottenbrite, Meeting Chair
Claudio Migliaresi, Italy
Daniel Cohn, Israel
Emo Chiellini, Italy
Julio Roman, Spain
Rui Reis, Portugal
Teruo Okano, Japan

Coordinators

Daria Alakhova (Filonova)
Jubina Bergu

Monday June 3

Location: Bunchanan A-Building, Room A103 signs will be up.

8:00 AM – 8:15 AM **Opening Remarks by Ray Ottenbrite and Sasha Kabanov**

Session 1 **Biomedical Polymers and Polymer Drug Systems**

Session chair Teruo Okano

8:15 AM – 8:45 AM **Keynote: “Engineering "Smart" Biomedical Systems”**
Daniel Cohn (The Hebrew University of Jerusalem, Israel)

8:45 AM – 9:15 AM **Keynote: "Polymeric Micelles for Drug delivery”**
Alexander Kabanov (UNC Chapel Hill, USA)

9:15 AM – 9:35 AM **“N-Halamine Polymers for Use in Antimicrobial Applications”**
Dave Worley (Auburn University, USA)

9:35 AM – 9:55 AM **“PCL Nano-Particles Loaded with Menthol to Improve
Compression Stockings Comfort”**
Raffaella Mossotti (Institute for Macromolecular Studies, Italy)

9:55 AM – 10:15 AM **“Block Copolymers of Poly(amino acid)s – a Platform for
Biomedical Materials”**
Carmen Scholz (University of Alabama, USA)

10:15 AM - 10:45 AM **Coffee Break**
Session chair Carmen Scholz

10:45 AM – 11:05 AM **“Biomaterials with Sustainable Anti-fouling Surfaces”**
Ronald A. Siegel (University of Minnesota, Minneapolis, USA)

11:05 AM – 11:35 AM **Keynote: - "Strategies and Technologies for Improved
Convection Enhanced Delivery of Nanoparticulate
Therapeutics in Brain"**
William C. Broaddus, (Virginia Commonwealth University, USA)

11:35 AM – 12:05 AM **Keynote: “Polymers Developed as Biomaterials from First
Principles: Successes and Future Promise.”**
Arthur Coury (Genzyme, USA)

12:05 AM-1:30 PM **Lunch**

Session 2a Tissue Engineering & Regenerative biomaterials

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| Session chair | <i>Jonathan Fitzsimmons</i> |
| 1:30 PM – 2:00 PM | Keynote: “Biomaterials for Ophthalmic and Wound Care” <i>Joseph C. Salamone</i> , (Rochal Industries, USA) |
| 2:00 PM – 2:20 PM | “Biomaterials Technology Necessary for Regeneration Therapy and Research” <i>Yasuhiko Tabata</i> (Kyoto University, Japan) |
| 2:20 PM – 2:40 PM | "Novel Approaches to Polymeric Scaffolds for Tissue Regeneration: Hybridizing and Biomimicking" <i>Naoki Kawazoe</i> (Tissue Regeneration Materials Unit, Tsukuba, Japan) |
| 2:40 PM – 3:00 PM | “Scaffold Design for the Reduction of Host Tissue Response for Regenerative Medicine.” <i>Gilson Khang</i> (Chungbuk University, Korea) |
| 3:00 PM – 3:30 PM | Coffee Break |
| Session chair | <i>Kazunari Akiyoshi</i> |
| 3:30 PM – 4:00 PM | Keynote: "Intelligent Surfaces for 3D Vascularized Layering Cell Sheets Tissue" <i>Teruo Okano</i> (Tokyo Women’s Medical University, Japan) |
| 4:00 PM – 4:30 PM | Keynote: “Natural-Derived Polymers: an Option for Regenerative Scaffold Fabrication” <i>Antonella Motta</i> (University of Trento, Italy) |
| 4:30 PM – 4:50 PM | “Cell Sheet-Based Regenerative Medicine: the Current Status and Future of Clinical Applications” <i>Masayuki Yamato</i> (Tokyo Women’s Medical University, Japan) |
| 6:00 PM – 8:00 PM | Welcoming Reception Fort Camp Lounge |

Tuesday June 4

Location: Bunchanan A Building, Room A102

Session 2b Tissue Engineering & Regenerative Biomaterials

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| Session chair | <i>João Mano</i> |
| 8:00 AM – 8:30 PM | Keynote: “Choline Phosphate-decorated Polymers as Universal Cell Adhesives” <i>Donald Brooks</i> , (University of British Columbia, Canada) |
| 8:30 AM – 9:00 AM | Keynote: "Cell Assembling Techniques for Complex Organ Manufacturing” <i>Xaiohong Wang</i> (Tsinghua University, Beijing, China) |
| 9:00 AM – 9:20 AM | “Design Of Thermo-Responsive Cell Culture Surfaces for Regulation of Affinity Binding by Temperature Changes” <i>Jun Kobayashi</i> (Tokyo Women's Medical University, Japan) |
| 9:20 AM – 9:40 AM | "Biomimetic Scaffolds for Ligament Tissue Engineering" <i>Brian Amsden</i> (Queen’s University, Canada) |
| 9:40 AM – 10:00 AM | “Design and Development of a Synthetic Universal Heparin Reversal Agent” <i>Jayachandran N. Kizhakkedathu</i> (University of British Columbia, Canada) |
| 10:00 AM – 10:30 AM | Coffee Break |
| Session chair | <i>Yasuo Suda</i> |
| 10:30 AM – 10:50 AM | "Melt Electrospinning Writing: An Emerging Technique to Fabricate Three-Dimensional Structures for Tissue Engineering" <i>Paul Dalton</i> (Queensland University of Technology, Australia) |

- 10:50 AM – 11:20 AM **Keynote: “Learning with Nature to Produce New Polymeric Substrates for Tissue Engineering Applications”**
João Mano (University of Minho, Portugal)
- 11:20 AM – 11:40 AM **“LbL Assemblies using van der Waals or Affinity Interaction and Their Application for Fabrication of Three-dimensional Tissue Models”**
Mitsuru Akashi (Osaka University, Osaka, Japan)
- 11:40 AM – 12:00 AM **“Micro Encapsulation of Cells in Alginate Through an Electro-Hydrodynamic Process”**
Claudio Migliaresi (University of Trento, Italy)
- 12:00 PM – 1:00 PM **Lunch**
- Session 3** **Nanotechnology and Biomedical Applications**
- Session chair *Claudio Migliaresi*
- 1:00 PM – 1:30 PM **Keynote: “Sugar-Chain Immobilized Nano-Particles for Clinical Diagnosis of HIV/Flu”**
Yasuo Suda (Kagoshima University; SUDx-Biotec Corp., Japan)
- 1:30 PM – 2:00 PM **Keynote: “Designing Next Generation Carriers for Vaccines and Therapeutics”**
Joseph DeSimone (UNC at Chapel Hill, USA)
- 2:00 PM – 2:30 PM **Keynote: “Recent Advances in Contact Lens Materials”**
Jay Kunzler (Bausch & Lomb Research, Rochester, USA)
- 2:30 PM – 2:50 PM **“Health and Safety via Surface Modification of Polyurethanes”**
Kenneth Wynne (Virginia Commonwealth University, USA)
- 2:50 PM – 3:20 PM **Coffee Break**

Session 4 Bioassembly systems for Biomedical Applications, Biosensors and Stimuli-Responsive Polymers

- Session chair *Kenneth Wynne*
- 3:20 PM – 3:40 PM **“Morphological Control in Aggregates of Polymer-Tethered Gold Nanorods with Potential Biomedical Applications”**
Adi Eisenberg (McGill University, Montreal, Canada)
- 3:40 PM – 4:00 PM **“Shape-Memory Surfaces for Dynamic Cell Culture”**
Mitsuhiro Ebara (National Institute for Materials Science (NIMS), Tsukuba, JAPAN)
- 4:00 PM – 4:20 PM **“Biosensing Using DNA-Carrying Nanoparticles”**
Mizuo Maeda (RIKEN Institute, Japan)
- 5:00 PM – 7:00 PM** **Guided tour of the Museum of Anthropology**
7:00 PM -- 9:00 PM **Après La Musée Repas**
Fort Camp Lounge

Wednesday June 5

Location: Bunchanan A Building, Room A103

Session 5 Targeted and Controlled Drug Delivery Systems

- Session chair *Mitsuru Akashi*
- 8:00 AM – 8:30 AM **Keynote: “Complex Polymer-Drug Conjugates for Active Tumor Targeting”**
Karel Ulbrich (Institute of Macromolecules, Prague, Czech)
- 8:30 AM – 8:50 AM **“Targeting Fluorescent Nanoprobes to Metastatic And Autochthonous Tumors For Ultrasensitive Detection For Treatment Based On EPR Effect”**
Hiroshi Maeda (Sojo University, Kumamoto, Japan)
- 8:50 AM – 9:10 AM **“Radioisotopes for Polymers: the Development of a Targeting Polymer for Ac-225 Radioimmunotherapy”**
Jonathan Fitzsimmons (Brookhaven National Laboratory, USA)

- 9:10 AM – 9:30 AM **“Immunomodulation with HPMA COPOLYMER-BOUND CYTOSTATICS”**
Blanka Rihova (Institute of Microbiology, Prague, Czech)
- 9:30 AM – 9:50 AM **“Advanced Nanogels for Intracellular Delivery of Biomacromolecules”**
Cornelus F. van Nostrum, (Utrecht University, The Netherlands)
- 9:50 AM – 10:10 AM **“Change of the Enzyme Reaction Rate in Magnetic Nanosuspensions by Non-Heating Magnetic Field”**
Marina Sokolsky (Eshelman School of Pharmacy, UNC, USA)
- 10:10 AM – 10:40 AM **Coffee Break**
Session chair *Jay Kunzler*
- 10:40 AM – 11:10 AM **Keynote: “Ionic Nanogels for Drug Delivery in Cancer”**
Tatiana Bronich (Unniversity of Nebraska Medical Center, Omaha, USA)
- 11:10 AM – 11:30 AM **“Bio-nanotransporter by Polysaccharide Nanogel Engineering for Vaccines and Immunotherapy”**
Kazunari Akiyoshi (, Kyoto University, Kyoto, Japan)
- 11:30 AM – 11:50 AM **“Poly (amino acid)-stabilized Magnetic Nanoclusters for Stimuli-responsive Drug Delivery”**
Hemant Vishwasrao (University of Nebraska, UNC, USA)
- 11:50 AM – 12:40 PM **Lunch**
- Session 6**
Session chair **Tissue Engineering & Regenerative Biomaterials**
Jayachandran N. Kizhakkedathu
- 12:40 PM – 1:00 PM **“Polymers for Functionalization of Titanium Implant Surfaces”**
Henning Menzel (Technische Universität Braunschweig, Hannover, Germany)

1:00 PM – 1:20 PM **“Thermoresponsive Cationic Copolymer Brush on Monolithic Silica Rods for High-Speed Separation of Acid Biomolecules”**
Kenichi Nagase (Tokyo Women’s Medical University, Japan)

1:20 PM – 1:40 PM **“Exploring Innovative Strategies to Regenerate Skin: Biomaterials and Stem Cells as Key Players”**
Alexandra Marques (University of Minho, Portugal)

1:40 PM – 2:00 PM **“Collagen Modified Single-walled Carbon Nanotubes for Improved Dispersibility and Cellular Uptake”**
Hongli Mao (National Institute for Materials Science, Japan)

2:00 PM – 2:20 PM **“International Collaboration of Cell Sheet Engineering for Medical Innovation”**
Mime Egami (Tokyo Women's Medical University)

2:20 PM – 2:50 PM **Coffee Break**

Session 7 **Biomimetic and Natural Biomaterials**
Session chairs *Karel Ulbrich*

2:50 PM – 3:20 PM **Keynote: “The Art of Falling Apart: Controlled Depolymerization of Biomaterials”**
Adah Almutairi (University of California San Diego, USA)

3:20 PM – 3:40 PM **“Keratin Biomaterials from Wool Fibrillation”**
Alessia Patrucco (Institute for Macromolecular Studies, Italy)

3:40 PM – 4:00 PM **“Elasticity of PAAm- Kappa Carrageenan Composites”**
Gülşen Evingür (Piri Reis University, İstanbul, Turkey)

4:00 AM – 4:20 PM **“Silk as Natural Biomedical Materials for Regenerative Medicine”**
S.C. Kundu (Indian Institute of Technology, Kharagpur, India)

4:30 PM **Closing Remarks**